



# ESTIMATION OF SURPLUS CROP RESIDUES IN INDIA FOR BIOFUEL PRODUCTION

**Joint Report of TIFAC & IARI**

October, 2018



**Technology Information, Forecasting & Assessment Council (TIFAC),  
New Delhi**

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*Technology Information, Forecasting and Assessment Council (TIFAC)*, an autonomous organization under the Department of Science and Technology (DST) was established in 1988. TIFAC is a think tank within government setup which looks up to technologies on the horizon, assesses the technology trajectories and supports technology innovation in select areas of national importance.

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# Estimation of Surplus Crop Residues in India for Biofuel Production

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Technology Information, Forecasting & Assessment Council (TIFAC), an autonomous organisation under the Department of Science & Technology (DST), New Delhi was established in 1998.

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This report and its findings are based on a survey carried out by IARI, New Delhi, under a consultancy project, with the objective of creating a database on availability of biomass crop residues and bioethanol potential on PAN India basis towards long-term energy security of the country.

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सत्यमेव जयते

प्रो. आशुतोष शर्मा  
Prof. Ashutosh Sharma



### MESSAGE

Towards sustaining high trajectory economic growth, India faces an ever-increasing energy requirement. To meet the demand, our country needs a wide diversified energy basket.

India is bestowed with large quantity of biomass which is a source of renewable energy and can play a decisive role in diversifying our energy system with low-carbon fuel. The largely unutilised agricultural residues in our country are a versatile source for sustainable fuels for transportation, heat and electricity as well as for production of bio-based materials and chemicals.

Integrating appropriate technologies for production of biofuel from available biomass is the need of the day. In a larger perspective, development of an overall strategy for utilization of agricultural residues is critical to meeting India's growing energy needs.

TIFAC has taken a significant step by carrying out a comprehensive, country-wide district wise database of available surplus residues of select eleven crops. This has been brought out in the form of a report which will be a source of important information for India and it fills a critical gap in the bioenergy sector. The study has also estimated district-wise theoretical bioethanol production potential of surplus crop biomass generated by each crop, in each season, and will help to establish biofuel feasibility. This would improve understanding of concerned stakeholders from industry, R&D institutions and government towards estimating the realistic potential of biomass and synergise efforts for production of biofuel.

TIFAC's initiative will go a long way in catalyzing industrial activities, R&D efforts and in helping policymakers in taking appropriate decisions.

  
(Ashutosh Sharma)

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**Ramakrishna Y B**

Chairman

Study Steering Committee on  
Biomass availability-TIFAC



**MESSAGE**

I am delighted to learn that the report on surplus biomass from 11 major agricultural residues from across India is now being published. The Government of India emphasis on Bio energy towards achieving energy self reliance, employment generation and development of rural entrepreneurship could be achieved through scientific aggregation, storage, transport and mapping appropriate conversion technology of humongous surplus agricultural residues which are burnt on farmers field. This report will definitely fill the major lacunae in realizing the Bio energy potential in India.

As the Chairman of the Study Steering Committee, I have the utmost satisfaction of having delivered. This report will further be strengthened by the spatial data that will be provided by NRSC, Hyderabad and the Biomass characterization studies initiated by TIFAC-DST. The next logical step would be hosting such useful data on a dynamic portal which would be a very useful tool for flooding investment into the Bio Energy sector.

I take this opportunity to thank all the Hon. Members of the Study Steering Committee, Scientists from ICAR and last but not the least the TIFAC-DST team for instituting this study and extending fullest cooperation for successful completion of the study.

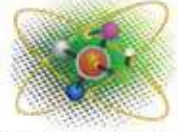
A handwritten signature in black ink, appearing to be 'R. Y. B.', written over a dotted line.

(Ramakrishna Y B)

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**Dr. Anil Kakodkar**  
**Chairman-TIFAC**



**FOREWORD**

Hydrocarbons constitute nearly a third of India's energy supply basket. Nearly three fourth of our hydrocarbon needs are imported. In case of crude oil, the import fraction is nearly 80% and is expected to rise further even as the consumption in the country grows. Our continuously growing energy import bill is thus a cause for a serious concern. Hydrocarbon supply is also a major energy security concern for the country.

Bio-fuels have been identified as an important potential supplement to petrol and diesel that could augment our energy resource as well as add to efficiency and reduce emissions. With the evolution of second generation bio-fuel technologies that include bio as well as thermal processes, a much larger biomass resource can now be accessed as compared to what was possible so far. This would significantly augment the bio-fuel potential in the country.

Surplus crop residue represents a key biomass/energy resource in this context. A good part of this resource gets burnt causing wide spread air quality degradation. Farmers resort to this practice to quickly get the land released for the next crop. High labour cost involved in clearing the field of the crop residue is also another driver to burning of this important resource. Emergence of 2G technology has the potential to change all that. It is now possible to leverage most of surplus crop residue to produce bio-ethanol/drop-in fuels in substantial quantities. Government has recently announced a viability gap funding scheme for such bio-refineries. Sustainable operation of these facilities would need adequate supplies of biomass in a stable manner. Further, planning for the growth of bio-ethanol/other bio fuel production in the country would require a credible assessment of temporal and spatial availability of various types of biomass in different parts of the country. It was with this intent that this study was launched by TIFAC.

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आप हमसे हिन्दी में भी पत्र व्यवहार कर सकते हैं।



I am happy that this study is now completed and a comprehensive data base on 'Estimation of surplus crop residues in India for bio-fuel production' is now available. The study brings out that the bio-fuel potential of surplus crop residue is well in excess of current petrol consumption and thus could well be an important substitute for crude import for this purpose.

We should also recognise that development and integration of biomass collection, pre-processing and supply chain with the bio-refineries would be a crucial necessity. This could also make a very significant positive impact on rural economy. This data base would serve an important need of stakeholders involved in this endeavour even as it would help the planning process for deployment of bio-refineries.

With 1G ethanol, often a question on food v/s energy conflict in the context of land use gets raised as some times it involves use of crops that otherwise are useful as food. 2G technology has altered that picture eliminating this conflict even as a much higher energy potential gets established.

This report focuses on 'Surplus crop residue' after accounting for other uses such as animal fodder, soil amendment, fertiliser etc. This is an important aspect that assures us of significant energy potential that is unlikely to disturb any other balance while enriching the environment through elimination of particulate matter in air.

I am happy that TIFAC, being a technology think-tank, has taken up the responsibility of generating this critical knowledge base and sensitizing the policymakers, R&D community and industry. With the active participation of key stakeholders such as MoPNG, DST, DBT, MNRE, TERI, CSIR-IIP & NIIST, OMCs and Indian Agricultural Research Institute (IARI), TIFAC has been able to come up with a comprehensive Biomass Assessment report. The information contained in this study includes data collected through an intensive primary and secondary survey by coordinating with authenticated sources of central, state-level departments and agencies. The set of information collected and compiled included selected eleven crops generation district-wise, crop residues estimation, surplus crop residues and their bioethanol production potential on a PAN India basis.

I would like to thank everyone involved in this important effort. I hope this report would fill a critical gap in the biomass and bioenergy sector in India.



**[Anil Kakodkar]**



# PREAMBLE

With rapid development and consequent spiraling energy requirement, it becomes imperative for our country to explore, assess and develop alternate sources of energy. This assumes much more critical significance given the fact that more than 80% of our energy requirements for transport are met through imported fossil fuels with vastly increasing carbon footprints. Thus the efforts are directed towards not only indigenous but also greener resources.

Biomass, is one such alternate source of energy, which on one hand is abundantly available in our Country and also it is renewable and free from net CO<sub>2</sub> (carbon dioxide) emissions. As a natural resource, biomass, traditionally, had been playing key role in generation of energy but with dominance of coal and petroleum products in the industrial age there has been a gradual fall in biomass usage.

Though, biomass contributes over a third of primary energy in India, its usage is currently restricted to rural households for cooking and water heating, as well as by traditional and artisan industries. The real potential of biomass, as a primary source of energy would be realized when technologically and commercially, its usage as transport fuel would be facilitated.

For Ethanol Blending Program (EBP), which aims at 20 per cent ethanol blending in petrol by 2030 and also towards achieving the target set by Prime Minister to reduce energy imports by 10 per cent by 2022, the utilization of biomass residues for production of biofuels assumes importance. Ethanol from lignocellulosic biomass has advantages in terms of non-food crop of renewable nature, reduced GHG, recyclability of nutrients, etc. As compared to fossil fuel, most of the biofuels are environmental friendly with the emission of very little sulfur and non-toxic chemicals. Biofuel production also offers a solution to waste management, by converting waste into usable energy.

For setting up, biomass based ethanol manufacturing facilities, it is essential that the biomass availability is mapped on PAN India basis. Further, it is also important to link the available biomass with appropriate conversion technologies.

Towards this goal, TIFAC took initiative earlier jointly with CSIR- National Institute for Interdisciplinary Science & Technology (NIIST), Thiruvananthapuram for mapping biomass availability, district wise, of twenty-four crops namely, *rice, wheat, sugarcane, maize, cotton, chilli, jowar, ragi, bajra, pulses (gram, tur, lentil), oilseeds (groundnut, mustard, sesame, safflower, linseed, niger seed, castor seed, soybean and sunflower), forestry biomass (bamboo, pine needles), aquatic biomass (water hyacinth)*. The study was based on estimation of the quantity of crops produced, crop residues generated and their existing utilization patterns/practices in the area. Fruits, vegetables and plantation crops were not considered under the survey, as their volumes are low compared to food grain crops.

Towards follow up of an earlier aforesaid study report brought out in 2009, TIFAC now jointly with IARI initiated the updated study on 'estimation of crop residues in India for biofuels production'.

A total of 662 districts have been covered under the study. The data in this report covered production statistics from 2010-11 to 2015-16 (based on data availability and accessibility) for selected crops. Eleven crops namely, *rice, wheat, maize, sugarcane, cotton, pulses (Gram & Tur) and oilseed (groundnut, mustard, soybean and castor)* were identified and selection of crops was based on the earlier TIFAC study which was based on the acreage and total production across the country.

This study has estimated that the total dry biomass of 682.61 Million Tons (MT) was generated annually from the selected eleven crops in three seasons. The rice straw & husk (33%), wheat straw (22%), sugarcane tops and bagasse (17%) and cotton (8%) account for almost 80% of the residue by the selected

crops. Rest 20% biomass, was generated from maize tur, gram, soybean, rapeseed-mustard, groundnut and castor crops. The top five states in terms of biomass generation are Uttar Pradesh, Maharashtra, Madhya Pradesh, Punjab and Gujarat. It was estimated that annually 178 MT is surplus crop residue available in India; this being 26 % of overall identified crop residue generation.

The study has also linked the available surplus biomass with bioethanol production potential in the country which ranged between 0.06 ML and 9941 ML across the States. The estimated bioethanol production potential from this surplus biomass is 51.35 Billion Litres (BL) annually. It is worthwhile to note that the current demand of gasoline in our country is 35.5 BL (in 2017-18 as per PPAC report). Thus the annual bioethanol production potential from the surplus crop residues can significantly increase the biofuel in the country thereby contributing towards the blending of fossil fuel.

This report is a result of efforts from IARI scientists Dr Niveta Jain, Dr V K Sehgal and the study was guided by a Steering Committee consisting of eminent experts from various concerned Departments, Academia and Institutes and Industry.

It is expected that this report will play a crucial role as a roadmap and a source of reference for the policy makers, industry as well as the researchers. The report can also act as a precursor to national level programmes for promotion of bioethanol as a clean source of fuel from second generation biomass, contributing towards climate change mitigation efforts and strengthening of the rural economy.

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# EXECUTIVE SUMMARY

India is an agrarian country having about 140 million hectare of net sown area with large diversity in type and productivity of crops. Large amount of crop residues are also generated as part of crop production process. These residues are mainly used for animal feed, soil mulch and manure, thatching for rural homes and fuel for domestic and industrial use and thus, are of tremendous value to farmers. However, a large portion of the crop residue is burned on-farm primarily to clear the field from straw and stubble of the preceding crop for sowing of the succeeding crop. The problem of on-farm burning of crop residues is intensifying in recent years, mainly in the IGP region due to less time between two crops, unavailability of labour, high cost in removing the residues by conventional methods and use of combine harvesters without straw spreading mechanism. Besides, it is roughly estimated that about one third of the crop biomass remains unutilized for any economic purpose. The unutilized crop biomass can be used for production of power or second generation (2G) biofuel. Biofuel can be used for blending with gasoline as a fuel extender and octane-enhancing agent or used as a neat fuel in internal combustion engines. Biofuels have been in use globally for years to increase energy self-sufficiency, reduce vehicular emissions and increase transport sustainability. The Union Cabinet of India has approved a new National Policy on Biofuels on June 04, 2018 promoting production and use of biofuels in the country. Due to large variability in crop types and their productivity, there is a need to understand the spatio-temporal patterns of biomass availability. Assessing the district wise availability of crop biomass is the pre-requisite for prognostics of biofuel production potential from it. The policy makers and industry needs this information to prepare location specific strategy for managing surplus crop biomass and undertake establishment of biofuel production units. A viable operational system of use of surplus biomass for generating biofuel is a win-win situation both for the farmers as well as for the Government. It provides prospects for increasing the revenue of famers and contributes to energy security of the country. With this background the present study was undertaken to quantify the amount of surplus crop biomass generated in the country and its bioethanol production potential.

The study quantified the generation of surplus crop biomass at district level in three crop growing seasons (*kharij, rabi and summer*) for all the 662 districts of the country. A total of eleven crops, namely *rice, wheat, maize, sugarcane, cotton, pulses (Gram & Tur)* and *oilseed (groundnut, mustard, soybean and castor)* were selected for the study. The crops were selected based on their acreage and total production across the country. The total gross cultivated area of the country is about 195 million hectare. The area under cultivation for the selected eleven selected crops is 137 M ha i.e about 70% of gross cultivated area.

The assessment methodology involved four major steps: (1) compilation of area and production statistics of selected crops, (2) estimation of dry biomass generation, (3) development of surplus factors and quantification of surplus biomass generation, and (4) estimation of bioethanol production potential of surplus crop biomass. The crop biomass usage pattern by farmers for their own self as well as the biomass sold to others for industrial or any other usage was compiled to estimate the factors for surplus crop biomass generation. A novelty of this study is that it has developed crop specific season wise and district wise surplus factors and these factors were used to estimate the surplus crop biomass generated by the selected crops in the country. The study also estimated the district wise theoretical bio-ethanol production potential of surplus crop biomass generated by each crop in each season.

Of the total gross area under cultivation for the eleven selected crops, 72% area is accounted by rice, wheat, cotton and soybean crops only. These eleven crops generate about **683 million tons** (MT) of total dry biomass in the three crop growing seasons. Out of this total annual crop biomass, 59% is generated

during kharif season and 39% during rabi season. The remaining about 2% is generated during summer season. After different usages of this crop biomass by farmers, there is still some surplus left which can be utilized in a useful manner. The total annual surplus crop biomass is estimated to be approximately **178 MT** which is about 26% of the total dry biomass generated. The season wise surplus biomass is highest in kharif season (72%) and the major crops contributing to surplus biomass are rice sugarcane cotton and soybean. In rabi season wheat, gram, rice and mustard are the crops contributing to the surplus crop biomass. The surplus biomass generated during summer is negligible. In kharif season the States of Punjab, Uttar Pradesh (U.P.), Maharashtra, Tamil Nadu (T.N.), Andhra Pradesh (A.P.), Karnataka, Telangana, Gujarat, Madhya Pradesh (M.P.), and Rajasthan generated high surplus crop biomass. Whereas in rabi season the States of Punjab, U.P., M.P., Maharashtra, Karnataka, Rajasthan, and Haryana generated high surplus crop biomass. The total annual bio-ethanol production potential from this surplus crop biomass generated in the country is 51.35 billion litres from eleven selected crops. The study provides district scale seasons wise crop area, crop dry biomass, surplus biomass and bioethanol maps for each of the eleven crops for use by different stakeholders.

It is expected that the outcome of this study shall help in developing an improved policy for 2nd generation biofuel by utilizing surplus crop residues. This will also help India in achieving the goal of bio-ethanol blending with gasoline.

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# TERMINOLOGY

## **Harvest Index (HI):**

It is defined as the ratio of economic yield (tons/ha) to the total above ground biomass (stover/straw/stalk plus grain).

## **Residue to crop ratio (RCR)**

It is ratio of residue generated (straw/stubble) to economic part of the crop (grain yield). It includes only farm residue generation. Industrial biomass residue (i.e. residue generation during the processing at industry) is not considered in the present study.

## **Surplus Biomass**

The biomass remaining after different usages by the farmer such as fodder/domestic fuel/thatching/composting/soil incorporation/sold to industry or other farmers

## **Kharif season/Autumn season**

From June/July - October

## **Rabi season/Winter season**

From October/November - March/April

## **Summer season/Jaid season**

From April - June

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Billion litres: BL

Kilo tons: kT

Million hectare: M ha

Million litres: ML

Million tons: MT

Thousand hectares: 000 ha

Thousand litre: 000 L

Thousand tons: 000 t

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# 1. INTRODUCTION

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Indian agriculture produces approximately 600 million tons (MT) of crop residues annually (Jain et al., 2014). The residues are used for animal feed, soil mulch and manure, thatching for rural homes and fuel for domestic and industrial use and thus, are of tremendous value to farmers. However, a large portion of the residues, about 140 MT annually, is burned on-farm primarily to clear the field from straw and stubble of the preceding crop for sowing of the succeeding crop. The problem of on-farm burning of crop residues is intensifying in recent years due to unavailability of labour, high cost in removing the residues by conventional methods and use of combine harvesters without straw spreading mechanism. The residues of rice, wheat, cotton, maize, millet, sugarcane, jute, and rapeseed-mustard are typically burned on-farm in various states of the country. The problem is acute in irrigated agriculture, particularly in the mechanized rice-wheat system of the northwest India. Burning of crop residues leads to release of soot particles and smoke causing human health problems; emission of greenhouse gases such as carbon dioxide, methane and nitrous oxide causing global warming; loss of plant nutrients such as N, P, K and S; adverse impacts on soil properties and wastage of valuable residues which could be source of bioactive compounds for food and industrial uses as well as C and energy-richness for rural energy supplementation (Pathak et al., 2012).

It is a paradox, that burning of crop residues and scarcity of fodder coexist in this country and there has been a significant increase in fodder prices in recent years. Additionally, industrial demand for crop residues is also increasing. There are several options such as animal feed, composting, energy generation, biofuel production and recycling in soil to manage the residues in a productive and profitable manner. Conservation agriculture (CA) offers a good promise in using these residues for improving soil health, increasing productivity, reducing pollution and enhancing sustainability and resilience of agriculture. The resource conserving technologies (RCTs) involving no- or minimum-tillage, direct seeding, bed planting and crop diversification with innovations in residue management are possible alternatives to the conventional energy- and input-intensive agriculture.

## 1.1 Use of crop residues

The uses of crop residues are different in different states of the country. Farmers use residues either themselves or sell it to landless households or intermediaries, who in turn sell the residues to industries. The remaining residues are left unused or burned on-farm. Traditionally crop residues have numerous competing uses, such as animal feed, fodder, fuel, roof thatching, packaging and composting. Cereal residues are mainly used as cattle feed. Rice straw and husk is used as domestic fuel or in boilers for parboiling rice in West Bengal. In states like Punjab and Haryana, where rice residues are not used as cattle feed, a large amount rice straw is burned on-farm. Sugarcane tops in most parts of the country are either used for feeding of dairy animals or burned on-farm for growing a ratoon crop. Residues of groundnut are burned as fuel in brick kilns and lime kilns. Cotton, chilli, pulses and oilseeds residues are mainly used as fuel for household needs. Coconut shell, stalks of rapeseed and mustard, pigeon pea and jute and mesta, and sunflower are used as domestic fuel. Coconut generates about 3 MT of husk annually and about 1.2 MT is utilized for coir making and 1 MT gets burned as fuel (Jain et al 2014, & 2015).

## 1.2 Burning of crop residues

The surplus residues, which are the total residues left after their usage for various purposes, are typically burned on-farm. Estimated total crop residue surplus in India is 84-141 MT yr<sup>-1</sup> where cereals and fibre crops contribute 58% and 23%, respectively. Remaining 19% residue is from sugarcane, pulses, oilseeds

and other crops. Out of 82 MT surplus residues from the cereal crops, 44 MT is from rice followed by 24.5 MT from wheat, which is mostly burned on-farm. Fibre crop residues (33 MT of surplus residue), having approximately 80% as cotton residues, are also subjected to burning (Jain et al 2014).

### **Burning of crop residues leads to the following:**

- Release of soot particles and smoke causing human health problems;
- Emission of greenhouse gases (GHGs) such as carbon dioxide, methane and nitrous oxide causing global warming;
- Loss of plant nutrients such as N, P, K and S;
- Adverse impacts on soil properties and
- Wastage of valuable C and energy-rich residues.

In addition to loss of entire amount of C, 80% of N, 25% of P, 50% of S and 20% of K present in straw are lost due to burning. If the crop residues are incorporated or retained, the soil will be enriched, particularly with organic carbon and N. Heat from burning residues elevates soil temperature resulting in elimination of bacterial and fungal populations which may regenerate after few days. However, repeated burning in the field may permanently diminish the microbial population. Burning may also immediately increase the exchangeable  $\text{NH}_4^+$  and mineral N, bicarbonate and extractable P content but there is no build up of nutrients in the profile. Long-term burning reduces total N, potentially mineralizable N and C in the 0-15 cm soil layer.

The straw which is burned causing environmental pollution and other adverse consequences can be gainfully utilized for livestock feed, composting, power generation, production of biofuel and mushroom cultivation. Crop residues are low density fibrous feeds having low nitrogen, soluble carbohydrates, minerals and vitamins. These have varying amounts of lignin which acts as physical barrier and may impede microbial breakdown. Crop residues, being unpalatable and low in digestibility, cannot form a sole ration for livestock. To meet the nutrient requirements and the ruminant production system efficient, the crop residues have to be processed and enriched using urea and molasses, ensiling with animal wastes (urine and faeces) and supplementing green fodders (leguminous/non-leguminous) and legume straws (sunhemp, horse gram, cowpea, gram straw, pulse straws).

### **1.3 Biofuel production from crop residues**

Biofuels have been used globally for years to increase energy self-sufficiency, reduce vehicular emissions and increase transport sustainability. Transport sector accounts for one-third of global energy utilization, half of oil consumption, and approximately one fourth of  $\text{CO}_2$  emissions from combustion of fossil fuels. The global biofuel supply has increased by 8% since 2000 which is equivalent to 4% of the world's transport fuels in 2015 (Araujo et al 2017). The global biofuel supply was approximately 35 billion gallons in 2015, with approximately three fourth of ethanol and one fourth of biodiesel supply. Till 2015, 70 % of the global biofuel supply was met by Brazil and United States (Araujo et al 2017 and the references cited therein).. The main raw materials used by these countries were sugarcane (Brazil) and corn (USA) for bio ethanol production. This type of biofuel which is produced from food based crops is also known as 1st generation biofuel. Globally more than 50% of bioethanol is produced from corn. In Asia Pacific region the biofuel production picked up from 2004 onwards.

The ethanol can be either blended with gasoline as a fuel extender and octane-enhancing agent or used as a neat fuel in internal combustion engines. In India the National Policy on Biofuels was announced in 2009 with an aim of promoting of Bio-ethanol and Biodiesel blending with fossil fuels and a target of 20 per cent blending by 2017 (MNRE report).

The biofuel policy made mandatory for oil companies to sell petrol blended with 5-10% of ethanol. However, due to insufficient supply a national average of less than 3 per cent ethanol blending could

be achieved. The Union Cabinet has now approved a newer National Policy on Biofuels – 2018 in order to promote biofuels in the country. The main aim of this policy is to expand the scope of raw materials used for ethanol production such as surplus food grains that are unfit for human consumption, solid waste, crop biomass, etc. in order to reduce the dependency on import, cleaner environment, management of municipal solid waste, and additional income to farmers. Conversion of lignocellulosic biomass into alcohol is of immense importance as the competition for cropland between biofuels and food can be minimized. The biofuels produced from non-food crops and residues (lignocellulosic/cellulosic biomass) or waste materials are known as second-generation biofuel. The technology of ethanol production from crop residues is, however, evolving in India. Theoretical estimates of ethanol production from different feedstock (corn grain, rice straw, wheat straw, bagasse and saw dust) varies from 382 to 471 L t<sup>-1</sup> of dry matter (Kim & Dale, 2004).

In this context, the authors undertook this study at the behest of TIFAC with the aim to estimate the surplus biomass available from some major crops in India and its biofuel production potential. The estimates were carried out at the district level and for each of the three major crop seasons.

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## 2. OBJECTIVES

- To estimate the amount of biomass generated from rice, wheat, maize, sugarcane, cotton, pulses (Gram & Tur) and oilseed (groundnut, mustard and castor) crops in different states of India.
- To assess the amount of surplus crop residues from the identified crops.
- To assess the feasibility of the identified crop residues for biofuel production.

## 3. METHODOLOGY

To achieve the objectives of the project the following methodology was adopted :

### 3.1 Study Area and Crops

The study was carried out for the whole of India comprising of 662 numbers of districts. The Figure 1 to 4 shows the district maps of the four zones of India, i.e. North, Central, Eastern and Southern with their unique district IDs. Corresponding to each unique district ID, its name and State is shown in Table 1. The total geographical area of India is 328.73 Mha, and its gross and net sown area was 195 Mha and 140.13 Mha respectively in 2014-15 (Department of Agriculture Cooperation and Farmers Welfare, 2016). It experiences the monsoonal type of climate as majority its landmass receives rainfall from monsoon during June to September months. On the basis of seasons, the crops in India have been divided into Kharif (June-October), Rabi (November - March) and Summer (March - June).

The details of the crops selected and their growing season is shown in Table 2-4.

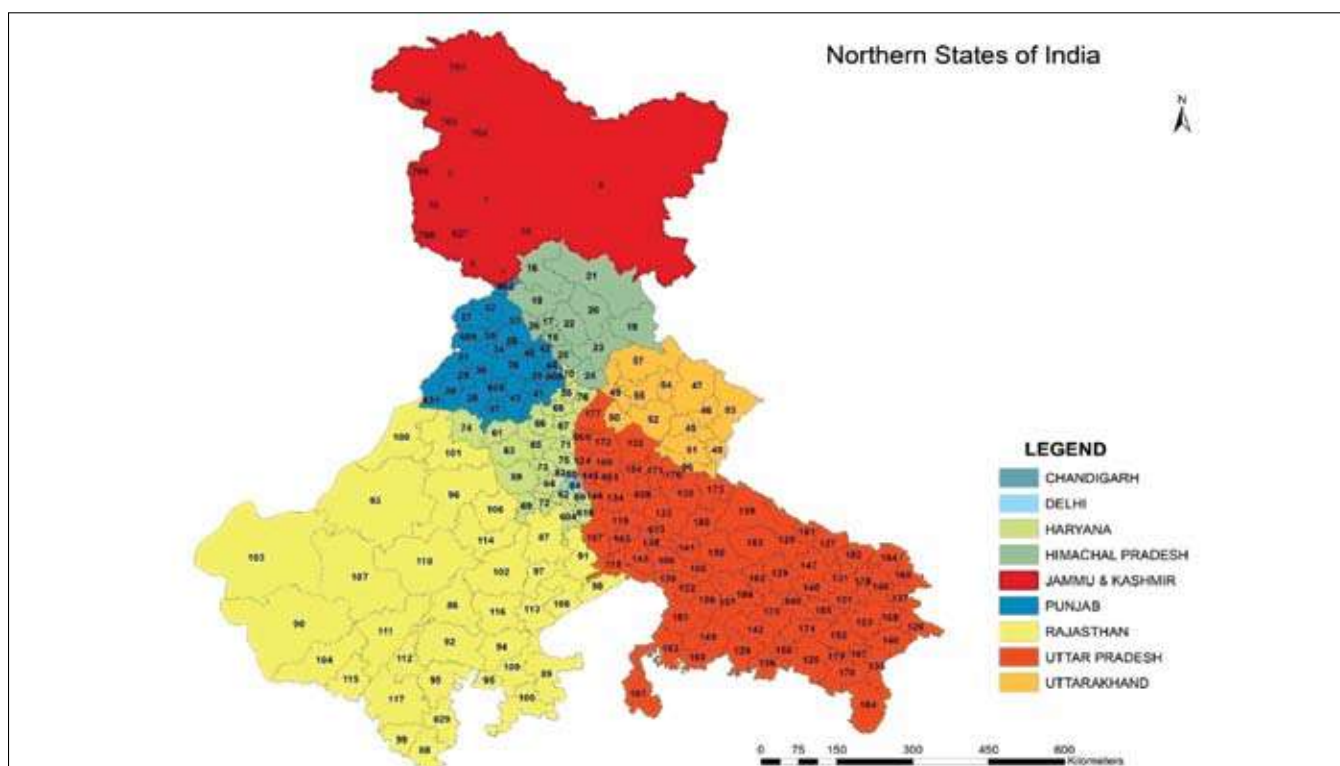


Figure 1



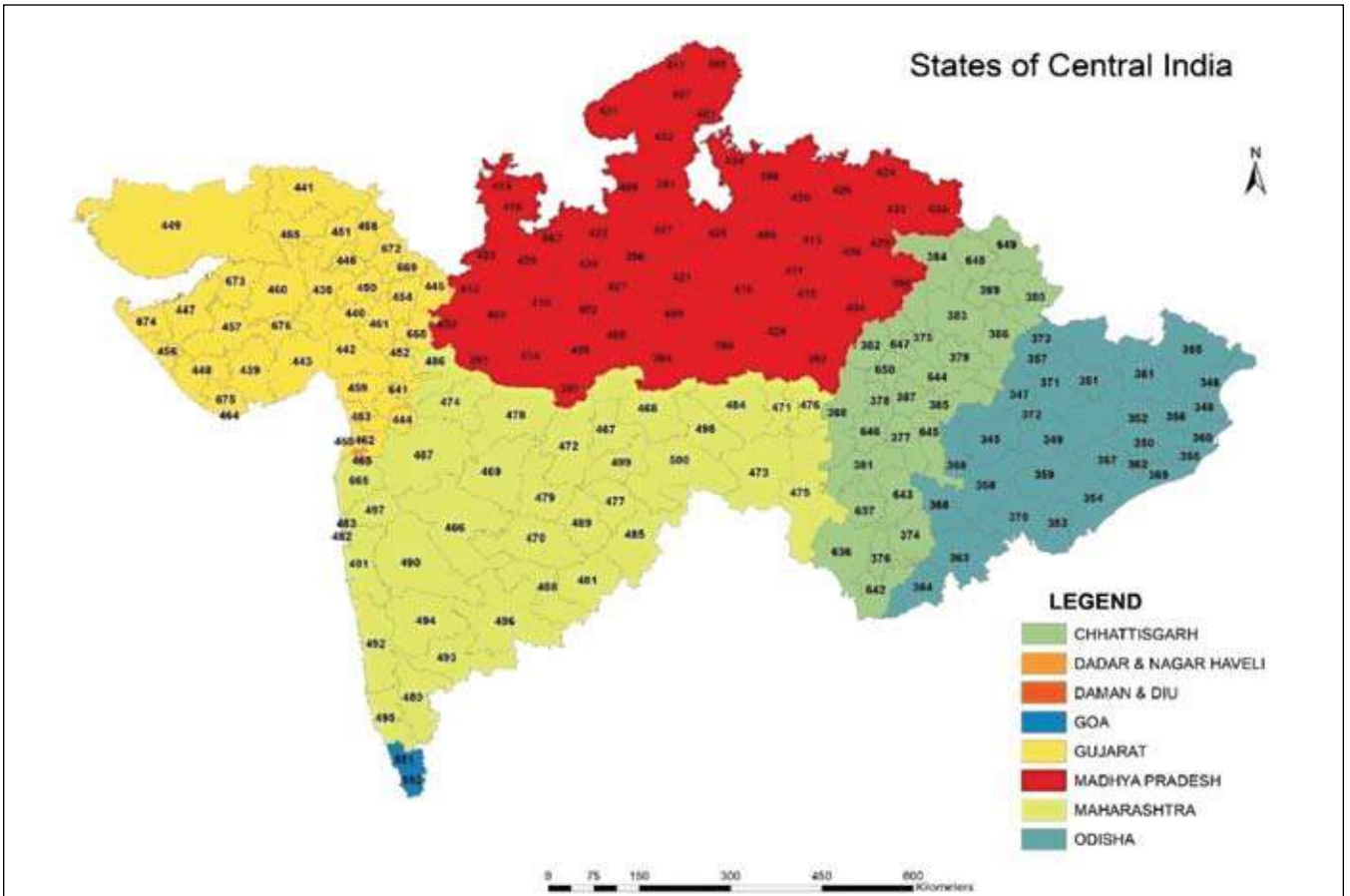


Figure 2

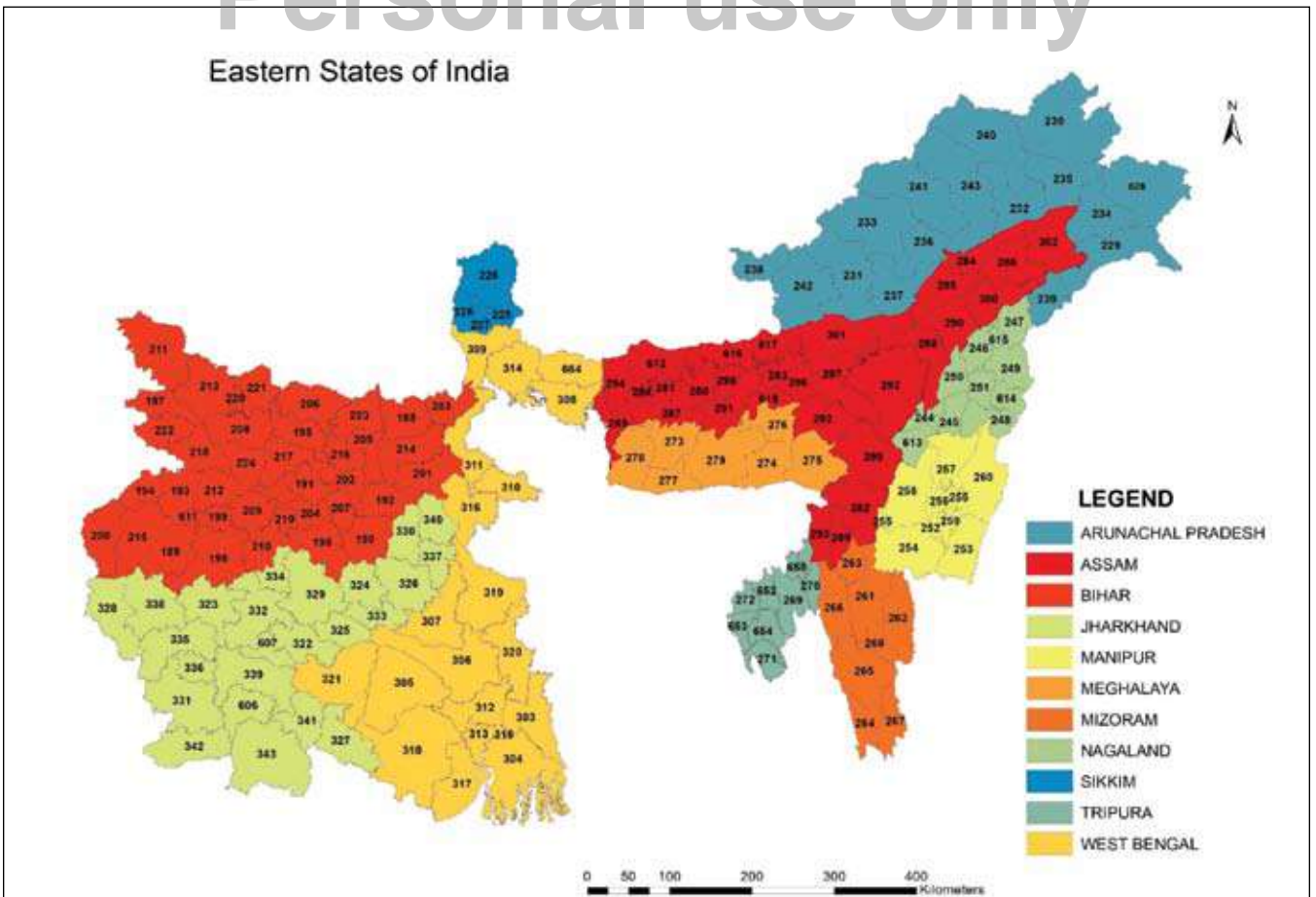


Figure 3

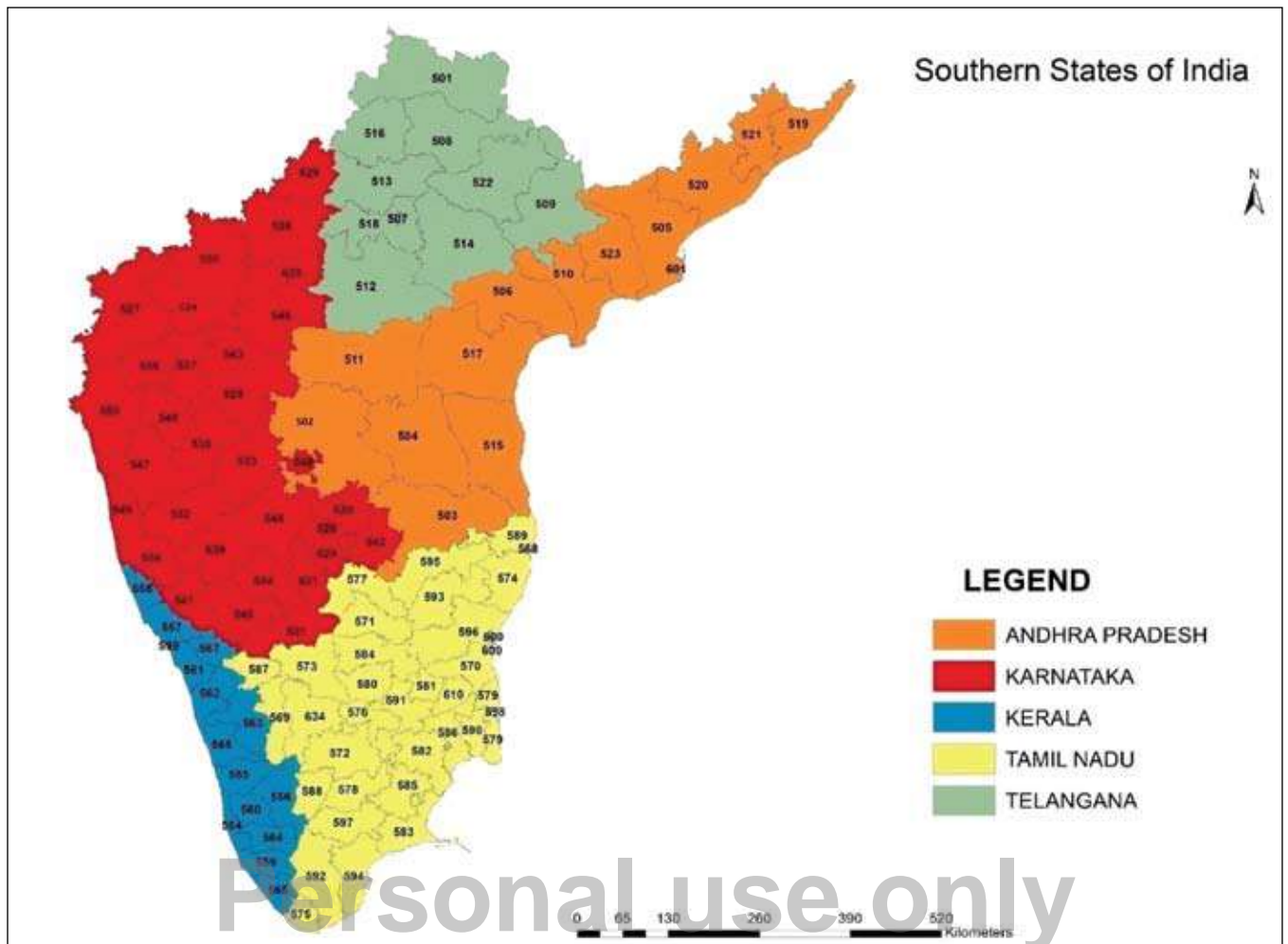


Figure 4

**Table 1: List of district IDs used in the MAPS**

State	District	ID	State	District	ID	State	District	ID
Andaman & Nicobar	Nicobar	436	Assam	Baksa	42	Bihar	Bhabua	76
	North & Middle Andaman	442		Barpeta	65		Bhagalpur	79
	South Andaman	573		Bongaigaon	99		Bhojpur	87
Andhra Pradesh	Ananthapur	23		Cachar	107		Buxar	106
	Chittoor	131		Chirang	127		Darbhanga	145
	Cuddapah	136		Darrang	147		Gaya	211
	East Godavari	180		Dhemaji	163		Gopalganj	223
	Guntur	227		Dhuburi	166		Jahanabad	255
	Krishna	343		Dibrugarh	169		Jamui	269
	Kurnool	346		Goalpara	217		Katihar	310
	Nellore	434		Golaghat	219		Khagaria	315
	Prakasam	477		Hailakandi	231		Kishanganj	324
	Srikakulam	579		Jorhat	281		Lakhisarai	352
	Vishakhapatnam	641		Kamrup metro	288		Madhepura	367
	Vizianagaram	642		Kamrup rural	289		Madhubani	368
	West Godavari	650		Karbi Anglong	302		Munger	406
Arunachal Pradesh	Anjaw	26		Karimganj	303		Muzaffarpur	410
	Changlang	118		Kokrajhar	329		Nalanda	419
	Dibang Valley	168		Lakhimpur	351		Nawada	431
	East Kameng	181		Marigaon	402		Pashchim Champaran	463
	East Siang	184		Nagaon	415		Patna	468
	Kurung Kumey	348		Nalbari	420		Purbi Champaran	484
	Lohit	360		North Cachar hills	412		Purnia	487
	Lower Dibang Valley	362		Sibsagar	551		Rohtas	513
	Lower Subansiri	363		Sonitpur	569		Saharsa	519
	Papum-Pare	460		Tinsukia	604		Samastipur	523
	Tawang	594		Udalguri	617		Saran	530
	Tirap	605	Bihar	Arariya	28		Sheikhpura	544
	Upper Siang	627		Arwal	31		Sheohar	545
	Upper Subansiri	628		Aurangabad	34		Sitamarhi	561
	West Kameng	651		Banka	54		Siwan	564
	West Siang	654		Begusarai	70		Supaul	585
Bihar	Vaishali	633	Daman & Diu	Daman	142	Gujarat	Junagadh	282
Chandigarh	Chandigarh	116		Diu	173		Kachchh	284

## Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	ID	State	District	ID	State	District	ID
Chhattisgarh	Balod	48	Delhi	Central	108		Kheda	317
	Baloda Bazar	49		East	177		Mahesana	375
	Balrampur	50		New Delhi	435		Mahisagar	376
	Bastar	67		North	440		Morbi	400
	Bemetara	72		North East	444		Narmada	427
	Bijapur	91		North West Delhi	447		Navsari	430
	Bilaspur	94		Shahadra	539		Panch Mahals	457
	Dantewara	662		South	570		Patan	465
	DhaMTari	158		South East	574		Porbandar	476
	Durg	176		South West Delhi	578		Rajkot	496
	Gariyaband	209		West Delhi	648		Sabar Kantha	516
	Janjgir Champa	270	Goa	North Goa	445		Surat	587
	Jashpur	271		South Goa	576		Surendranagar	588
	Kabirdham	283	Gujarat	Ahmadabad	3		Tapi	592
	Kanker	293		Amreli	19		Vadodara	632
	Kondagaon	335		Anand	22		Valsad	634
	Korba	338		Aravalli	29	Haryana	Ambala	16
	Korea	339		Banas Kantha	52		Bhiwani	86
	Mahasamund	372		Bharuch	82		Faridabad	193
	Mungeli	405		Bhavnagar	83		Fatehabad	196
	Narainpur	426		Botad	100		Gurugram	229
	Raigarh	491		Chhota Udepur	123		Hisar	244
	Raipur	493		Dahod	139		Jhajjar	274
	Rajnandgaon	497		Dangs	144		Jind	279
	Sukma	582		Devbhumi Dwarka	154		Kaithal	285
	Surajpur	586		Gandhinagar	205		Karnal	305
	Surguja	589		Gir Somnath	216		Kurukshetra	347
Dadar & Nagar Haveli	Dadar & Nagar Haveli	138		Jamnagar	267		Mahendragarh	374
	Mewat	393	J & K	Muzaffarabad	409	Jharkhand	Saraikele Kharsawan	529
State	District	ID	State	District	ID	State	District	ID
Haryana	Mewat	393	J & K	Muzaffarabad	409	Jharkhand	Saraikele Khar-sawan	529
	Palwal	455		Punch	482		Simdega	555
	Panchkula	456		Riasi	511	Karnataka	Bagalkot	38
	Panipat	458		Tribal Territory	612		Ballari	46
	Rewari	509		Udhampur	619		Belagavi	71
	Rohtak	512		Muzaffarabad	409		Bengaluru Rural	73
	Sirsa	560		Punch	482		Bengaluru Urban	74
	Sonipat	568		Riasi	511		Bidar	90

State	District	ID	State	District	ID	State	District	ID
	Yamunanagar	658	Jharkhand	Bokaro	98		Chamarajanagar	109
Himachal Pradesh	Bilaspur	95		Chatra	119		Chikballapur	124
	Chamba	110		Devgarh	155		Chikkamagaluru	125
	Hamirpur	232		Dhanbad	159		Chitradurga	128
	Kangra	292		Dumka	174		Dakshin Kan-nada	140
	Kinnaur	322		Garhwa	208		Davangere	150
	Kullu	345		Giridih	185		Dharwad	162
	Lahul & Spiti	350		Godda	218		Gadag	202
	Mandi	384		Gumla	225		Hassan	240
	Shimla	547		Hazaribagh	186		Haveri	242
	Sirmaur	558		Jamtara	268		Kalaburagi	286
	Solan	565		Khunti	321		Kodagu	326
	Una	624		Kodarma	327		Kolar	330
Jammu & Kashmir	Anantnag	24		Latehar	355		Koppal	336
	Baramula	59		Lohardaga	359		Mandhya	383
	Chilas	126		Pakur	450		Mysuru	411
	Gilgit	214		Palamu	452		Raichur	490
	Gilgit Wazarat	215		Pashchimi Singhbhum	462		Ramnagar	501
	Jammu	266		Purbi Singh-bhum	485		Shivamogga	548
	Kathua	309		Ramgarh	500		Tumakuru	614
	Leh And Ladakh	358		Ranchi	503		Udupi	620
	Mirpur	394		Sahibganj	520		Uttar Kannada	629
	Yadgir	657		Dewas	156		Sidhi	553
State	District	ID	State	District	ID	State	District	ID
Karnataka	Vijayapura	638	Madhya Pradesh	Datia	148	Madhya Pradesh	Shivpuri	549
	Yadgir	657		Dewas	156		Sidhi	553
Kerala	Alappuzha	8		Dhar	160		Singrauli	557
	Ernakulam	188		Dindori	172		Tikamgarh	603
	Idukki	249		East Nimar	183		Ujjain	621
	Kannur	295		Guna	226		Umaria	623
	Kasargod	307		Gwalior	230		Vidisha	637
	Kollam	334		Harda	237		West nimar	653
	Kottayam	341		Hoshangabad	245	Maharash-tra	Ahmadnagar	4
	Kozhikode	342		Indore	252		Akola	7
	Malappuram	379		Jabalpur	253		Amaravati	15
	Palakkad	451		Jhabua	273		Aurangabad	35
	Pattanamittia	469		Katni	311		Bhandara	80
	Thiruvanan-thapuram	599		Mandla	385		Bid	89



## Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	ID	State	District	ID	State	District	ID
	Thrissur	602		Mandsaur	386		Buldhana	103
	Wayanad	646		Morena	401		Chandrapur	117
Lakshadweep	Lakshadweep	353		Narsinghpur	428		Dhule	167
Madhya Pradesh	Agar malwa	1		Nimach	438		Gadchiroli	203
	Alirajpur	11		Panna	459		Gondiya	222
	Anuppur	27		Raisen	494		Hingoli	243
	Ashoknagar	32		Rajgarh	495		Jalgaon	262
	Balaghat	43		Ratlam	505		Jalna	263
	Barwani	66		Rewa	508		Kolhapur	332
	Betul	75		Sagar	517		Latur	356
	Bhind	85		Satna	533		Mumbai city	404
	Bhopal	88		Sehore	534		Nagpur	418
	Burhanpur	105		Seoni	536		Nanded	423
	Chhatarpur	121		Shahdol	540		Nandurbar	424
	Chhindwara	122		Shajapur	542		Nasik	429
	Damoh	143		Sheopur	546		Osmanabad	449
	Pune	483		Kolasib	331		Jharsuguda	277
Maharashtra	Palghar	453	Mizoram	Aizawl	5	Odisha	Jagatsinghpur	254
	Parbhani	461		Champhai	113		Jajpur	259
	Pune	483		Kolasib	331		Jharsuguda	277
	Raigarh	492		Lawngtlai	357		Kalahandi	287
	Ratnagiri	506		Lunglei	366		Kandhamal	291
	Sangli	526		Mamit	382		Kendrapara	313
	Satara	532		Saiha	521		Kendujhar	314
	Sindhudurg	556		Serchhip	538		Khordha	319
	Solapur	566	Nagaland	Dimapur	170		Koraput	337
	Suburban Mumbai	581		Kiphire	323		Malkangiri	381
	Thane	597		Kohima	328		Mayurbhanj	390
	Wardha	644		Longleng	361		Nabarangapur	413
	Washim	645		Mokokchung	397		Nayagarh	433
	Yavatmal	660		Mon	398		Nuapada	448
Manipur	Bishnupur	97		Peren	472		Puri	486
	Chandel	115		Phek	473		Rayagada	507
	Churachandpur	132		Tuensang	613		Sambalpur	524
	Imphal East	250		Wokha	656		Subarnapur	580
	Imphal West	251		Zunheboto	661		Sundergarh	584
	Senapati	535	Odisha	Angul	25	Puducherry	Karaikal	300
	Tamenglong	591		Balangir	44		Mahe	373
	Thoubal	601		Baleswar	45		Puducherry	480
	Ukhrul	622		Baragarh	58		Yanam	659
Meghalaya	East Garo Hills	179		Bhadrak	78	Punjab	Amritsar	20

State	District	ID	State	District	ID	State	District	ID
	East Khasi Hills	182		Boudh	101		Barnala	64
	Jaintia Hills	256		Cuttack	137		Bathinda	69
	Ri Bhoi	510		Deogarh	152		Faridkot	194
	South Garo Hills	575		Dhenkanal	164		Fatehgarh Sahib	197
	West Garo Hills	649		Gajapathi	204		Fazilka	199
	West Khasi Hills	652		Ganjam	207		Firozpur	201
	Ludhiana	365		Kota	340		Teni	596
Punjab	Gurdaspur	228	Rajasthan	Jhalawar	275	Tamil Nadu	Pudukkottai	481
	Hoshiarpur	246		Jhunjhunun	278		Ramana-thapuram	499
	Jalandhar	260		Jodhpur	280		Salem	522
	Kapurthala	299		Karauli	301		Sivaganga	563
	Ludhiana	365		Kota	340		Teni	596
	Mansa	387		Nagaur	417		Thanjavur	598
	Moga	396		Pali	454		Thiruvarur	600
	Muktsar	403		Pratapgarh	478		Tiruchirappalli	606
	Nawanshahr	432		Rajsamand	498		Tirunelveli	607
	Pathankot	466		Sawai Madhopur	590		Tiruppur	608
	Patiala	467		Sikar	554		Tiruvallur	609
	Rupnagar	515		Sirohi	559		Tiruvannamalai	610
	Sangrur	527		Tonk	611		Tuticorin	615
	Sas Nagar	531		Udaipur	616		Vellore	636
	Tarn Taran	593	Sikkim	East	178		Villupuram	639
Rajasthan	Ajmer	6		North	441		Virudhunagar	640
	Alwar	14		South	571	Telangana	Adilabad	0
	Banswara	56		West	647		Hyderabad	248
	Baran	60	Tamil Nadu	Ariyalur	30		Karimnagar	304
	Barmer	63		Chennai	120		Khammam	316
	Bharatpur	81		Coimbatore	134		Mahabubnagar	370
	Bhilwara	84		Cuddalore	135		Medak	391
	Bikaner	93		Dharampuri	161		Nalgonda	421
	Bundi	104		Dindigul	171		Nizamabad	439
	Chittaurgarh	130		Erode	189		Ranga Reddy	504
	Churu	133		Kanchipuram	290		Warangal	643
	Dausa	149		Kanyakumari	298	Tripura	Dhalai	157
	Dholpur	165		Karur	306		Gomati	220
	Dungarpur	175		Krishnagiri	344		Khowai	320
	Ganganagar	206		Madurai	369		North Tripura	446
	Hanumangarh	234		Nagapattinam	416		Sepahijala	537
	Jaipur	257		Namakkal	422		South Tripura	577



## Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	ID	State	District	ID	State	District	ID
	Jaisalmer	258	Tamil Nadu	Nilgiri	437		Unokoti	626
	Jalor	264		Perambalur	471		West Tripura	655
Uttar Pradesh	Agra	2	Uttar Pradesh	Hardoi	238	Uttar Pradesh	Sultanpur	583
	Aligarh	9		Hathras	241		Unnao	625
	Allahabad	12		Jalaun	261		Varanasi	635
	Ambedkarnagar	17		Jaunpur	272	Uttarakhand	Almora	13
	Amethi	18		Jhansi	276		Bageshwar	39
	Amroha	21		Kannauj	294		Chamoli	111
	Auraiya	33		Kanpur	296		Champawat	112
	Azamgarh	36		Kanpur Dehat	297		Dehradun	151
	Badaun	37		Kasganj	308		Haridwar	239
	Baghpat	40		Kaushambi	312		Nanital	425
	Bahraich	41		Kheri	318		Pauri Garhwal	470
	Ballia	47		Kushinagar	349		Pithoragarh	475
	Balrampur	51		Lalitpur	354		Rudraprayag	514
	Banda	53		Lucknow	364		Tehri Garwal	595
	Barabanki	57		Maharajganj	371		Udham Singh Nagar	618
	Bareilly	62		Mahoba	377		Uttarkashi	630
	Basti	68		Mainpuri	378	West Bengal	Alipurduar	10
	Bhadohi	77		Mathura	388		Bankura	55
	Bijnor	92		Mau	389		Bardhaman	61
	Bulandsahar	102		Meerut	392		Birbhum	96
	Chandauli	114		Mirzapur	395		Dakshindinajpur	141
	Chitrakoot	129		Moradabad	399		Darjeeling	146
	Deoria	153		Muzafarnagar	408		Eastmednipur	187
	Etah	190		Pilibhit	474		Haora	235
	Etawah	191		Pratapgarh	479		Hugli	247
	Faizabad	192		Rae Bareli	489		Jalpaiguri	265
	Farrukhabad	195		Rampur	502		Kochbihar	325
	Fatehpur	198		Saharanpur	518		Kolkata	333
	Firozabad	200		Sambhal	525		Malda	380
	Gautambudhnagar	210		Santkabirnagar	528		Mursidabad	407
	Gazipur	212		Shahjahanpur	541		Nadia	414
	Ghaziabad	213		Shamali	543		North 24 Pargana	443
	Gonda	221		Shrawasti	550		Pashchim Medinipur	464
	Gorakhpur	224		Siddharthnagar	552		Puruliya	488

State	District	ID	State	District	ID	State	District	ID
	Hamirpur	233		Sitapur	562		South 24 Parganas	572
	Hapur	236		Sonbhadra	567		Uttar_Dinajpur	631

**Table 2: Details of the crops selected and their growing season**

S. No.	Crops	Growing seasons
1	Rice	Kharif, Rabi, Summer
2	Wheat	Rabi
3	Maize	Kharif, Rabi
4	Sugarcane	Kharif
5	Gram	Rabi
6	Pigeon pea (tur)	Kharif, Rabi
7	Soybean	Kharif
8	Rapeseed Mustard	Rabi
9	Groundnut	Kharif, Rabi, Summer
10	Cotton	Kharif, Rabi, Summer
11	Castor	Kharif, Rabi

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Table 3: Crop season calendar of selected crops in different States

States	Season	Paddy			Wheat	Maize	Sugarcane
		Kharif	Rabi	Early kharif			
Andaman & Nicobar							
Andhra Pradesh	Sowing	May-June	Nov-Dec	March-April		Oct-Jan	Dec-Jun
	Harvesting	Nov-Dec	May-June	July-Aug.	---	Feb-May	Dec-May
Assam	Sowing	Feb-March	June-July	Nov-Dec	Nov-Dec		Mar-Apr
	Harvesting	June-July	Nov-Dec	May-June	Mar-Apr		Dec-Jan
Bihar	Sowing	Jun-Sept.	Oct-Nov	Feb.-March	Nov-Dec	Oct-Nov	---
	Harvesting	---	April-May	July-Aug.	Mar-Apr	Feb-Mar	---
Chattisgarh	Sowing	June-July	---	---	Oct-Dec		Oct-Apr
	Harvesting	Oct-Nov	---	---	Feb-Apr		Oct-Mar
Goa	Sowing	---	---	---	---	---	Feb-Mar
	Harvesting	---	---	---	---	---	Dec-March
Gujarat	Sowing	June-July	---	---	Oct-Nov	Jun-Jul	---
	Harvesting	Oct-Nov	---	---	Feb-Mar	Sep-Nov	---
Haryana	Sowing	June-July	---	---	Oct-Dec	Jul-Aug	---
	Harvesting	Sept-Oct.	---	---	Apr-Apr	Oct-Oct	---
Himachal Pradesh	Sowing	May-June	---	---	Oct-Nov	May-Jun	---
	Harvesting	October	---	---	Apr-Jun	Sep-Oct	---
Jammu & Kashmir	Sowing	April-May	---	---	Oct-Dec	---	---
	Harvesting	Sept-Oct.	---	---	May-May	---	---
Jharkhand	Sowing	Jun-Sept.	Oct-Nov	Feb.-March	Nov-Dec	Jun-Jul	Oct-Nov
	Harvesting	---	April-May	July-Aug.	Mar-Apr	Nov-Dec	Feb-Mar
Karnataka	Sowing	May-June	Sept-Oct.	Jan.-Feb.	Oct-Dec	May-Jun	Dec-Mar*
	Harvesting	Sept-Oct.	Jan.-Feb	May-June	Jan-Feb	Sep-Oct	Aug-May
Kerala	Sowing	April-May	Sept-Oct.	Dec-Jan.			
	Harvesting	Sept-Oct.	Dec-Jan.	March-April			
Madhya Pradesh	Sowing	June-July	---	---	Oct-Dec	Jun-Jul	Oct-Apr
	Harvesting	Oct-Nov	---	---	Feb-Apr	Aug-Dec	Oct-Mar
Maharashtra	Sowing	June-July	---	---	Oct-Dec	Jul-Aug	Jul-Aug
	Harvesting	Oct-Nov	---	---	Feb-Mar	Oct-Nov	Oct-Nov

Manipur	Sowing	---	---	---	---	---	---	---	---	---	---	---	---
	Harvesting	---	---	---	---	---	---	---	---	---	---	---	---
Meghalaya	Sowing	---	---	---	---	---	---	---	---	---	---	---	---
	Harvesting	---	---	---	---	---	---	---	---	---	---	---	---
Nagaland	Sowing	---	---	---	---	---	---	---	---	---	---	---	---
	Harvesting	---	---	---	---	---	---	---	---	---	---	---	---
Orissa	Sowing	May-June	June-July	Dec-Jan.	Oct-Nov	Jun-Jul	Jun-Jul	Jun-Jul	Oct-Nov	Jun-Jul	Jun-Jul	Jun-Jul	Feb-May
	Harvesting	Sept-Oct.	Nov-Dec	April-May	Mar-Apr	Sep-Oct	Sep-Oct	Sep-Oct	Mar-Apr	Sep-Oct	Sep-Oct	Sep-Oct	Nov-Feb
Punjab	Sowing	May-Oct.	---	---	Oct-Nov	May-Jun	May-Jun	May-Jun	Oct-Nov	May-Jun	May-Jun	May-Jun	Feb-Mar
	Harvesting	---	---	---	Apr-May	Sep-Oct	Sep-Oct	Sep-Oct	Apr-May	Sep-Oct	Sep-Oct	Sep-Oct	Nov-Feb
Rajasthan	Sowing	June-July	---	---	Nov-Dec	Jun-Jul	Jun-Jul	Jun-Jul	Nov-Dec	Jun-Jul	Jun-Jul	Jun-Jul	Mar-Apr
	Harvesting	Oct-Nov	---	---	Mar-May	Oct-Nov	Oct-Nov	Oct-Nov	Mar-May	Oct-Nov	Oct-Nov	Oct-Nov	Dec-Mar
Tamil Nadu	Sowing	---	---	---	---	---	---	---	---	---	---	---	Dec-Jan
	Harvesting	---	---	---	---	---	---	---	---	---	---	---	Dec-Jan
Tripura	Sowing	---	---	---	---	---	---	---	---	---	---	---	Feb-May
	Harvesting	---	---	---	---	---	---	---	---	---	---	---	Dec-Mar
Uttar Pradesh	Sowing	June-July	Nov-Dec	---	Oct-Jan	Jun-Jul	Jun-Jul	Jun-Jul	Oct-Jan	Jun-Jul	Jun-Jul	Jun-Jul	---
	Harvesting	Oct-Nov	April-May	---	Apr-Apr	Sep-Sep	Sep-Sep	Sep-Sep	Apr-Apr	Sep-Sep	Sep-Sep	Sep-Sep	---
Uttarakhand	---	---	---	---	---	---	---	---	---	---	---	---	---
	---	---	---	---	---	---	---	---	---	---	---	---	---
West Bengal	Sowing	---	---	---	Nov-Dec	Mar-May	Mar-May	Mar-May	Nov-Dec	Mar-May	Mar-May	Mar-May	Nov-Nov
	Harvesting	---	---	---	Mar-Apr	Jun-Aug	Jun-Aug	Jun-Aug	Mar-Apr	Jun-Aug	Jun-Aug	Jun-Aug	Mar-Mar
<b>All India</b>	<b>Sowing</b>	<b>May-Aug</b>	<b>Dec-Jan.</b>	---	<b>Oct-Dec</b>	<b>Mar-Jul</b>	<b>Mar-Jul</b>	<b>Mar-Jul</b>	<b>Oct-Dec</b>	<b>Mar-Jul</b>	<b>Mar-Jul</b>	<b>Mar-Jul</b>	<b>Feb-Aug</b>
	<b>Harvesting</b>	<b>Sep-Jan</b>	<b>April-May</b>	---	<b>Feb-Jun</b>	<b>Sep-Dec</b>	<b>Sep-Dec</b>	<b>Sep-Dec</b>	<b>Feb-Jun</b>	<b>Sep-Dec</b>	<b>Sep-Dec</b>	<b>Jan-May</b>	<b>Aug-Nov</b>

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Table 4: Crop season calendar of selected crops in different States

States	Season	Cotton		Pigeon pea		Gram	Mustard	Soybean	Groundnut			Castor
		Kharif	Rabi	Early kharif	Kharif				Kharif	Rabi	Kharif	
Andaman & Nicobar						Rabi	Kharif	Kharif				Kharif
Andhra Pradesh	Sowing	Jun-Jul		Jun-Jun	Jun-Jul		Nov-Dec	Jun-Jul	Jun-Jul	Nov-Jan		Jun-Jul
	Harvesting	Dec-Mar		Nov-Dec	Dec-Jan		Feb-Mar	Sept-Oct	Sep-Nov	Feb-May		Oct-Dec
Assam	Sowing									Jul-Aug		
	Harvesting									Nov-Dec		
Bihar	Sowing						Oct-Nov					
	Harvesting						Feb-Mar					
Chhattisgarh				Jun-Jun	Jun-Jul		Oct-Nov					
				Nov-Dec	Jan-Feb		March					
Goa	Sowing											
	Harvesting											
Gujarat	Sowing	May-May					Oct		Jun-Jul			Jul-Aug
	Harvesting	Oct-Apr					Feb-Mar		Sep-Nov			Jan-Feb
Haryana	Sowing	Apr-Apr		Jun-Jun			Within Oct					
	Harvesting	Oct-Nov		Nov-Dec			Feb-Mar					
Himachal Pradesh	Sowing			Jun-Jun	Jun-Jul		Oct-Nov					
	Harvesting			Nov-Dec	Dec-Jan		Mar-Apr					
Jammu & Kashmir	Sowing				Jul-Jul		Oct-Nov					
	Harvesting				Mar-April		Mar-Apr					
Jharkhand				Jun-Jun	Jul-Jul		Oct					
				Nov-Dec	ar-Apr		March					
Karnataka	Sowing			Jun-Jun	Jun-Jul		Within Oct	Jun-Jul	Jun-Jul	Nov-Jan		Jul-Aug
	Harvesting			Nov-Dec	Dec-Jan		Feb	Sept-Oct	Sep-Oct	Feb-May		Nov-Dec
Kerala	Sowing	Jun-Oct										



**Table 5: Years for which crop area and production statistics were collected for selected crops**

State/Crops	Rice	Wheat	Maize	Cotton	Sugarcane	Gram	Tur	Groundnut	Soybean	Rapeseed mustard	Castor
Andaman & Nicobar	2010-11 to 2015-16	NC	2010-11 to 2015-16	NC	2010-11 to 2015-16	NC	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2011-12 to 2015-16	NC
Andhra Pradesh	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 & 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15
Arunachal Pradesh	2010-11 to 2014-15	2010-11 to 2015-16	2010-11 to 2014-15	NC	2010-11 to 2015-16	NA	NA	NA	NA	NA	NC
Assam	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	NC	2010-11 to 2014-15	2010-11 to 2014-15
Bihar	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	NC	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	NC	2010-11 to 2015-16	2010-11 to 2014-15
Chandigarh	2010-11	2011-12 to 2015-16	2010-11	NC	NC	NC	NC	NC	NC	NC	NC
Chhattisgarh	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2014-15	2011-12 to 2012-13	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2014-15	2010-11 to 2015-16	2010-11 to 2012-13
Dadar & Nagar Haveli	2010-11 to 2014-15	NC	2010-11 to 2012-13	NC	NC	2010-11	2010-11 to 2012-13	2010-11 to 2012-13	NC	NC	NC
Daman & Diu	2010-11 to 2012-13	NC	NC	NC	NC	2010-11 to 2012-13	NC	NC	NC	NC	NC
Delhi	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goa	2010-11 to 2015-16	NC	NC	NC	2010-11 to 2012-13	NC	NC	NC	NC	NC	NC
Gujarat	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13
Haryana	2010-11 to 2012-13	2010-11 to 2013-14	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	2010-11 to 2012-13	NA	2010-11 to 2012-13	2010-11 to 2012-13
Himachal Pradesh	2010-11 and 2014-15	2010-11 and 2014-15	2010-11 and 2014-15	2010-11 and 2014-15	2010-11 and 2014-15	2010-11 and 2014-15	2010-11 and 2014-15	2010-11 and 2014-15	2010-11 and 2014-15	2010-11 and 2014-15	NC
Jammu & Kashmir	2014-15	2013-14	2014-15	NC	NC	2013-14	NC	NC	NC	2013-14	NC
Jharkhand	2012-13, 14-15 to 15-16	2012-13, 14-15 to 15-16	2012-13, 14-15 to 15-16	NC	2012-13, 14-15 to 15-16	2012-13, 14-15 to 15-16	2012-13, 14-15 to 15-16	2012-13, 14-15 to 15-16	2012-13, 14-15 to 15-16	2012-13, 14-15 to 15-16	NA





State/Crops	Rice	Wheat	Maize	Cotton	Sugarcane	Gram	Tur	Groundnut	Soybean	Rapeseed mustard	Castor
Uttar Pradesh	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	NC
Uttarakhand	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	NC	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	2010-11 to 2015-16	NC
West Bengal	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2012-13	NA	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15	2010-11 to 2014-15

NC- No Crop;

NA- Data not available from state Agricultural Departments/Department of Agriculture Cooperation & Farmers Welfare (DAC&FW)

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### 3.2 Estimation of amount of crop biomass generated

The flowchart of steps followed in estimation of amount of dry biomass generated at district season-wise is shown in Figure 5. The first step was to estimate the amount of biomass generated from rice, wheat, maize, sugarcane, cotton, pulses (Gram & Tur) and oilseed (groundnut, mustard soybean and castor) crops. The district level statistics on crop area and production of different crops in three growing seasons namely kharif, rabi, and summer (see crop calendar given in Table 2, Table 3&4) was collected from the Department of Agriculture Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, GOI, New Delhi and from different State Agricultural Departments of respective States for a period ranging from two to six years starting from 2010-11 onwards. The Table 3 shows the years for which state-wise crop area and production statistics were compiled for use in this study (MoA & FW 2010 to 2016, FAI reports 2010 to 2016). The area and production statistics were checked for quality and consistency and brought to the same measurement units. It involved checking the yearly consistency in statistics compiled from State Departments with that collected from DAC&FW. Also for a number of districts which have been sub-divided or merged over time, the old district statistics were distributed over newer bi/tri-furcated districts using geographical area of the new districts as weight. The district-wise crop area and production statistics were averaged for two to six years, depending on the availability (see Table 5). The averaging of data prevents selecting a very good and very poor year of crop production, especially for crops grown in rainfed/dryland conditions. Further calculations of district-wise crop dry biomass were done based on average crop area and production data only.

The data related to harvest index of crops and moisture content of crop biomass was compiled from published literature in peer-reviewed journals, books and annual reports of IARI (Bandyopadhyay et al. 2001; IARI Annual Reports). The residue to crop ratio was calculated from the average harvest index of the respective crop. The cropwise RCR and % moisture used in the present study are given in Table 6. The district, state and country boundaries sourced from Survey of India (SOI) Dehradun, Uttar Pradesh, under another project, were used for mapping the crop area and dry-biomass for each of the eleven crops in the three seasons. The district-wise statistics were linked with the attributable of district boundary layer in ArcGIS 10.5 software for visualization as maps.

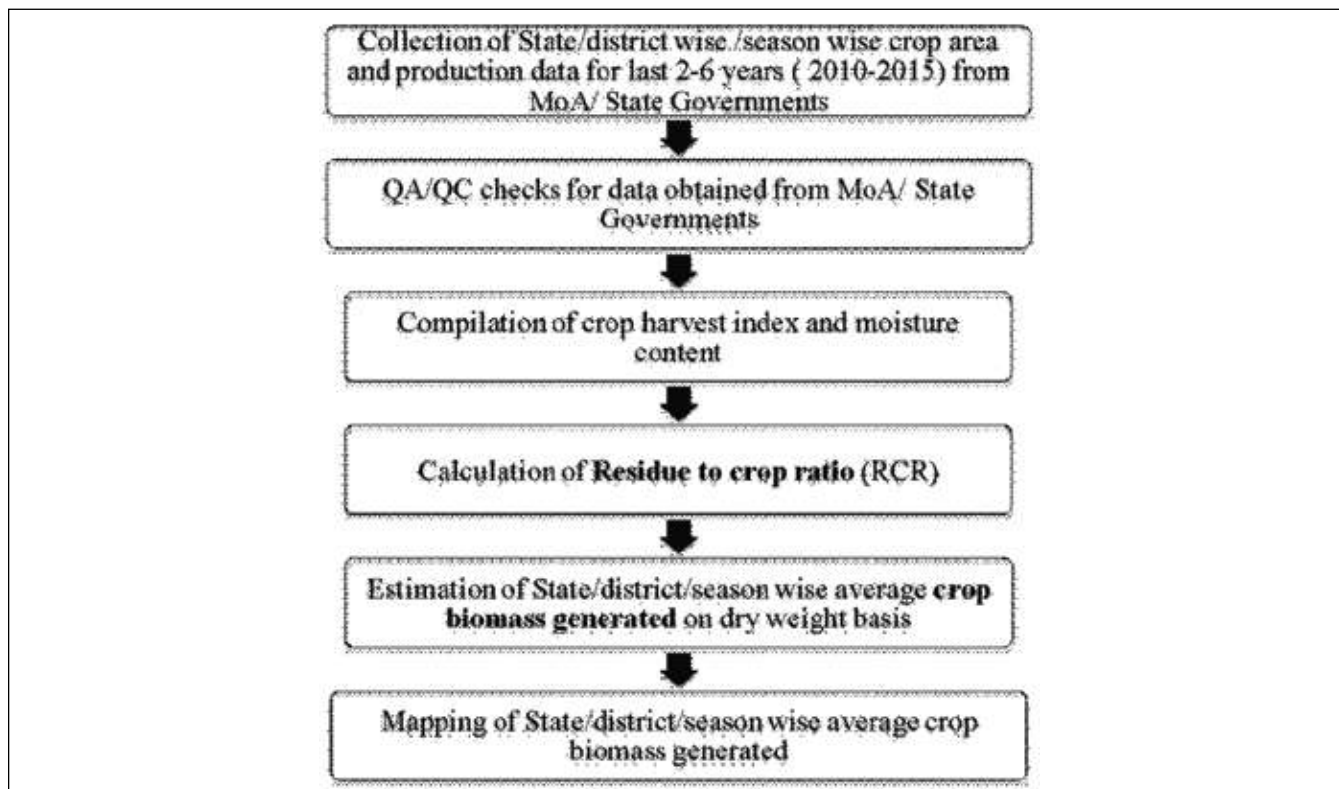


Figure 5: Flowchart of steps followed in the estimation of the amount of dry biomass generated

[Note 1: For few states district wise statistical data for crop area and production was available for one or two years only.

Note 2. The residue to crop ratio (RCR) used in the study is estimated based on the crop biomass residue generated at the farm/field. The process waste, i.e. the waste generated at industry during the processing is not considered in the study]

**Table 6: Residue to crop ratio, and dry matter fraction of different crops**

Crop	Average RCR	% Dry Matter Fraction
Rice paddy	1.60	0.86
Wheat	1.70	0.88
Maize	1.50	0.80
Sugarcane	0.43	0.83
Cotton	1.00	0.80
Gram	4.00	0.87
Tur	4.00	0.78
Groundnut	2.10	0.86
Mustard	3.00	0.80
Soybean	2.64	0.87
Castor	2.95	0.80

### 3.3 Amount of Surplus Crop Residues

The flowchart of steps followed for estimation of the amount of surplus biomass available at district season-wise is shown in Figure 6. To estimate the net surplus biomass of crop a questionnaire was prepared both in English and Hindi Languages to elicit response from farmers. The survey was conducted in 10 states covering 43 districts under other projects and under Mera Gaon Mera Gaurav program of IARI.

Approximately 1400 farmers were surveyed to know the usage pattern of crop biomass by their own self and crop biomass sold by them to other farmers or industry (Table 7). For states where survey could not be conducted, the data related to crop biomass usage was assessed based on literature review, discussion with personals from ICAR institutes located in the regions and expert judgment. The data generated was digitized and converted to the same units. The distribution of usage pattern was analysed statistically and the average value was used for estimating the district wise crop specific biomass surplus factor and given in Annexure 2. The surplus factor generated was then used to estimate the surplus cropwise biomass available in all the three seasons in each district in of the country (Table 8). The district-wise surplus biomass data were linked with the attributable of district boundary layer in ArcGIS 10.5 software to visualize as maps.

**Table 7: Details of farmer's survey data used**

States	No. of Districts	No of farmers Surveyed
Bihar	4	83
Haryana	7	40
Madhya Pradesh	2	20
Maharashtra	1	10
Orissa	4	195
Punjab	6	45
Rajasthan	2	51
Uttar Pradesh	14	826
Uttarakhand	1	15

West Bengal	2	91
Total	43	1376

\* Source: DST project report, Maya M.Sc.Thesis, NICRA project, MGMT

**Table 8: Surplus crop biomass factor across India**

Crop	Season	Surplus factor
Rice	Kharif	0.0 - 0.92
	Rabi	0.0 - 0.44
	Summer	0.0 - 0.50
Wheat	Rabi	0.0 - 0.60
Maize	Kharif	0.0 - 0.70
	Rabi	0.0 - 0.70
Sugarcane	Kharif	0.15 - 0.80
Gram	Rabi	0.01 - 0.90
Tur	Kharif	0.10 - 0.60
	Rabi	0.05 - 0.30
Soybean	Rabi	0.0 - 0.62
Mustard	Rabi	0.05 - 0.95
	Kharif	0.29
Cotton	Kharif	0.05 - 0.85
	Rabi	0.29 - 0.65
	Summer	0.40
Ground nut	Kharif	0.0 - 0.70
	Rabi	0.05 - 0.70
	Summer	0.10 - 0.30
Castor	Kharif	0.0 - 0.75
	Rabi	0.0 - 0.35

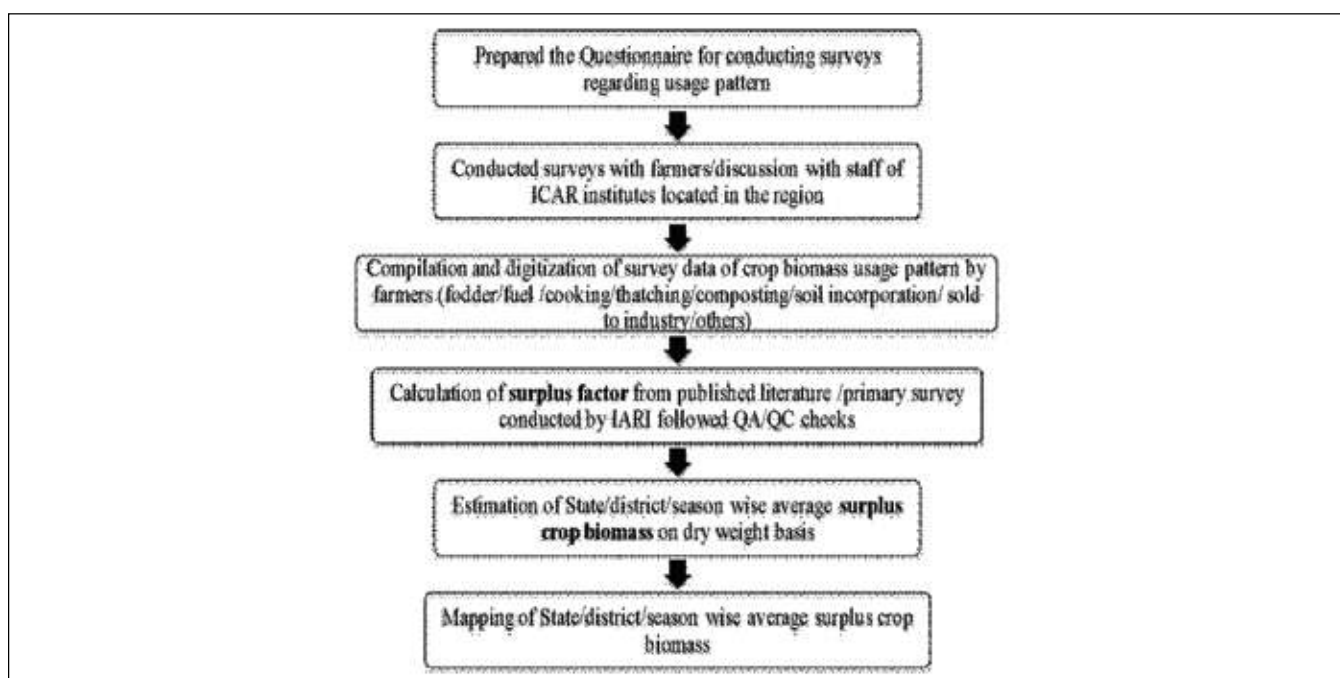


Figure 6: Flowchart of steps followed for estimation of the amount of surplus biomass

### 3.4 Bio-ethanol production potential of Surplus Crop Residues

The flowchart of steps followed for estimation of bioethanol production potential from surplus crop biomass at district scale in each of the three seasons shown in Figure 7. Cellulose and hemicelluloses content in selected crop biomass was collected from published papers in peer-reviewed journals and books (Table 9). Conversion of cellulose and hemicellulose can be achieved either by acid hydrolysis or use of enzymes. The first step involves the conversion of cellulose and hemicelluloses to simple sugar which is glucose in case of cellulose and pentose sugar in case of hemicelluloses. Based on the literature review it was assumed that conversion efficiency of cellulose and hemicellulose to glucose is 80%. Theoretically one kilogram of glucose/pentose sugar can give 0.511 kilograms of ethanol. Based on these factors, the districtwise bioethanol production of the surplus crop biomass available in all the three growing seasons in the country was estimated considering 85% efficiency. The district-wise data on bioethanol potential of surplus crop biomass was linked with the attributable of district boundary layer in ArcGIS 10.5 software to visualize a map.

**Table 9: Cellulose and hemicelluloses content of different crop residues and the factor for bioethanol production**

Crop	% Cellulose	% Hemicellulose	Factor for bio-ethanol
Rice paddy	36.0	19.00	0.27
Wheat	36.6	18.90	0.28
Maize	28.0	16.40	0.22
Sugarcane	40.0	30.35	0.35
Cotton	37.7	12.45	0.25
Gram	30.0	20.00	0.25
Tur	31.6	19.40	0.25
Groundnut	24.8	19.10	0.22
Mustard	39.5	18.70	0.29
Soybean	26.9	32.00	0.29
Castor	45.7	29.64	0.38

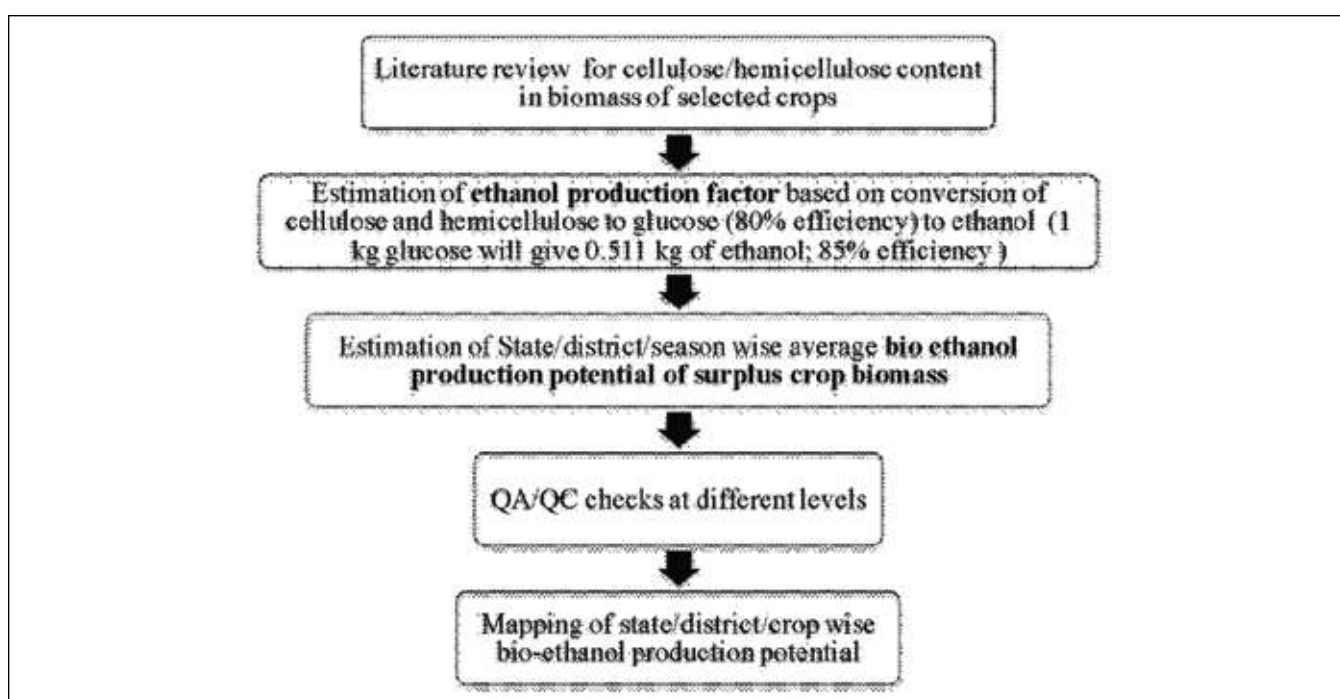


Figure 7: Flowchart of steps followed for estimation of bioethanol production potential of crop biomass



## 4. RESULTS

### 4.1 National, State wise and District wise Crop Biomass Generation

The crop biomass generated from each crop was estimated on dry weight basis. The district wise statistical data of selected crops for area and production and dry biomass generation was aggregated at state level for each crop in each crop growing seasons (kharif, rabi and summer). The state wise and season wise area under each crop and generation of crop biomass in the country is given in the Figure 8 and tables 10-15. Of the total crop area of selected crops (136.99 Mha), 72% area was under rice (44.36 M ha), wheat (30.84 Mha), cotton (12.16 M ha) and soybean (10.69 M ha) crops combined together. [Figure 9]

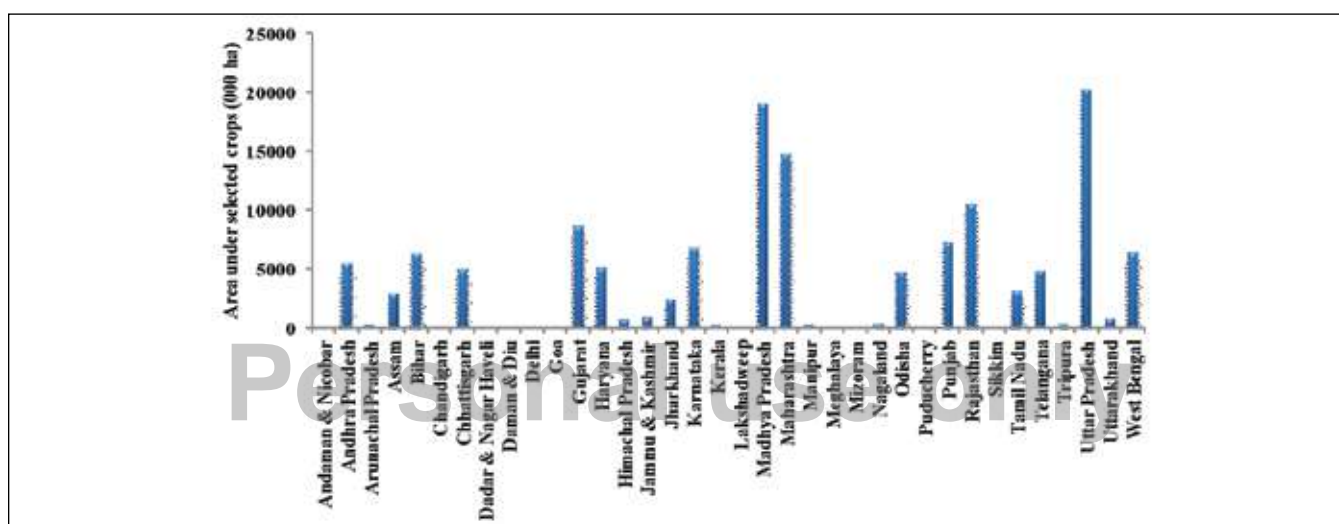


Figure 8: Statewise area under selected crops

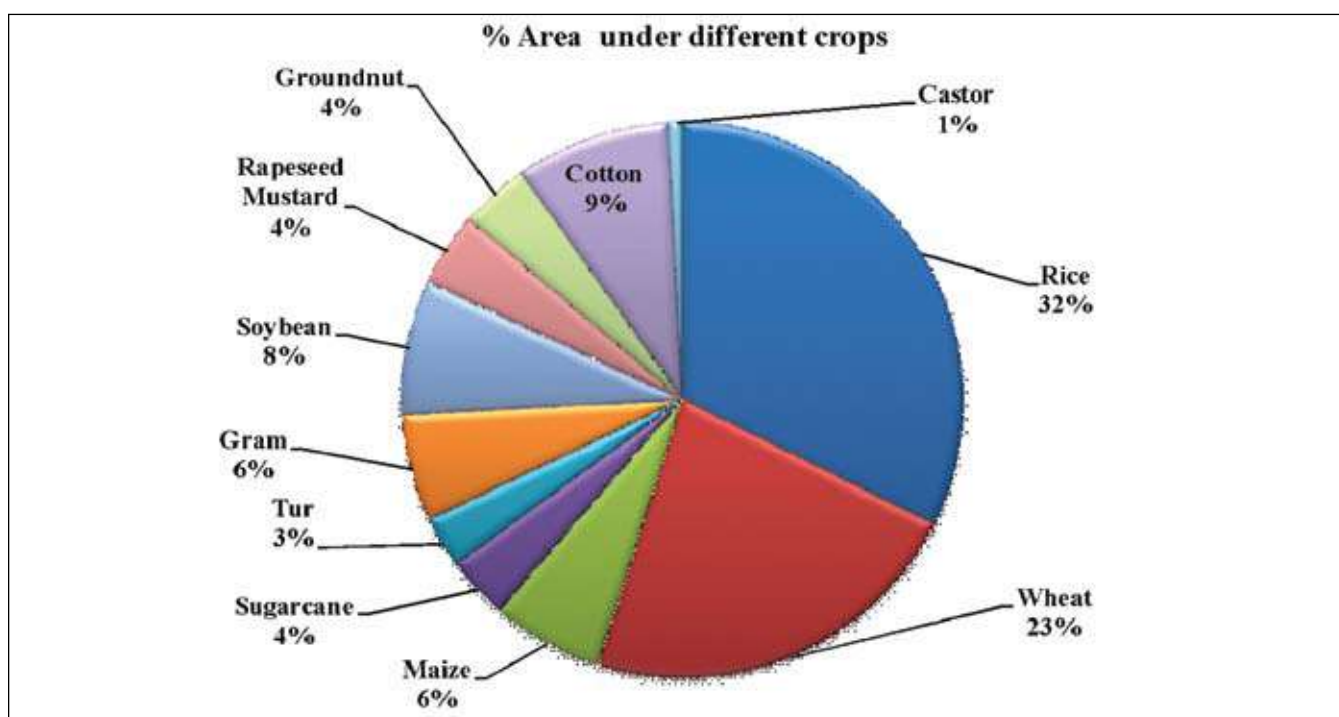


Figure 9: Distribution of total area under selected crops



The total dry biomass generated annually was 682.61 million tons (MT) from the selected eleven crops in the three seasons. Out of this total annual crop biomass, 400.27 MT (58.57%) was generated during kharif season, 265.30 MT was generated during rabi season (38.92 %), and 17.05 MT was generated during summer season (2.50%) (Figure 10). Among the States, maximum biomass generation was from Uttar Pradesh (17.99%) followed by Maharashtra (10.52%), Punjab (8.15%) and Gujarat (6.4%) (Figure 11). During kharif season Uttar Pradesh generated maximum crop biomass (19.14%) followed by Maharashtra (16.24 %), Gujarat (8.75%) Punjab (7.51%), and Karnataka (7.49%). In rabi season 17.43% biomass was generated in Uttar Pradesh followed by Madhya Pradesh (12.70%), Rajasthan (10.65%) and Bihar (8.53%).

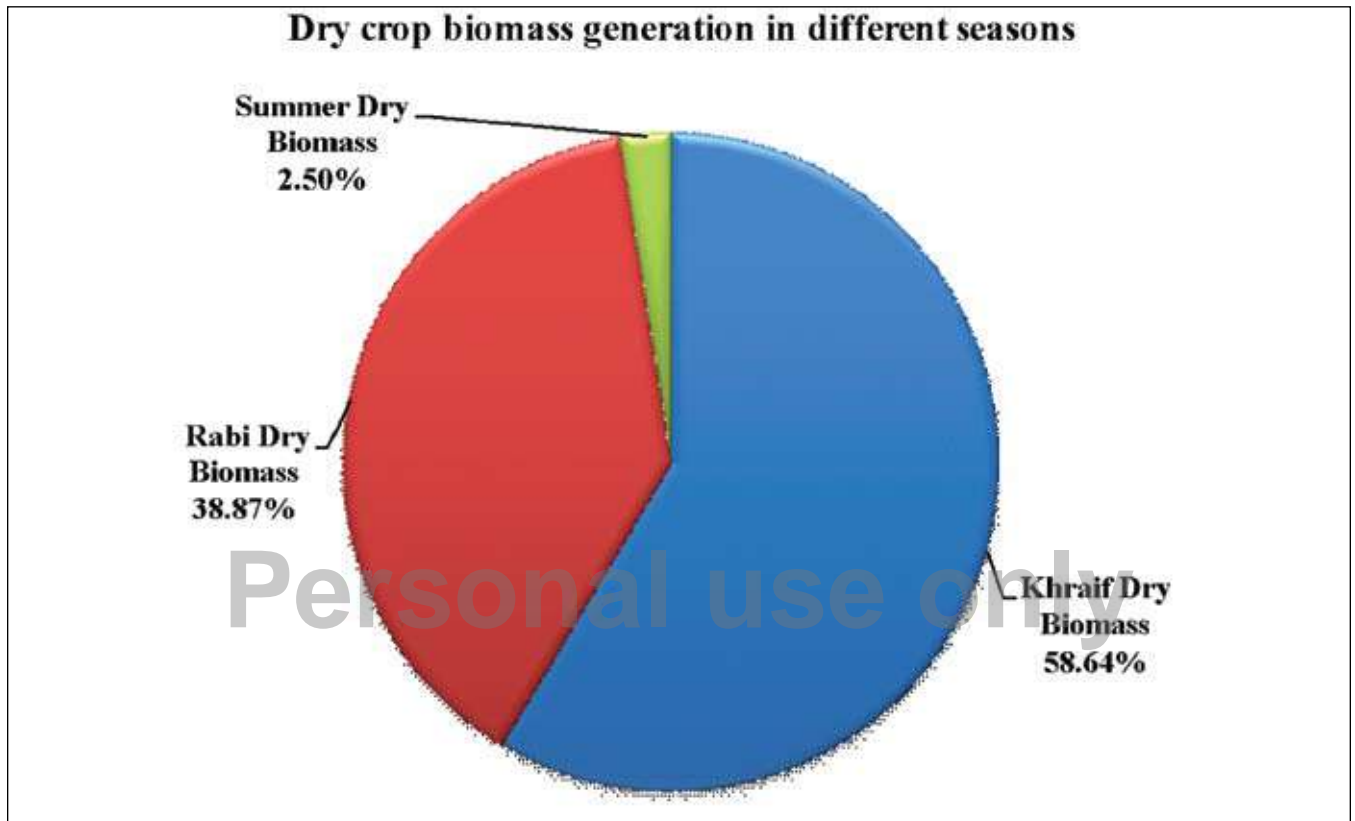


Figure 10: Proportion to total crop biomass generated in different crop seasons for selected crops

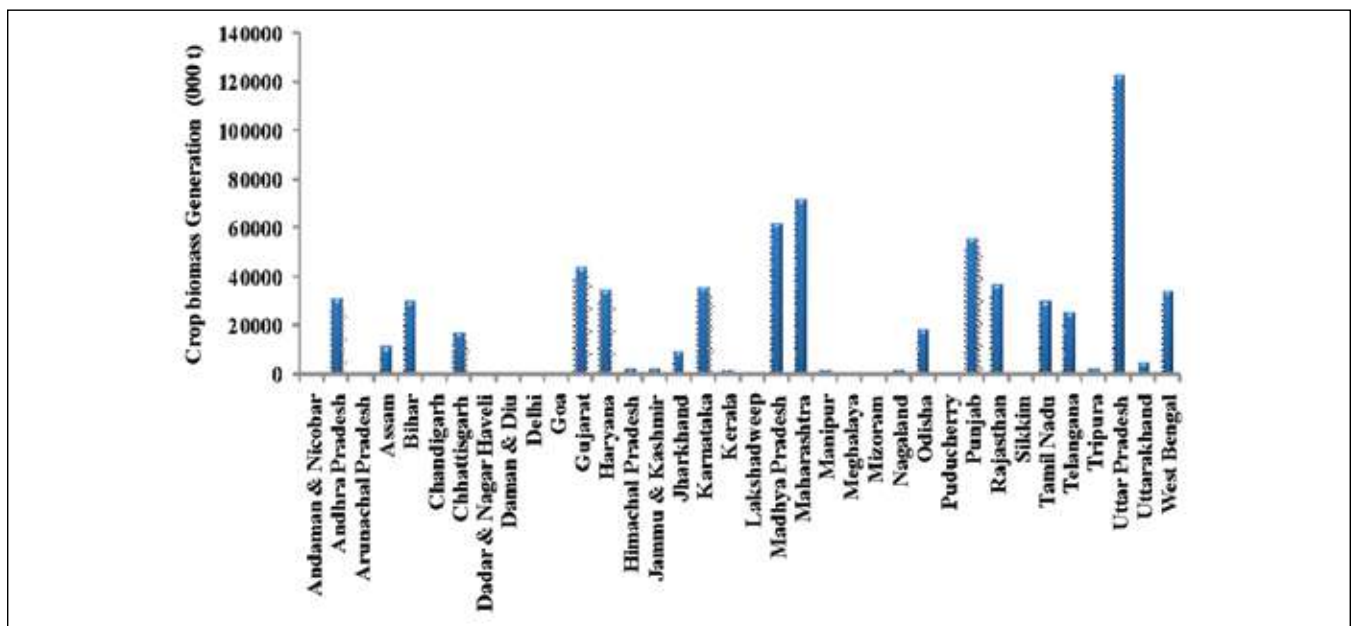


Figure 11: Statewise total crop dry biomass generated annually from selected crops

The maximum biomass was generated from rice crop (225.49 MT), and the minimum was from castor crop (4.60 MT). The highest share of biomass generation was of rice crop (33%) followed by wheat (22%), sugarcane (17%) and cotton (8%). Rest, 20% biomass, was generated from maize, tur, gram, soybean, rapeseed-mustard, groundnut and castor crops (Figure 12). The States of West Bengal, Uttar Pradesh and Punjab generated 13.59%, 12.28% and 10.23 % of rice on dry biomass, respectively. Maximum wheat biomass was generated in Uttar Pradesh (29.60%) followed by Punjab (17.44%), Madhya Pradesh (15.34%) and Haryana (12.10%), whereas, maize biomass was generated in Karnataka (17.03%), Maharashtra (10.39%), Telangana (9.93%) and Andhra Pradesh (9.93%) . The States of Uttar Pradesh, Maharashtra, Karnataka, and Tamil Nadu produced 38.91%, 23.76%, 11.10% and 9.73% of sugar cane dry biomass, respectively. Among the pulse crops, total tur biomass generation was 9.17 m tons, of which 66.71% was in the states of Maharashtra, Karnataka, Madhya Pradesh and Gujarat, whereas, gram biomass generation was maximum in Madhya Pradesh (35.83 %), Rajasthan (16.85%) and Maharashtra (14.36%). Among the oilseeds, 48% rapeseed mustards dry biomass were generated in Rajasthan State and in case of soybean 84.70 % of biomass was in the States of Madhya Pradesh (53.16%) and Maharashtra (31.54%). The State of Gujarat produced 32.92% of groundnut biomass followed by Tamil Nadu (16.24%), Rajasthan (11.31%) and Andhra Pradesh (10.75%) (Table 16-34).

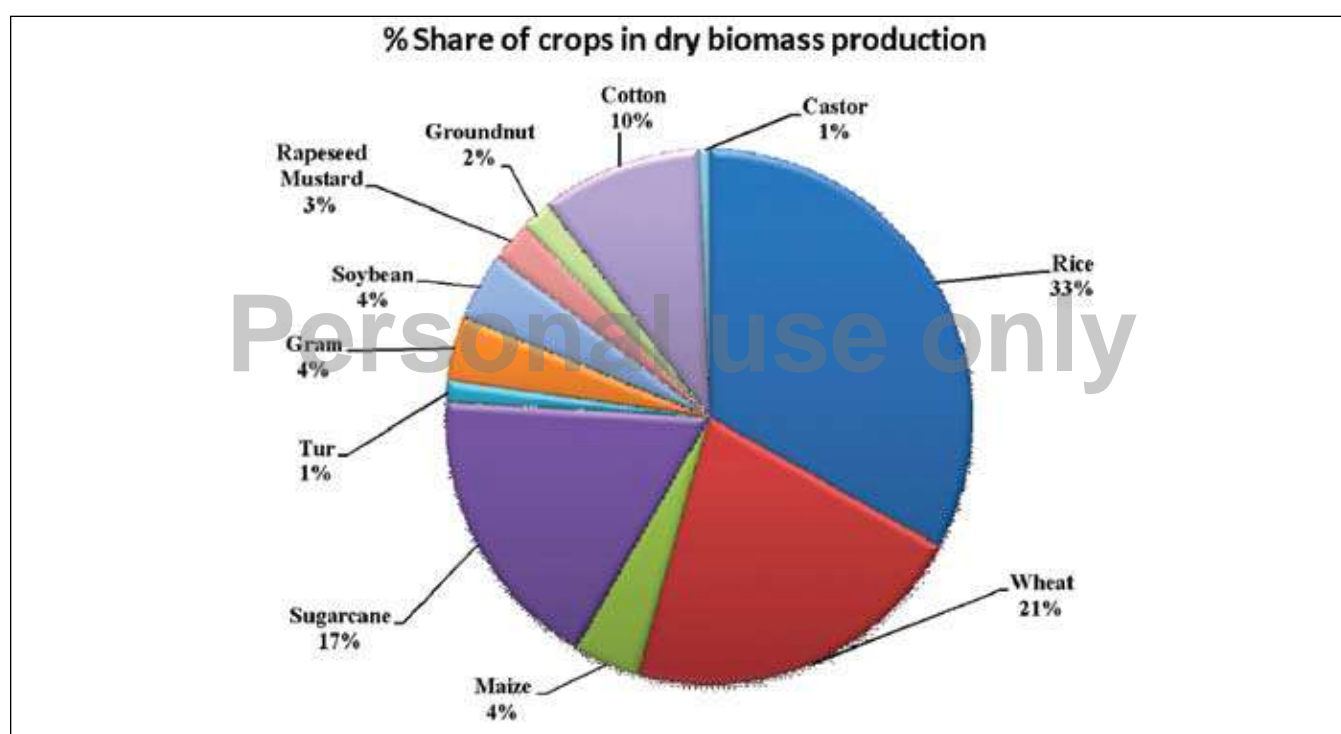


Figure 12: Share of crops in total dry biomass generated for selected crops

District wise crop dry biomass generation ranged between 0.055 kt and 6362 kt during kharif season, 0.008 kt and 2685 kt in rabi season and 0.01kt and 1163 kt in the summer season. In Kharif season maximum crop biomass generation was in Belagavi (or Belgaum) district (6362 kt) of Karnataka followed by Kheri district (6057 kt) of UP and Kolhapur (5588 kt) and Pune (4950 kt) districts of Maharashtra, whereas Wayanad district of Kerala (0.0058 kt) generated the lowest crop dry biomass. In Rabi season, 2685 kt, 2660 kt, 2525 kt, 2421 kt and 2210 kt of crop biomass was generated from Ganganagar district of Rajasthan, Bardhaman and Paschimi Medinipur districts of West Bengal, Sirsa district of Haryana and Sangrur district of Punjab, respectively, while only 0.0077 kt of dry biomass was generated in Nicobar districts of A&N island. However, during summer season Bardhaman, Pashchim Medinipur, East Medinipur and Murshidabad districts of West Bengal produced 1163 kt, 1161 kt, 1119 kt and 841 kt of crop on dry biomass, respectively which is mainly from rice crop in the State. The spatial distribution of the cropwise seasonwise dry biomass generation in different districts of India is given in Annexure 1 and in the Tables (36-43) appended as Annexures 2.

**Table 10: Total annual area of selected crops ('000 Ha) for the different States of India**

States	Rice	Wheat	Maize	Sugar-cane	Tur	Gram	Soybean	Rapeseed-Mustard	Ground-nut	Cotton	Castor	Total
Andaman & Nicobar	7.48	0.00	0.14	0.19	0.10	0.00	0.00	0.01	0.01	0.00	0.00	7.95
Andhra Pradesh	2570.87	0.49	294.07	151.52	203.78	467.57	1.91	5.14	1153.95	594.06	91.65	5535.01
Arunachal Pradesh	126.07	3.66	46.19	2.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.19
Assam	2523.32	34.83	23.36	29.20	6.19	1.91	0.00	266.29	0.00	1.30	0.96	2887.37
Bihar	3206.94	2143.96	515.78	226.35	22.57	61.04	0.00	87.69	0.89	0.00	0.16	6265.36
Chandigarh	0.02	0.58	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Chhattisgarh	4169.95	111.70	126.31	11.80	58.89	297.02	116.94	50.42	30.41	0.12	0.35	4973.91
Dadar & Nagar Haveli	12.50	0.00	0.08	0.00	1.47	0.08	0.00	0.00	0.02	0.00	0.00	14.15
Daman & Diu	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Delhi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Goa	44.30	0.00	0.00	0.90	0.00	0.00	0.00	0.00	2.66	0.00	0.00	47.86
Gujarat	719.95	1240.05	533.29	190.40	249.93	183.90	70.22	214.75	1632.47	2756.14	738.27	8529.36
Haryana	1242.66	2521.44	10.21	93.46	17.52	79.14	0.00	523.33	2.35	562.57	1.95	5054.66
Himachal Pradesh	74.84	357.24	294.30	1.66	0.00	0.51	0.58	9.07	0.07	0.01	0.00	738.28
Jammu & Kashmir	275.86	292.38	297.50	1.31	0.00	0.17	0.00	59.74	0.00	0.00	0.00	926.95
Jharkhand	1501.87	135.41	249.96	0.98	195.36	121.03	4.40	197.93	0.00	0.00	0.00	2406.93
Karnataka	1384.03	222.45	1305.20	438.94	774.10	923.18	200.67	6.44	840.63	632.80	14.24	6742.67
Kerala	201.91	0.00	0.00	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	204.10
Lakshadweep	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Madhya Pradesh	1799.86	5547.16	916.90	62.36	510.75	2790.28	5892.15	684.56	216.66	610.59	4.41	19035.72
Maharashtra	1581.83	1013.10	902.34	979.39	1221.94	1312.32	3192.68	13.53	329.50	4129.08	15.74	14691.45
Manipur	195.46	2.23	23.19	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	226.45
Meghalaya	40.47	0.00	12.04	0.07	0.84	1.05	0.82	7.17	0.00	6.48	0.08	69.02
Mizoram	57.85	0.00	6.69	1.40	0.00	0.00	1.13	0.33	0.00	0.00	0.00	67.41
Nagaland	185.44	3.14	68.69	4.31	2.82	0.75	24.65	27.22	0.82	0.20	0.30	318.34
Odisha	4115.25	0.00	154.33	38.52	139.34	42.70	0.00	11.99	58.93	104.70	13.19	4678.95
Puducherry	13.24	0.00	0.00	1.92	0.00	0.00	0.00	0.00	0.38	0.16	0.00	15.70
Punjab	2896.47	3596.75	135.17	89.00	19.44	21.33	0.00	37.93	10.52	511.07	0.00	7317.67
Rajasthan	140.89	3111.71	1002.74	5.72	17.24	1529.99	960.24	2574.48	428.11	464.75	220.57	10456.43

Sikkim	11.50	1.18	39.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.79
Tamil Nadu	1757.13	0.00	360.88	331.01	86.72	8.15	428.93	151.34	8.20	3132.83						
Telangana	1710.15	7.04	623.17	37.45	275.56	90.47	172.02	1625.02	75.18	4802.89						
Tripura	309.07	0.28	4.55	1.00	2.45	0.20	0.69	1.05	0.00	322.89						
Uttar Pradesh	5837.43	9816.25	696.97	2226.25	301.15	525.72	93.92	6.29	0.00	20166.36						
Uttarakhand	271.17	351.10	24.59	102.23	2.65	0.65	1.17	0.00	0.00	778.02						
West Bengal	5372.47	324.03	112.36	0.00	1.63	24.38	69.21	0.48	0.08	6340.09						
<b>All India</b>	<b>44360</b>	<b>30838</b>	<b>8781</b>	<b>5037</b>	<b>4112</b>	<b>8484</b>	<b>5474</b>	<b>12158</b>	<b>1185</b>	<b>136996</b>						

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Table 11: Total annual dry biomass generated for selected crops ('000 t) in the different States of India

States	Rice	Wheat	Maize	Sugar-cane	Tur	Gram	Soybean	Rapeseed-Mustard	Ground-nut	Cotton	Castor	Total
Andaman & Nicobar	33.46	0.00	0.44	1.28	0.11	0.00	0.00	0.01	0.02	0.00	0.00	35.32
Andhra Pradesh	16925.74	0.85	2330.43	3899.33	279.31	1848.93	7.52	18.97	1387.68	3964.03	95.00	30757.80
Arunachal Pradesh	356.78	9.48	81.11	13.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	460.87
Assam	10484.05	65.38	53.43	354.00	16.15	4.34	0.00	387.93	0.00	1.48	1.19	11367.96
Bihar	15035.21	8038.65	2081.53	3799.46	120.32	243.39	0.00	269.71	1.64	0.00	0.38	29590.30
Chandigarh	0.21	3.90	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18
Chhattisgarh	14759.48	223.78	283.83	14.36	96.12	983.68	232.63	60.92	74.08	0.34	0.28	16729.51
Dadar & Nagar Haveli	48.18	0.00	0.10	0.00	3.66	0.28	0.00	0.00	0.03	0.00	0.00	52.25
Daman & Diu	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.69
Delhi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Goa	248.33	0.00	0.00	15.69	0.00	0.00	0.00	0.00	11.65	0.00	0.00	275.67
Gujarat	3156.28	5570.24	1060.12	3088.76	833.25	703.42	129.35	830.96	4248.07	20574.13	3560.69	43755.27
Haryana	7733.03	17654.30	33.85	981.87	59.61	279.15	0.00	2037.20	4.71	5400.93	2.21	34186.86
Himachal Pradesh	262.43	919.88	822.69	12.70	0.00	1.69	1.92	11.66	0.09	0.01	0.00	2033.07
Jammu & Kashmir	711.71	695.01	431.95	0.65	0.00	0.32	0.00	109.45	0.00	0.00	0.00	1949.09
Jharkhand	7488.94	370.73	475.24	13.95	630.33	429.56	7.21	330.36	0.00	0.00	0.00	9746.34
Karnataka	8315.67	344.15	4747.19	13227.84	1604.84	2073.91	449.21	4.57	1149.50	3676.68	26.46	35620.02
Kerala	1090.07	0.00	0.00	39.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1129.20
Lakshadweep	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Madhya Pradesh	5776.53	22371.73	2194.98	906.46	1029.16	9499.53	14768.58	1855.23	631.48	2554.41	4.61	61592.69
Maharashtra	6200.23	2329.71	2895.98	28316.09	2648.14	3807.08	8759.71	10.30	716.28	16078.90	12.32	71774.73
Manipur	994.58	8.32	57.18	106.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1166.76
Meghalaya	201.64	0.83	27.75	0.07	3.03	3.40	3.27	14.73	0.00	17.82	0.16	272.70
Mizoram	122.03	0.00	11.23	4.81	0.00	0.00	3.93	0.71	0.00	0.00	0.00	142.72
Nagaland	857.59	8.39	162.14	62.33	7.79	2.06	70.93	65.86	1.52	0.26	0.48	1239.34
Odisha	15502.85	0.00	335.60	900.10	306.16	116.23	0.00	6.87	131.48	664.50	20.01	17983.79
Puducherry	74.77	0.00	0.00	94.36	0.00	0.00	0.00	0.00	1.56	0.78	0.00	171.47
Punjab	23067.68	25446.21	609.22	2163.75	55.01	89.40	0.00	118.76	32.72	4075.84	0.00	55658.59

Rajasthan	586.46	15617.00	2022.56	133.69	40.05	4468.20	2711.93	8204.86	1459.51	565.47	784.45	36594.18
Sikkim	42.38	1.84	123.24	0.00	0.00	0.00	8.25	8.69	0.00	0.00	0.00	184.40
Tamil Nadu	12598.97	0.00	2227.78	11594.73	227.37	18.38	0.00	0.27	2095.67	879.69	4.43	29647.30
Telangana	11429.93	15.26	2767.60	1009.79	372.30	395.05	537.20	4.02	530.87	8116.88	91.47	25270.35
Tripura	1786.33	0.91	7.19	16.99	5.61	0.55	0.00	7.00	1.44	3.69	0.00	1829.70
Uttar Pradesh	27701.21	43180.76	1464.36	46362.63	815.21	1448.11	43.86	1630.84	152.53	3.84	0.00	122803.35
Uttarakhand	1240.69	1222.25	47.85	2033.75	6.52	1.86	43.20	25.14	2.51	0.00	0.00	4623.76
West Bengal	30648.82	1349.49	523.56	0.00	6.44	96.09	0.95	1071.87	264.46	3.08	0.11	33964.87
<b>All India</b>	<b>225487</b>	<b>145449</b>	<b>27880</b>	<b>119169</b>	<b>9166</b>	<b>26515</b>	<b>27780</b>	<b>17087</b>	<b>12900</b>	<b>66583</b>	<b>4604</b>	<b>682619</b>

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Table 12: Total annual surplus crop biomass generated (000 t) in the different States of India

States	Rice	Wheat	Maize	Sugarcane	Tur	Gram	Soybean	Rapeseed-Mustard	Groundnut	Cotton	Castor	Total
Andaman & Nicobar	1.66	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.68
Andhra Pradesh	1340.52	0.00	141.92	3088.27	76.87	508.86	2.31	5.82	425.88	2550.85	32.92	8174.22
Arunachal Pradesh	35.32	0.94	8.03	4.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.70
Assam	1134.64	3.24	13.22	140.18	7.51	2.02	0.00	153.62	0.00	0.07	0.57	1455.08
Bihar	3043.12	824.36	394.88	940.37	30.64	55.42	0.00	93.41	0.00	0.00	0.02	5382.21
Chandigarh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chhattisgarh	1461.19	44.31	28.08	5.69	57.10	292.15	69.09	57.30	7.33	0.00	0.06	2022.30
Dadar & Nagar Haveli	2.38	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	2.75
Daman & Diu	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
Delhi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Goa	63.92	0.00	0.00	5.90	0.00	0.00	0.00	0.00	1.15	0.00	0.00	70.98
Gujarat	937.41	1654.36	314.86	1223.15	164.98	557.11	32.01	205.66	841.12	5092.10	2643.81	13666.58
Haryana	1827.19	1469.98	3.35	331.00	8.85	96.73	0.00	1504.46	0.93	4812.23	1.64	10056.37
Himachal Pradesh	155.88	182.14	285.06	4.78	0.00	0.58	0.32	1.96	0.00	0.00	0.00	630.73
Jammu & Kashmir	70.46	68.81	42.76	0.00	0.00	0.00	0.00	16.25	0.00	0.00	0.00	198.28
Jharkhand	1482.81	18.35	47.05	5.53	62.40	335.96	2.36	81.76	0.00	0.00	0.00	2036.22
Karnataka	413.00	27.26	1879.89	2667.61	158.88	1637.54	128.52	1.31	340.85	1455.97	6.55	8717.38
Kerala	92.67	0.00	0.00	26.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	119.01
Lakshadweep	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Madhya Pradesh	571.25	4500.38	215.77	224.35	511.80	470.23	4266.45	183.67	62.52	252.89	1.37	11260.66
Maharashtra	613.79	691.92	802.77	9250.87	262.17	3015.21	4336.06	1.02	70.91	6367.24	3.66	25415.61
Manipur	636.78	0.41	39.62	42.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	719.06
Meghalaya	59.89	0.04	19.23	0.02	1.50	3.03	1.94	0.00	0.00	0.88	0.04	86.56
Mizoram	59.70	0.00	7.78	1.906	0.00	0.00	2.34	0.07	0.00	0.00	0.00	71.81
Nagaland	84.90	0.00	16.05	18.51	2.70	1.84	11.23	0.00	0.23	0.01	0.29	135.76
Odisha	1971.68	0.00	66.45	178.22	90.93	11.51	0.00	1.36	13.02	65.79	4.95	2403.90
Puducherry	3.70	0.00	0.00	18.68	0.00	0.00	0.00	0.00	0.14	0.08	0.00	22.60



Punjab	16787.33	9374.75	303.45	840.76	16.28	79.21	0.00	99.94	6.48	3429.82	0.00	30938.02
Rajasthan	0.00	0.00	0.00	52.94	9.12	1105.43	898.27	2452.70	397.45	234.85	287.71	5438.46
Sikkim	4.20	0.18	12.20	0.00	0.00	0.00	1.80	0.00	0.00	0.00	0.00	18.38
Tamil Nadu	1247.30	0.00	551.38	4591.51	67.53	5.46	0.00	0.01	1452.30	252.56	1.97	8170.02
Telangana	905.25	0.00	231.59	799.75	102.46	108.73	164.87	1.23	162.93	5223.21	31.69	7731.71
Tripura	141.48	0.03	0.36	6.73	1.39	0.00	0.00	0.00	0.00	0.18	0.00	150.16
Uttar Pradesh	7437.92	6021.02	539.67	16787.69	120.17	403.73	9.99	238.73	36.62	0.95	0.00	31596.50
Uttarakhand	184.24	121.00	18.95	302.01	1.08	0.31	22.67	3.73	0.57	0.00	0.00	654.56
West Bengal	1085.21	66.80	51.83	0.00	0.64	33.30	0.00	53.06	52.36	0.15	0.00	1343.35
<b>All India</b>	<b>43857.0</b>	<b>25070.3</b>	<b>6036.2</b>	<b>41559.4</b>	<b>1755.4</b>	<b>8724.3</b>	<b>9950.2</b>	<b>5157.1</b>	<b>3872.8</b>	<b>29739.8</b>	<b>3017.2</b>	<b>178739.9</b>

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Table 13: Annual total bio-ethanol production potential of selected crops (million L) in the different States of India

States	Rice	Wheat	Maize	Sugarcane	Tur	Gram	Soybean	Rapeseed-Mustard	Ground-nut	Cotton	Castor	Total
Andaman & Nicobar	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46
Andhra Pradesh	367.30	0.00	31.65	1087.07	19.53	126.71	0.68	1.69	93.27	635.16	12.38	2375.43
Arunachal Pradesh	9.68	0.26	1.79	1.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.28
Assam	310.89	0.89	2.95	49.34	1.91	0.50	0.00	44.55	0.00	0.02	0.21	411.27
Bihar	833.82	227.52	88.06	331.01	7.78	13.80	0.00	27.09	0.00	0.00	0.01	1529.08
Chandigarh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chhattisgarh	400.37	12.23	6.26	2.00	14.50	72.75	20.38	16.62	1.61	0.00	0.02	546.73
Dadar & Nagar Haveli	0.65	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.75
Daman & Diu	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
Delhi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Goa	17.51	0.00	0.00	2.08	0.00	0.00	0.00	0.00	0.25	0.00	0.00	19.84
Gujarat	256.85	456.60	70.21	430.55	41.91	138.72	9.44	59.64	184.20	1267.93	994.07	3910.14
Haryana	500.65	405.71	0.75	116.51	2.25	24.08	0.00	436.29	0.20	1198.25	0.62	2685.32
Himachal Pradesh	42.71	50.27	63.57	1.68	0.00	0.15	0.10	0.57	0.00	0.00	0.00	159.04
Jammu & Kashmir	19.31	18.99	9.54	0.00	0.00	0.00	0.00	4.71	0.00	0.00	0.00	52.55
Jharkhand	406.29	5.06	10.49	1.95	15.85	83.65	0.70	23.71	0.00	0.00	0.00	547.70
Karnataka	113.16	7.52	419.22	939.00	40.36	407.75	37.45	0.38	74.65	362.54	2.46	2404.47
Kerala	25.39	0.00	0.00	9.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.66
Lakshadweep	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.03
Madhya Pradesh	156.52	1242.10	48.12	78.97	130.00	117.09	1258.60	53.26	13.69	62.97	0.51	3161.84
Maharashtra	168.18	190.97	179.02	3256.31	66.59	750.79	1279.14	0.30	15.53	1585.44	1.38	7493.63
Manipur	174.48	0.11	8.84	14.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	198.30
Meghalaya	16.41	0.01	4.29	0.01	0.38	0.75	0.57	0.00	0.00	0.22	0.01	22.66
Mizoram	16.36	0.00	1.74	0.67	0.00	0.00	0.69	0.02	0.01	0.00	0.01	19.49
Nagaland	23.26	0.00	3.58	6.52	0.69	0.46	3.31	0.00	0.05	0.00	0.11	37.98
Odisha	540.24	0.00	14.82	62.73	23.10	2.87	0.00	0.39	2.85	16.38	1.86	665.24
Puducherry	1.01	0.00	0.00	6.58	0.00	0.00	0.00	0.00	0.03	0.02	0.00	7.64

Punjab	4599.73	2587.43	67.67	295.95	4.14	19.72	0.00	28.98	1.42	854.03	0.00	8459.06
Rajasthan	0.00	0.00	0.00	18.63	2.32	275.25	264.99	711.28	87.04	58.48	108.18	1526.17
Sikkim	1.15	0.05	2.72	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	4.45
Tamil Nadu	341.76	0.00	122.96	1616.21	17.15	1.36	0.00	0.00	318.05	62.89	0.74	2481.13
Telangana	248.04	0.00	51.64	281.51	26.03	27.07	48.64	0.36	35.68	1300.58	11.92	2031.46
Tripura	38.76	0.01	0.08	2.37	0.35	0.00	0.00	0.00	0.00	0.05	0.00	41.62
Uttar Pradesh	2037.99	1661.80	120.35	5909.27	30.52	100.53	2.95	69.23	8.02	0.24	0.00	9940.89
Uttarakhand	50.48	33.40	4.23	106.31	0.27	0.08	6.69	1.08	0.13	0.00	0.00	202.66
West Bengal	297.35	18.44	11.56	0.00	0.16	8.29	0.00	15.39	11.47	0.04	0.00	362.69
<b>All India</b>	<b>12016.8</b>	<b>6919.4</b>	<b>1346.08</b>	<b>14628.9</b>	<b>445.9</b>	<b>2172.4</b>	<b>2934.8</b>	<b>1495.6</b>	<b>848.2</b>	<b>7405.2</b>	<b>1134.5</b>	<b>51347.7</b>

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**Table 14: Season wise total dry biomass, surplus biomass and bioethanol production potential of selected crops (000 Ha) in the different States of India**

States	Dry Biomass (000 t)			Surplus (000 t)			Bioethanol (Million L)		
	Kharif	Rabi	Summer	Kharif	Rabi	Summer	Kharif	Rabi	Summer
Andaman & Nicobar	34.74	0.57	0.00	1.66	0.03	0.00	0.45	0.01	0.00
Andhra Pradesh	18934.67	11823.12	0.00	6808.44	1365.78	0.00	2026.18	349.25	0.00
Arunachal Pradesh	451.39	9.48	0.00	47.76	0.94	0.00	13.02	0.26	0.00
Assam	1077.53	7941.78	2348.65	322.75	899.80	232.52	98.60	248.96	63.71
Bihar	6469.56	22669.72	451.01	1492.63	3800.28	89.30	474.54	1030.07	24.47
Chandigarh	0.28	3.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chhattisgarh	15460.94	1268.57	0.00	1628.53	393.77	0.00	445.14	101.59	0.00
Dadar & Nagar Haveli	50.81	1.44	0.00	2.69	0.06	0.00	0.73	0.02	0.00
Daman & Diu	4.69	0.00	0.00	0.23	0.00	0.00	0.06	0.00	0.00
Delhi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Goa	179.95	95.72	0.00	47.89	23.09	0.00	13.57	6.27	0.00
Gujarat	35472.60	7409.77	872.90	10959.81	2507.76	199.01	3187.06	675.18	47.90
Haryana	14216.22	19970.65	0.00	6985.21	3071.17	0.00	1819.23	866.09	0.00
Himachal Pradesh	1099.84	933.22	0.00	446.05	184.68	0.00	108.06	50.98	0.00
Jammu & Kashmir	1144.32	804.77	0.00	113.22	85.06	0.00	28.84	23.70	0.00
Jharkhand	8544.90	1201.43	0.00	1593.14	443.08	0.00	433.49	114.21	0.00
Karnataka	29944.05	3592.31	2083.66	6523.68	2019.07	174.62	1863.93	497.17	43.36
Kerala	371.73	449.41	308.06	59.27	44.49	15.25	18.29	12.19	4.18
Lakshadweep	0.00	0.00	0.00	0.01	0.01	0.00	0.02	0.01	0.00
Madhya Pradesh	27866.20	33726.49	0.00	6106.39	5154.27	0.00	1749.38	1412.45	0.00
Maharashtra	64932.24	6628.57	213.92	21552.81	3841.62	21.18	6517.18	971.82	4.64
Manipur	1142.43	24.33	0.00	707.56	11.51	0.00	195.71	2.59	0.00
Meghalaya	174.02	98.68	0.00	59.83	26.74	0.00	15.40	7.25	0.00
Mizoram	139.89	2.84	0.00	71.32	0.49	0.00	19.36	0.13	0.00
Nagaland	1133.05	106.29	0.00	130.96	4.80	0.00	36.77	1.21	0.00
Odisha	3769.99	12385.01	1828.79	483.17	1830.20	90.53	139.50	500.94	24.80
Puducherry	120.31	50.87	0.29	19.99	2.58	0.03	6.93	0.70	0.01

Punjab	30004.22	25654.37	0.00	21384.13	9553.90	0.00	5822.93	2636.14	0.00
Rajasthan	8304.11	28290.06	0.00	1880.33	3558.13	0.00	539.64	986.54	0.00
Sikkim	173.87	10.53	0.00	18.19	0.18	0.00	4.40	0.05	0.00
Tamil Nadu	27548.67	2098.63	0.00	7252.82	917.20	0.00	2276.10	205.03	0.00
Telangana	18494.73	6775.63	0.00	7030.74	700.96	0.00	1852.76	178.70	0.00
Tripura	1820.35	9.35	0.00	150.13	0.03	0.00	41.61	0.01	0.00
Uttar Pradesh	76506.11	46297.24	0.00	24918.62	6677.88	0.00	8106.12	1834.77	0.00
Uttarakhand	3271.03	1352.73	0.00	514.11	140.45	0.00	163.88	38.77	0.00
West Bengal	1408.17	23614.12	8942.58	88.80	1211.54	43.02	22.39	330.88	9.42
<b>All India</b>	<b>400268</b>	<b>265302</b>	<b>17050</b>	<b>129403</b>	<b>48472</b>	<b>865</b>	<b>38041</b>	<b>13084</b>	<b>222</b>

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**Table 15: Crop wise and season wise area total dry biomass, surplus biomass, and bioethanol production potential of selected crops in India**

Crop	Season	Area (Mha)	Dry Biomass (MT)	Surplus biomass (MT )	Bioethanol Potential (BL)
Rice	Kharif	28.597	142.761	35.993	9.862
	Rabi	13.334	66.997	7.267	1.991
	Summer	2.429	15.728	0.596	0.163
	Sub-Total	44.360	225.487	43.856	12.017
Wheat	Rabi	30.838	145.449	25.070	6.919
Maize	Kharif	7.591	21.491	4.979	1.110
	Rabi	1.190	6.389	1.057	0.236
	Sub Total	8.781	27.880	6.036	1.346
Sugarcane	Kharif	5.037	119.169	41.559	14.629
Gram	Rabi	8.484	26.515	8.724	2.172
Tur	Kharif	4.040	8.942	1.704	0.433
	Rabi	0.073	0.225	0.051	0.013
	Sub Total	4.113	9.167	1.755	0.446
Soybean	Kharif	10.694	27.779	9.950	2.935
Rapeseed & Mustard	Rabi	5.869	17.085	5.157	1.495
Cotton	Kharif	12.039	66.086	29.555	7.359
	Rabi	0.116	0.480	0.178	0.044
	Summer	0.003	0.017	0.007	0.002
	Sub Total	12.158	66.583	29.740	7.405
Groundnut	Kharif	4.399	9.449	2.648	0.580
	Rabi	0.593	2.145	0.961	0.211
	Summer	0.483	1.305	0.263	0.058
	Sub Total	5.474	12.900	3.873	0.848
Castor	Kharif	1.176	4.589	3.013	1.133
	Rabi	0.009	0.016	0.005	0.002
	Sub Total	1.185	4.604	3.017	1.134
<b>All crops across all seasons</b>	<b>Grand Total</b>	<b>136.994</b>	<b>682.618</b>	<b>178.738</b>	<b>51.348</b>

#### 4.1a Notation for the following data tables

No Crop: -1

Blank: No information

Million tons: MT

Billion litres: BT

Million Hectare : Mha

Thousand: 000

**Table 16: Total area, dry biomass (generation and surplus) and bioethanol production potential of Kharif rice in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	7.48	33.46	1.66	0.45
Andhra Pradesh	1675.52	9360.01	741.31	203.12
Arunachal Pradesh	126.07	356.78	35.32	9.68
Assam	248.43	651.28	161.19	44.17
Bihar	548.48	1672.26	380.84	104.35
Chandigarh	0.02	0.21	0.00	0.00
Chhattisgarh	4169.95	14759.48	1461.19	400.37
Dadar & Nagar Haveli	12.15	47.01	2.33	0.64
Daman & Diu	2.00	4.69	0.23	0.06
Delhi	0.00	0.00	0.00	0.00
Goa	29.51	162.40	41.80	11.45
Gujarat	677.85	2891.88	858.89	235.34
Haryana	1242.66	7733.03	1827.19	500.65
Himachal Pradesh	74.84	262.43	155.88	42.71
Jammu & Kashmir	275.86	711.71	70.46	19.31
Jharkhand	1501.87	7488.94	1482.81	406.29
Karnataka	1066.12	6272.04	311.50	85.35
Kerala	63.55	332.60	32.93	9.02
Lakshadweep	0.00	0.00	0.00	0.00
Madhya Pradesh	1799.86	5776.53	571.25	156.52
Maharashtra	1581.83	6200.23	613.79	168.18
Manipur	195.46	994.58	636.78	174.48
Meghalaya	31.17	122.02	36.24	9.93
Mizoram	37.91	120.26	59.53	16.31
Nagaland	182.10	839.76	83.14	22.78
Odisha	596.11	1509.52	74.72	20.47
Puducherry	3.89	25.18	1.25	0.34
Punjab	2896.47	23067.68	16787.33	4599.73
Rajasthan	140.89	586.46	0.00	0.00
Sikkim	11.50	42.38	4.20	1.15
Tamil Nadu	1757.13	12598.97	1247.30	341.76
Telangana	1024.82	6488.25	513.87	140.80
Tripura	309.07	1786.33	141.48	38.76
Uttar Pradesh	5837.43	27701.21	7437.92	2037.99
Uttarakhand	255.60	1137.36	168.90	46.28
West Bengal	213.61	1024.15	50.70	13.89
<b>All India</b>	<b>28597.20</b>	<b>142761.08</b>	<b>35993.92</b>	<b>9862.33</b>



**Table 17: Total area, dry biomass (generation and surplus) and alcohol production potential of rabi rice in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	895.35	7565.73	599.21	164.18
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	1873.96	7484.12	740.93	203.01
Bihar	2566.58	12911.95	2572.98	705.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	-1.00	-1.00	-1.00	-1.00
Dadar & Nagar Haveli	0.35	1.16	0.06	0.02
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi				
Goa	14.80	85.93	22.12	6.06
Gujarat	-1.00	-1.00	-1.00	-1.00
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	0.00	0.00	0.00	0.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	-1.00	-1.00	-1.00	-1.00
Karnataka	49.21	241.45	11.99	3.29
Kerala	87.63	449.41	44.49	12.19
Lakshadweep				
Madhya Pradesh	-1.00	-1.00	-1.00	-1.00
Maharashtra	-1.00	-1.00	-1.00	-1.00
Manipur				
Meghalaya	9.30	79.62	23.65	6.48
Mizoram	0.48	1.78	0.18	0.05
Nagaland	3.34	17.83	1.77	0.48
Odisha	3243.35	12164.54	1806.43	494.96
Puducherry	9.35	49.59	2.45	0.67
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	-1.00	-1.00	-1.00	-1.00
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu				
Telangana	685.33	4941.68	391.38	107.24
Tripura	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	-1.00	-1.00	-1.00	-1.00
Uttarakhand	15.58	103.33	15.34	4.20
West Bengal	3879.61	20899.37	1034.52	283.46
<b>All India</b>	<b>13334.21</b>	<b>66997.49</b>	<b>7267.50</b>	<b>1991.29</b>

**Table 18: Total area, dry biomass (generation and surplus) and alcohol production potential of summer rice in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	-1.00	-1.00	-1.00	-1.00
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	400.93	2348.65	232.52	63.71
Bihar	91.87	451.01	89.30	24.47
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	-1.00	-1.00	-1.00	-1.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi				
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	42.10	264.40	78.53	21.52
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	-1.00	-1.00	-1.00	-1.00
Karnataka	268.70	1802.17	89.51	24.52
Kerala	50.73	308.06	15.25	4.18
Lakshadweep				
Madhya Pradesh	-1.00	-1.00	-1.00	-1.00
Maharashtra	-1.00	-1.00	-1.00	-1.00
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	-1.00	-1.00	-1.00	-1.00
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	-1.00	-1.00	-1.00	-1.00
Odisha	275.79	1828.79	90.53	24.80
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	-1.00	-1.00	-1.00	-1.00
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu				
Telangana	-1.00	-1.00	-1.00	-1.00
Tripura	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	-1.00	-1.00	-1.00	-1.00
Uttarakhand	-1.00	-1.00	-1.00	-1.00
West Bengal	1279.25	8725.31	0.00	0.00
<b>All India</b>	<b>2428.85</b>	<b>15728.39</b>	<b>595.62</b>	<b>163.20</b>

**Table 19: Total area, dry biomass (generation and surplus) and alcohol production potential of the wheat crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	0.49	0.85	0.00	0.00
Arunachal Pradesh	3.66	9.48	0.94	0.26
Assam	34.83	65.38	3.24	0.89
Bihar	2143.96	8038.65	824.36	227.52
Chandigarh	0.58	3.90	0.00	0.00
Chhattisgarh	111.70	223.78	44.31	12.23
Dadar & Nagar Haveli				
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi				
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	1240.05	5570.24	1654.36	456.60
Haryana	2521.44	17654.30	1469.98	405.71
Himachal Pradesh	357.24	919.88	182.14	50.27
Jammu & Kashmir	292.38	695.01	68.81	18.99
Jharkhand	135.41	370.73	18.35	5.06
Karnataka	222.45	344.15	27.26	7.52
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep				
Madhya Pradesh	5547.16	22371.73	4500.38	1242.10
Maharashtra	1013.10	2329.71	691.92	190.97
Manipur	2.23	8.32	0.41	0.11
Meghalaya	0.30	0.83	0.04	0.01
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	3.14	8.39	0.00	0.00
Odisha				
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	3596.75	25446.21	9374.75	2587.43
Rajasthan	3111.71	15617.00	0.00	0.00
Sikkim	1.18	1.84	0.18	0.05
Tamil Nadu				
Telangana	7.04	15.26	0.00	0.00
Tripura	0.28	0.91	0.03	0.01
Uttar Pradesh	9816.25	43180.76	6021.02	1661.80
Uttarakhand	351.10	1222.25	121.00	33.40
West Bengal	324.03	1349.49	66.80	18.44
<b>All India</b>	<b>30838</b>	<b>97087</b>	<b>145449</b>	<b>25070</b>

**Table 20: Total area, dry biomass (generation and surplus) and alcohol production potential of Kharif maize crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	86.21	380.68	37.69	8.40
Arunachal Pradesh	46.19	81.11	8.03	1.79
Assam	23.36	53.43	13.22	2.95
Bihar	268.29	875.51	140.77	31.39
Chandigarh	0.03	0.07	0.00	0.00
Chhattisgarh	126.28	283.69	28.08	6.26
Dadar & Nagar Haveli	0.08	0.10	0.00	0.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi				
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	400.48	754.98	224.23	50.00
Haryana	10.21	33.85	3.35	0.75
Himachal Pradesh	294.30	822.69	285.06	63.57
Jammu & Kashmir	297.50	431.95	42.76	9.54
Jharkhand	249.96	475.24	47.05	10.49
Karnataka	1192.90	4334.20	1716.34	382.74
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep				
Madhya Pradesh	916.90	2194.98	215.77	48.12
Maharashtra	740.85	2414.50	669.30	149.25
Manipur	17.69	41.17	28.53	6.36
Meghalaya	12.04	27.75	19.23	4.29
Mizoram	6.49	10.88	7.54	1.68
Nagaland	63.55	149.99	14.85	3.31
Odisha	154.33	335.60	66.45	14.82
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	135.17	609.22	303.45	67.67
Rajasthan	1002.74	2022.56	0.00	0.00
Sikkim	39.81	123.24	12.20	2.72
Tamil Nadu	230.02	1339.18	331.45	73.91
Telangana	473.78	1836.45	181.81	40.54
Tripura	4.55	7.19	0.36	0.08
Uttar Pradesh	685.83	1426.83	525.27	117.14
Uttarakhand	24.53	47.69	18.89	4.21
West Bengal	86.80	376.43	37.27	8.31
<b>All India</b>	<b>7590.87</b>	<b>21491.16</b>	<b>4978.95</b>	<b>1110.31</b>

**Table 21: Total area, dry biomass (generation and surplus) and alcohol production potential of rabi maize crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	0.14	0.44	0.02	0.00
Andhra Pradesh	207.86	1949.75	104.23	23.24
Arunachal Pradesh				
Assam	-1.00	-1.00	-1.00	-1.00
Bihar	247.49	1206.02	254.11	56.67
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	0.03	0.14	0.00	0.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi				
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	132.82	305.14	90.63	20.21
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand				
Karnataka	112.30	412.99	163.54	36.47
Kerala				
Lakshadweep				
Madhya Pradesh	-1.00	-1.00	-1.00	-1.00
Maharashtra	161.49	481.48	133.47	29.76
Manipur	5.50	16.01	11.09	2.47
Meghalaya	-1.00	-1.00	-1.00	-1.00
Mizoram	0.20	0.35	0.24	0.05
Nagaland	5.14	12.15	1.20	0.27
Odisha				
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan				
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	130.86	888.61	219.93	49.04
Telangana	149.39	931.15	49.78	11.10
Tripura				
Uttar Pradesh	11.14	37.52	14.40	3.21
Uttarakhand	0.06	0.16	0.06	0.01
West Bengal	25.56	147.13	14.57	3.25
<b>All India</b>	<b>1189.98</b>	<b>6389.02</b>	<b>1057.28</b>	<b>235.77</b>

**Table 22: Total area, dry biomass (generation and surplus) and alcohol production potential sugarcane in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	0.19	1.28	0.00	0.00
Andhra Pradesh	151.52	3899.33	3088.27	1087.07
Arunachal Pradesh	2.27	13.49	4.41	1.55
Assam	29.20	354.00	140.18	49.34
Bihar	226.35	3799.46	940.37	331.01
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	11.80	14.36	5.69	2.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	0.90	15.69	5.90	2.08
Gujarat	190.40	3088.76	1223.15	430.55
Haryana	93.46	981.87	331.00	116.51
Himachal Pradesh	1.66	12.70	4.78	1.68
Jammu & Kashmir	1.31	0.65	0.00	0.00
Jharkhand	0.98	13.95	5.53	1.95
Karnataka	438.94	13227.84	2667.61	939.00
Kerala	2.18	39.13	26.34	9.27
Lakshadweep	0.00	0.00	0.00	0.00
Madhya Pradesh	62.36	906.46	224.35	78.97
Maharashtra	979.39	28316.09	9250.87	3256.31
Manipur	5.58	106.68	42.25	14.87
Meghalaya	0.07	0.07	0.02	0.01
Mizoram	1.40	4.81	1.91	0.67
Nagaland	4.31	62.33	18.51	6.52
Odisha	38.52	900.10	178.22	62.73
Puducherry	1.92	94.36	18.684	6.577
Punjab	89.00	2163.75	840.76	295.95
Rajasthan	5.72	133.69	52.94	18.63
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	331.01	11594.73	4591.51	1616.21
Telangana	37.45	1009.79	799.75	281.51
Tripura	1.00	16.99	6.73	2.37
Uttar Pradesh	2226.25	46362.63	16787.69	5909.27
Uttarakhand	102.23	2033.75	302.01	106.31
West Bengal				
<b>All India</b>	<b>5037.38</b>	<b>119168.74</b>	<b>41559.42</b>	<b>14628.92</b>

**Table 23: Total area, dry biomass (generation and surplus) and alcohol production potential of Kharif tur crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	201.61	274.51	75.55	19.19
Arunachal Pradesh				
Assam	6.19	16.15	7.51	1.91
Bihar	22.57	120.32	30.64	7.78
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	58.89	96.12	57.10	14.50
Dadar & Nagar Haveli	1.47	3.66	0.36	0.09
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi				
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	249.93	833.25	164.98	41.91
Haryana	17.52	59.61	8.85	2.25
Himachal Pradesh				
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	177.13	559.56	55.40	14.07
Karnataka	774.10	1604.84	158.88	40.36
Kerala				
Lakshadweep				
Madhya Pradesh	510.75	1029.16	511.80	130.00
Maharashtra	1221.94	2648.14	262.17	66.59
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	0.84	3.03	1.50	0.38
Mizoram	0.26	0.60	0.00	0.00
Nagaland	2.82	7.79	2.70	0.69
Odisha	139.34	306.16	90.93	23.10
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	19.44	55.01	16.28	4.14
Rajasthan	17.24	40.05	9.12	2.32
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	38.91	88.58	26.31	6.68
Telangana	272.66	368.37	101.38	25.75
Tripura	2.45	5.61	1.39	0.35
Uttar Pradesh	301.15	815.21	120.17	30.52
Uttarakhand	2.65	6.52	1.08	0.27
West Bengal	-1.00	-1.00	-1.00	-1.00
<b>All India</b>	<b>4039.61</b>	<b>8941.66</b>	<b>1704.10</b>	<b>432.85</b>



**Table 24: Total area, dry biomass (generation and surplus) and alcohol production potential of rabi tur crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	0.10	0.11	0.01	0.00
Andhra Pradesh	2.17	4.80	1.32	0.34
Arunachal Pradesh				
Assam	-1.00	-1.00	-1.00	-1.00
Bihar	-1.00	-1.00	-1.00	-1.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	-1.00	-1.00	-1.00	-1.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	-1.00	-1.00	-1.00	-1.00
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	18.23	70.78	7.01	1.78
Karnataka	-1.00	-1.00	-1.00	-1.00
Kerala				
Lakshadweep				
Madhya Pradesh	-1.00	-1.00	-1.00	-1.00
Maharashtra	-1.00	-1.00	-1.00	-1.00
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	-1.00	-1.00	-1.00	-1.00
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	-1.00	-1.00	-1.00	-1.00
Odisha	-1.00	-1.00	-1.00	-1.00
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	-1.00	-1.00	-1.00	-1.00
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	47.81	138.79	41.22	10.47
Telangana	2.90	3.93	1.08	0.27
Tripura	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	-1.00	-1.00	-1.00	-1.00
Uttarakhand	-1.00	-1.00	-1.00	-1.00
West Bengal	1.64	6.47	0.64	0.16
<b>All India</b>	<b>72.84</b>	<b>224.87</b>	<b>51.27</b>	<b>13.03</b>

**Table 25: Total area, dry biomass (generation and surplus) and alcohol production potential of gram crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	467.57	1848.93	508.86	126.71
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	1.91	4.34	2.02	0.50
Bihar	61.04	243.39	55.42	13.80
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	297.02	983.68	292.15	72.75
Dadar & Nagar Haveli	0.08	0.28	0.00	0.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi				
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	183.90	703.42	557.11	138.72
Haryana	79.14	279.15	96.73	24.08
Himachal Pradesh	0.51	1.69	0.58	0.15
Jammu & Kashmir	0.17	0.32	0.00	0.00
Jharkhand	121.03	429.56	335.96	83.65
Karnataka	923.18	2073.91	1637.54	407.75
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep				
Madhya Pradesh	2790.28	9499.53	470.23	117.09
Maharashtra	1312.32	3807.08	3015.21	750.79
Manipur				
Meghalaya	1.05	3.40	3.03	0.75
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	0.75	2.06	1.84	0.46
Odisha	42.70	116.23	11.51	2.87
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	21.33	89.40	79.21	19.72
Rajasthan	1529.99	4468.20	1105.43	275.25
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	8.15	18.38	5.46	1.36
Telangana	90.47	395.05	108.73	27.07
Tripura	0.20	0.55	0.00	0.00
Uttar Pradesh	525.72	1448.11	403.73	100.53
Uttarakhand	0.65	1.86	0.31	0.08
West Bengal	24.38	96.09	33.30	8.29
<b>All India</b>	<b>8483.52</b>	<b>26514.63</b>	<b>8724.34</b>	<b>2172.36</b>

**Table 26: Total area, dry biomass (generation and surplus) and alcohol production potential of soybean crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	1.91	7.52	2.31	0.68
Arunachal Pradesh				
Assam	-1.00	-1.00	-1.00	-1.00
Bihar	-1.00	-1.00	-1.00	-1.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	116.94	232.63	69.09	20.38
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	70.22	129.35	32.01	9.44
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	0.58	1.92	0.32	0.10
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	4.40	7.21	2.36	0.70
Karnataka	200.67	449.21	128.52	37.45
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep				
Madhya Pradesh	5892.15	14768.58	4266.45	1258.60
Maharashtra	3192.68	8759.71	4336.06	1279.14
Manipur				
Meghalaya	0.82	3.27	1.94	0.57
Mizoram	1.13	3.93	2.34	0.69
Nagaland	24.65	70.93	11.23	3.31
Odisha				
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	960.25	2711.94	898.27	264.99
Sikkim	3.86	8.25	1.80	0.53
Tamil Nadu	-1.00	-1.00	-1.00	-1.00
Telangana	185.65	537.20	164.87	48.64
Tripura	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	26.17	43.87	9.99	2.95
Uttarakhand	11.67	43.20	22.67	6.69
West Bengal	0.58	0.95	0.00	0.00
<b>All India</b>	<b>10694.32</b>	<b>27779.65</b>	<b>9950.22</b>	<b>2934.85</b>

**Table 27: Total area, dry biomass (generation and surplus) and alcohol production potential of Rapeseed & Mustard crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	0.01	0.01	0.00	0.00
Andhra Pradesh	5.14	18.97	5.82	1.69
Arunachal Pradesh				
Assam	266.29	387.93	153.62	44.55
Bihar	87.69	269.71	93.41	27.09
Chandigarh	0.00	0.00	0.00	0.00
Chhattisgarh	50.42	60.92	57.30	16.62
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi				
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	214.75	830.96	205.66	59.64
Haryana	523.33	2037.20	1504.46	436.29
Himachal Pradesh	9.07	11.66	1.96	0.57
Jammu & Kashmir	59.74	109.45	16.25	4.71
Jharkhand	197.93	330.36	81.76	23.71
Karnataka	4.07	3.02	0.86	0.25
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep				
Madhya Pradesh	684.56	1855.23	183.67	53.26
Maharashtra	13.53	10.30	1.02	0.30
Manipur				
Meghalaya	7.17	14.73	0.00	0.00
Mizoram	0.33	0.71	0.07	0.02
Nagaland	27.22	65.86	0.00	0.00
Odisha	11.99	6.87	1.36	0.39
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	37.93	118.76	99.94	28.98
Rajasthan	2574.48	8204.86	2452.70	711.28
Sikkim	4.44	8.69	0.00	0.00
Tamil Nadu	0.47	0.27	0.01	0.00
Telangana	1.18	4.02	1.23	0.36
Tripura	3.59	7.00	0.00	0.00
Uttar Pradesh	636.21	1630.84	238.73	69.23
Uttarakhand	12.78	25.14	3.73	1.08
West Bengal	434.88	1071.87	53.06	15.39
<b>All India</b>	<b>4039.61</b>	<b>8941.66</b>	<b>1704.10</b>	<b>432.85</b>

**Table 28: Total area, dry biomass (generation and surplus) and alcohol production potential of kharif cotton crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	587.91	3925.73	2526.20	629.02
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	1.30	1.48	0.07	0.02
Bihar	-1.00	-1.00	-1.00	-1.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	0.12	0.34	0.00	0.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	2756.14	20574.13	5092.10	1267.93
Haryana	562.57	5400.93	4812.23	1198.25
Himachal Pradesh	0.01	0.01	0.00	0.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	-1.00	-1.00	-1.00	-1.00
Karnataka	551.38	3412.46	1351.34	336.48
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep	-1.00	-1.00	-1.00	-1.00
Madhya Pradesh	610.59	2554.41	252.89	62.97
Maharashtra	4129.08	16078.90	6367.24	1585.44
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	6.48	17.82	0.88	0.22
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	0.20	0.26	0.01	0.00
Odisha	104.70	664.50	65.79	16.38
Puducherry	0.12	0.65	0.06	0.02
Punjab	511.07	4075.84	3429.82	854.03
Rajasthan	464.75	565.47	234.85	58.48
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	119.72	685.40	196.78	49.00
Telangana	1625.02	8116.88	5223.21	1300.58
Tripura	1.05	3.69	0.18	0.05
Uttar Pradesh	6.29	3.84	0.95	0.24
Uttarakhand	-1.00	-1.00	-1.00	-1.00
West Bengal	0.48	3.08	0.15	0.04
<b>All India</b>	<b>12038.99</b>	<b>66085.80</b>	<b>29554.76</b>	<b>7359.14</b>

**Table 29: Total area, dry biomass (generation and surplus) and alcohol production potential of rabi cotton crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	6.14	38.30	24.65	6.14
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	-1.00	-1.00	-1.00	-1.00
Bihar	-1.00	-1.00	-1.00	-1.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	-1.00	-1.00	-1.00	-1.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	-1.00	-1.00	-1.00	-1.00
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	-1.00	-1.00	-1.00	-1.00
Karnataka	78.70	247.64	98.06	24.42
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep	-1.00	-1.00	-1.00	-1.00
Madhya Pradesh	-1.00	-1.00	-1.00	-1.00
Maharashtra	-1.00	-1.00	-1.00	-1.00
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	-1.00	-1.00	-1.00	-1.00
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	-1.00	-1.00	-1.00	-1.00
Odisha	-1.00	-1.00	-1.00	-1.00
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	-1.00	-1.00	-1.00	-1.00
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	31.62	194.29	55.78	13.89
Telangana	-1.00	-1.00	-1.00	-1.00
Tripura	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	-1.00	-1.00	-1.00	-1.00
Uttarakhand	-1.00	-1.00	-1.00	-1.00
West Bengal	-1.00	-1.00	-1.00	-1.00
<b>All India</b>	<b>116.46</b>	<b>480.23</b>	<b>178.49</b>	<b>44.45</b>

**Table 30: Total area, dry biomass (generation and surplus) and alcohol production potential of kharif groundnut crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	1056.41	997.46	306.12	67.04
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	-1.00	-1.00	-1.00	-1.00
Bihar	0.89	1.64	0.00	0.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	30.41	74.08	7.33	1.61
Dadar & Nagar Haveli	0.02	0.03	0.00	0.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	0.41	1.86	0.18	0.04
Gujarat	1456.13	3639.57	720.64	157.82
Haryana	2.35	4.71	0.93	0.20
Himachal Pradesh	0.07	0.09	0.00	0.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	-1.00	-1.00	-1.00	-1.00
Karnataka	505.15	615.43	182.49	39.96
Kerala				
Lakshadweep				
Madhya Pradesh	216.66	631.48	62.52	13.69
Maharashtra	248.46	502.36	49.73	10.89
Manipur				
Meghalaya	-1.00	-1.00	-1.00	-1.00
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	0.82	1.52	0.23	0.05
Odisha	24.56	42.61	4.22	0.92
Puducherry	0.03	0.12	0.000	0.000
Punjab	10.52	32.72	6.48	1.42
Rajasthan	428.11	1459.51	397.45	87.04
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	300.26	1237.38	857.50	187.79
Telangana	20.16	47.75	14.66	3.21
Tripura	0.28	0.54	0.00	0.00
Uttar Pradesh	93.92	152.53	36.62	8.02
Uttarakhand	1.17	2.51	0.57	0.13
West Bengal	2.13	3.45	0.68	0.15
<b>All India</b>	<b>4398.92</b>	<b>9449.35</b>	<b>2648.35</b>	<b>579.99</b>



**Table 31: Total area, dry biomass (generation and surplus) and alcohol production potential of rabi groundnut crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	0.01	0.02	0.00	0.00
Andhra Pradesh	97.54	390.22	119.76	26.23
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	-1.00	-1.00	-1.00	-1.00
Bihar	-1.00	-1.00	-1.00	-1.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	-1.00	-1.00	-1.00	-1.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	2.25	9.79	0.97	0.21
Gujarat	-1.00	-1.00	-1.00	-1.00
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	-1.00	-1.00	-1.00	-1.00
Karnataka	163.97	269.16	79.81	17.48
Kerala				
Lakshadweep				
Madhya Pradesh	-1.00	-1.00	-1.00	-1.00
Maharashtra	-1.00	-1.00	-1.00	-1.00
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	-1.00	-1.00	-1.00	-1.00
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	-1.00	-1.00	-1.00	-1.00
Odisha	34.38	88.87	8.80	1.93
Puducherry	0.31	1.28	0.127	0.028
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	-1.00	-1.00	-1.00	-1.00
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	128.67	858.29	594.79	130.26
Telangana	151.86	483.12	148.27	32.47
Tripura	0.42	0.90	0.00	0.00
Uttar Pradesh	-1.00	-1.00	-1.00	-1.00
Uttarakhand	-1.00	-1.00	-1.00	-1.00
West Bengal	13.42	43.74	8.66	1.90
<b>All India</b>	<b>592.82</b>	<b>2145.40</b>	<b>961.19</b>	<b>210.50</b>

**Table 32: Total area, dry biomass (generation and surplus) and alcohol production potential of summer groundnut crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	-1.00	-1.00	-1.00	-1.00
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	-1.00	-1.00	-1.00	-1.00
Bihar	-1.00	-1.00	-1.00	-1.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	-1.00	-1.00	-1.00	-1.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	176.33	608.50	120.48	26.39
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand	-1.00	-1.00	-1.00	-1.00
Karnataka	171.51	264.91	78.55	17.20
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep	-1.00	-1.00	-1.00	-1.00
Madhya Pradesh	-1.00	-1.00	-1.00	-1.00
Maharashtra	81.04	213.92	21.18	4.64
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	-1.00	-1.00	-1.00	-1.00
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	-1.00	-1.00	-1.00	-1.00
Odisha	-1.00	-1.00	-1.00	-1.00
Puducherry	0.04	0.16	0.016	0.003
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	-1.00	-1.00	-1.00	-1.00
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	-1.00	-1.00	-1.00	-1.00
Telangana	-1.00	-1.00	-1.00	-1.00
Tripura	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	-1.00	-1.00	-1.00	-1.00
Uttarakhand	-1.00	-1.00	-1.00	-1.00
West Bengal	53.67	217.27	43.02	9.42
<b>All India</b>	<b>482.59</b>	<b>1304.76</b>	<b>263.25</b>	<b>57.657</b>

**Table 33: Total area, dry biomass (generation and surplus) and alcohol production potential of Kharif castor crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	88.83	89.44	30.99	11.65
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	0.96	1.19	0.57	0.21
Bihar	0.16	0.38	0.02	0.01
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	0.29	0.24	0.05	0.02
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	738.27	3560.69	2643.81	994.07
Haryana	1.95	2.21	1.64	0.62
Himachal Pradesh	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand				
Karnataka	14.24	26.46	6.55	2.46
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep	-1.00	-1.00	-1.00	-1.00
Madhya Pradesh	4.41	4.61	1.37	0.51
Maharashtra	15.74	12.32	3.66	1.38
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	0.04	0.06	0.02	0.01
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	0.30	0.48	0.29	0.11
Odisha	7.77	11.51	2.85	1.07
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	220.57	784.45	287.69	108.18
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	8.20	4.43	1.97	0.74
Telangana	74.17	90.05	31.20	11.73
Tripura	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	-1.00	-1.00	-1.00	-1.00
Uttarakhand	-1.00	-1.00	-1.00	-1.00
West Bengal	0.08	0.11	0.00	0.00
<b>All India</b>	<b>1175.97</b>	<b>4588.61</b>	<b>3012.68</b>	<b>1132.77</b>

**Table 34: Total area, dry biomass (generation and surplus) and alcohol production potential of Rabi castor crop in India**

States	Area (000 ha)	Dry biomass generation (000 t)	Surplus biomass (000 t)	Ethanol production potential (Million L)
Andaman & Nicobar	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	2.83	5.57	1.93	0.73
Arunachal Pradesh	-1.00	-1.00	-1.00	-1.00
Assam	-1.00	-1.00	-1.00	-1.00
Bihar	-1.00	-1.00	-1.00	-1.00
Chandigarh	-1.00	-1.00	-1.00	-1.00
Chhattisgarh	0.05	0.04	0.01	0.00
Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00
Daman & Diu	-1.00	-1.00	-1.00	-1.00
Delhi	-1.00	-1.00	-1.00	-1.00
Goa	-1.00	-1.00	-1.00	-1.00
Gujarat	-1.00	-1.00	-1.00	-1.00
Haryana	-1.00	-1.00	-1.00	-1.00
Himachal Pradesh	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	-1.00	-1.00	-1.00	-1.00
Jharkhand				
Karnataka	-1.00	-1.00	-1.00	-1.00
Kerala	-1.00	-1.00	-1.00	-1.00
Lakshadweep	-1.00	-1.00	-1.00	-1.00
Madhya Pradesh	-1.00	-1.00	-1.00	-1.00
Maharashtra	-1.00	-1.00	-1.00	-1.00
Manipur	-1.00	-1.00	-1.00	-1.00
Meghalaya	0.04	0.09	0.02	0.01
Mizoram	-1.00	-1.00	-1.00	-1.00
Nagaland	-1.00	-1.00	-1.00	-1.00
Odisha	5.43	8.50	2.10	0.79
Puducherry	-1.00	-1.00	-1.00	-1.00
Punjab	-1.00	-1.00	-1.00	-1.00
Rajasthan	-1.00	-1.00	-1.00	-1.00
Sikkim	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	-1.00	-1.00	-1.00	-1.00
Telangana	1.01	1.42	0.49	0.19
Tripura	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	-1.00	-1.00	-1.00	-1.00
Uttarakhand	-1.00	-1.00	-1.00	-1.00
West Bengal	-1.00	-1.00	-1.00	-1.00
<b>All India</b>	<b>9.35</b>	<b>15.62</b>	<b>4.56</b>	<b>1.72</b>

## 4.2 Surplus crop biomass in India

The district wise surplus biomass generation was estimated based on surplus factor developed depending on the different usages by the farming community as well as sold by farmers to the industry for different usage. The factor varied widely among the crops (Table 8) as well as districts of India (Annexure 2). The factor ranged between 0 and 95%. The variation was also observed in different crop growing seasons. The surplus factor ranged from 0 to 92% in Kharif, 0 to 95% in rabi and 10-40% in the summer season. The total dry biomass generated in India was about 683 MT for the selected eleven crops. Out of this total dry biomass only 178 MT (26%) was found to be surplus, and of this surplus, 72% was generated in Kharif season, 27% in rabi and 1% in summer season (Figure 13). The surplus biomass ranged from 0 to 31.59 MT among the states. The total annual surplus biomass was maximum in Uttar Pradesh (17.68%) followed by Punjab (17.31%), Maharashtra (14.22%), Gujarat (7.6%) and Haryana (5.6%) (Figure 14). These five States contributed 62.48% of the total annual surplus crop biomass. Out of the total Kharif crop biomass generated about 32% was surplus, whereas only 18% was surplus in the rabi season and 0.48% in the summer season. The surplus crop biomass in Kharif season ranged between 0.001 and 24.92 MT and in rabi season between 0.0 to 9.55 MT among different States. The surplus crop biomass was insignificant during summer crop.

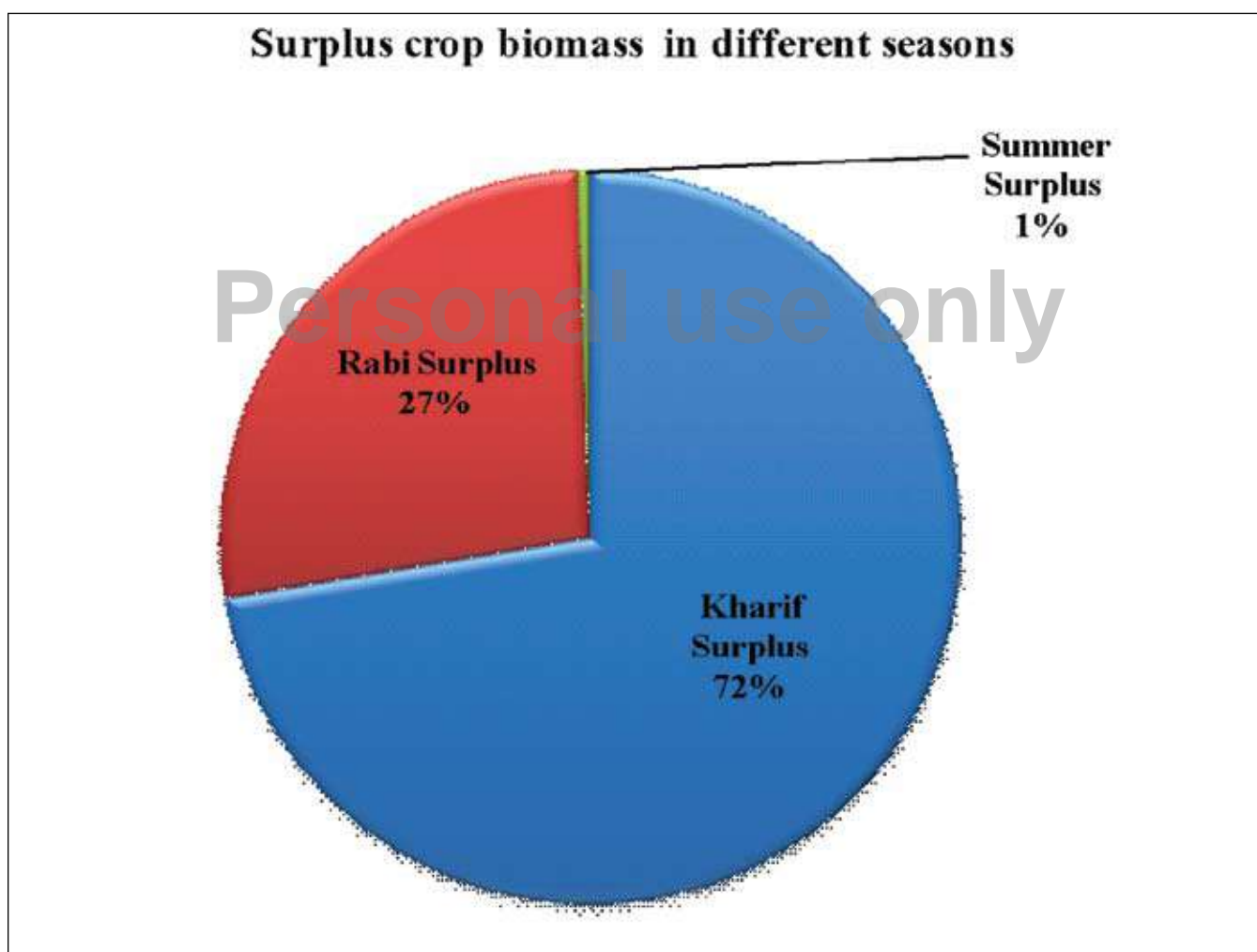


Figure 13: Generation of total surplus crop biomass in different crop seasons

For seasonwise distribution of surplus crop biomass, the State of Uttar Pradesh produced maximum (19.25%), followed by Maharashtra (16.66%), Punjab (16.53%), and Gujarat (8.47%) in kharif season. In rabi season 19.71% surplus biomass was produced in Punjab followed by Uttar Pradesh (13.78%), and Madhya Pradesh (10.63%). The States of Bihar (7.8%), Maharashtra (7.9%) and Rajasthan (7.3%) generated 23% of the surplus biomass in rabi season.

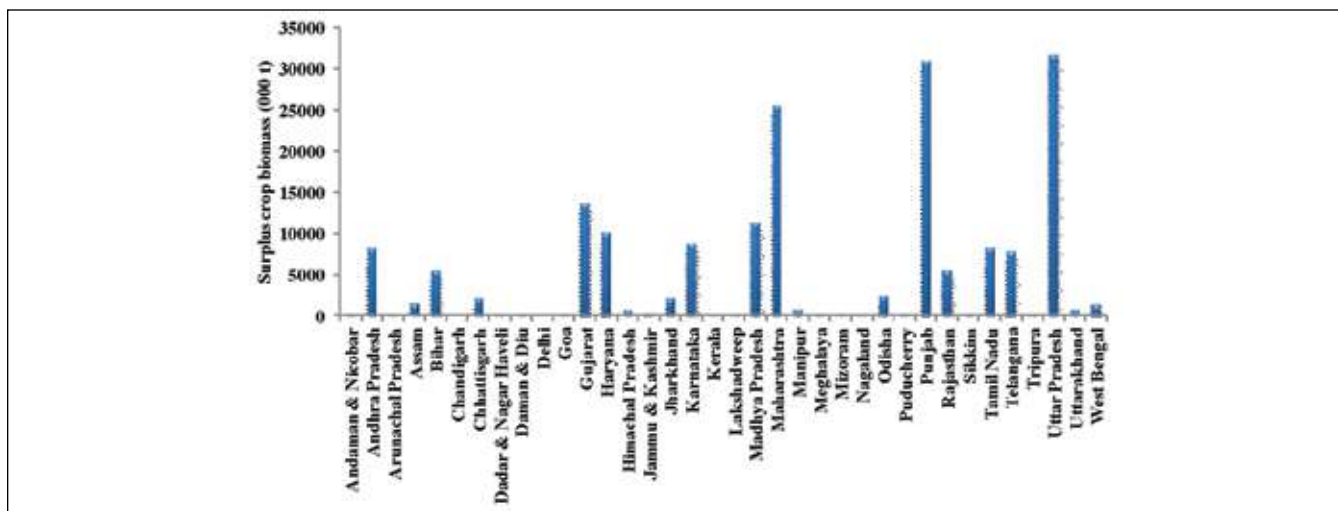


Figure 14: Statewise total annual surplus crop biomass generated for selected crops in the different States of India

The maximum surplus crop biomass was from rice (43.86 MT), and the minimum was from Tur crop (1.76 MT). The rice crop contributed 24% of total annual surplus dry biomass followed by sugarcane (23%), wheat (14%) and cotton (17%). Rest 22% surplus biomass was contributed by soybean, gram, rapeseed-mustard, maize, groundnut, castor and tur crops (Figure 15). The rice surplus biomass generated in the States of Punjab, Uttar Pradesh Bihar and Haryana was 16.78 MT, 7.44 MT, 3.04 MT and 1.83 MT, respectively. Maximum wheat surplus biomass was also generated in Punjab (9.37 MT) followed by Uttar Pradesh (6.02 MT) and Madhya Pradesh (4.5 MT), whereas, sugarcane surplus biomass was mainly generated in U.P (16.79 MT), Maharashtra (9.25MT), Tamil Nadu (4.59MT) and Andhra Pradesh (3.09MT).. The States of Maharashtra, Telangana, Gujarat, Punjab and Andhra Pradesh generated 6.37MT, 5.22MT, 5.09MT, 3.43MT and 2.55 MT cotton surplus biomass respectively. Among the oilseeds, 86% of soybean surplus biomass was generated in Madhya Pradesh and Maharashtra and 9% in Rajasthan state. For rapeseed-mustard, maximum surplus biomass was generated in Rajasthan state (47.6%) followed by Haryana (29%). Tamil Nadu (1.45 MT, 37.5%) and Gujarat states (0.84 MT, 21.72%) generated maximum groundnut surplus biomass. Out of the total castor biomass generated in India, about 87.62% is surplus and is generated in Gujarat State. Season-wise generation of surplus biomass from major crops in different states is summarized in Table 35.

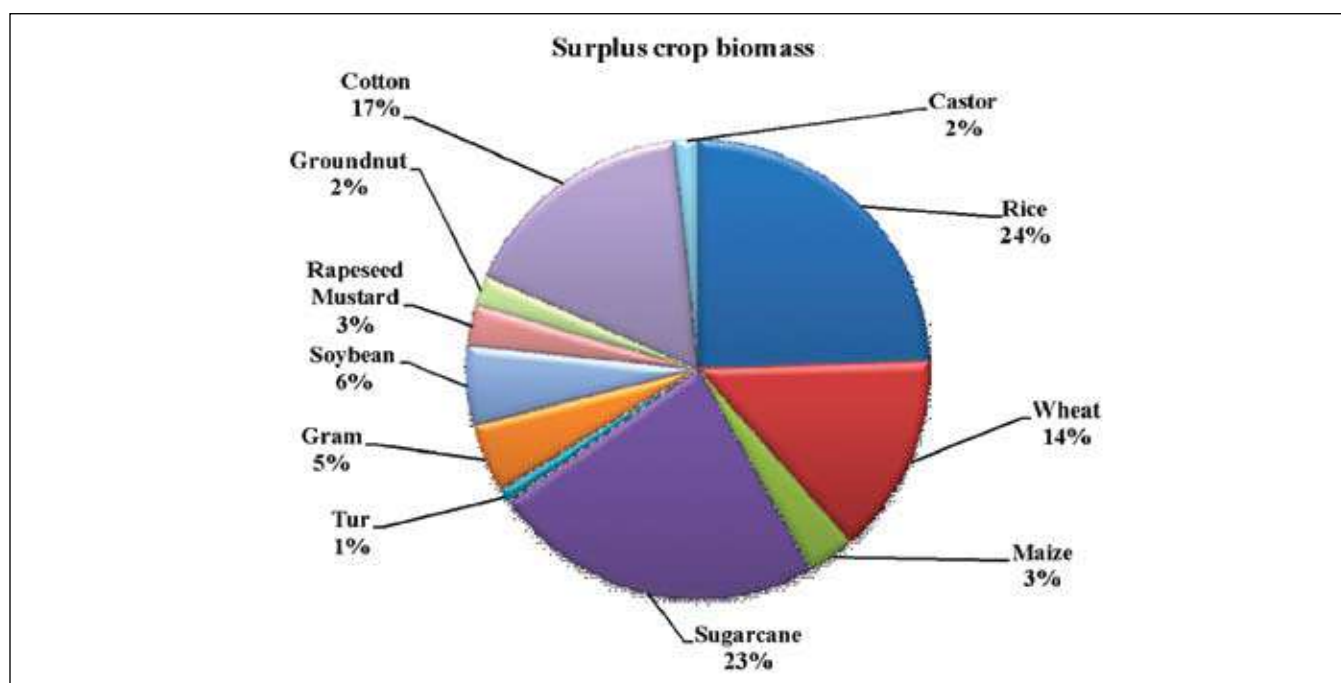


Figure 15: Share of selected crops in surplus crop biomass

**Table 35: Season wise generation of surplus biomass from major crops in different states**

Season	Crop	States
Kharif	Rice	Punjab, UP
	Sugarcane	UP, Maharashtra, TN, AP, Karnataka
	Cotton	Maharashtra, Telangana, Gujarat,
	Soybean	Maharashtra, M.P, Rajasthan
Rabi	Wheat	Punjab, UP, MP
	Gram	Maharashtra, Karnataka, Rajasthan
	Rice	Bihar
	Rapeseed & Mustard	Rajasthan, Haryana

The district wise crop surplus biomass generated ranged between 0.0 and 2330 kt in Kharif season, 0.0 and 784 kt in rabi season and 0.0 and 36.4 kt in the summer season. Although the crop biomass generation during Kharif season was high in districts of Karnataka (Belagavi), UP (Kheri) followed by Maharashtra (Kolhapur and Pune), the largest surplus crop biomass generated was in the districts of Punjab (Sangrur, 2330 kt), Ludhiana (2157 kt) and Patiala (1617 kt)), Uttar Pradesh (Bijnour (1702 kt) and Muzaffarnagar (1676 kt)) and Maharashtra (Kolhapur (1696kt) and Solapur (1588 kt). Rice was the main crop contributing to surplus biomass in Punjab while sugarcane mainly contributed in UP and Maharashtra. During Rabi season also districts of Punjab (Ludhiana (784 kt), Sangrur (748 kt), Jalandhar (689 kt) and Firozpur (661 kt)) and UP (Kheri, 753 kt) had maximum share of crop surplus biomass. Wheat crop is the main contributor towards surplus biomass in rabi season. The surplus biomass was negligible in the summer season as compared to kharif and rabi seasons. The spatial distribution of the cropwise season-wise surplus biomass generation in different districts of India is given in Annexure 1. The detailed data on cropwise surplus biomass generated in different districts seasonwise is given in the Tables (36-43) appended as Annexure 2.

### 4.3 Bioethanol production potential of surplus crop biomass

The 2nd generation bioethanol production potential from surplus crop biomass was estimated based on their cellulose content. The cellulose and hemicelluloses content of selected crop biomass used in the study varied between 27% and 46% and 12.4 and 30.3% respectively as shown in Table 9.

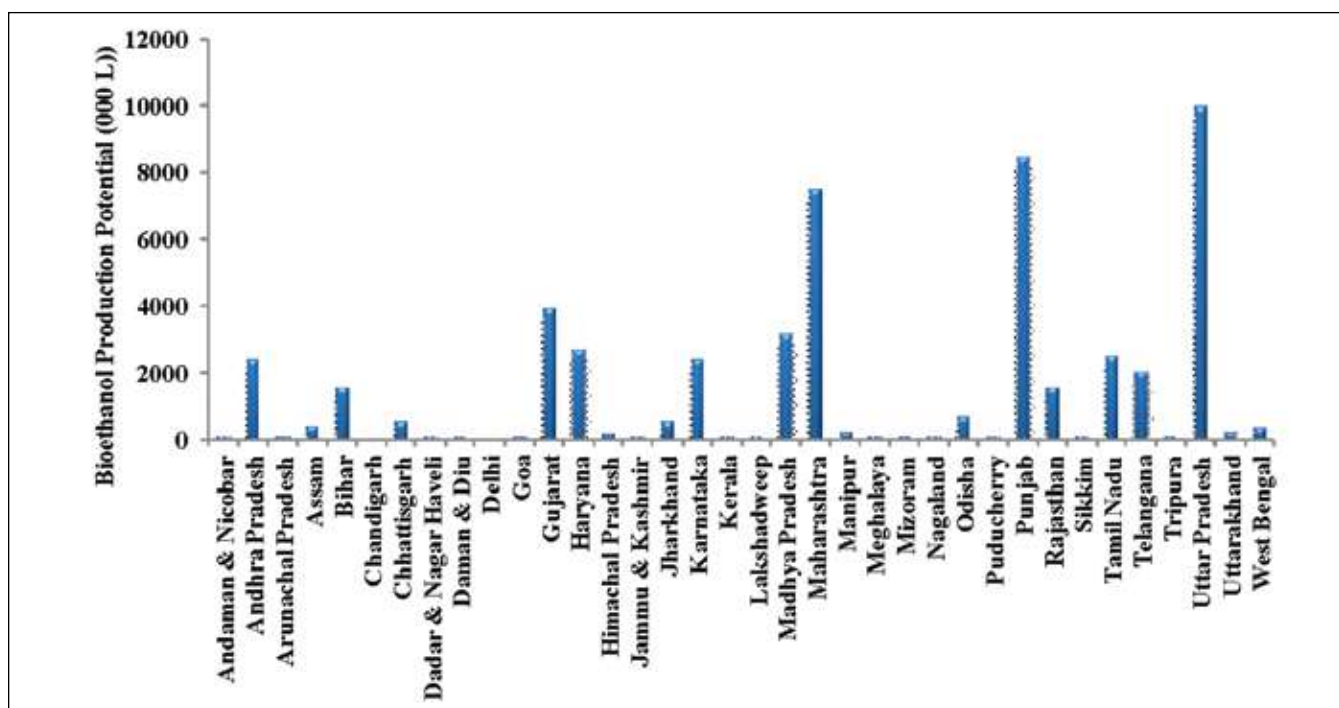


Figure 16: Statewise annual total bioethanol production potential of selected crops



The total annual bioethanol production potential of the country is 51.35 billion litres (BL) from 178 MT of surplus crop biomass generated. The ethanol production potential in the country ranged between 0.06 ML and 9941 ML across the States (Figure 16). Out of the total annual bioethanol potential, 38.04 BL can be produced in Kharif season and 13.08 BL in rabi season (Figure 17). The maximum potential was found in the State of Uttar Pradesh (9940 ML) followed by Punjab (8459 ML), Maharashtra (7494 ML), Gujarat (3910 ML) MP (3162 ML) and Haryana (2685 ML) states. These six states account for approximately 69 % of the total annual bioethanol potential. During Kharif season UP, Punjab, Maharashtra and Gujarat show higher potential, whereas Punjab, UP, MP and Maharashtra states show higher potential in rabi season.

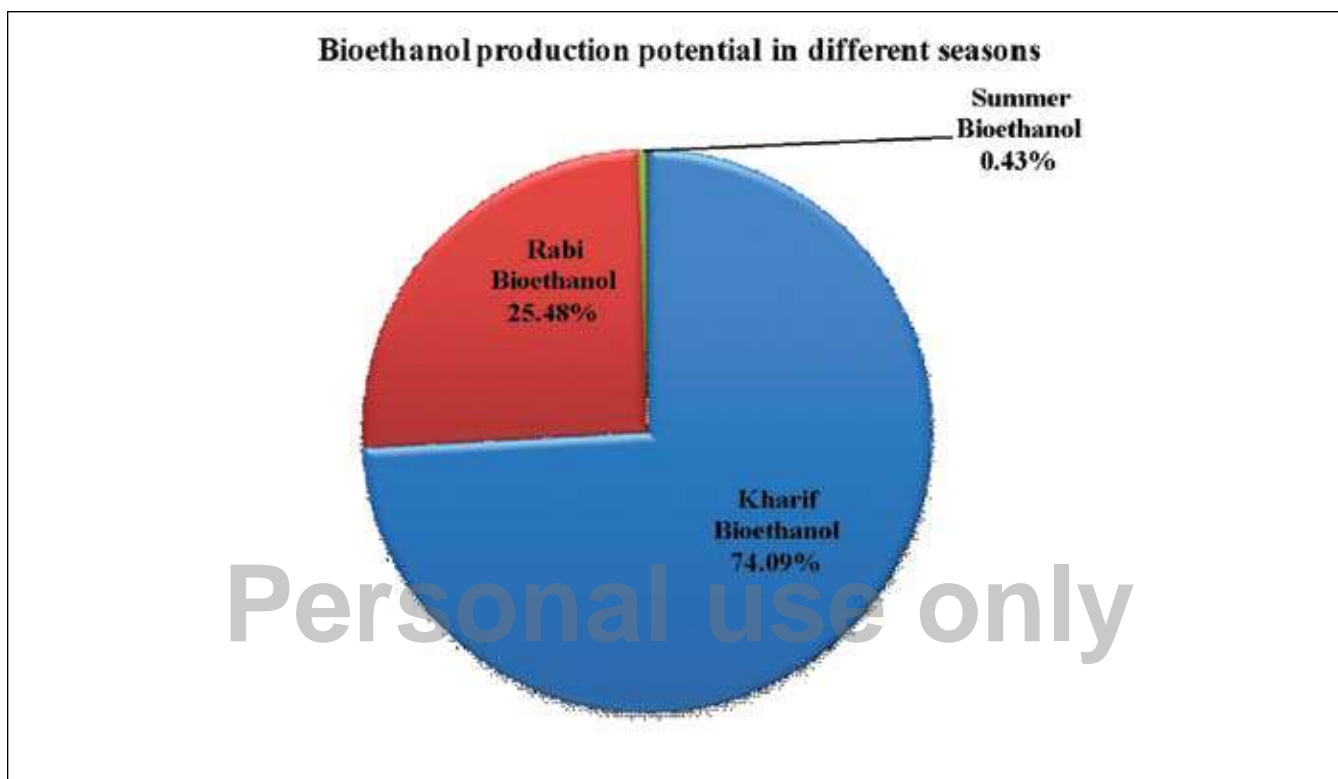


Figure 17: Annual total bioethanol production potential in different crop seasons for the selected crops

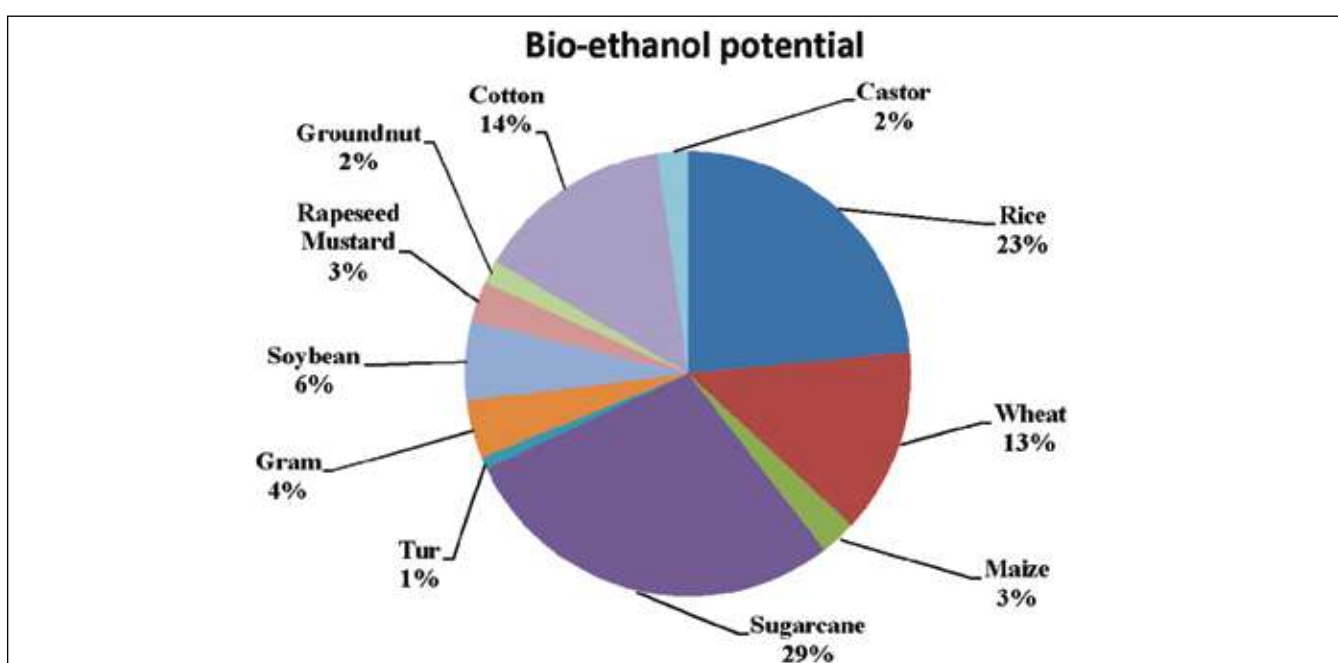


Figure 18: Annual total bioethanol production potential of selected crops

The districtwise annual bioethanol production potential in the country ranged between 0.003 kL (Nicobar) and 897 kL (Sangrur). In Kharif season Sangrur (653 kL), Ludhiana (604 kL) and Patiala (454 kL) districts of Punjab, Bijnor (542 kL), Muzaffarnagar (535 kL) and Pilibhit (487 kL) districts of UP and Kolhapur (523 kL), Solapur (507 kL) and Pune (493kL) districts of Maharashtra showed higher potential. The bioethanol production potential in rabi season was one-third of that in Kharif season. Districts of Punjab (Ludhiana, Sangrur, Jalandhar, Firozpur, Amritsar), UP (Kheri and Jaunpur) and Bhiwani district of Haryana showed higher bioethanol potential in rabi season. The cropwise maximum bioethanol potential was of sugarcane crop biomass followed by rice, cotton and wheat crop biomass (Figure 18). Although wheat biomass can be used efficiently as animal fodder but due to the increased use of combine harvester and less or no livestock per farmer family, the wheat biomass is also subjected to burning in the fields and is increasing in parts of central India like the state of Madhya Pradesh also. Therefore, wheat biomass can also be utilized efficiently for bioethanol production in the states with higher surplus biomass. The spatial distribution of the cropwise season-wise bioethanol potential of surplus biomass in different districts of India is given as Annexure 1. The detailed data on cropwise surplus biomass generated in different districts seasonwise is given in the Tables (36-43) appended as Annexure 2.

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## 5. CONCLUSIONS

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The study estimated the total and surplus biomass generated for eleven major crops at the district level in three crop growing seasons for India. Further, the study estimated the bioethanol production potential from the surplus biomass generated at the district scale. The basic data used was the crop area and production statistics at district level released by the Ministry of Agriculture & Farmer's Welfare. The study involved generating crop wise factors for converting economic yield to dry biomass. Based on farmer's survey, review of the literature, and expert opinion, the factors for surplus biomass were computed for each crop in different regions of the country. Applying the estimated crop-wise factor for bioethanol generation, the bioethanol production potential was calculated. For each crop in a season, the district scale crop-wise area, dry biomass, surplus biomass and bioethanol production as district total as well as per hectare were mapped.

Of the total gross sown area of 195 million hectares in India, the selected eleven crops occupy about 137 million hectares. The rice, wheat, cotton and soybean crops occupy about 72% of the 137 million hectares. The study estimated total dry biomass of 683 MT from the eleven major crops in three seasons for whole India. Out of the total annual crop biomass, 58.57% is generated during Kharif season and 39% during the rabi season. After different usages of this crop biomass by farmers there is still some surplus left which can be utilized for bioethanol production for use in blending the fossil fuel. Out of this total annual dry biomass, approximate 26% is surplus which is about 178 MT. The season wise surplus is highest in Kharif season, and the major crops contributing to surplus biomass are rice sugarcane cotton and soybean. In rabi season wheat, gram, rice and mustard are the major crops contributing to surplus crop biomass. Corresponding to the surplus biomass, it is estimated that annual total bioethanol production potential is about 51.35 BL, which can significantly increase the biofuel in the country thereby contributing to the blending of fossil fuel. The current demand (in 2017-18 as per report from Petroleum Planning & Analysis Cell) for gasoline in India is 26.17 MT (35.5 BL). Even if we are able to produce 70% of its potential, the country will be self sufficient.

The surplus biomass and bioethanol production maps may help the policymakers, industry and other stakeholders in prospecting the required biofuel production units across India. This may remove government dependency on import, may help in providing a cleaner environment, and additional income to farmers.

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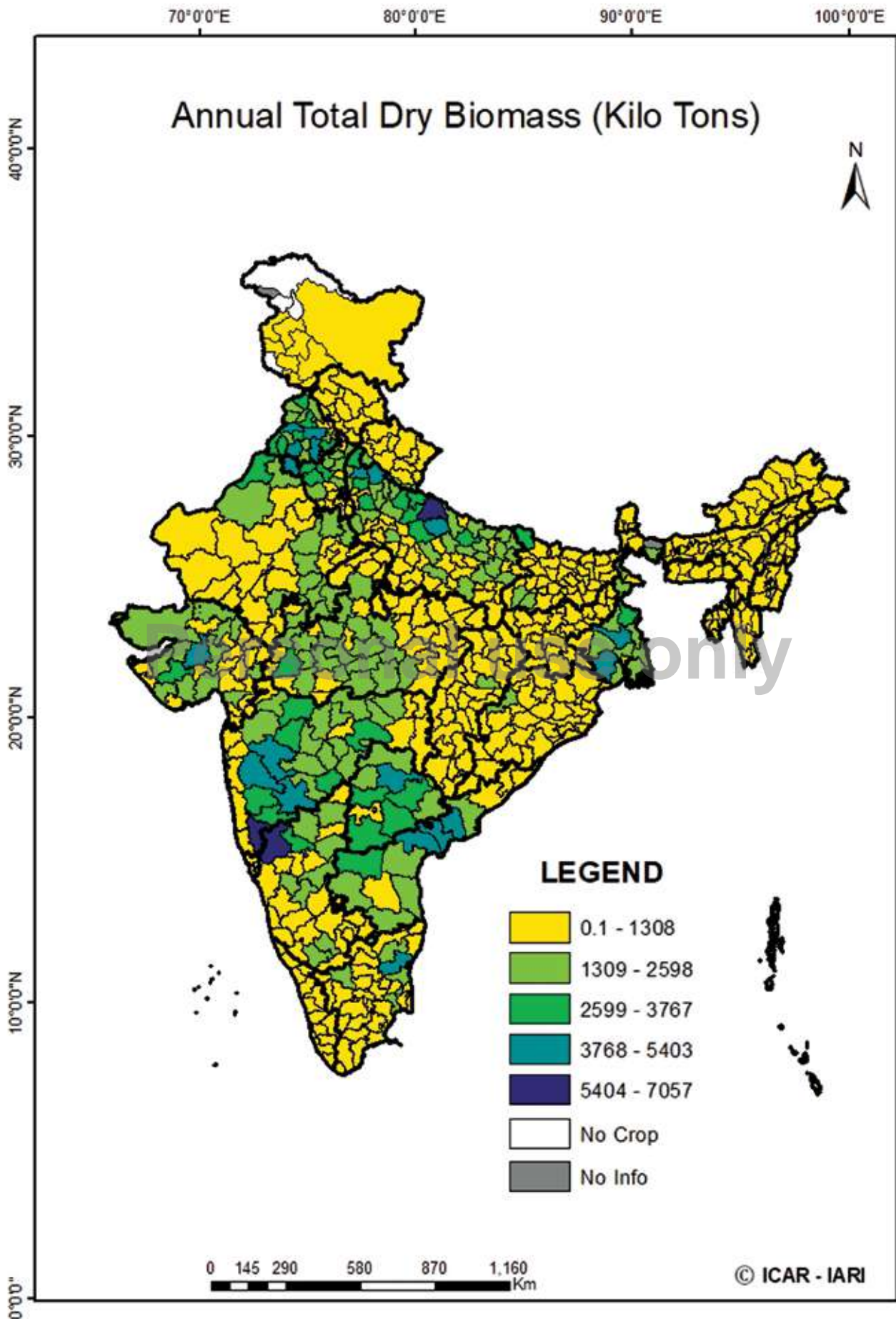
## ANNEXURE - 1

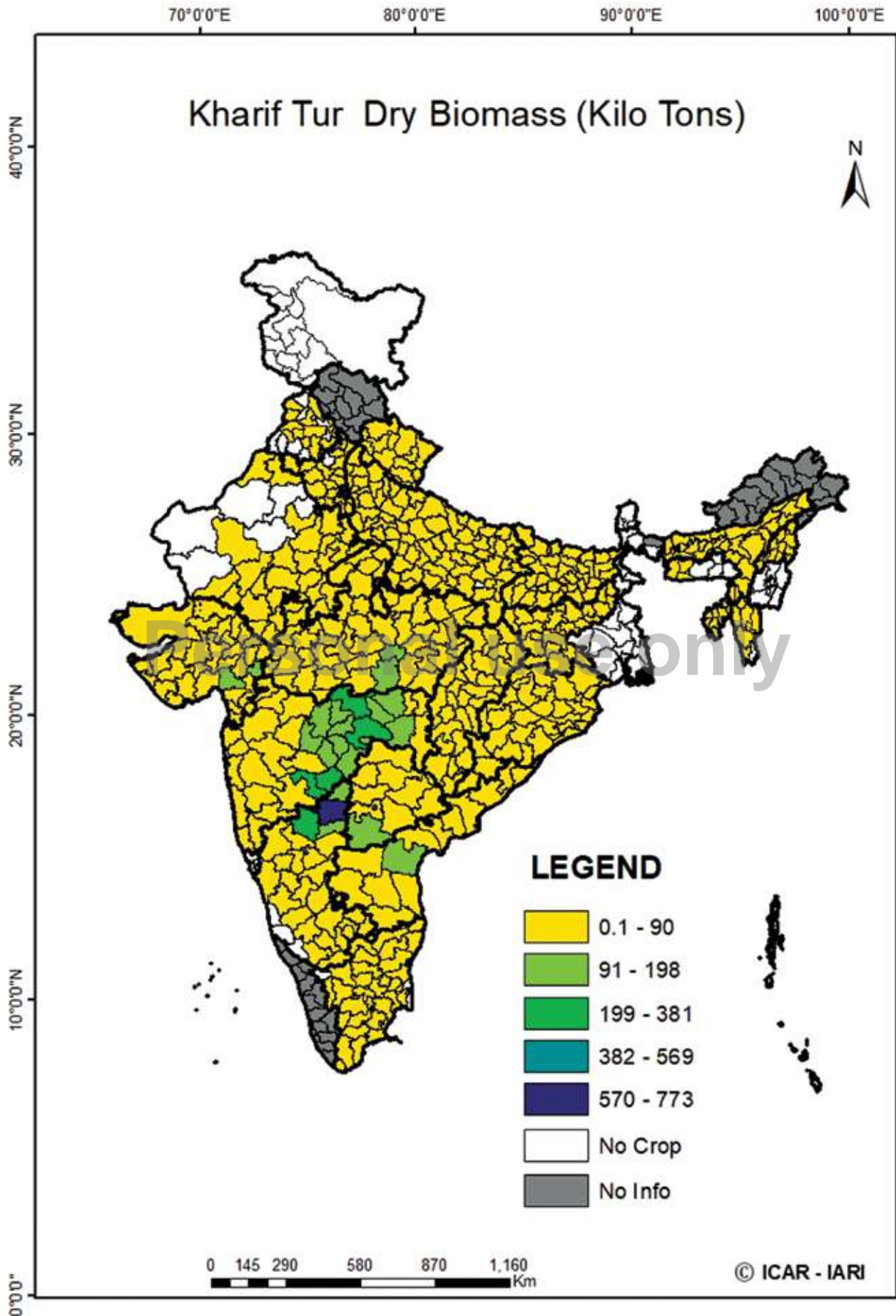
**Spatial distribution of cropped area, biomass (dry biomass generation and surplus available) and bioethanol potential of selected crops in different growing seasons**

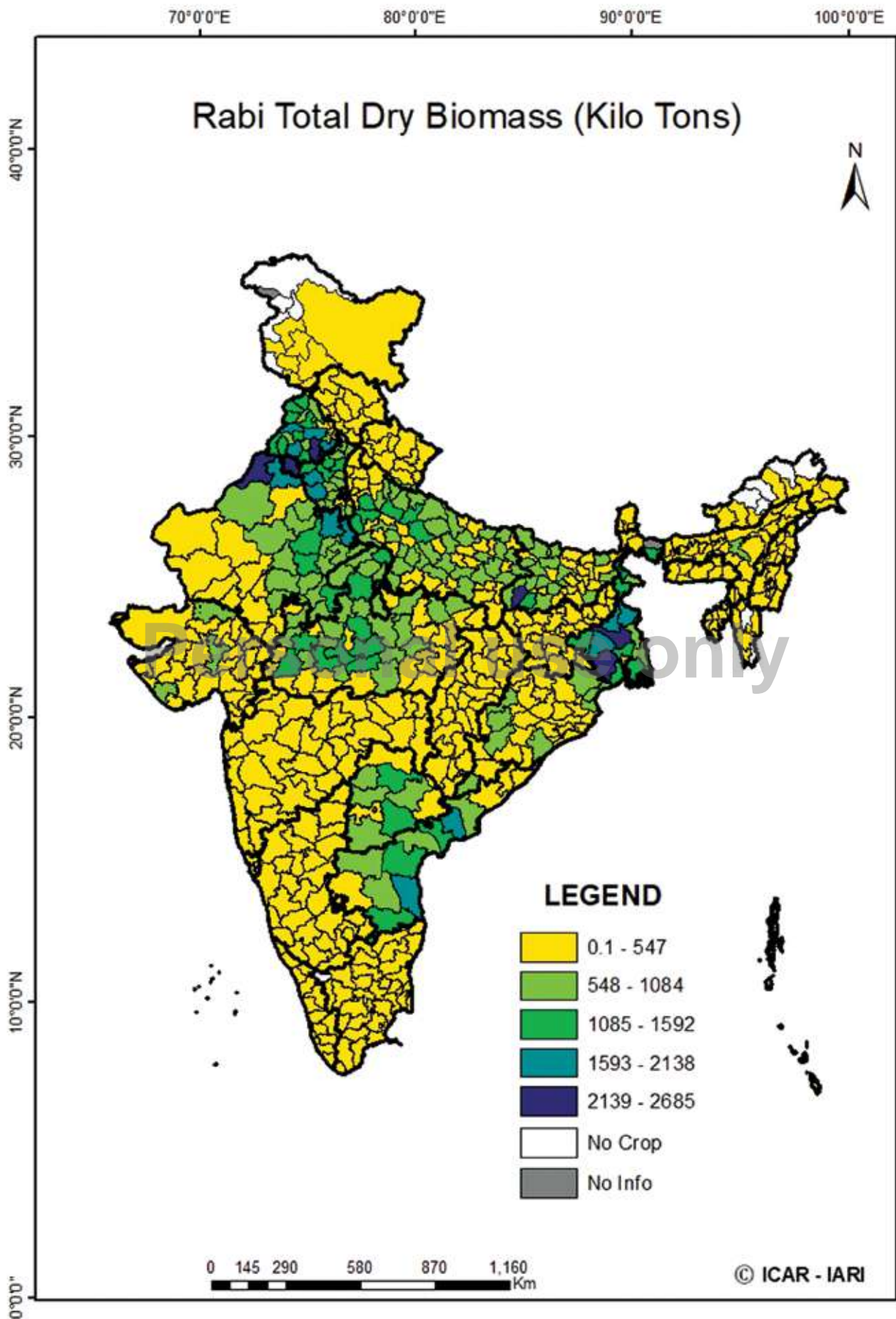
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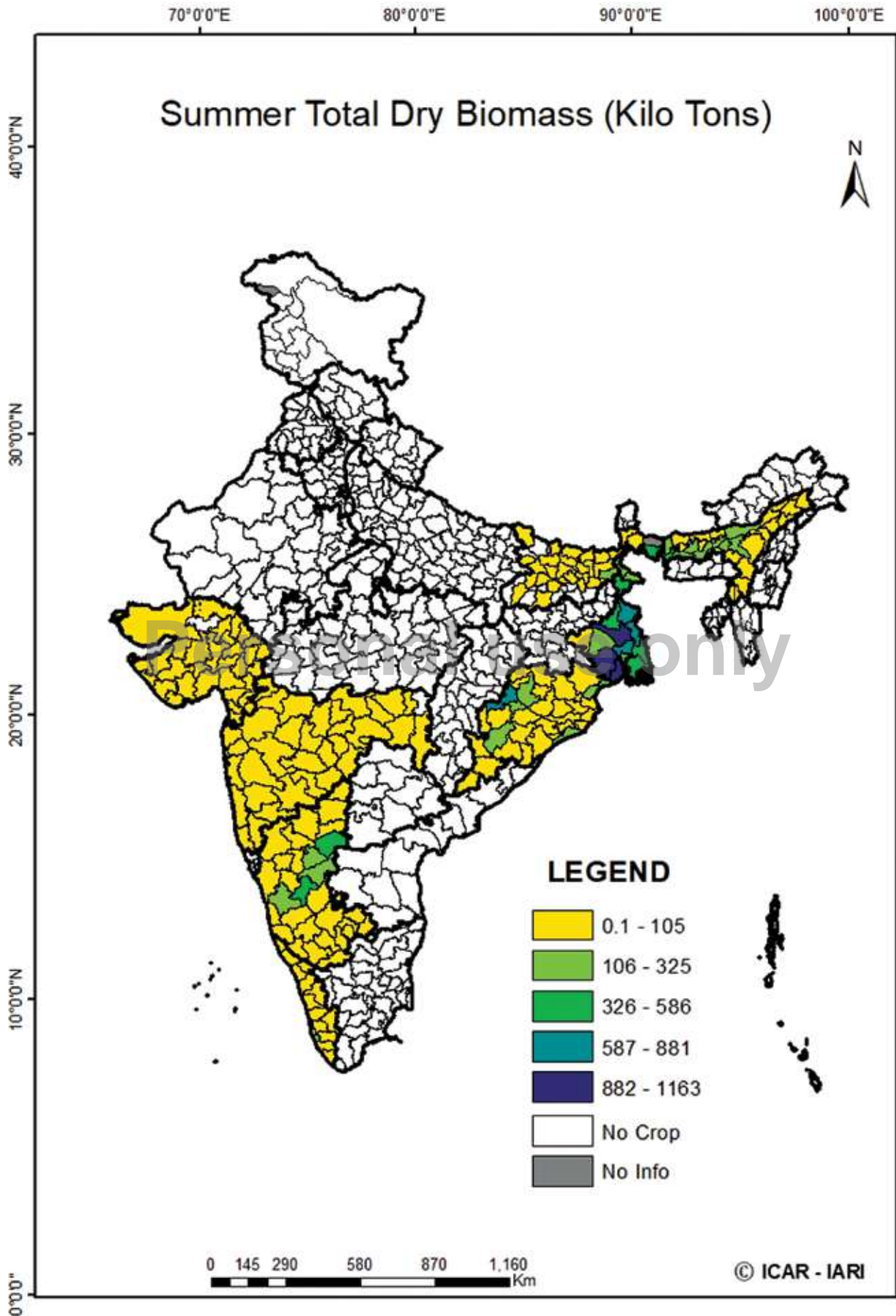


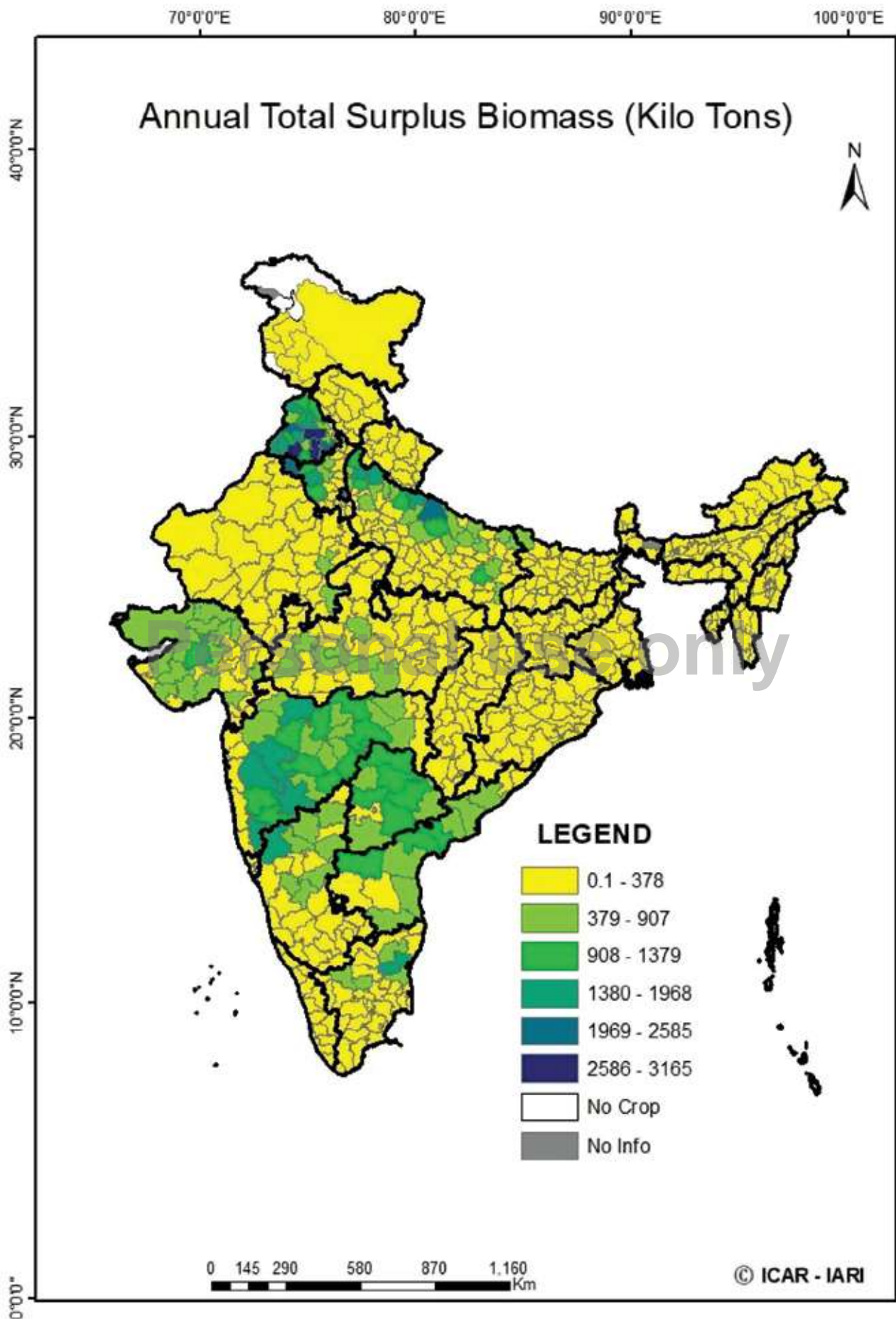


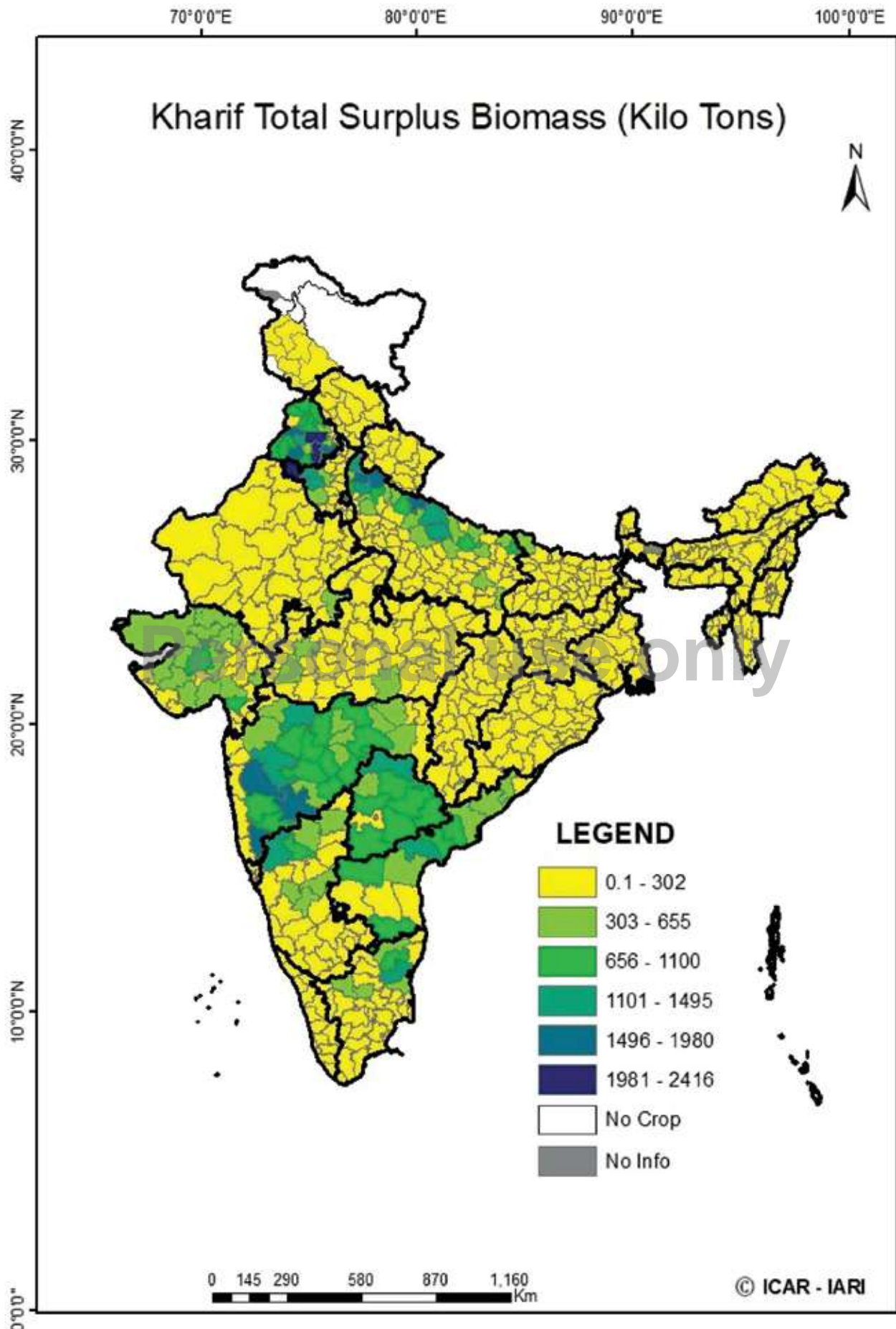




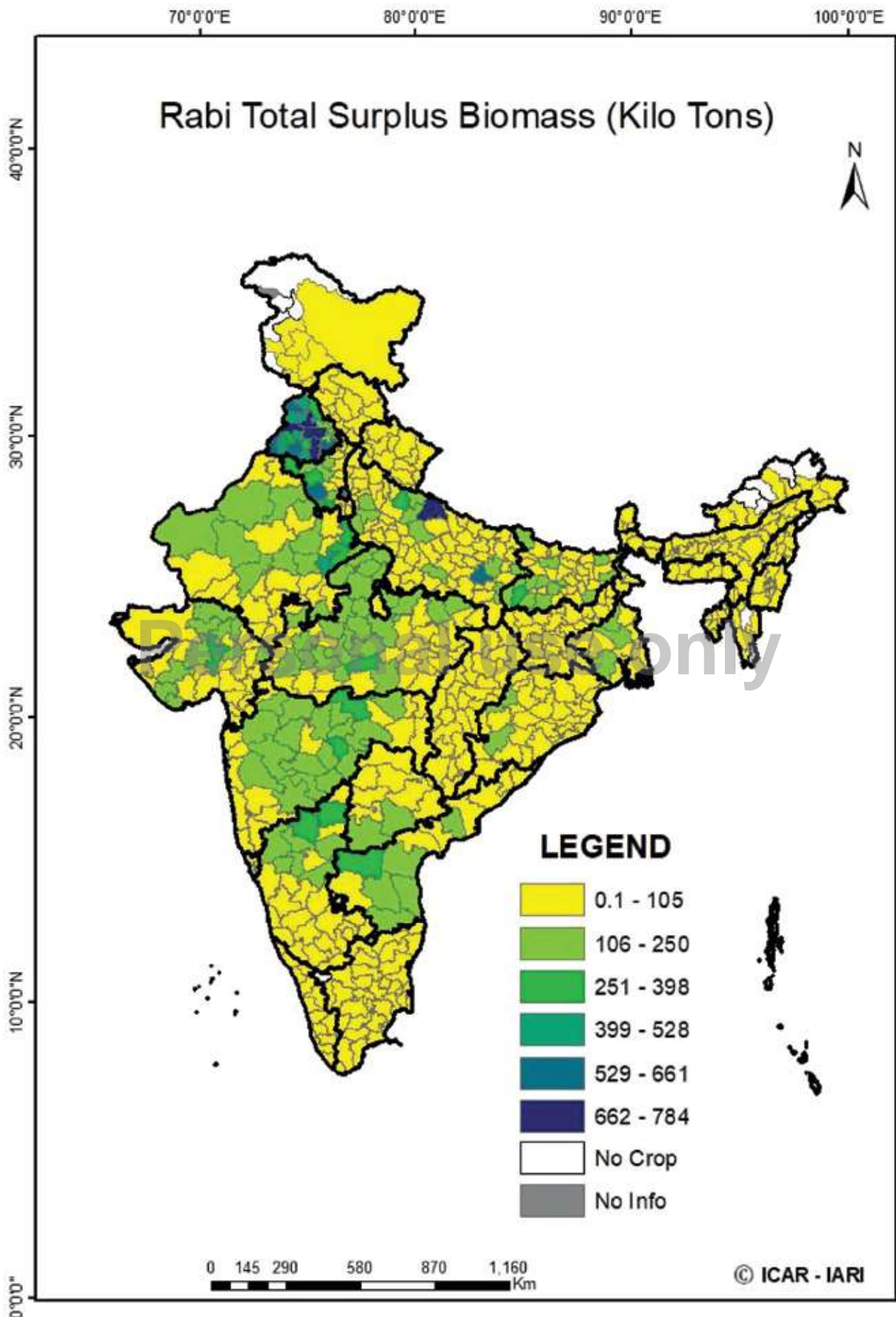


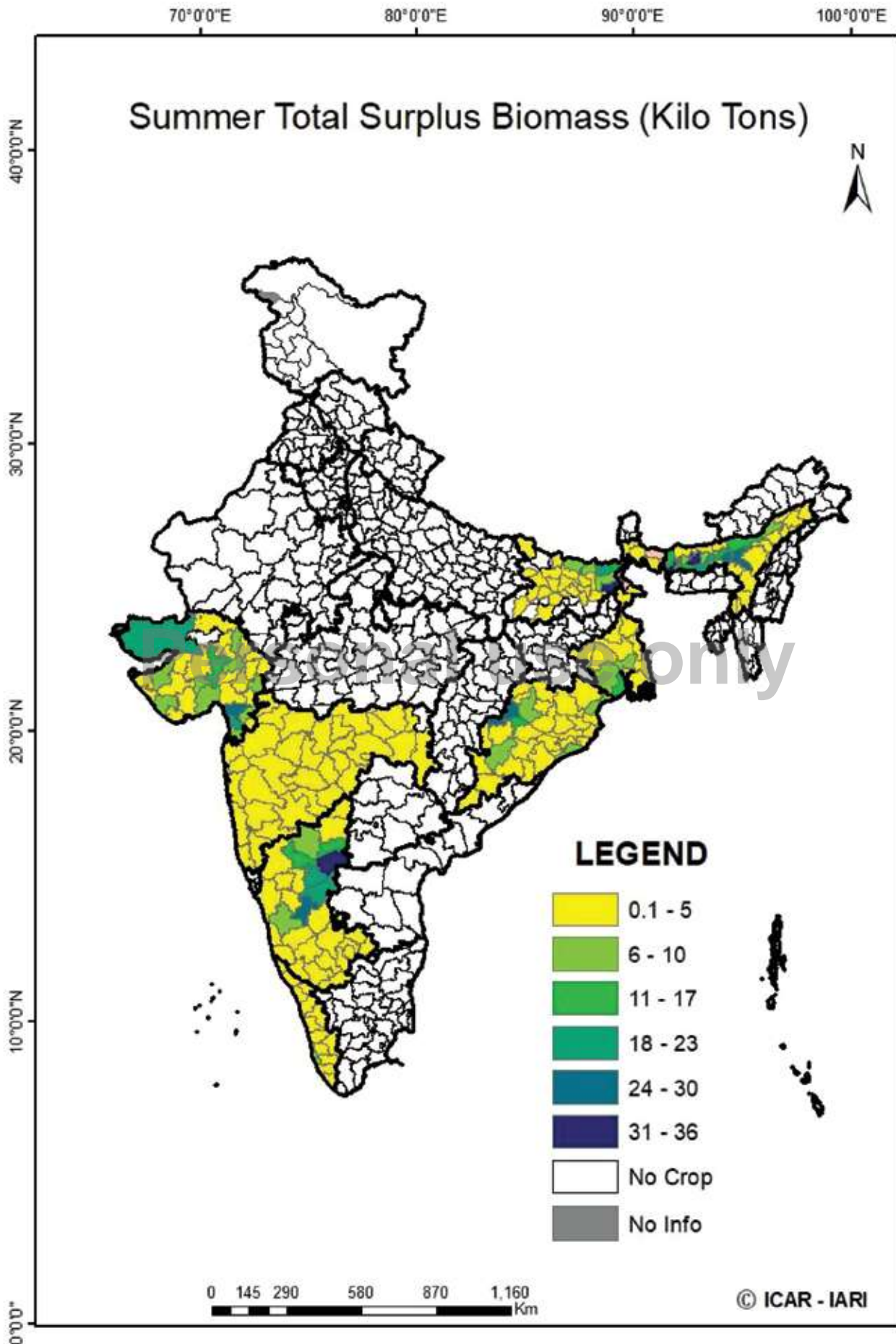




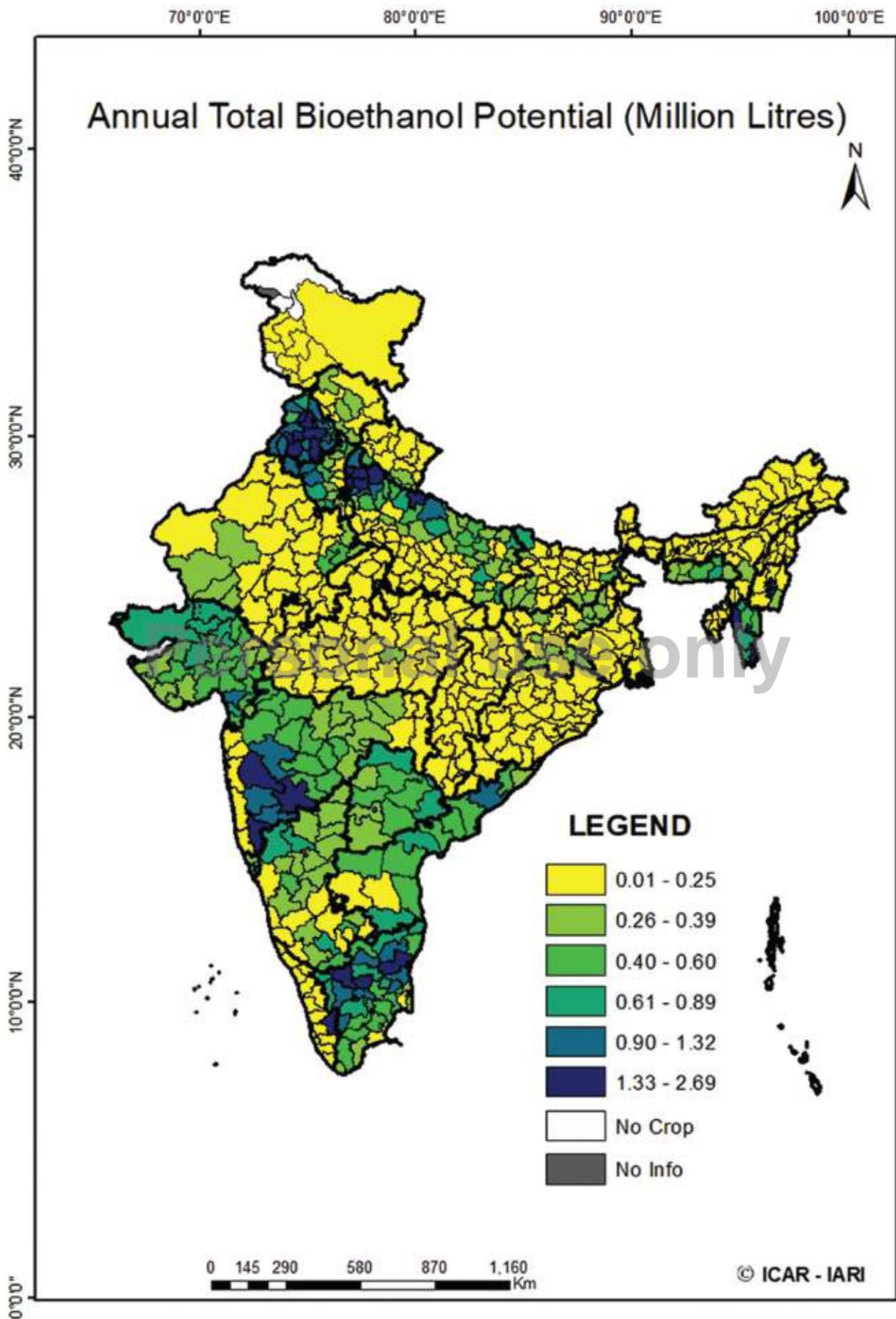


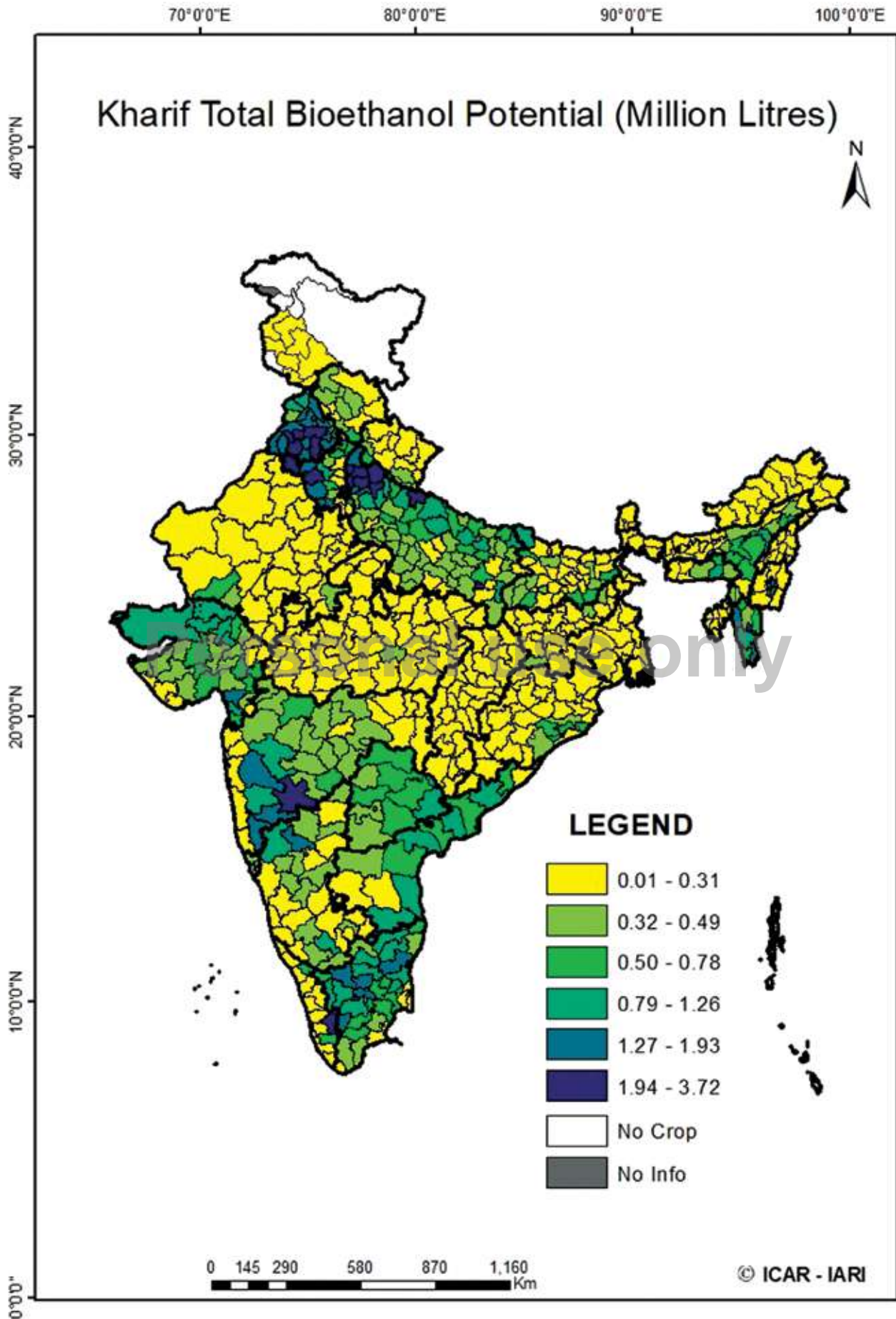


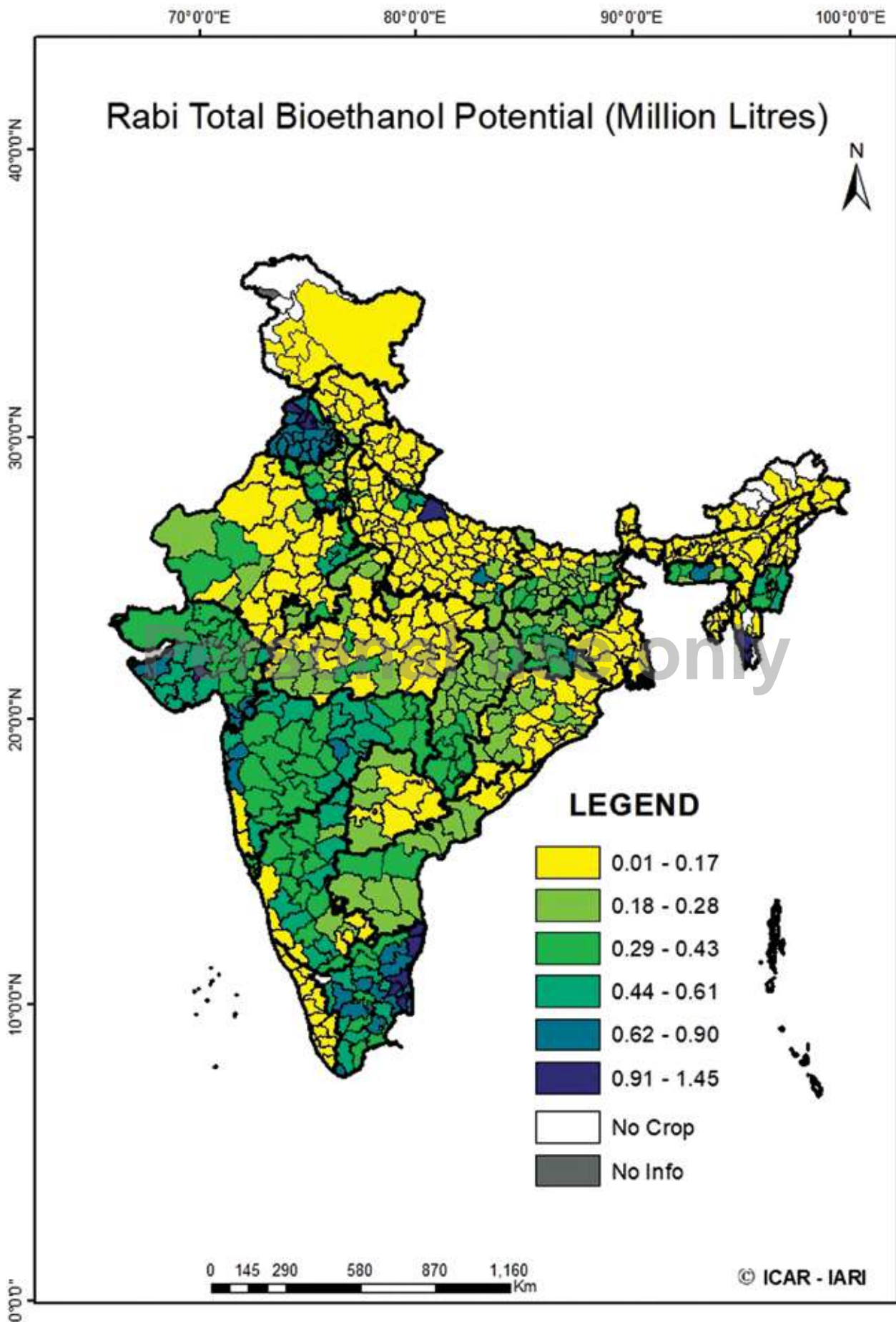




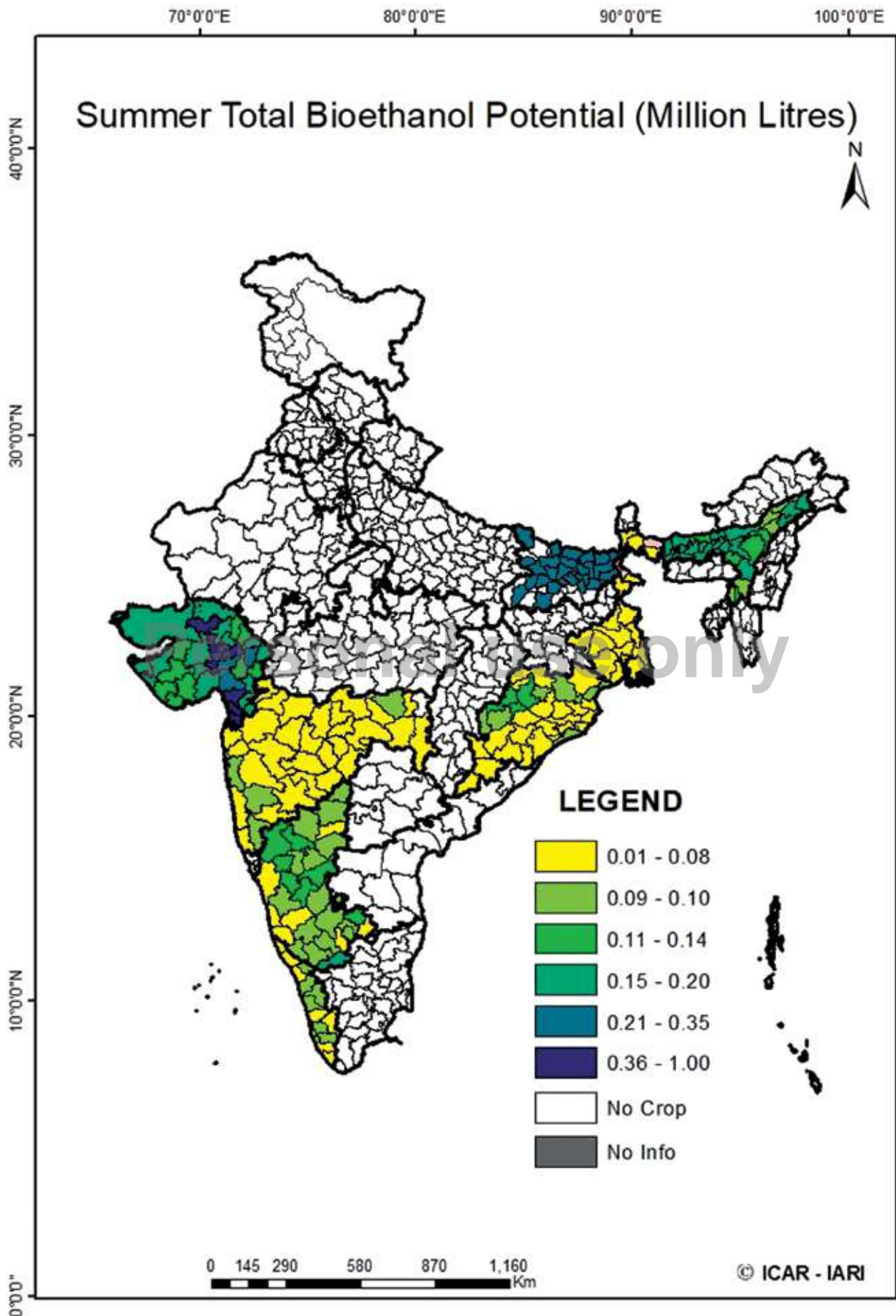


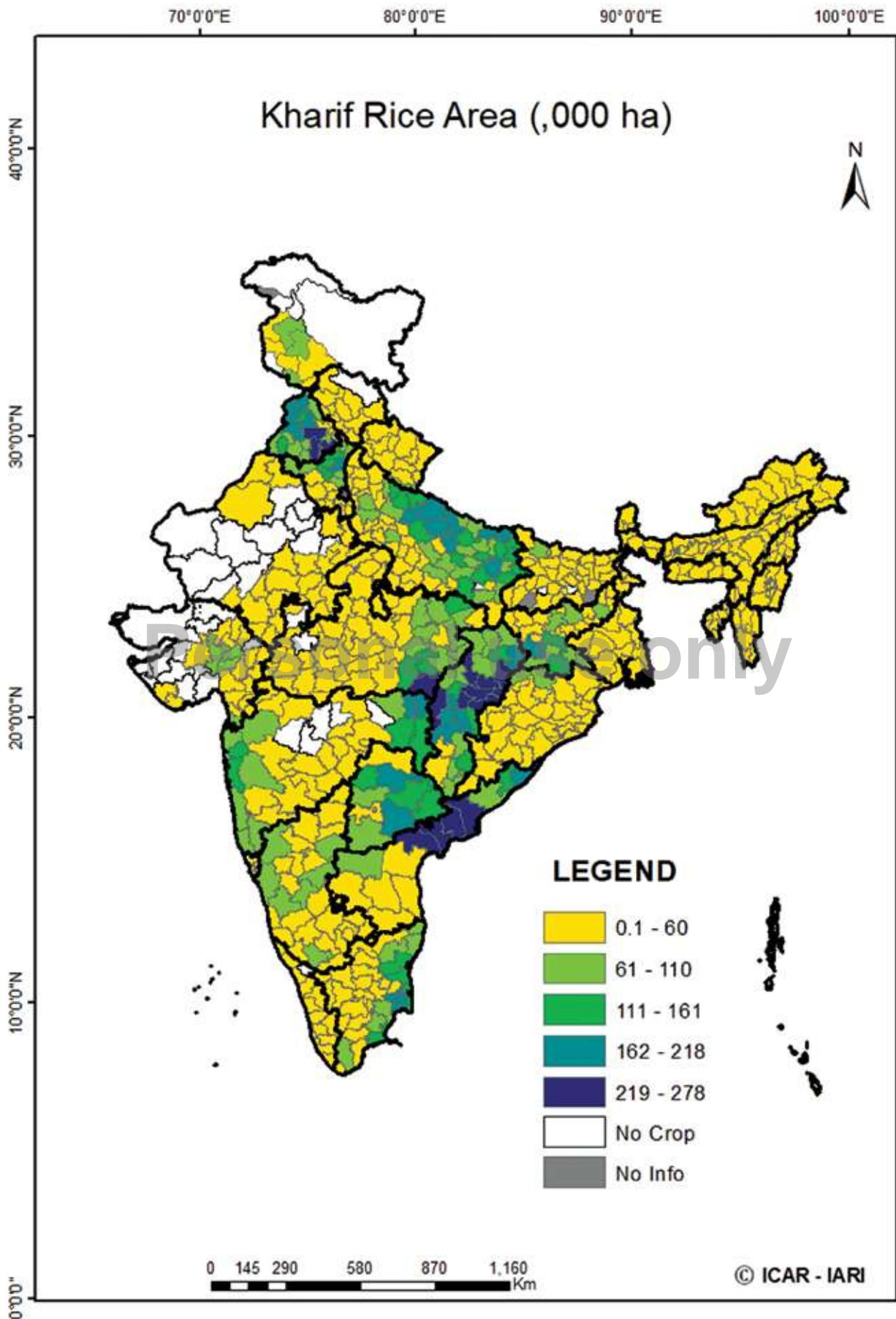


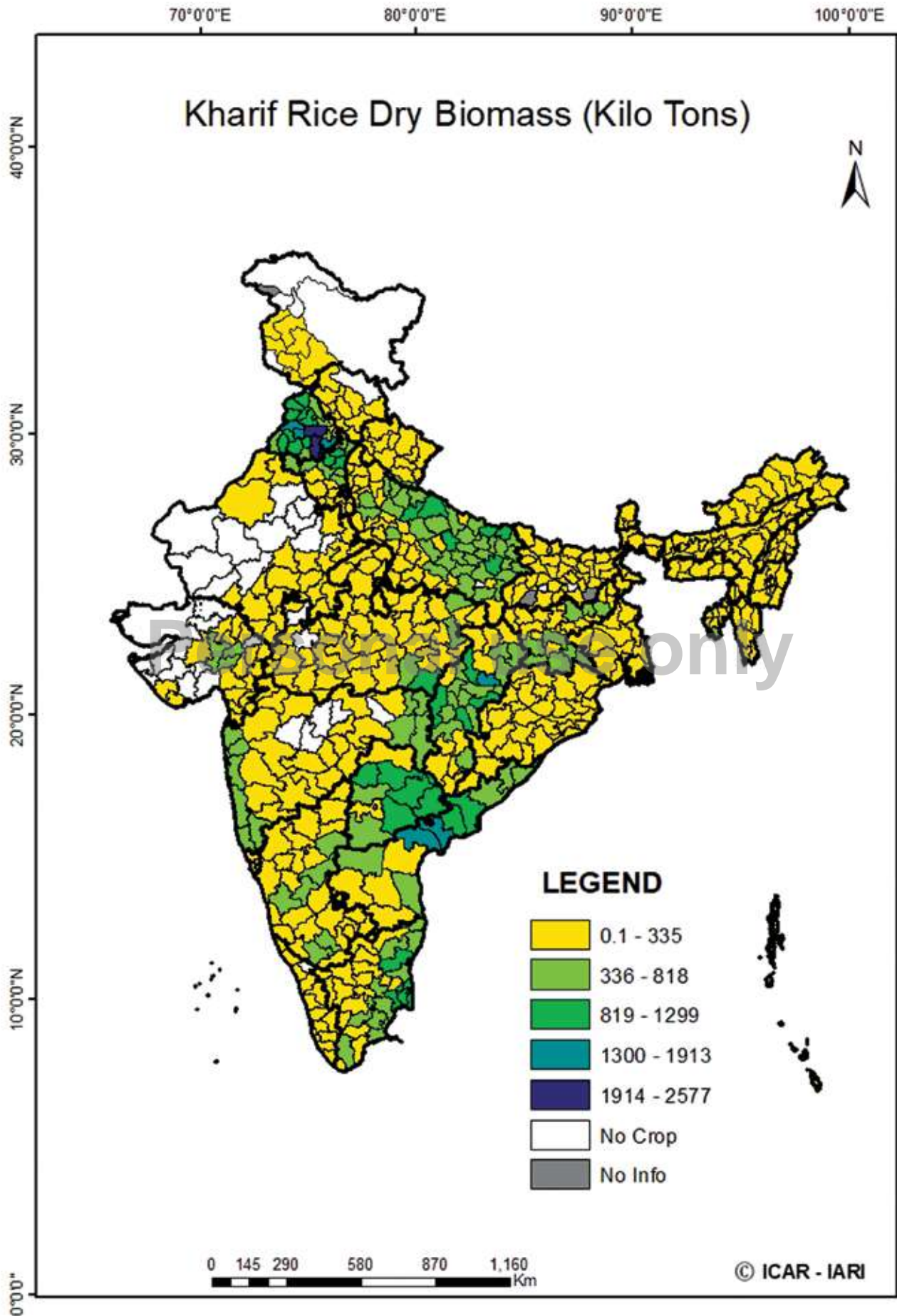




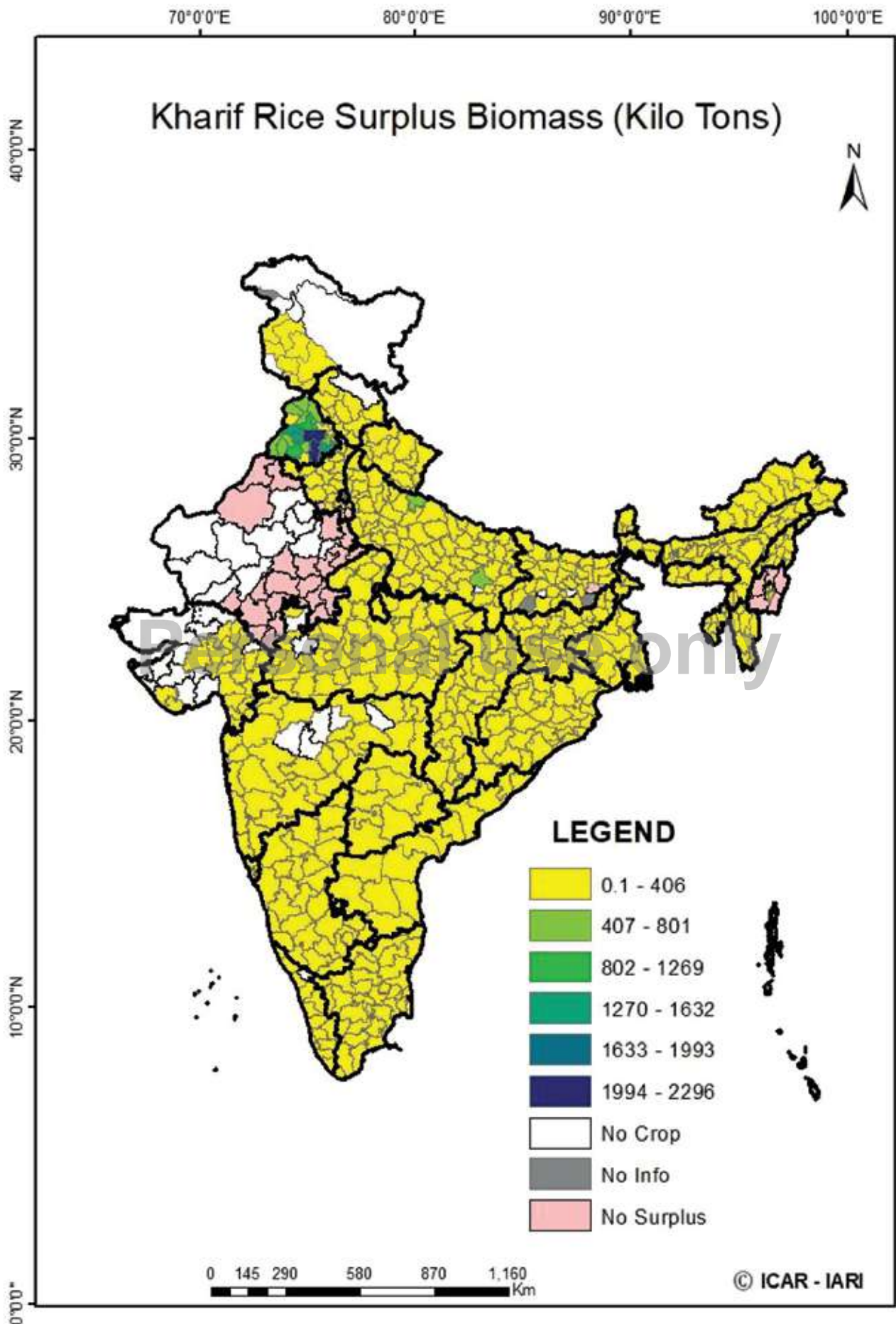


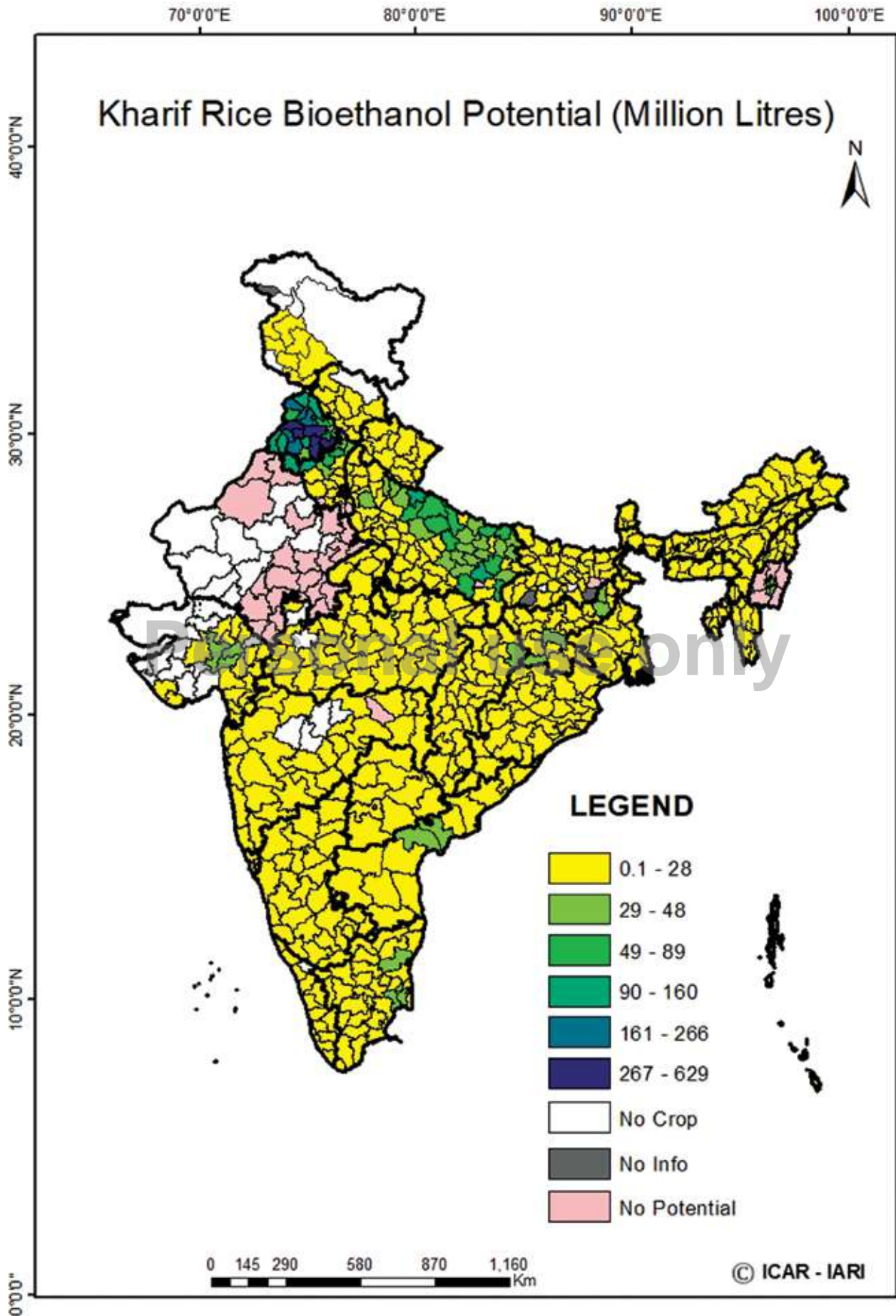




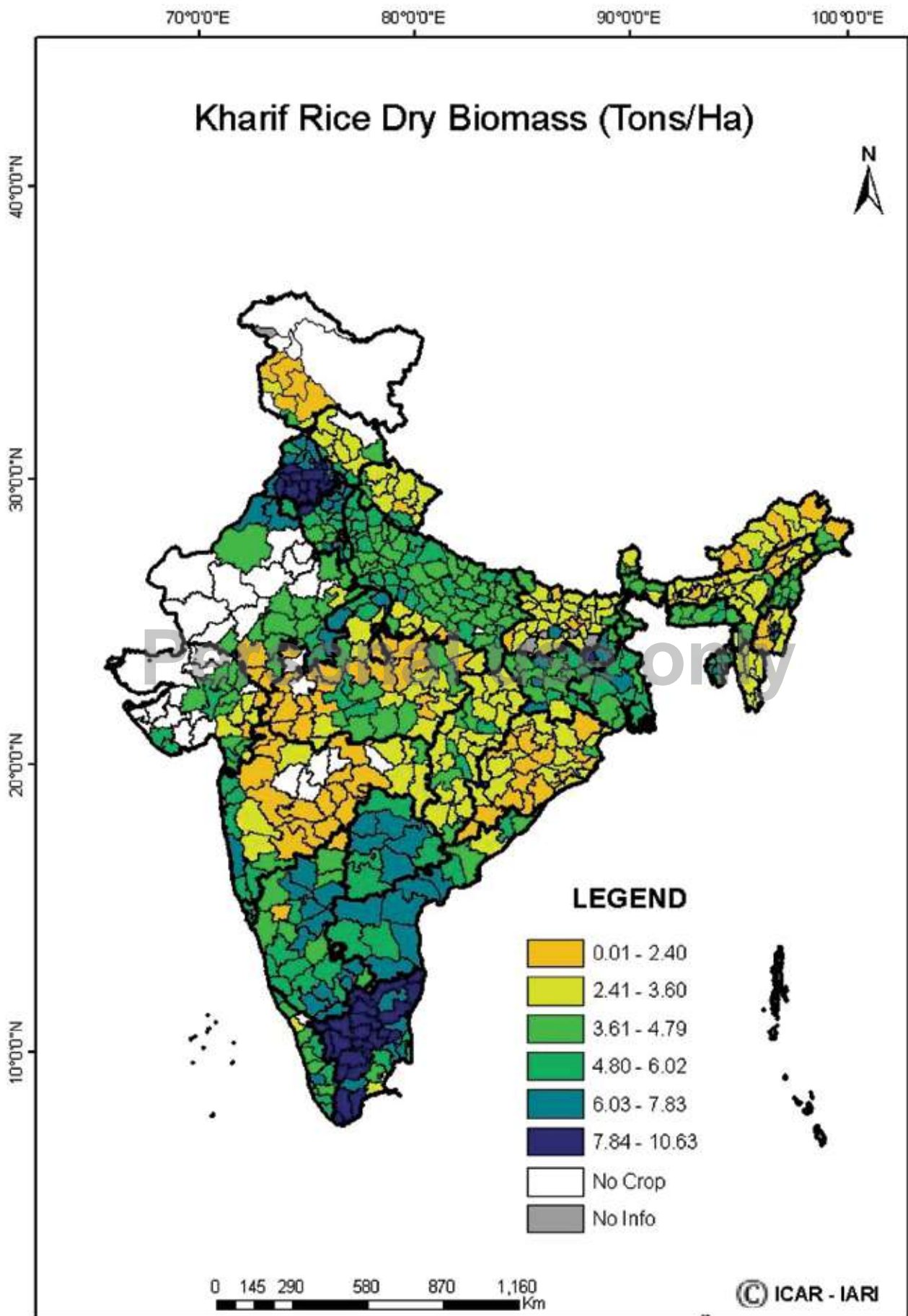


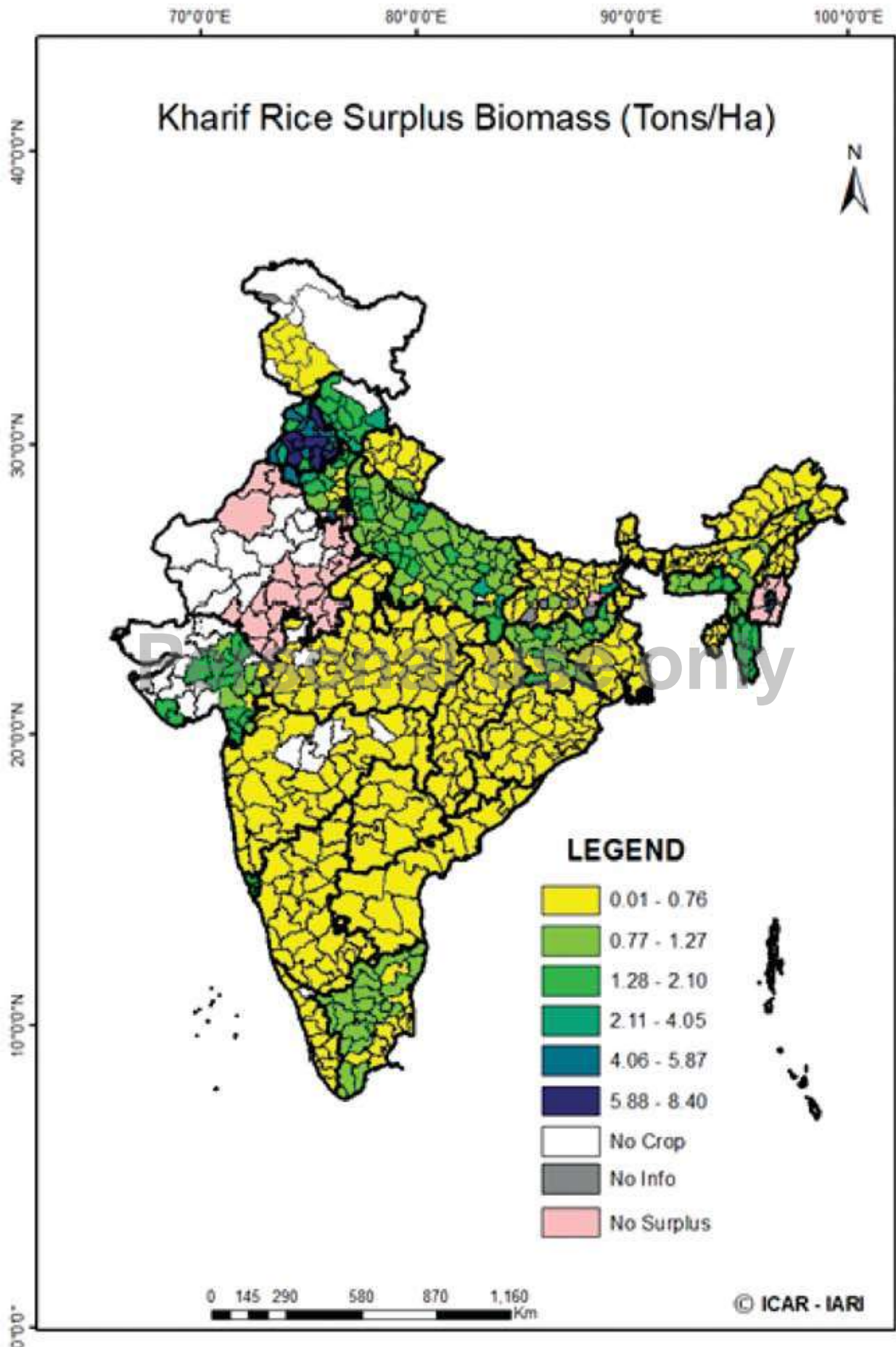


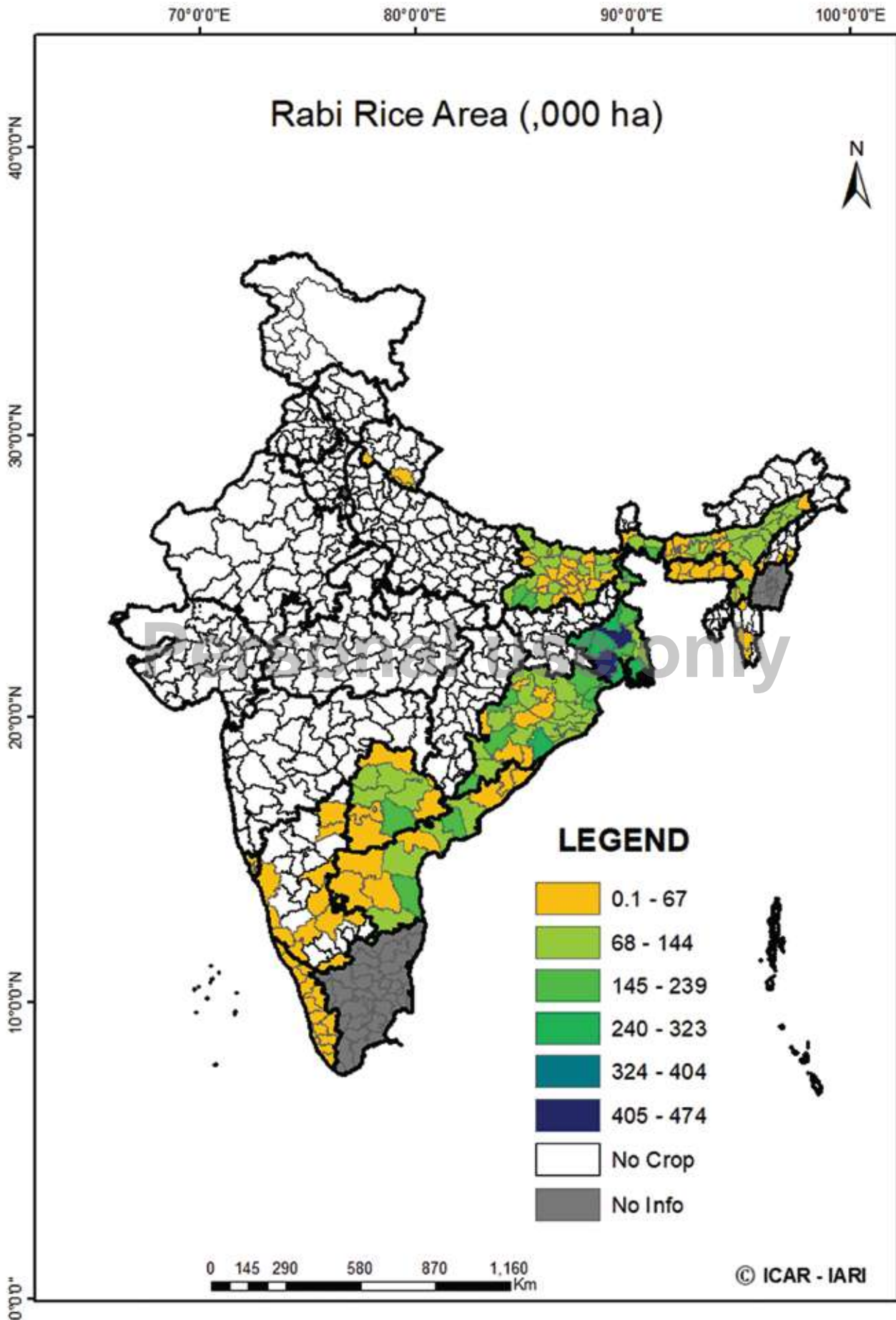




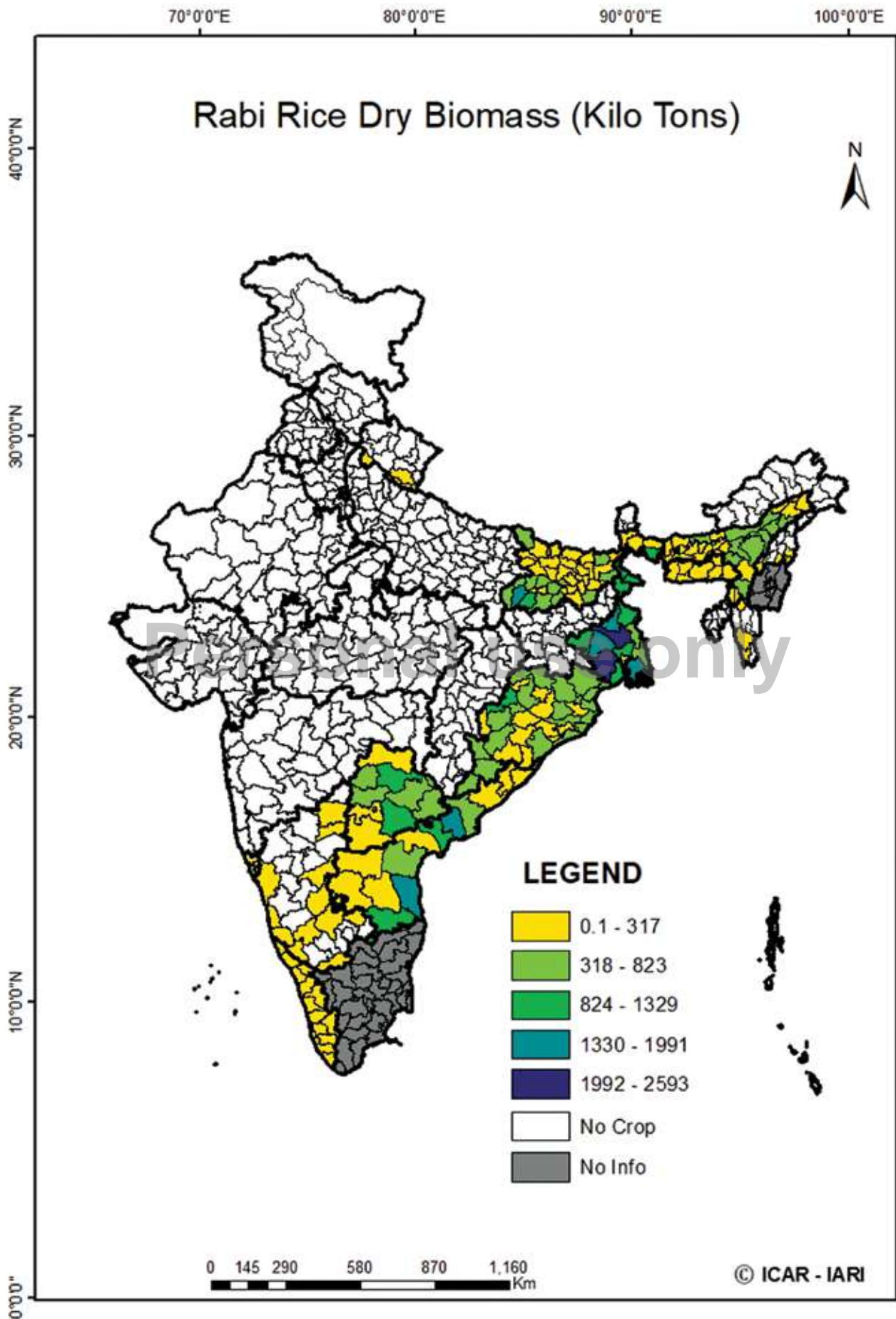


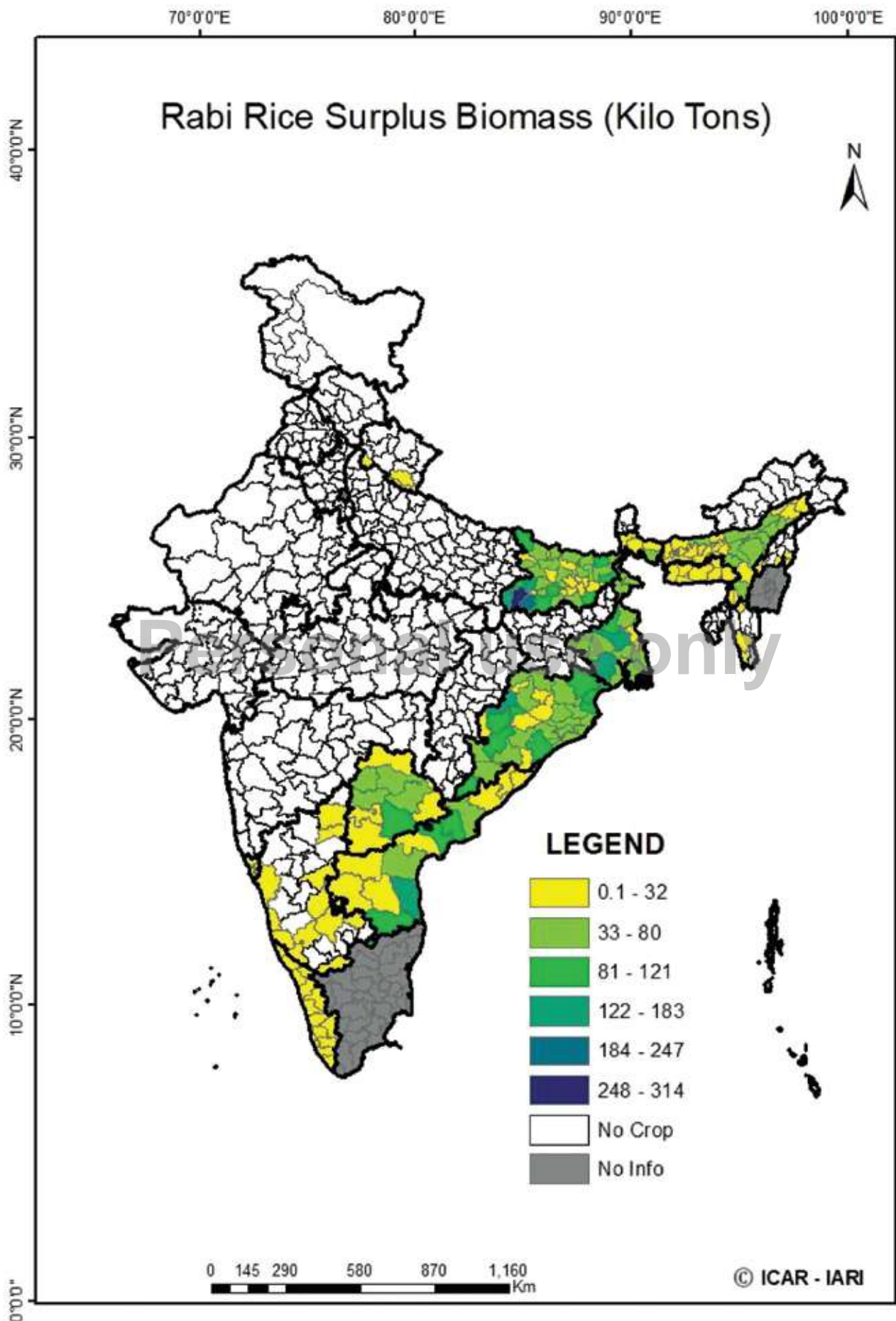


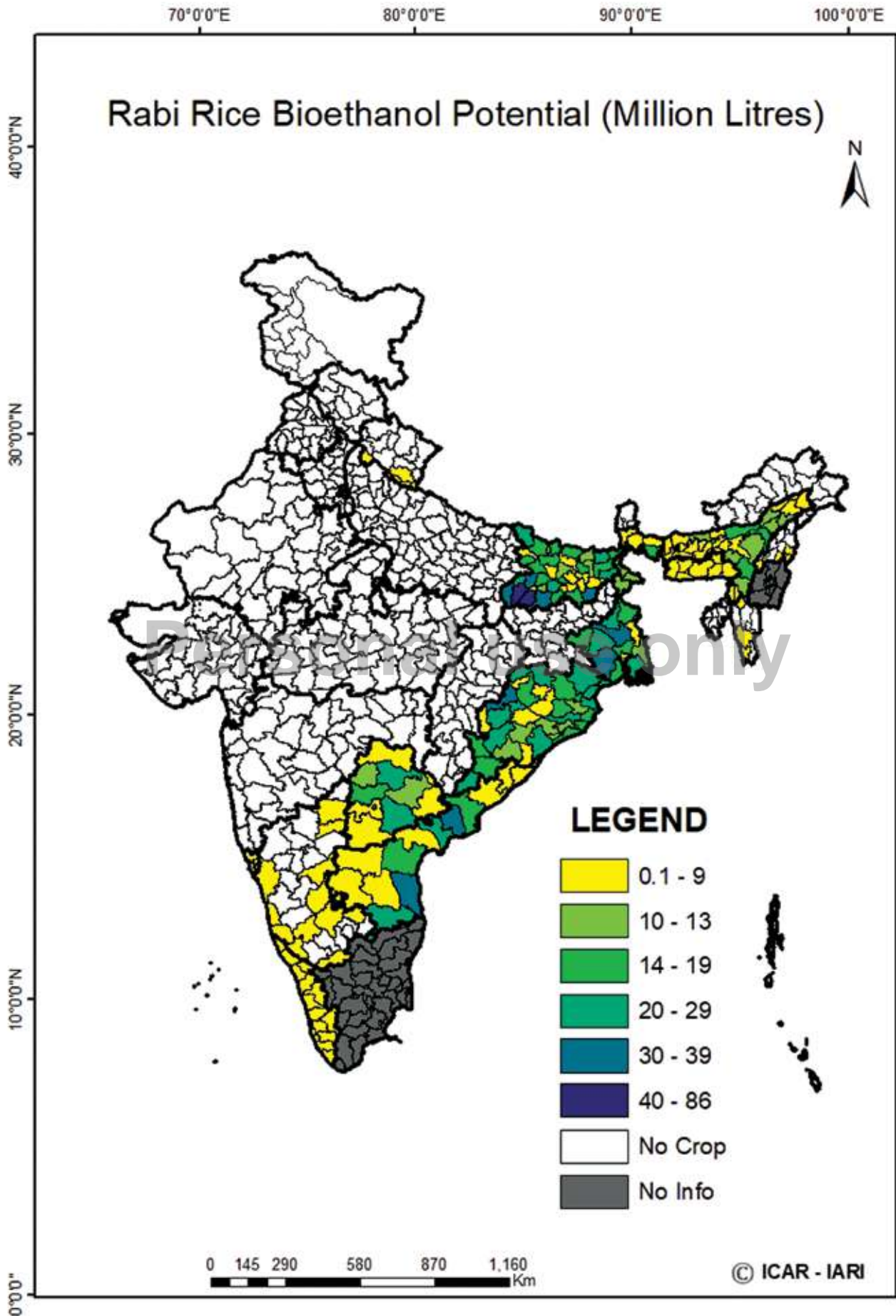




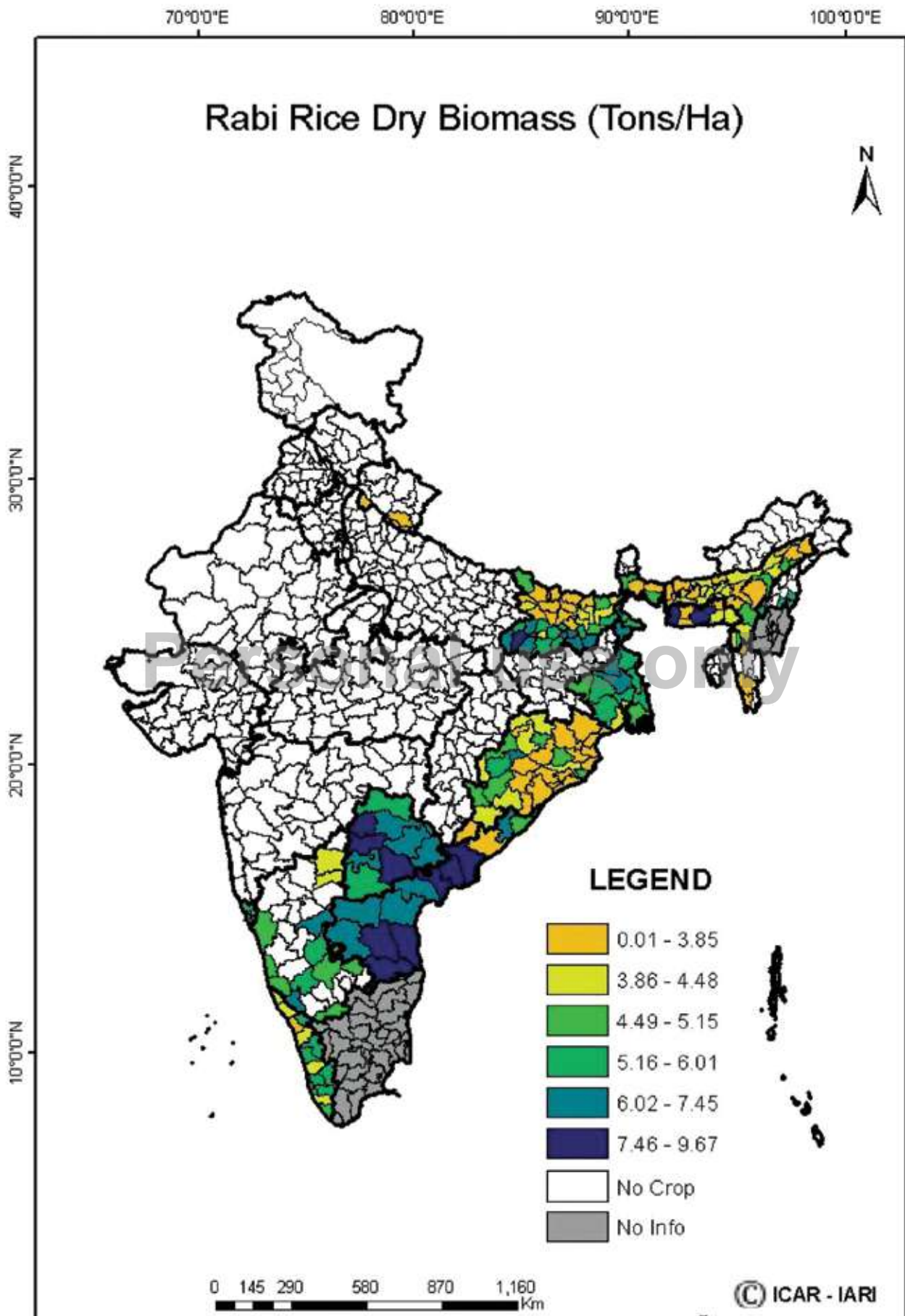


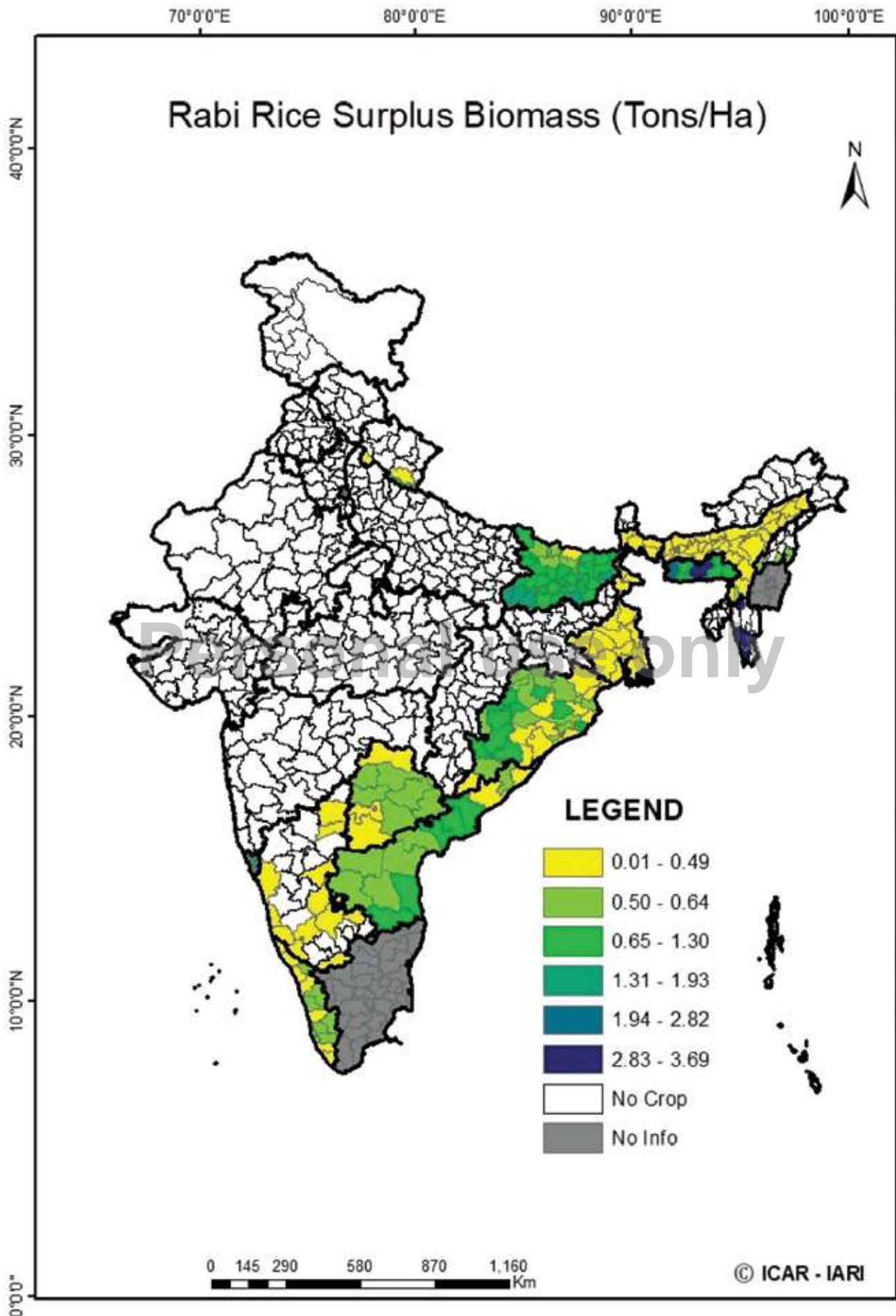




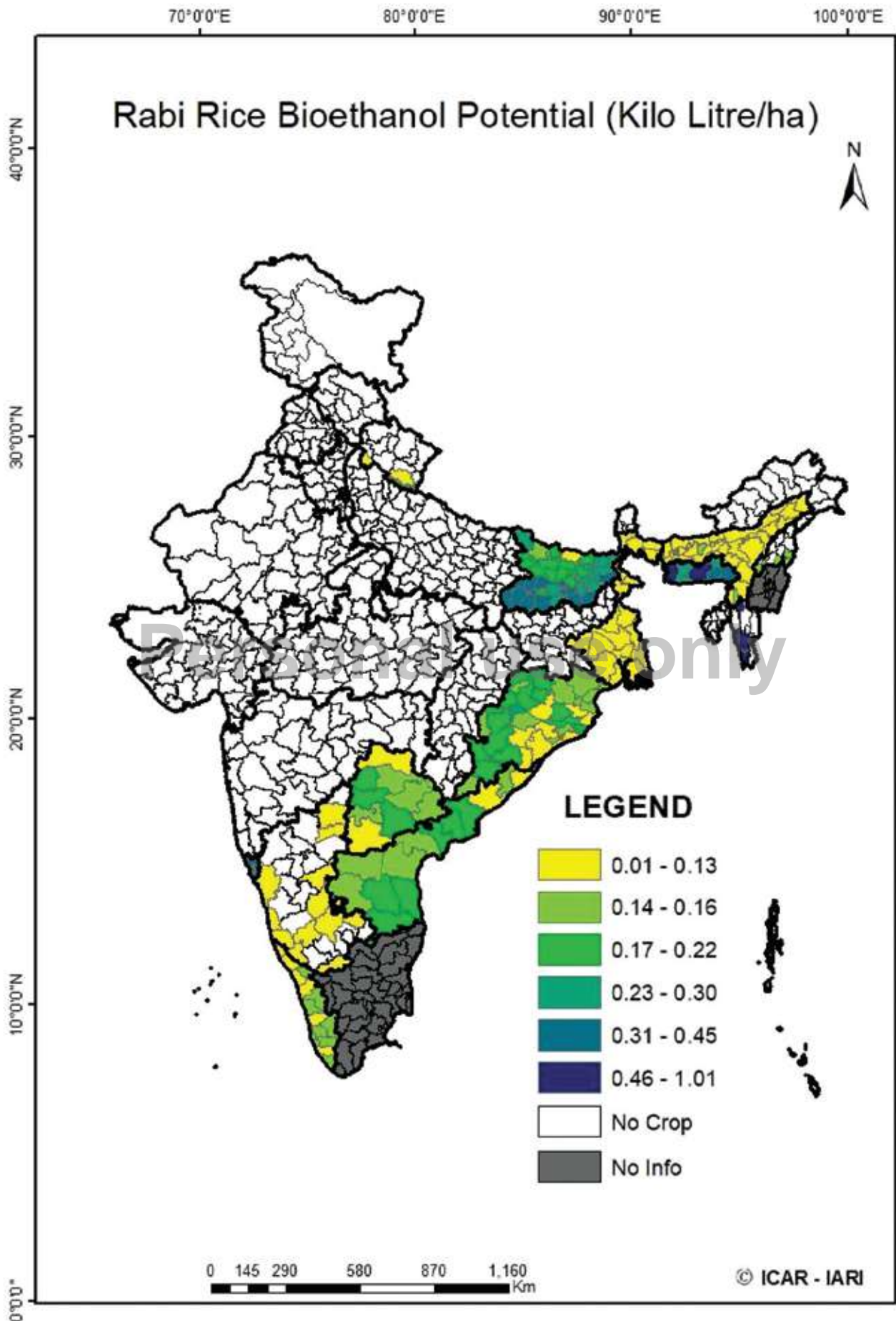


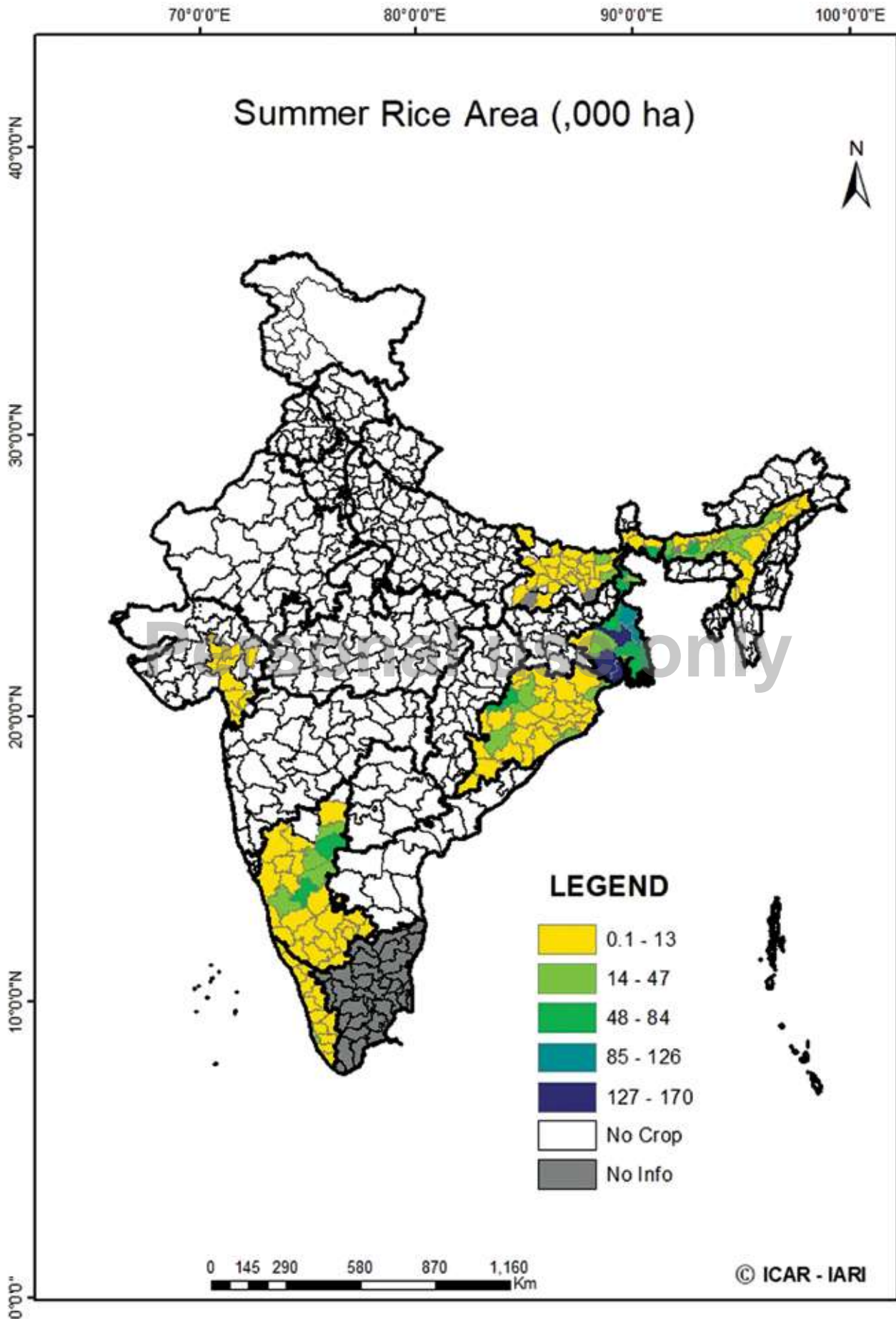


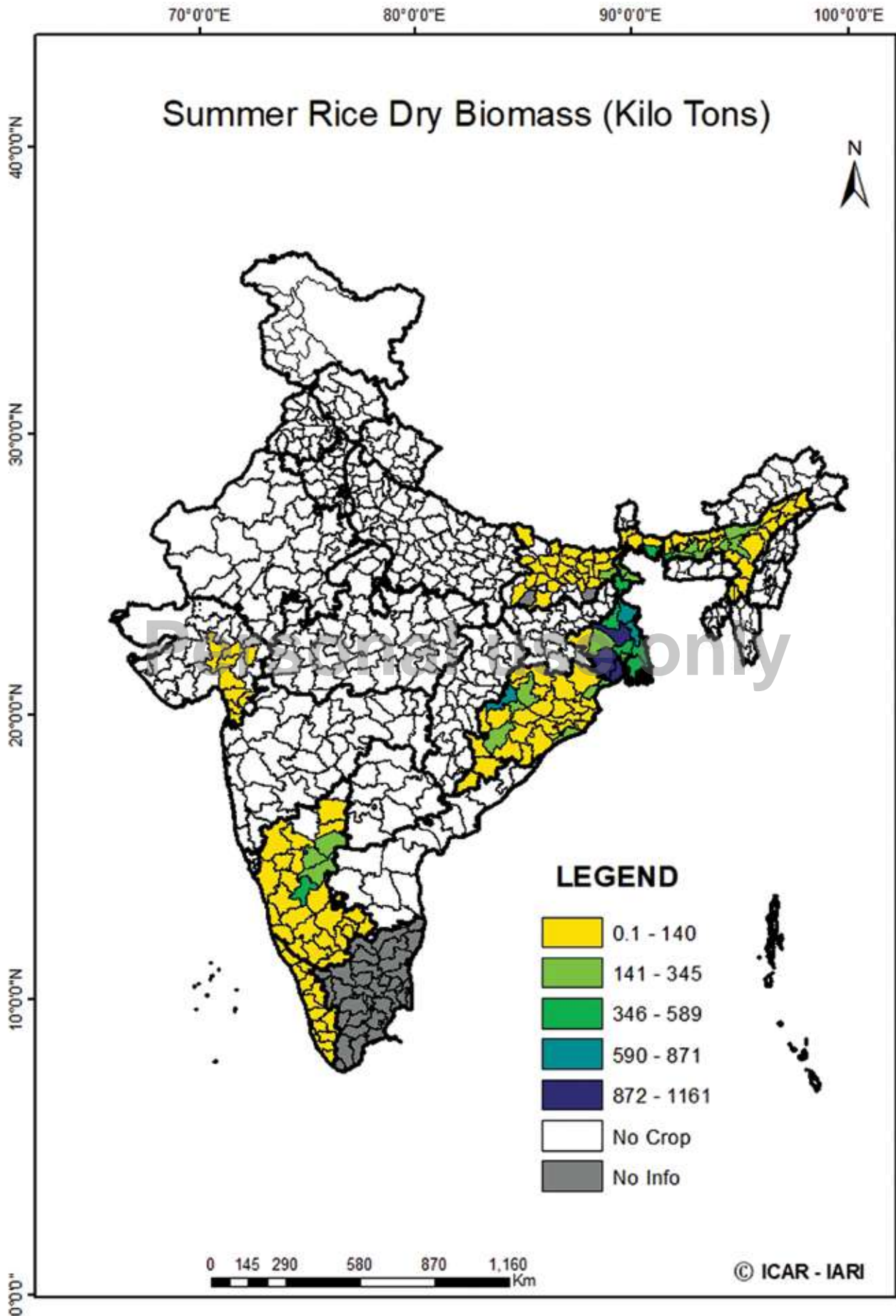




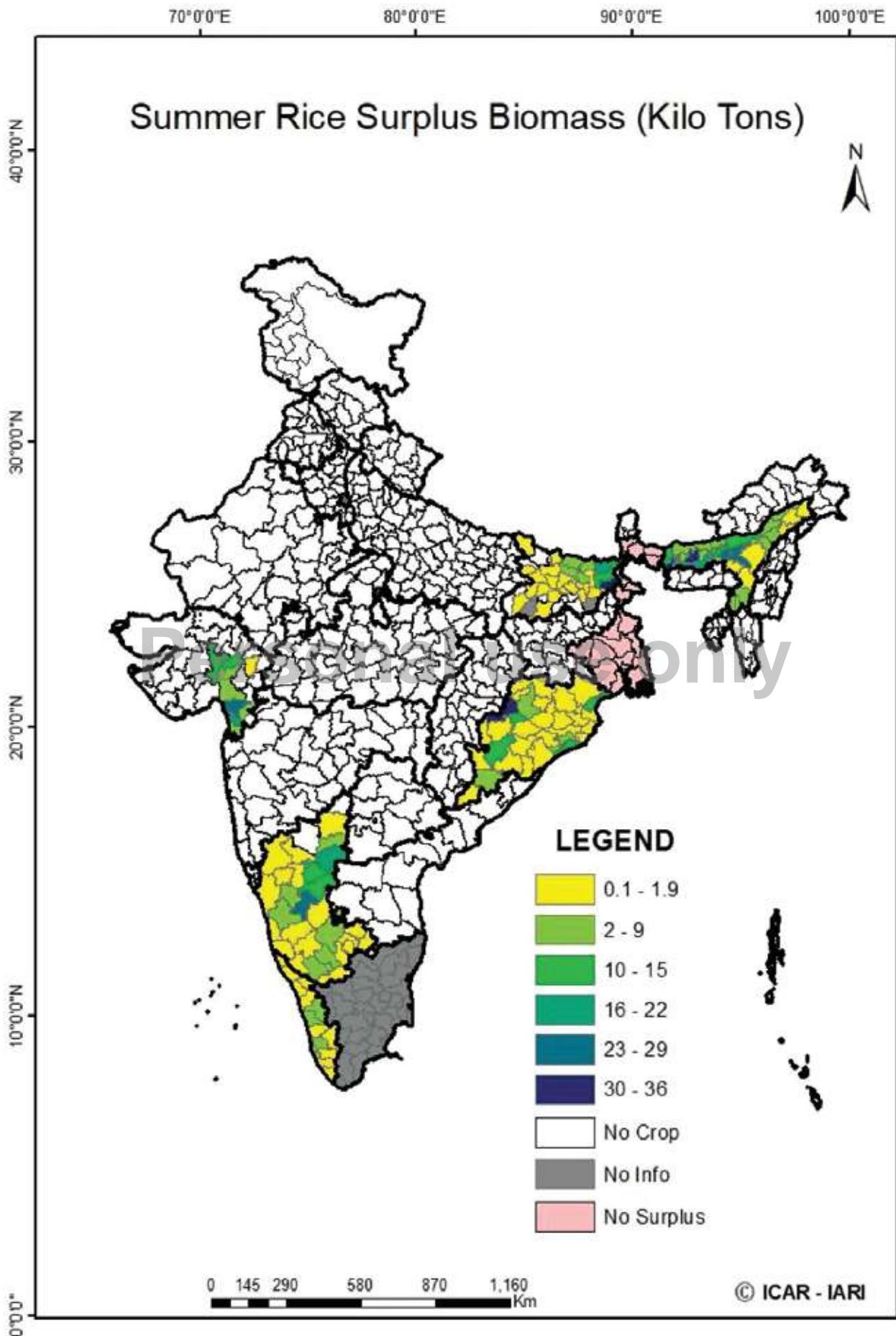


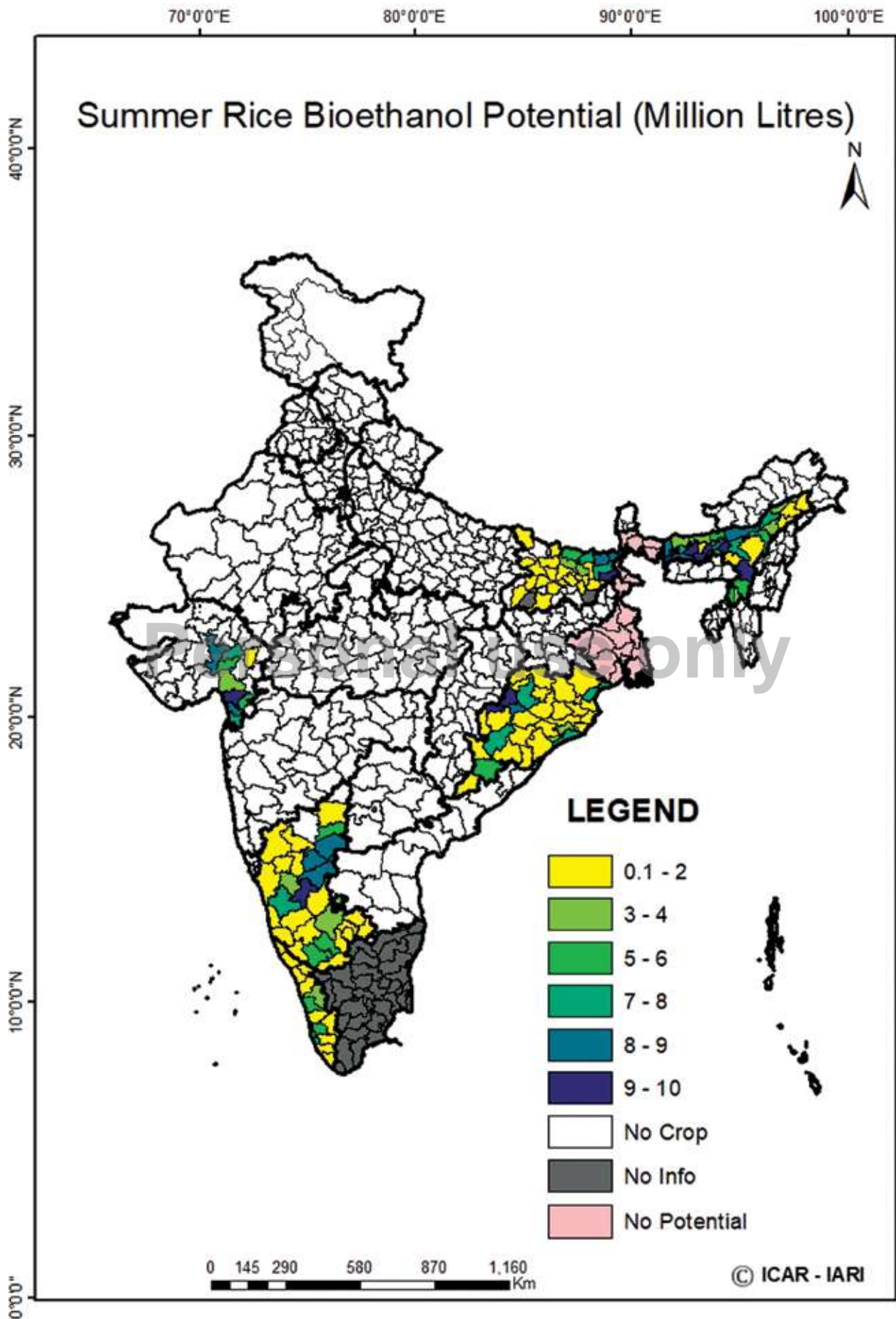


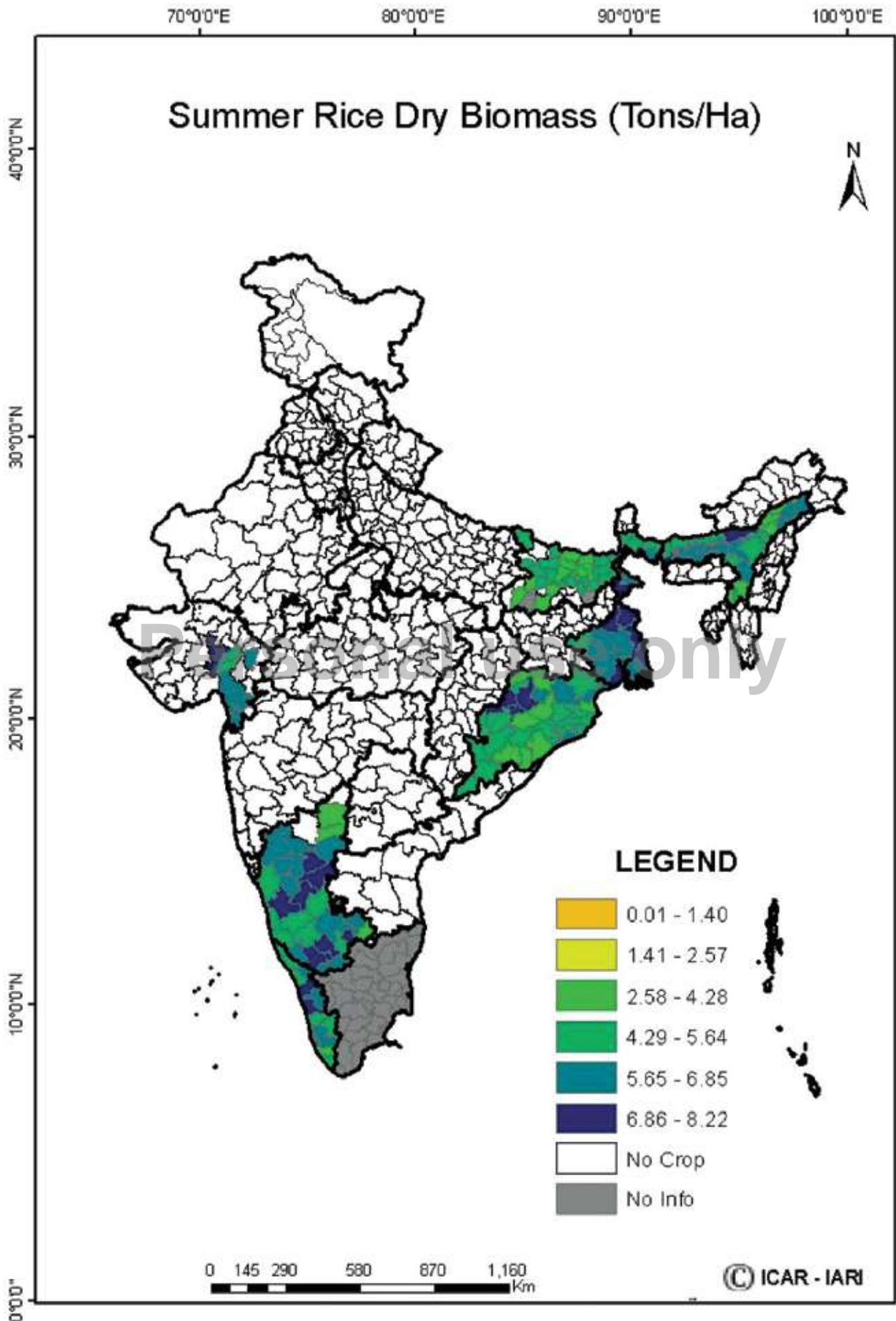




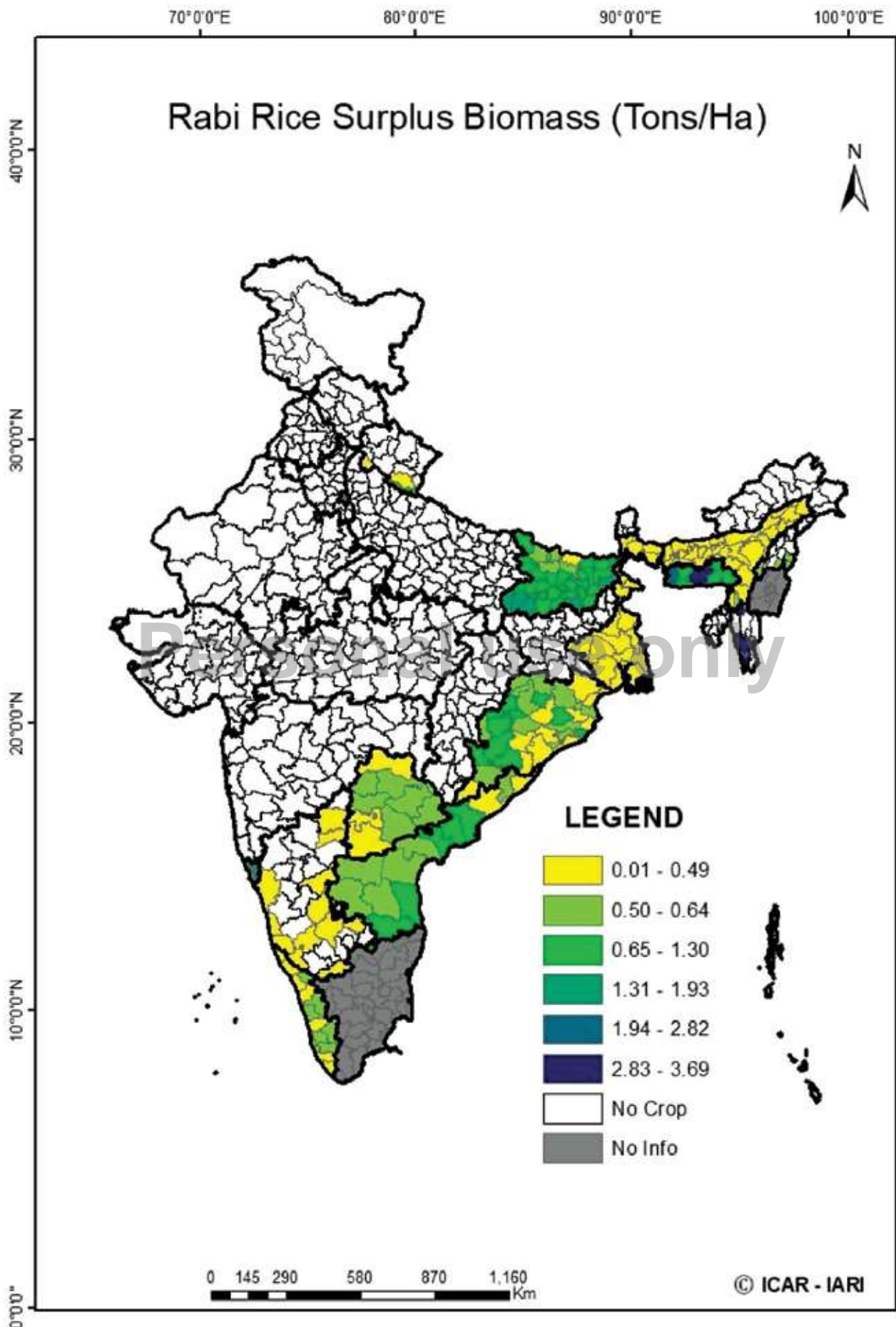


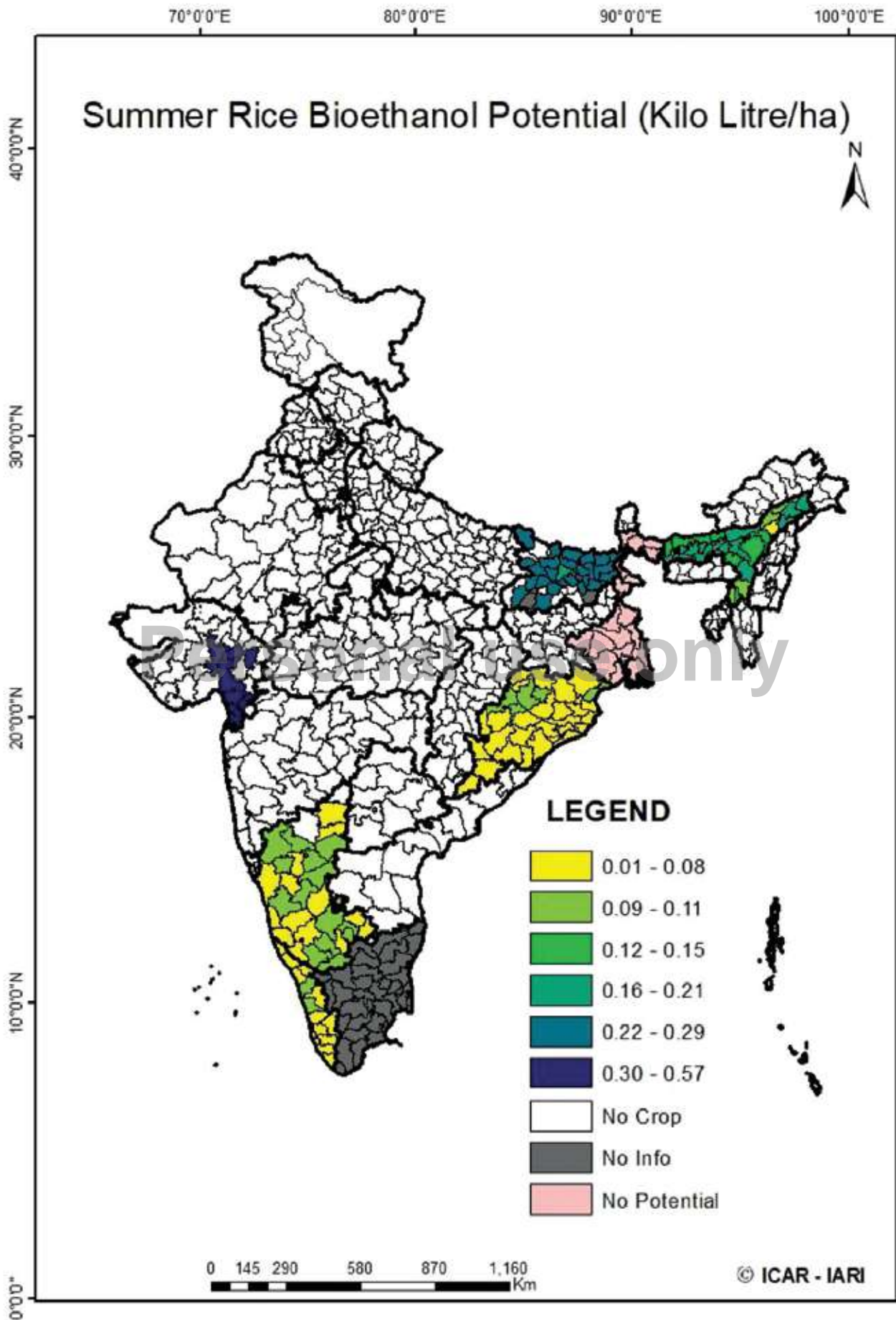




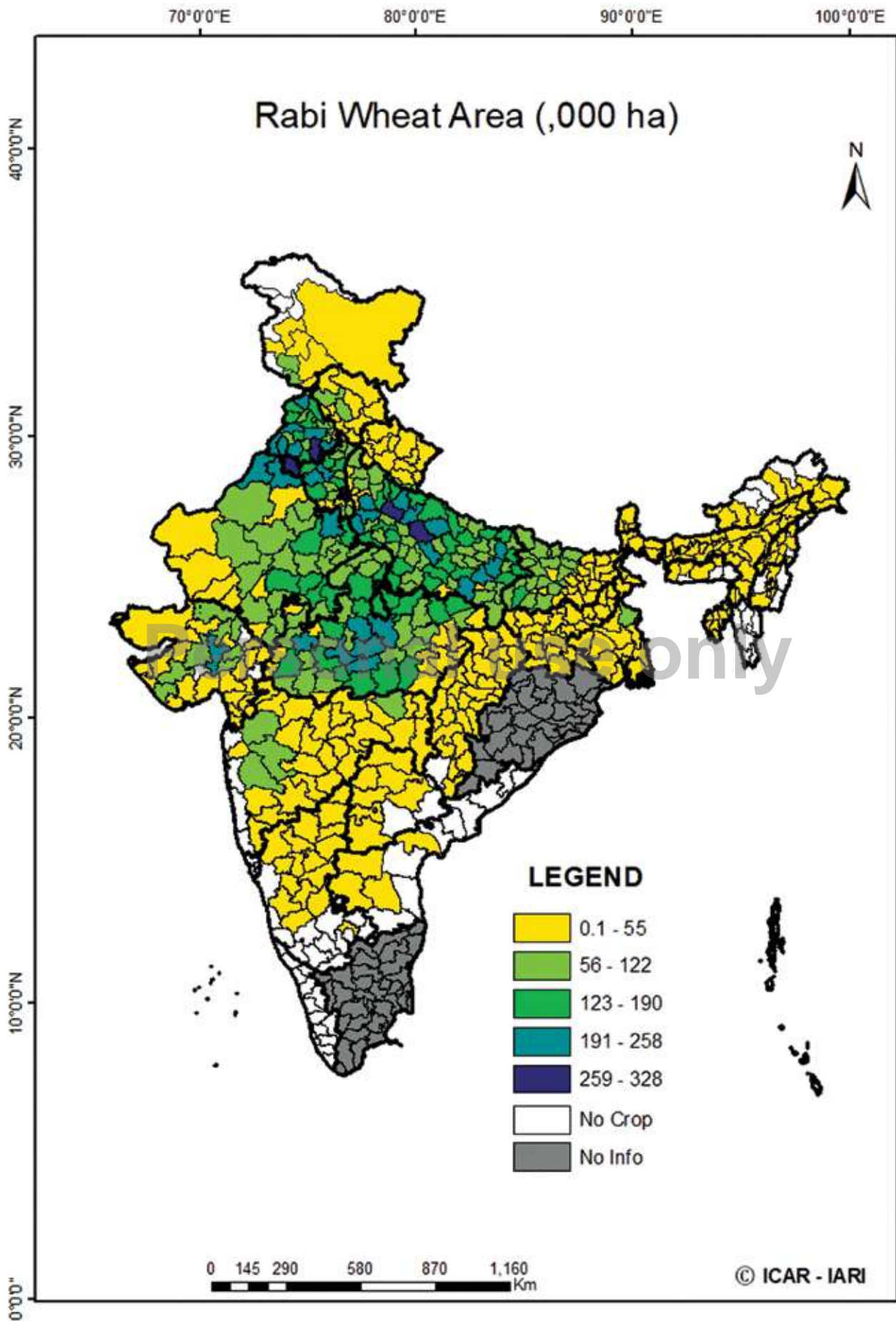


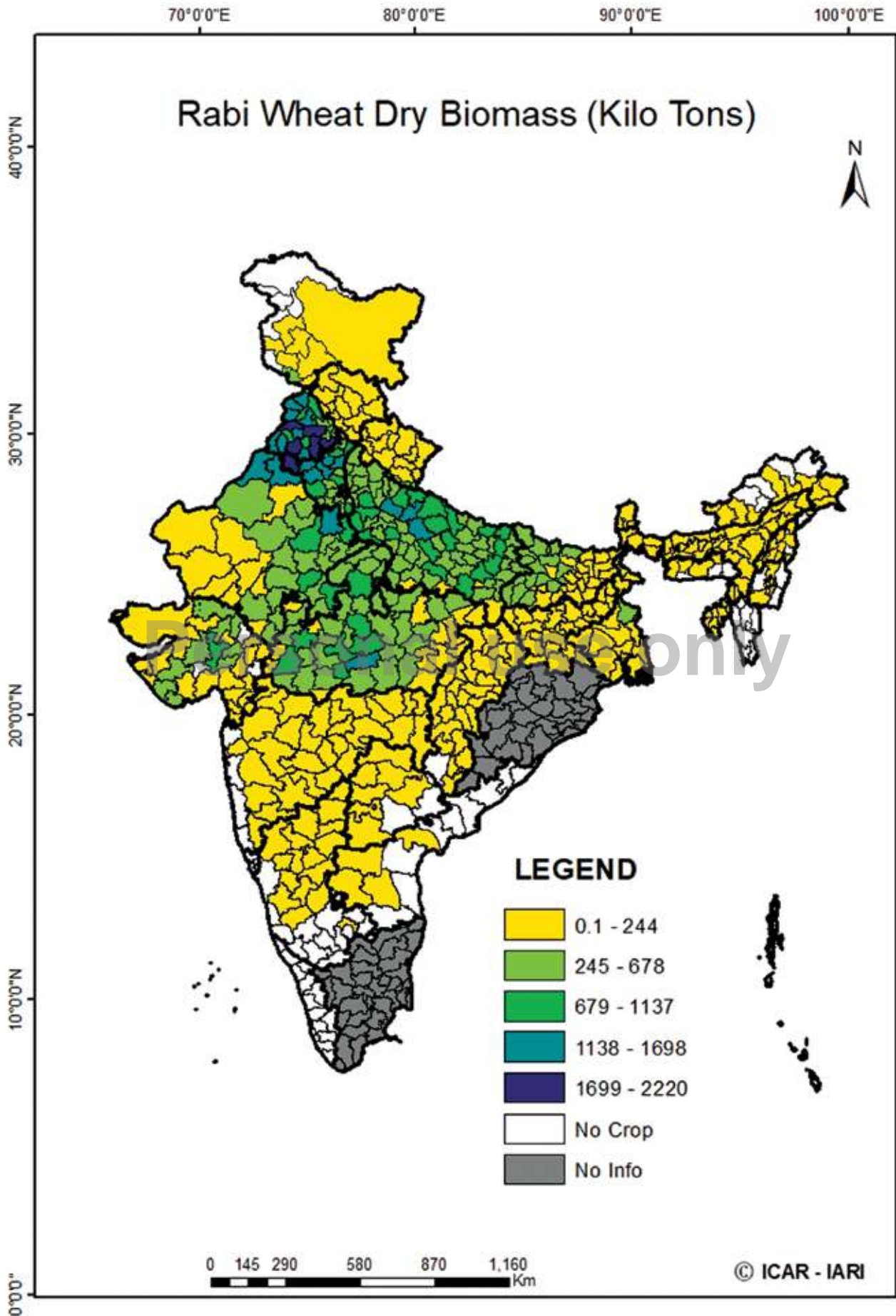


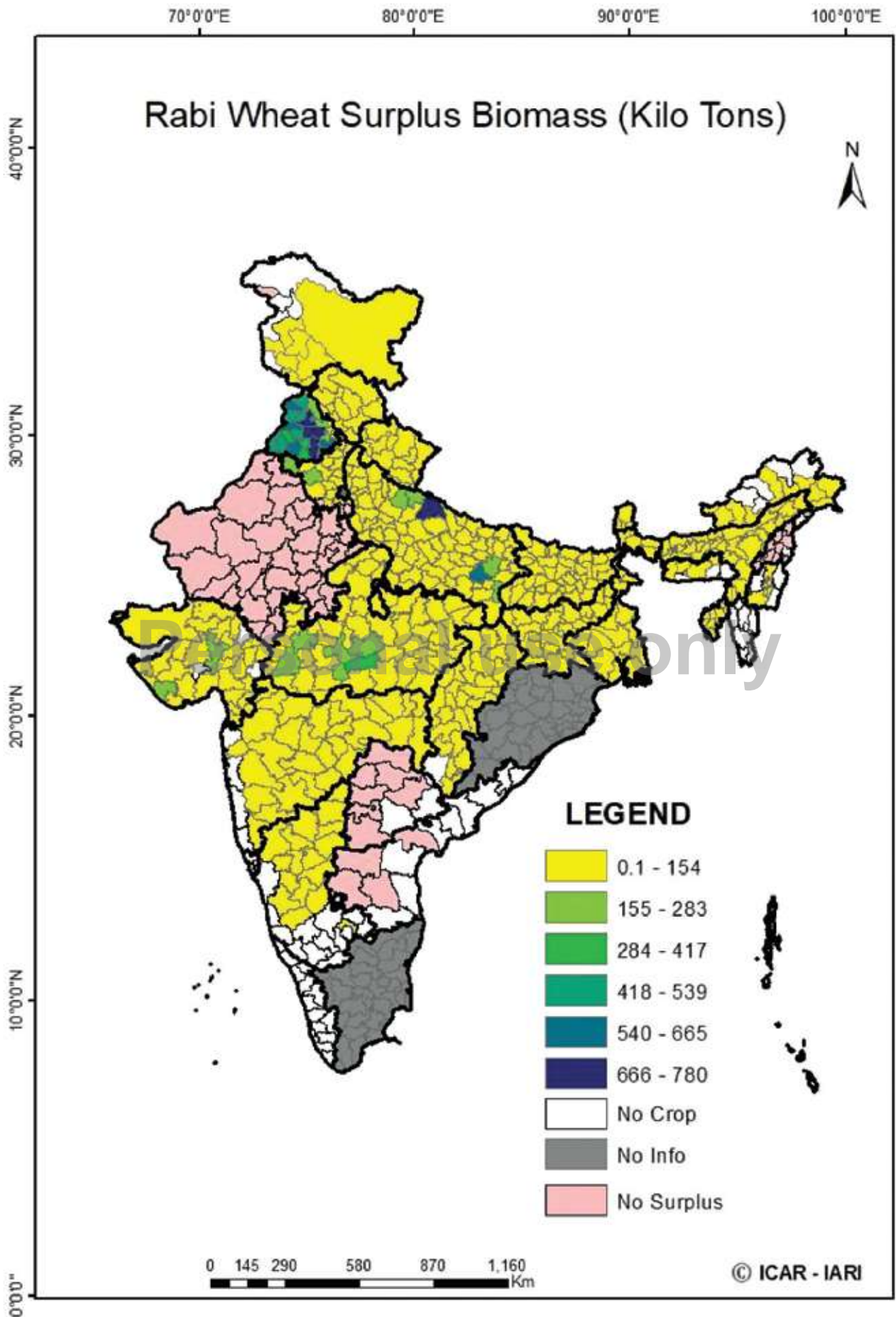




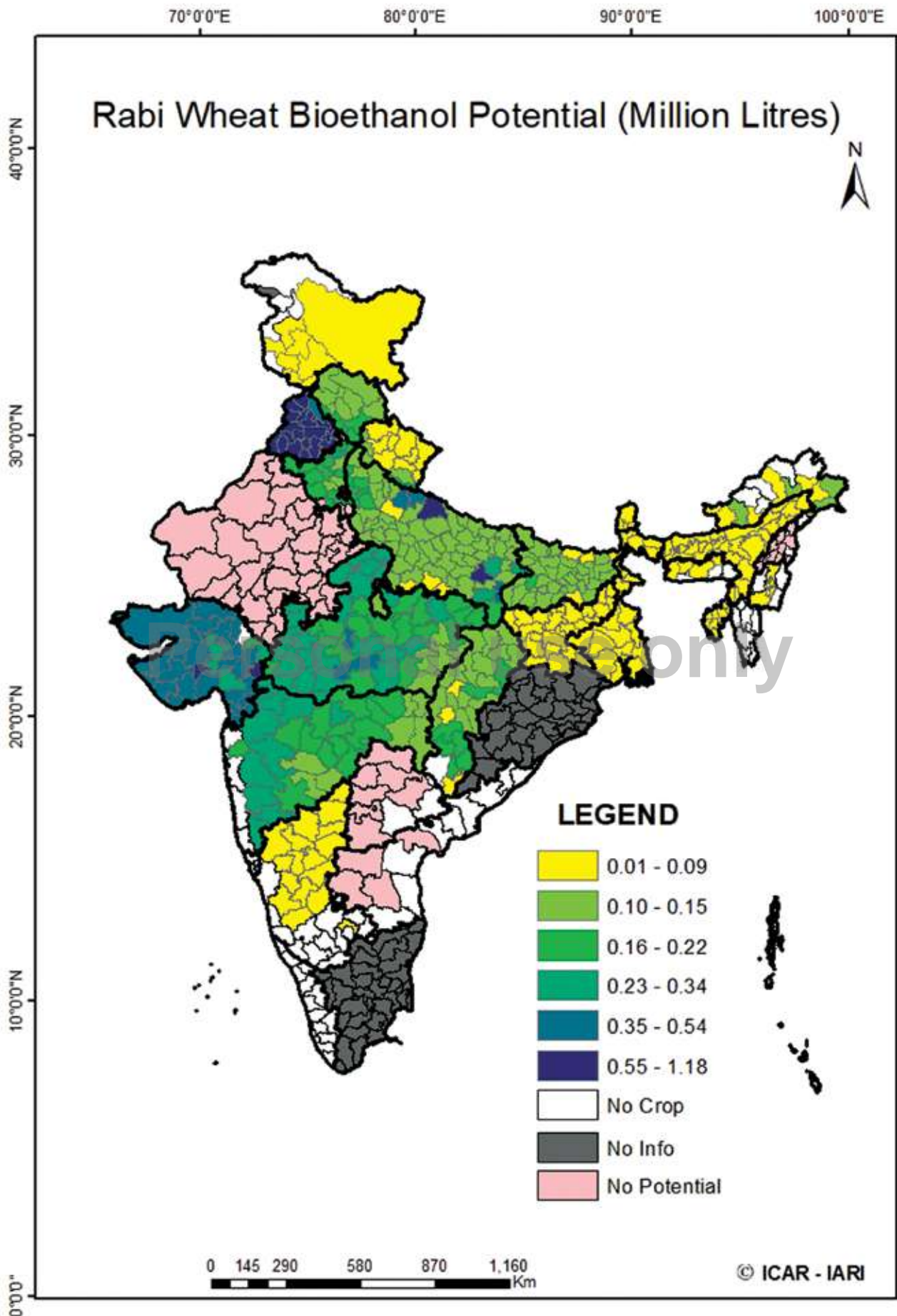


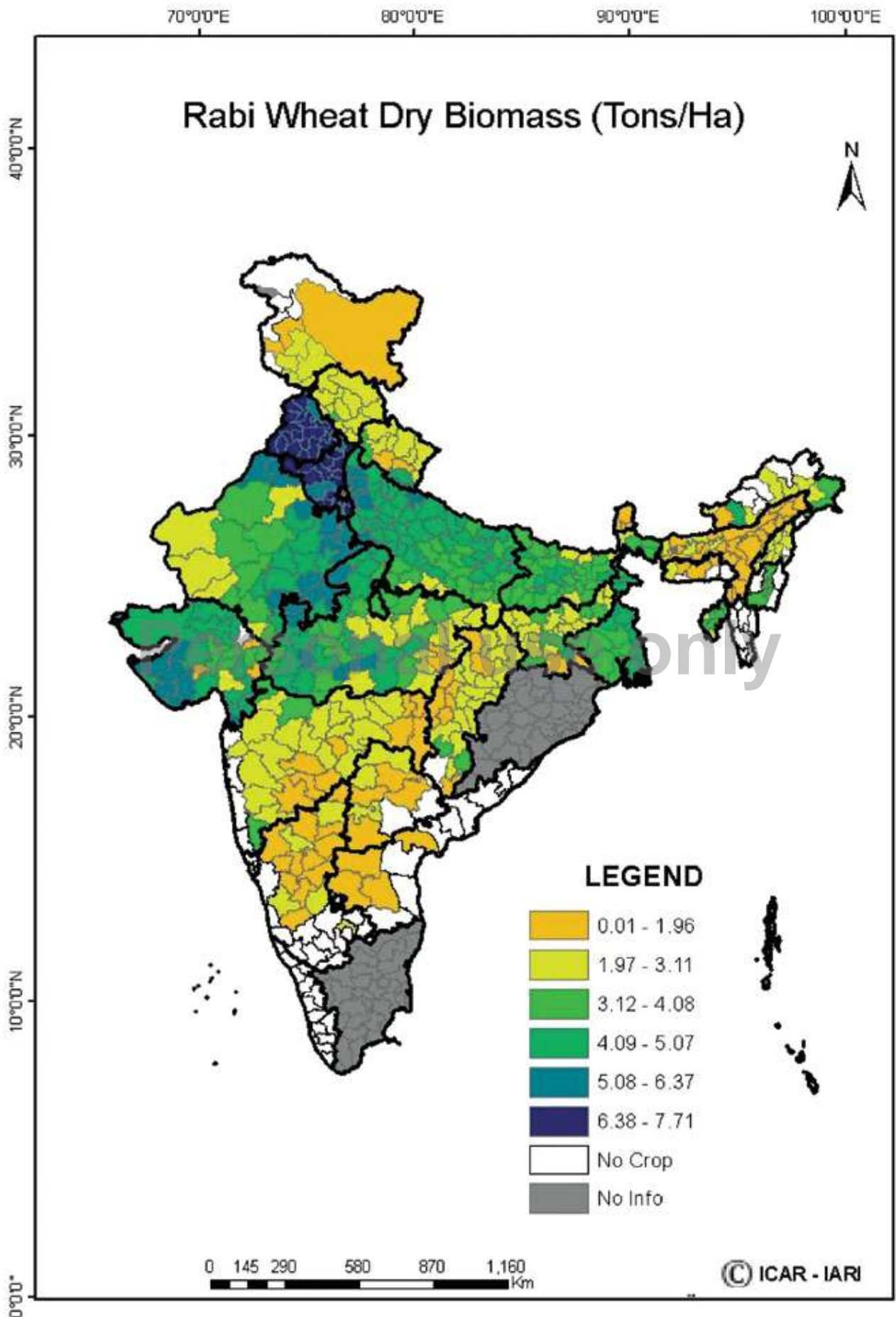


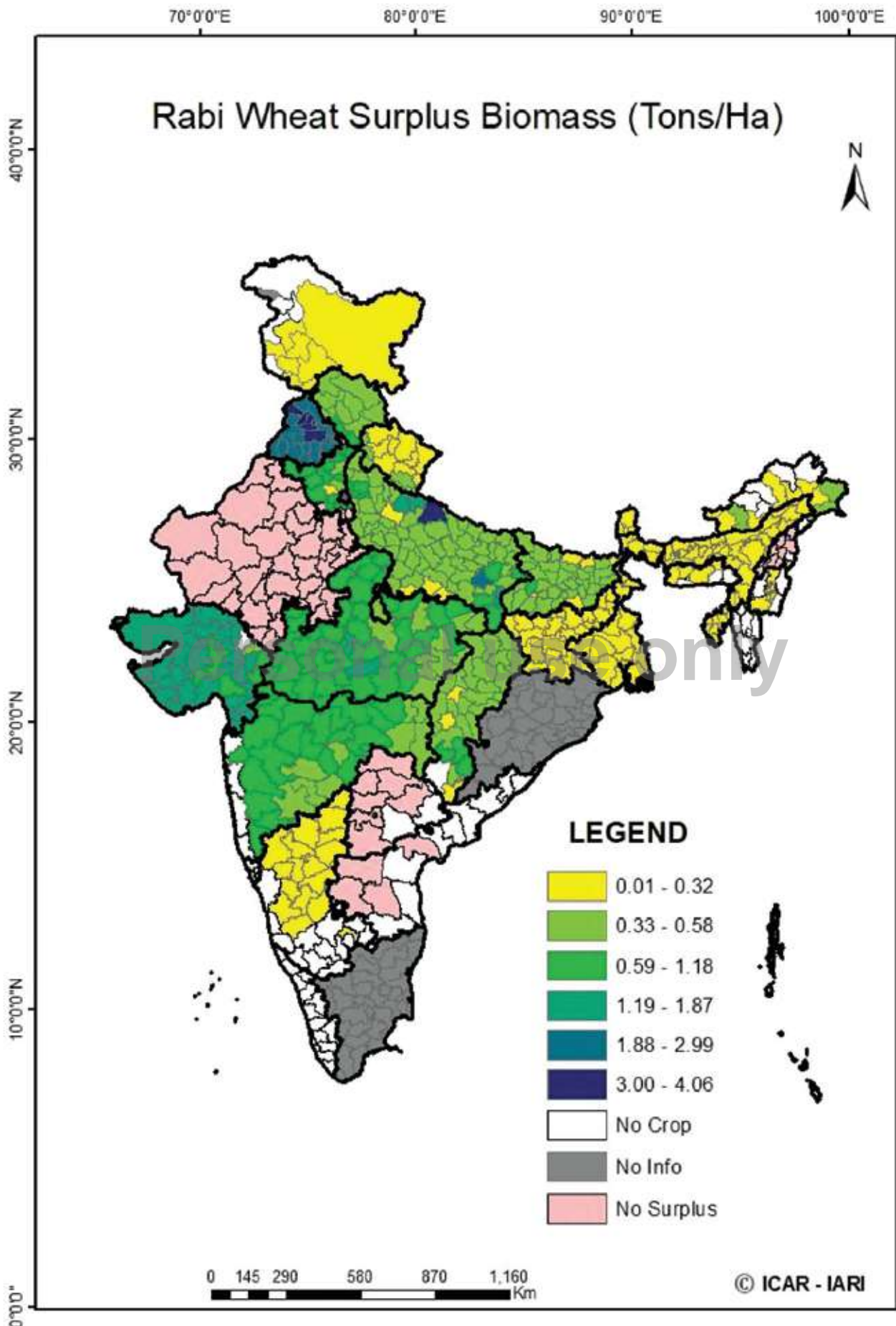




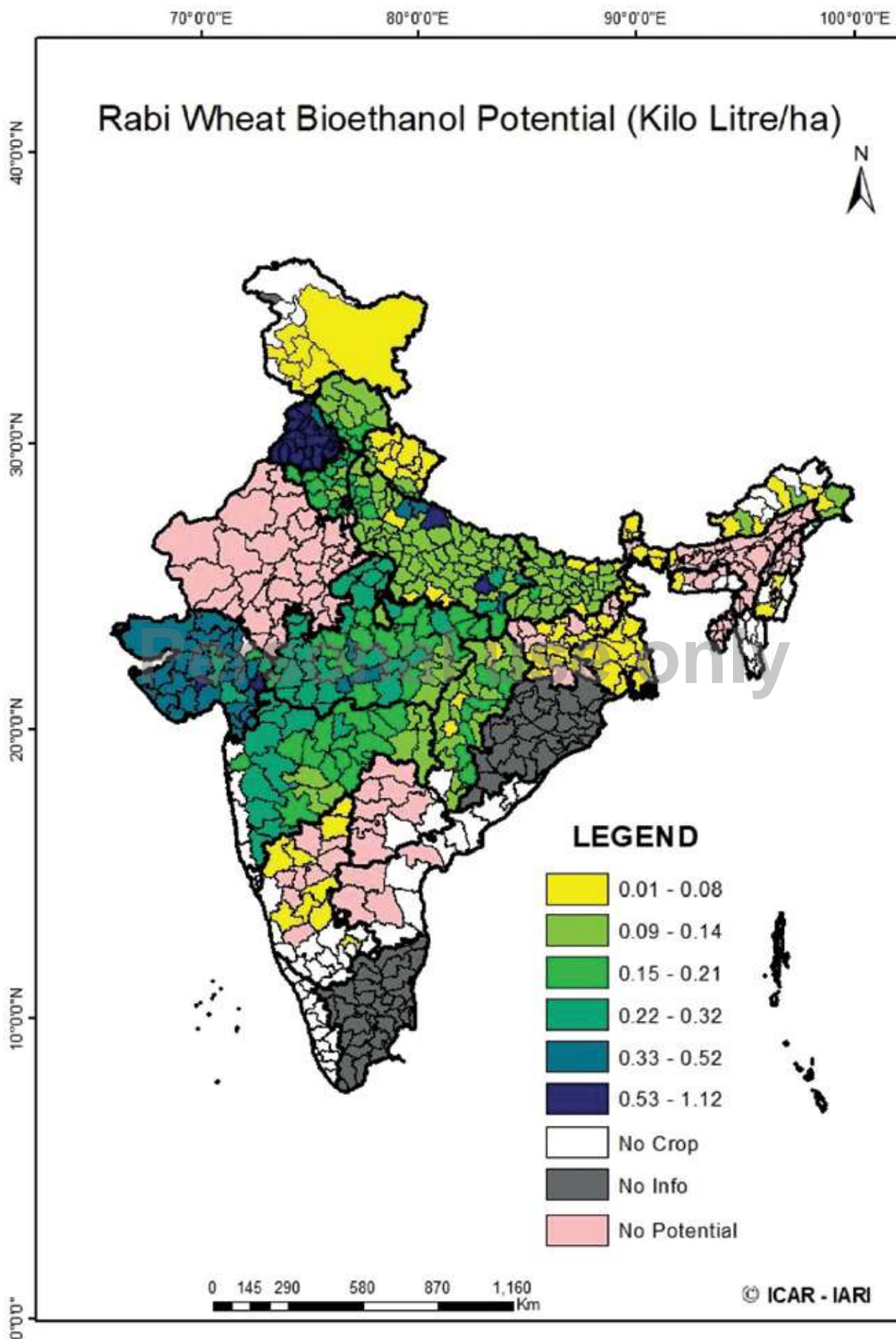


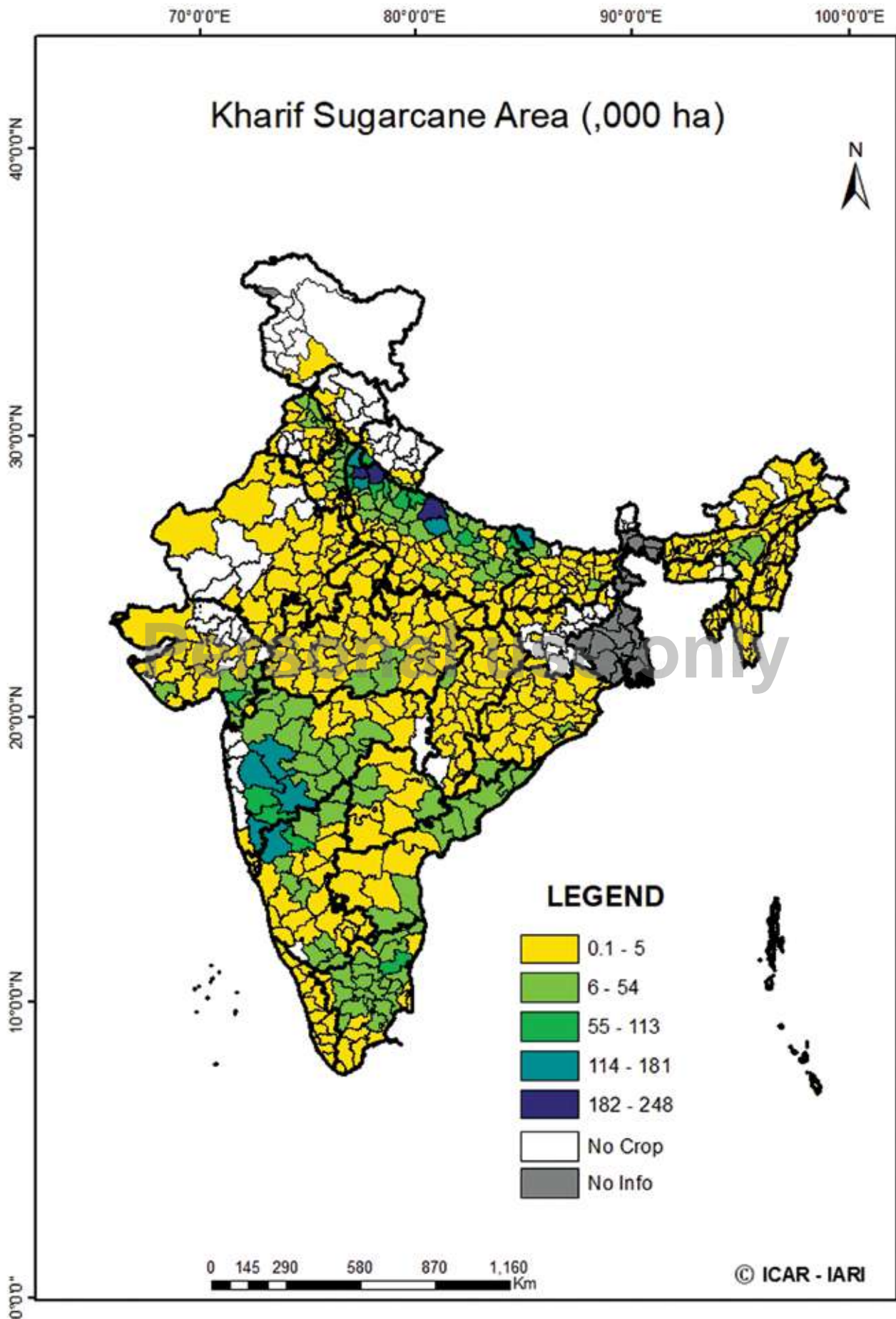


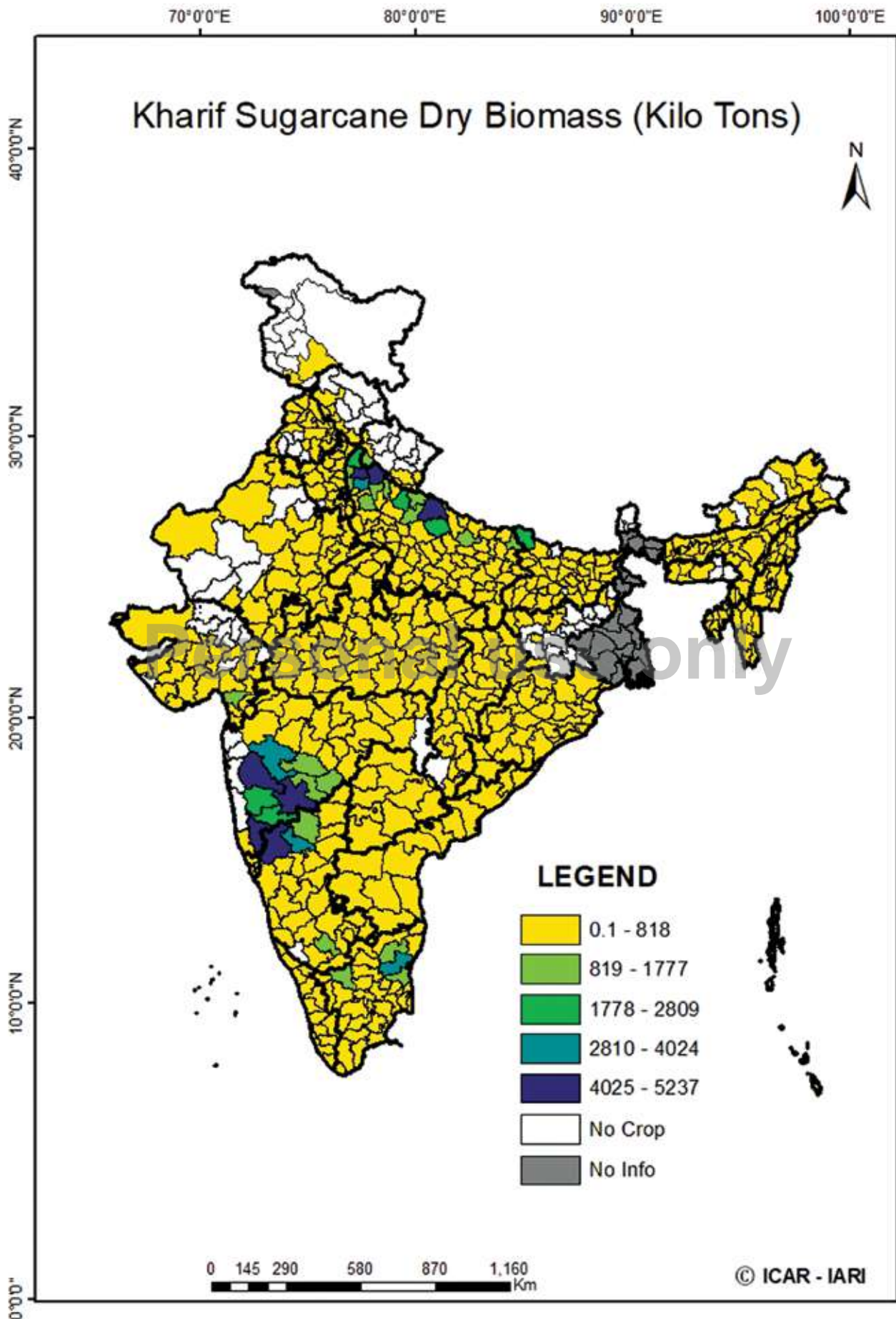




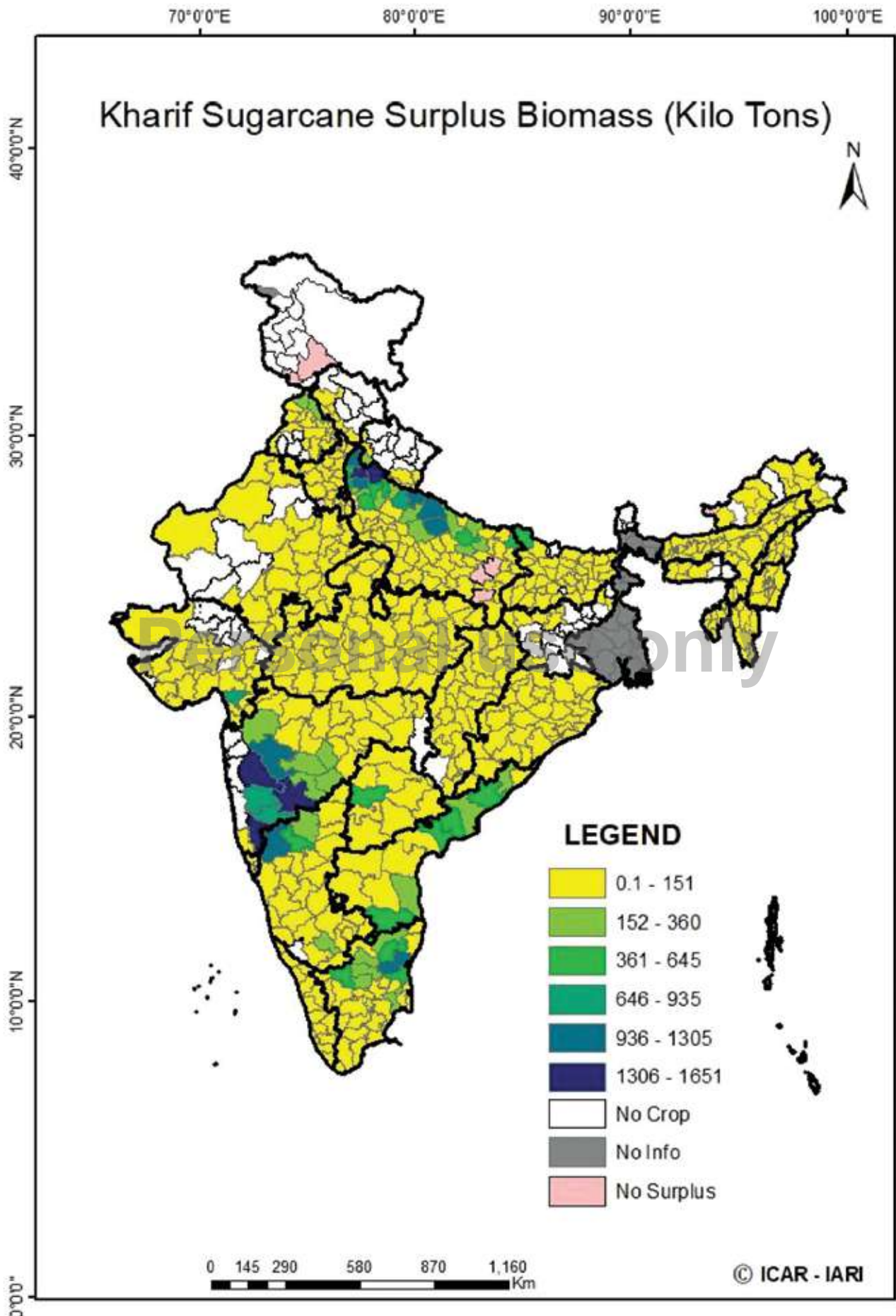


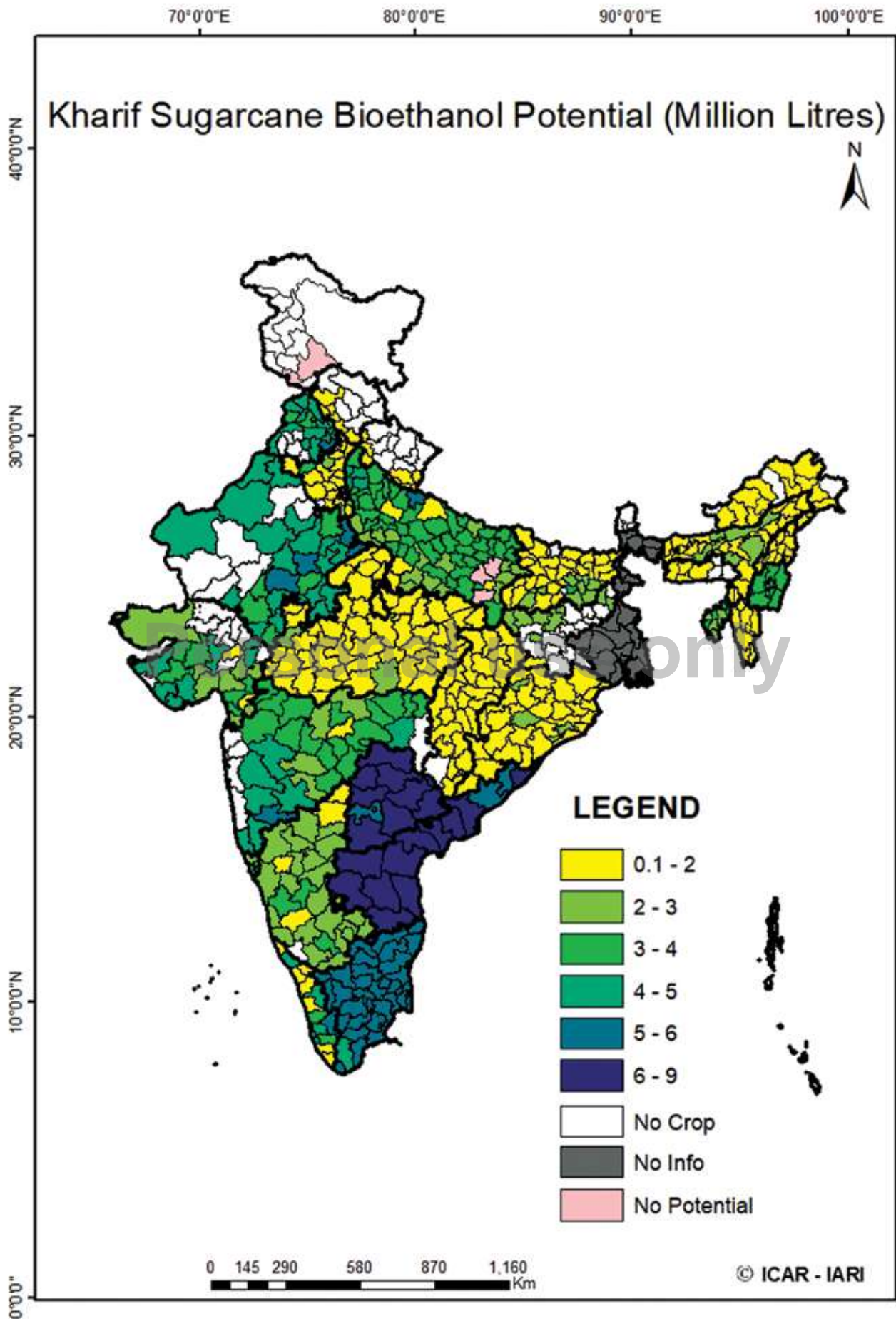




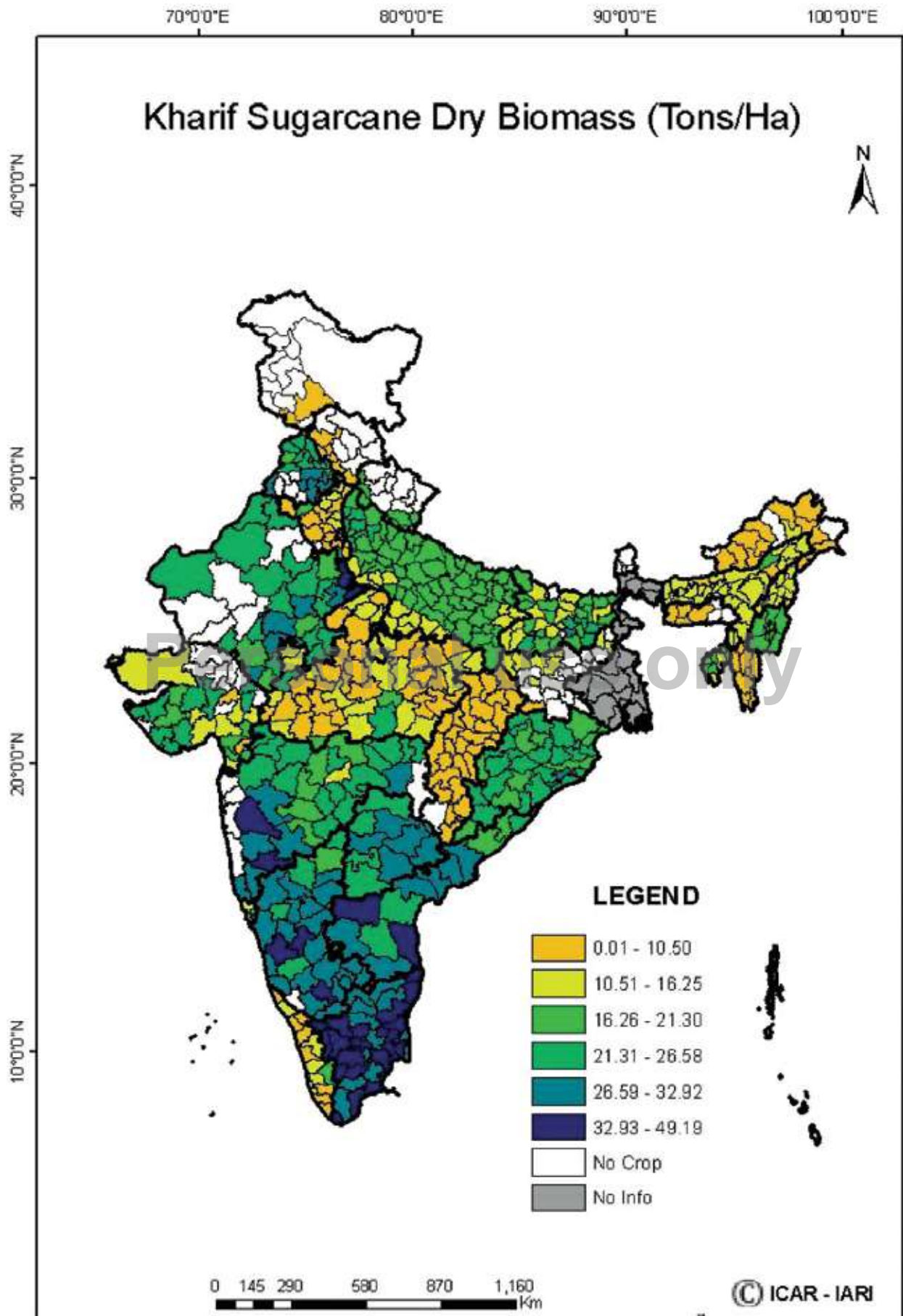


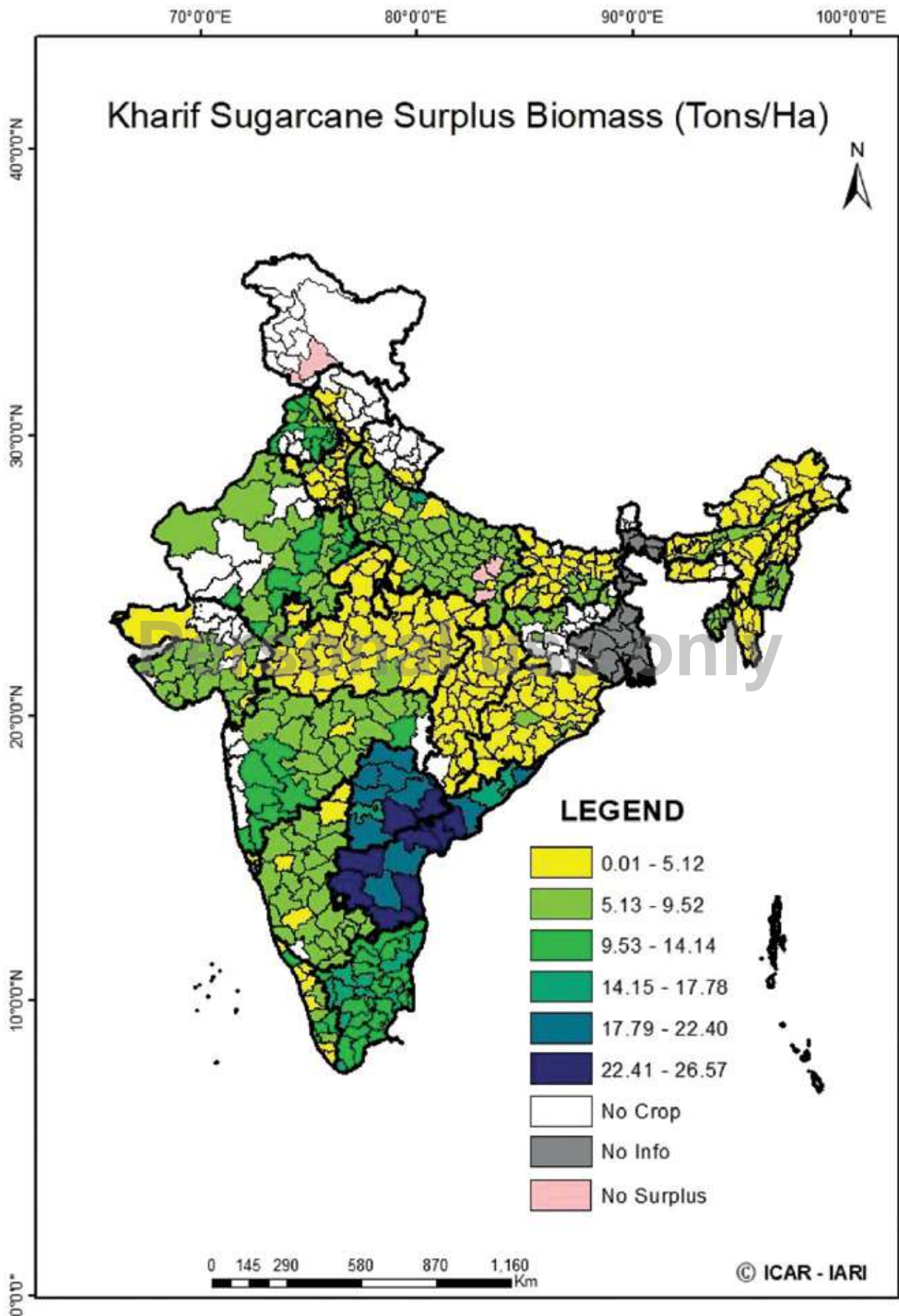


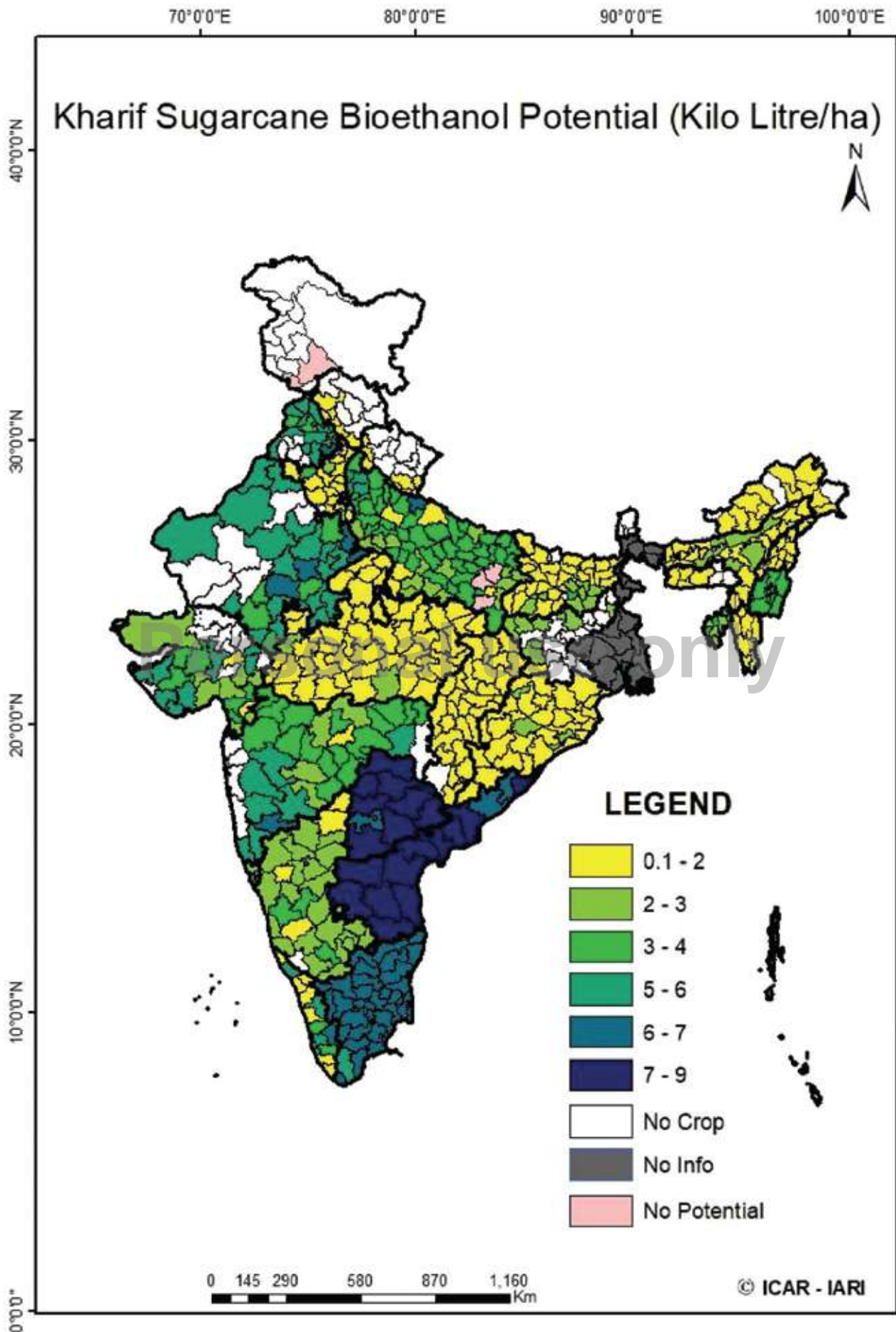




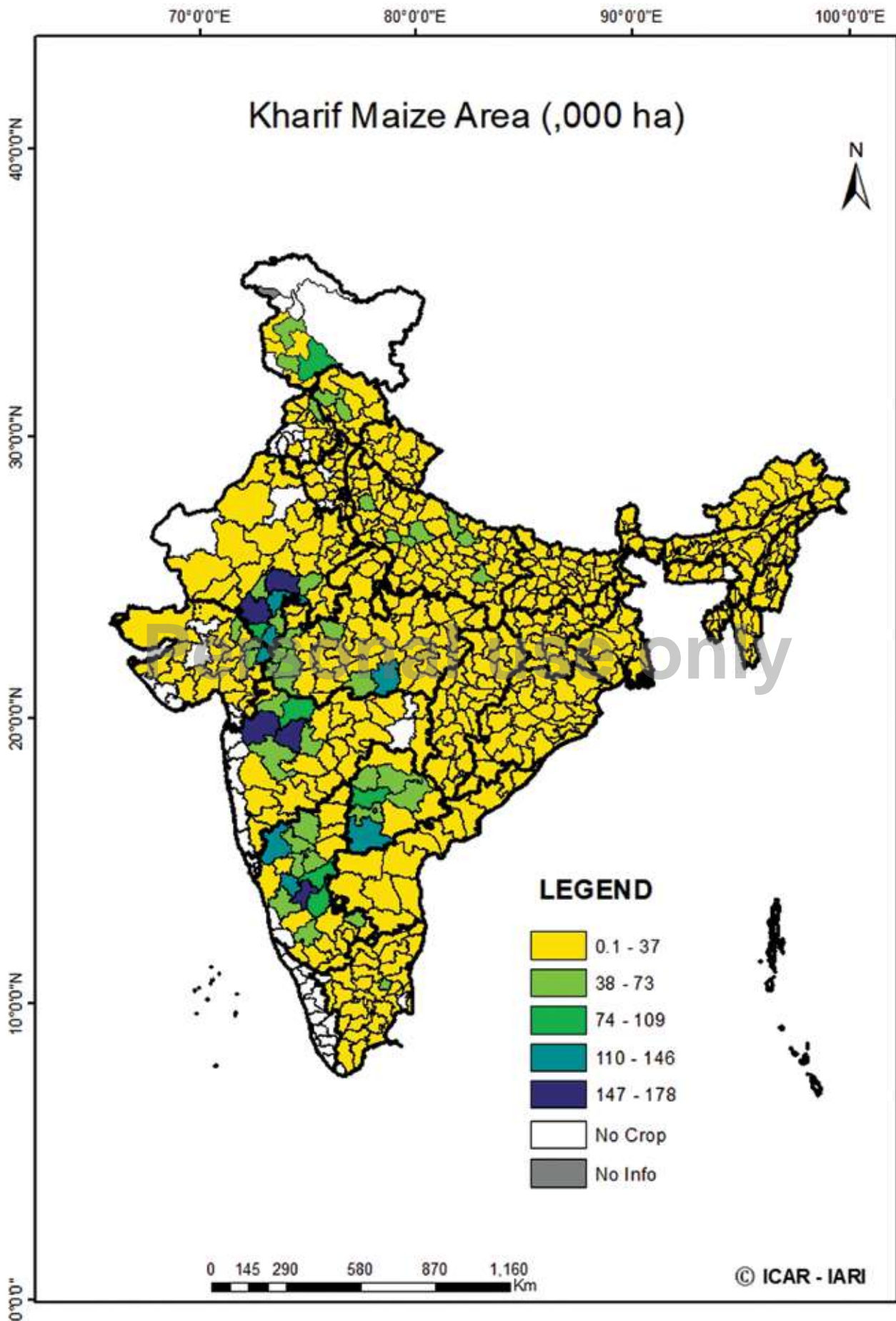


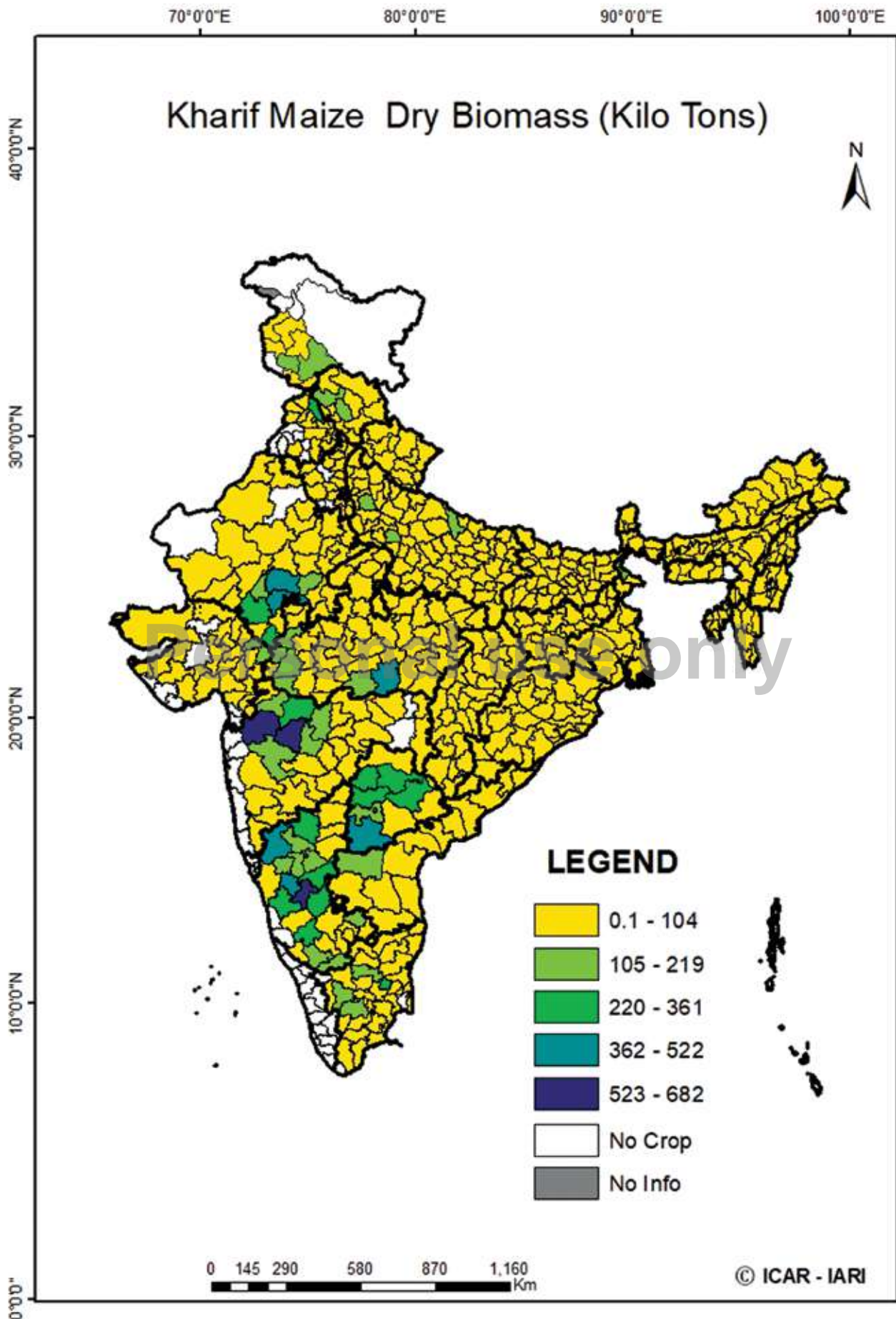




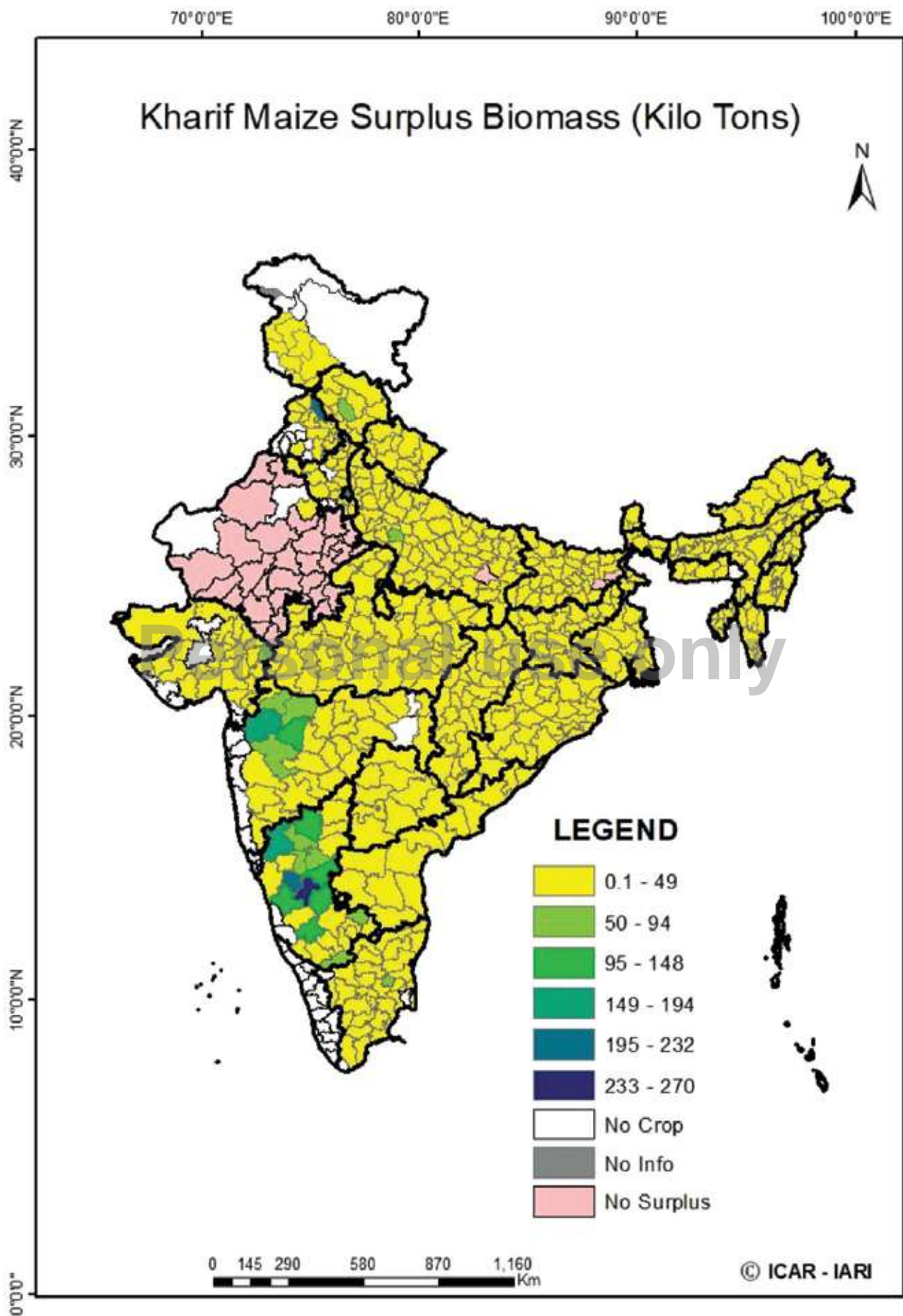


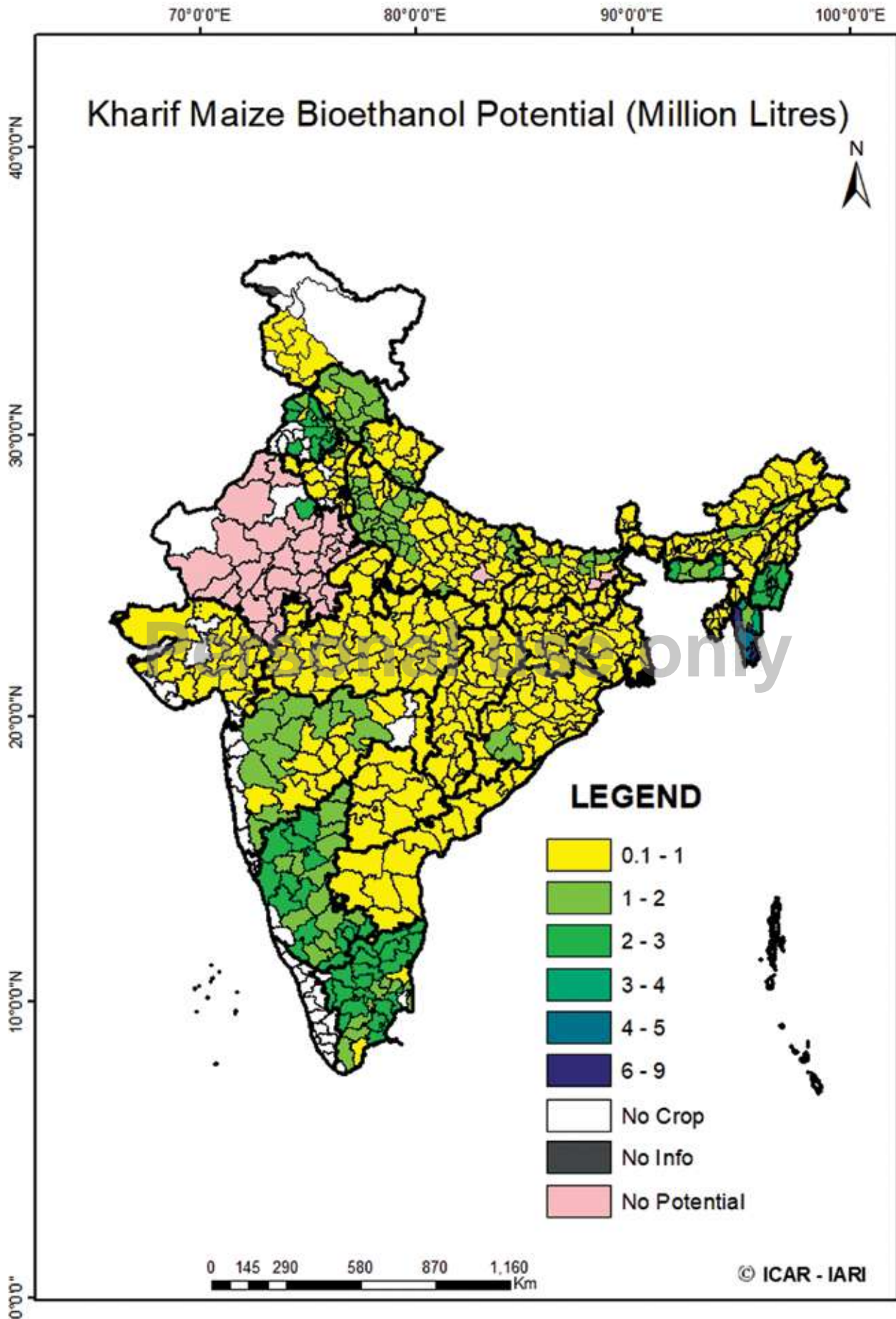


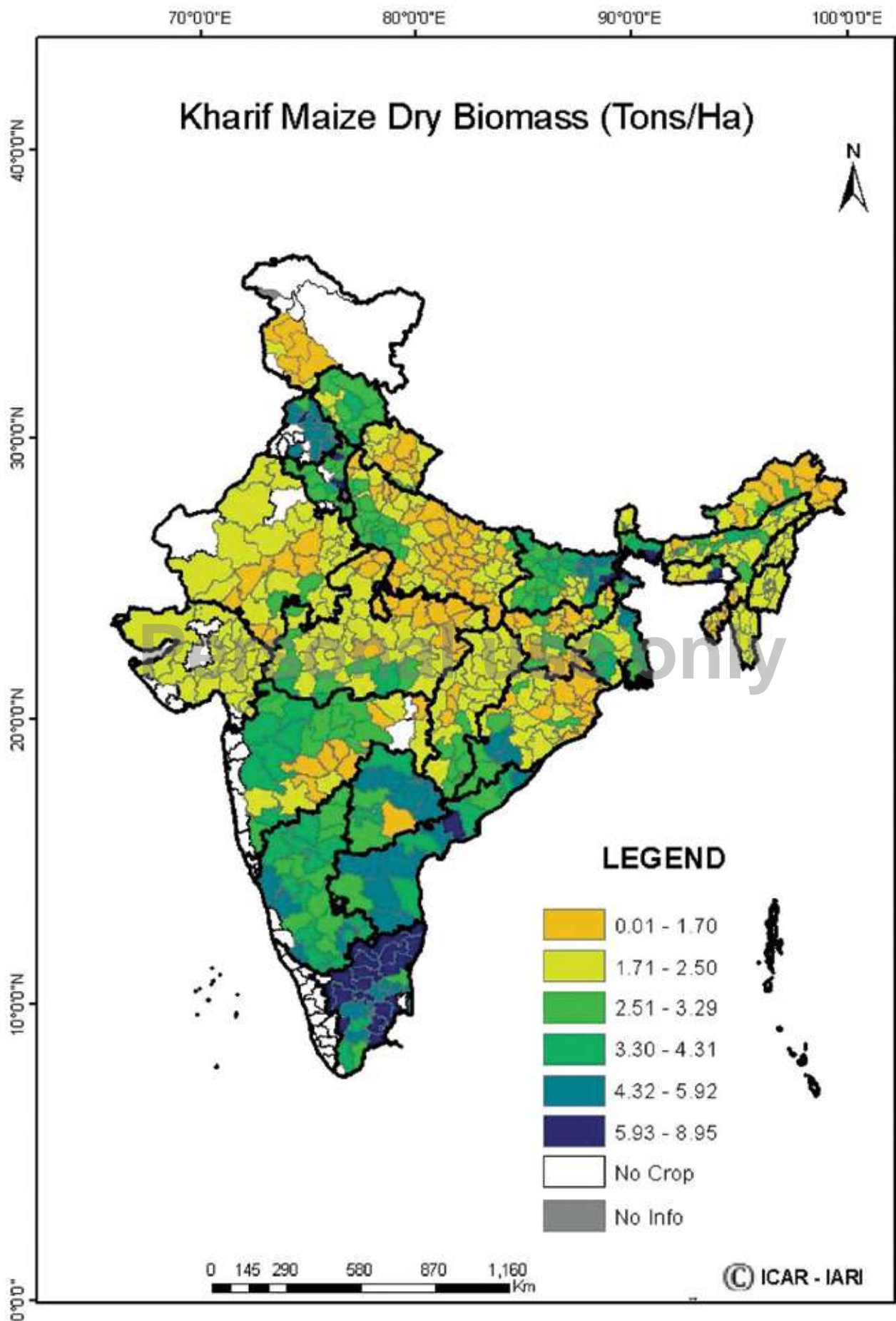




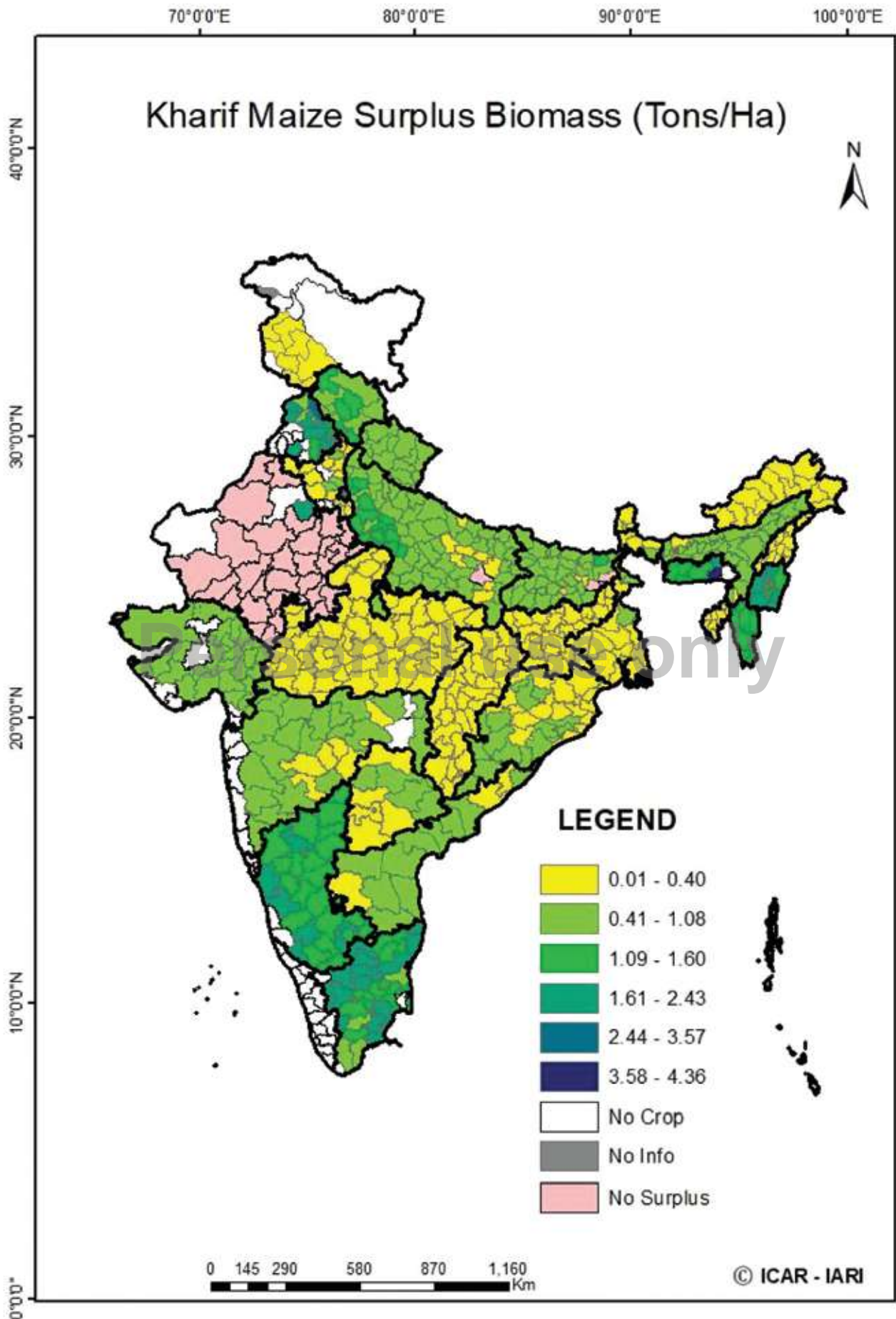


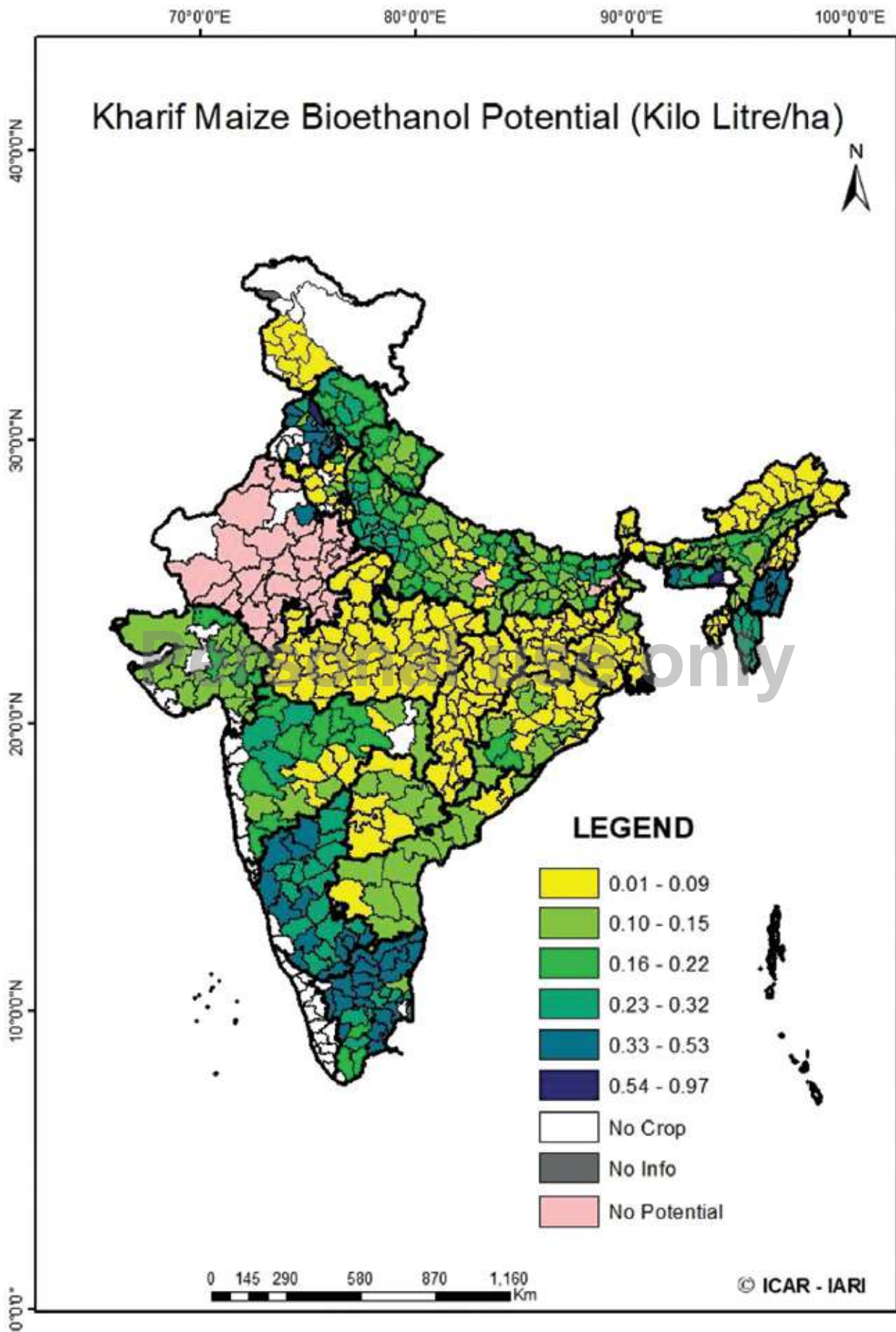




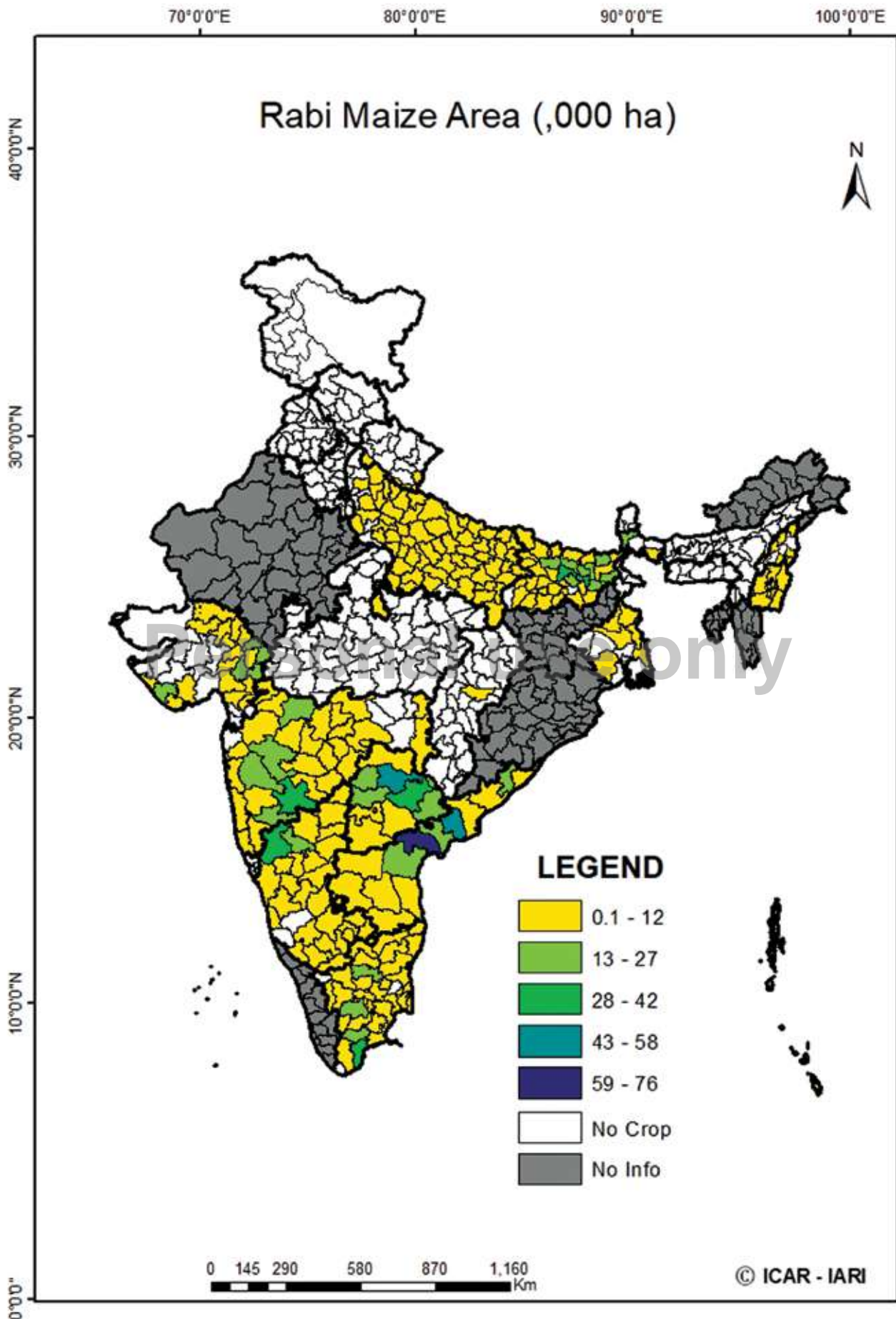


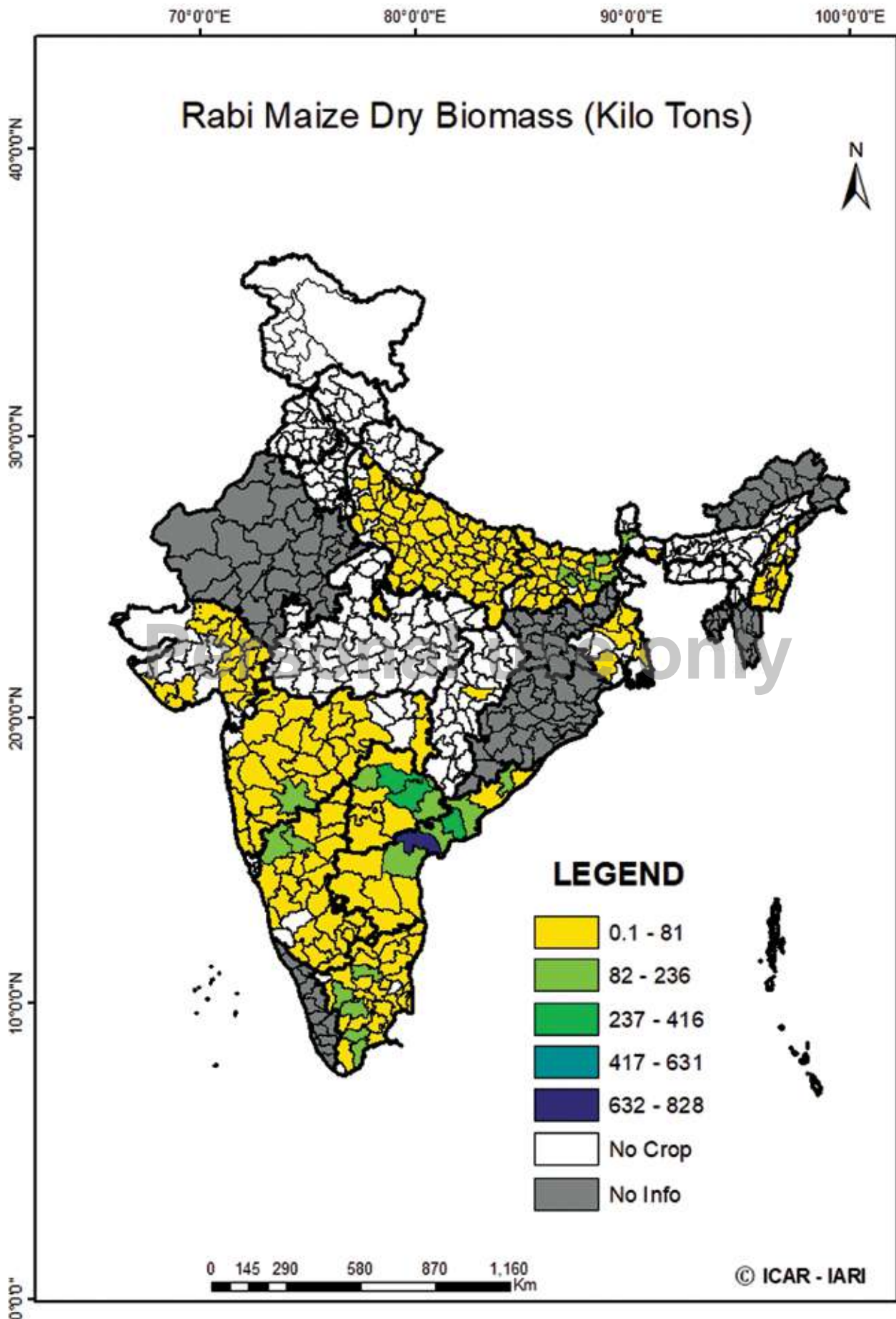


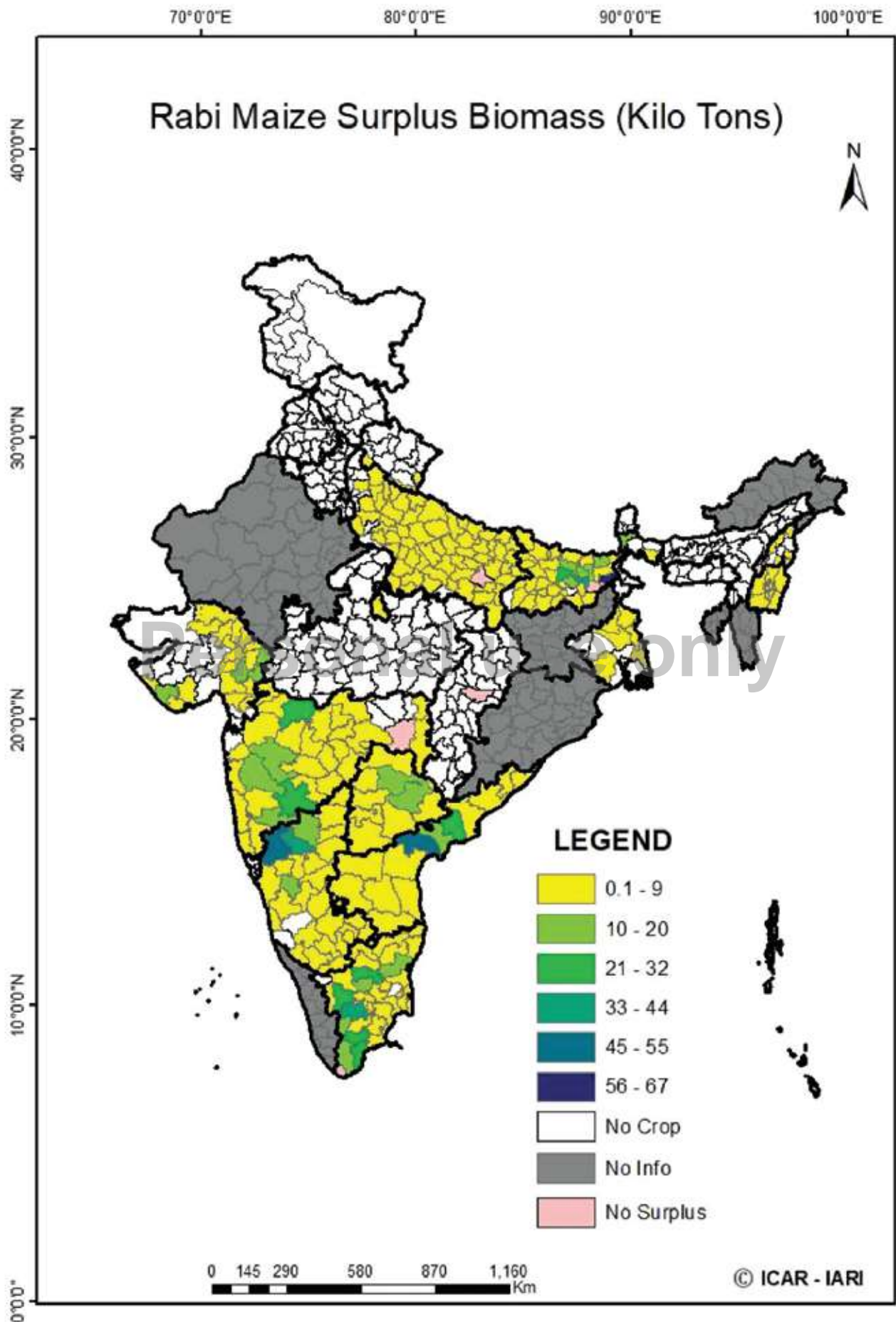




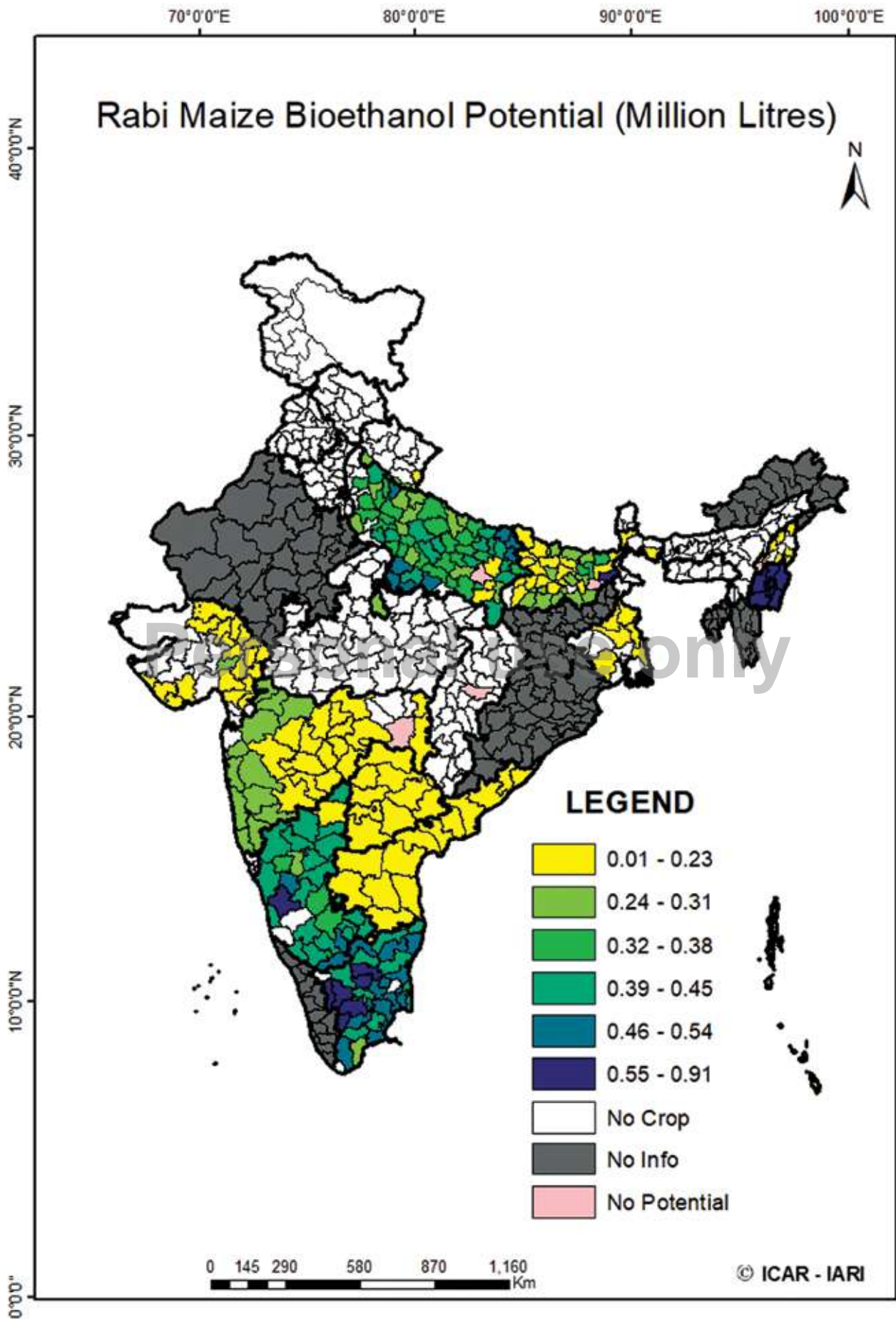


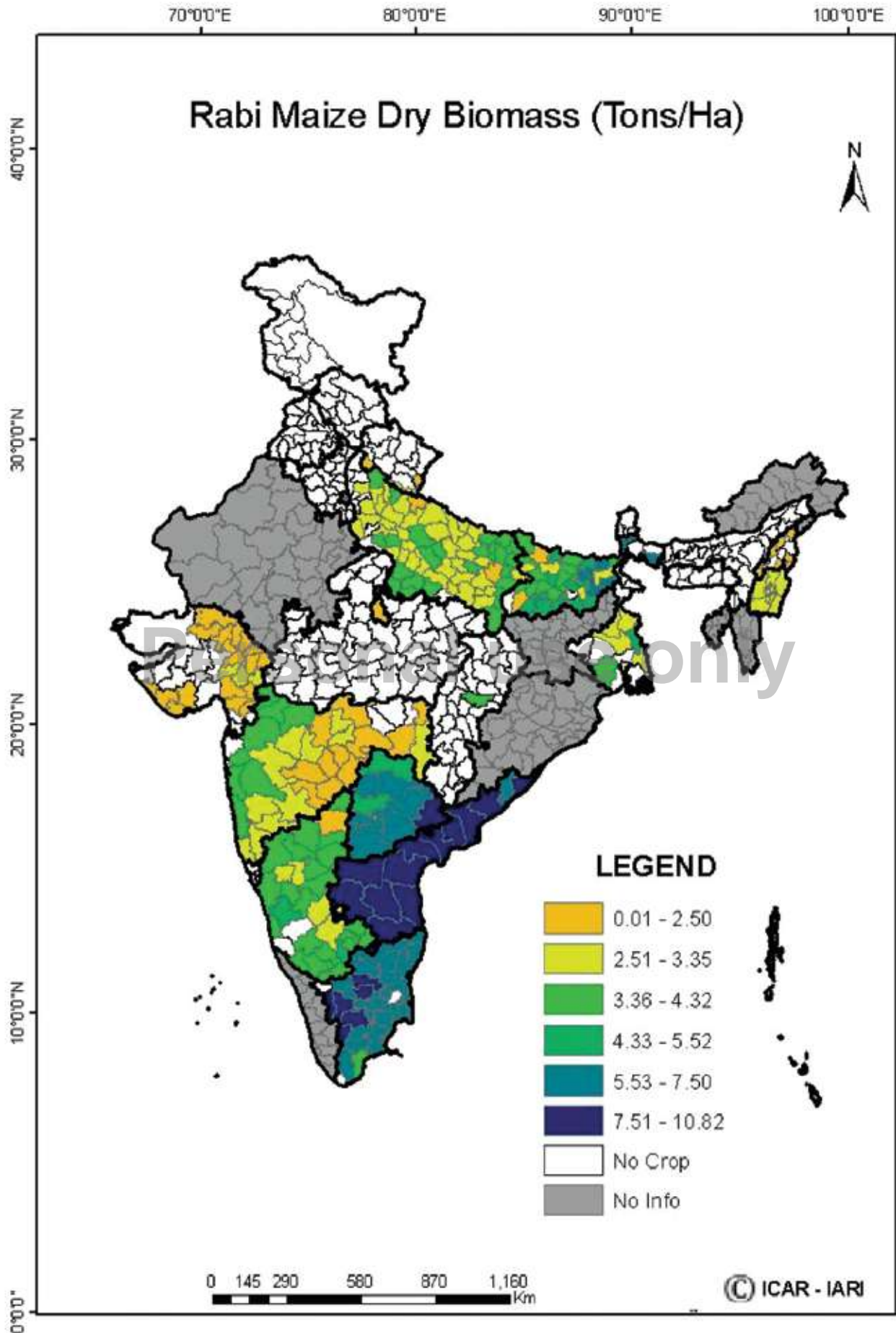




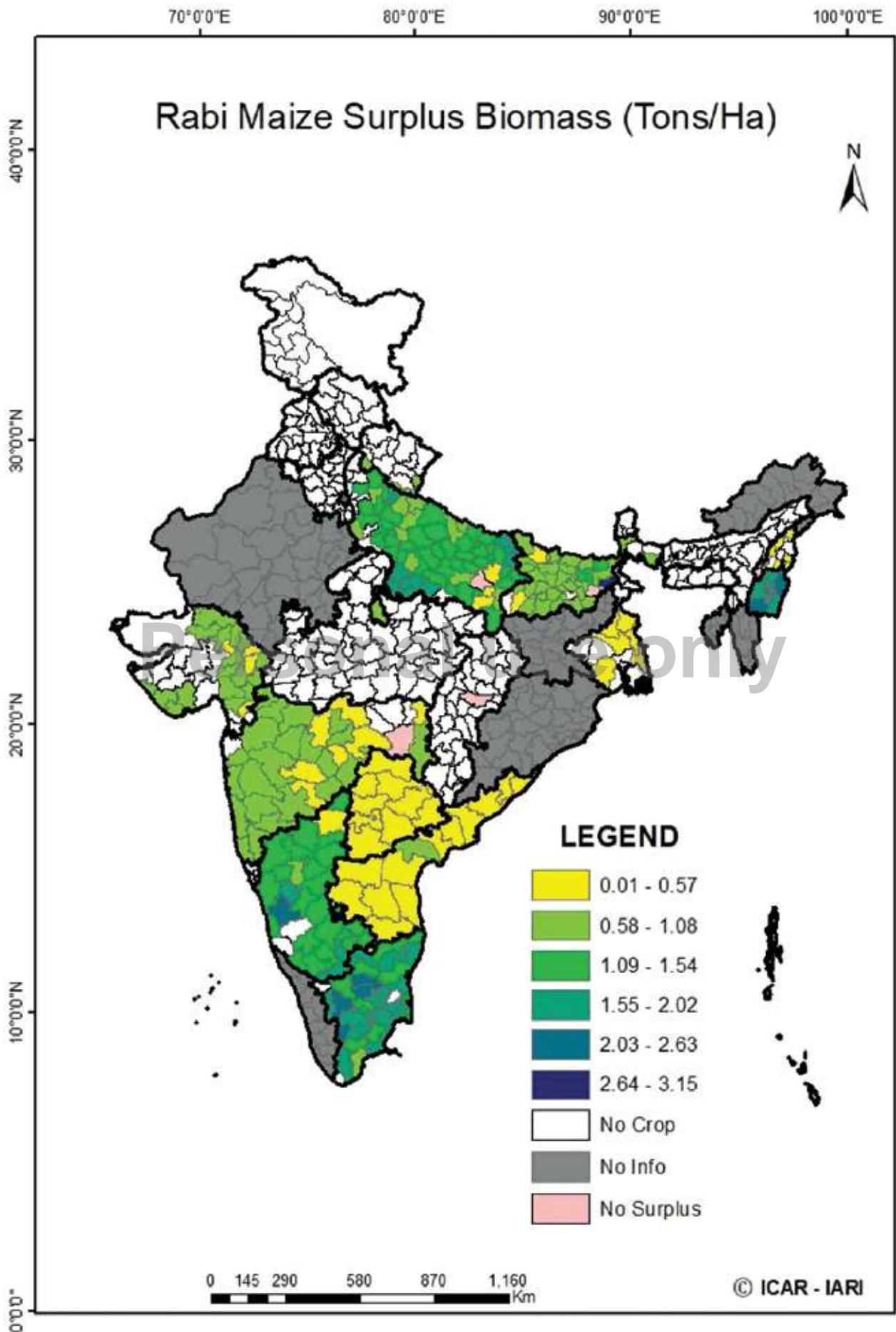


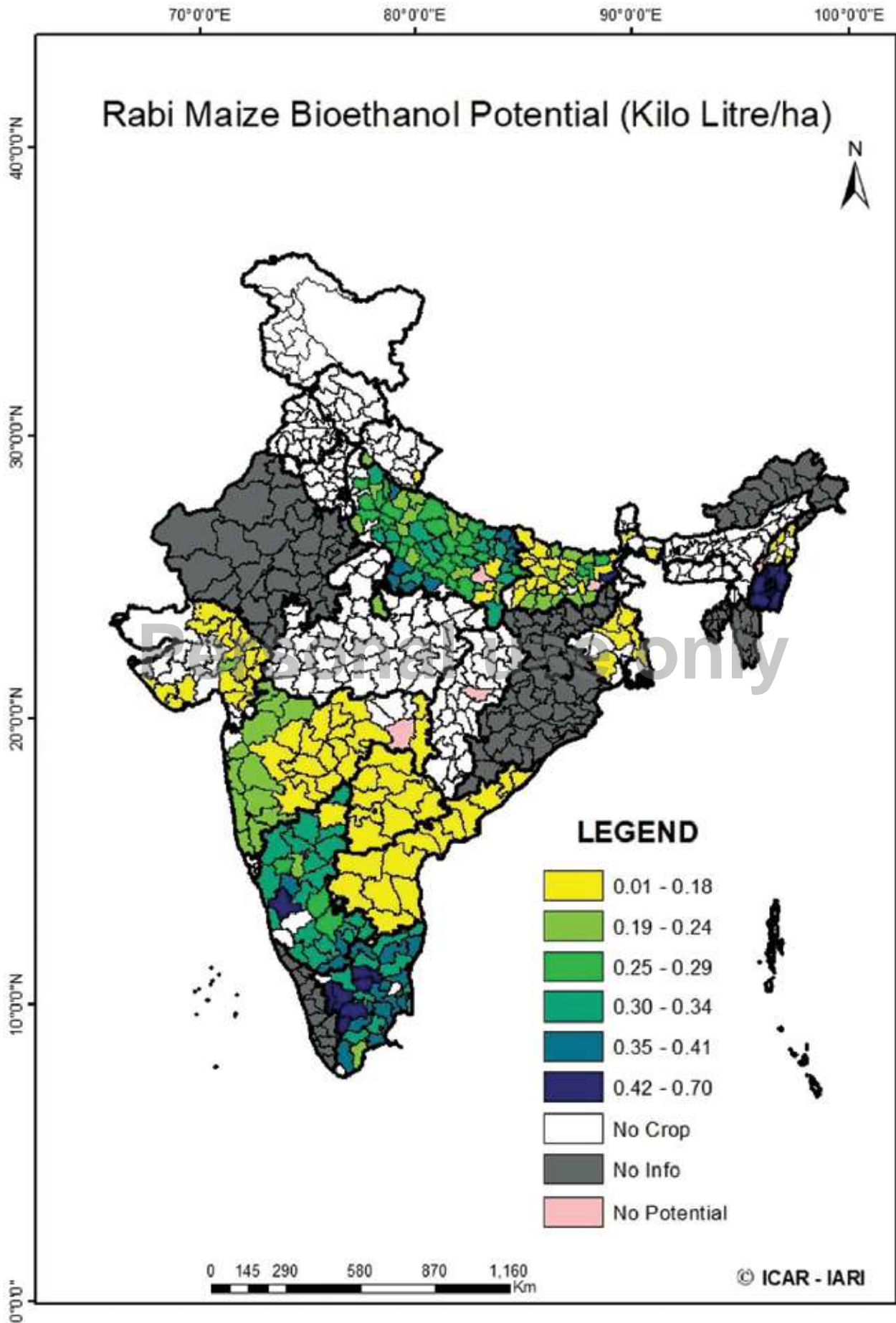


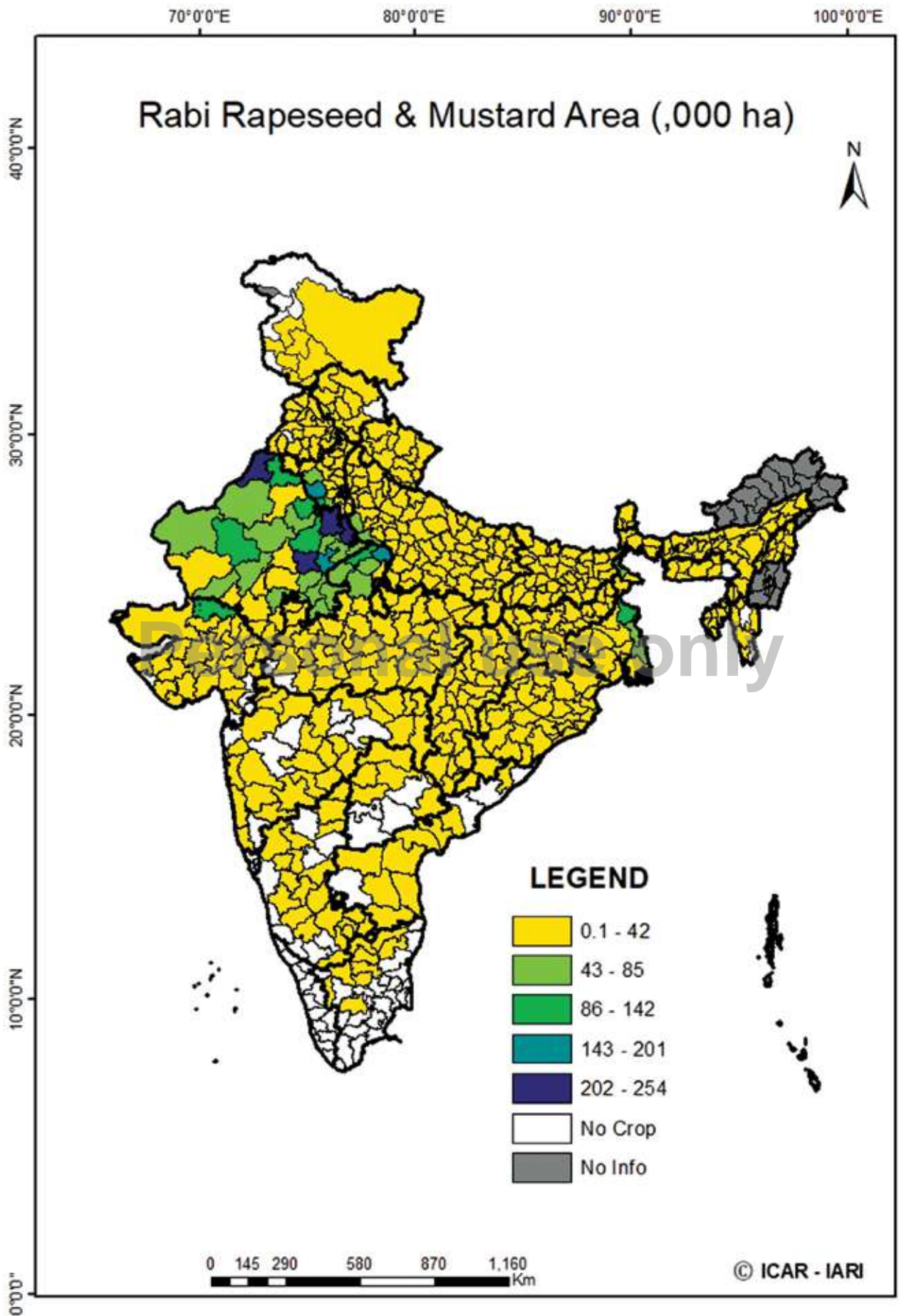




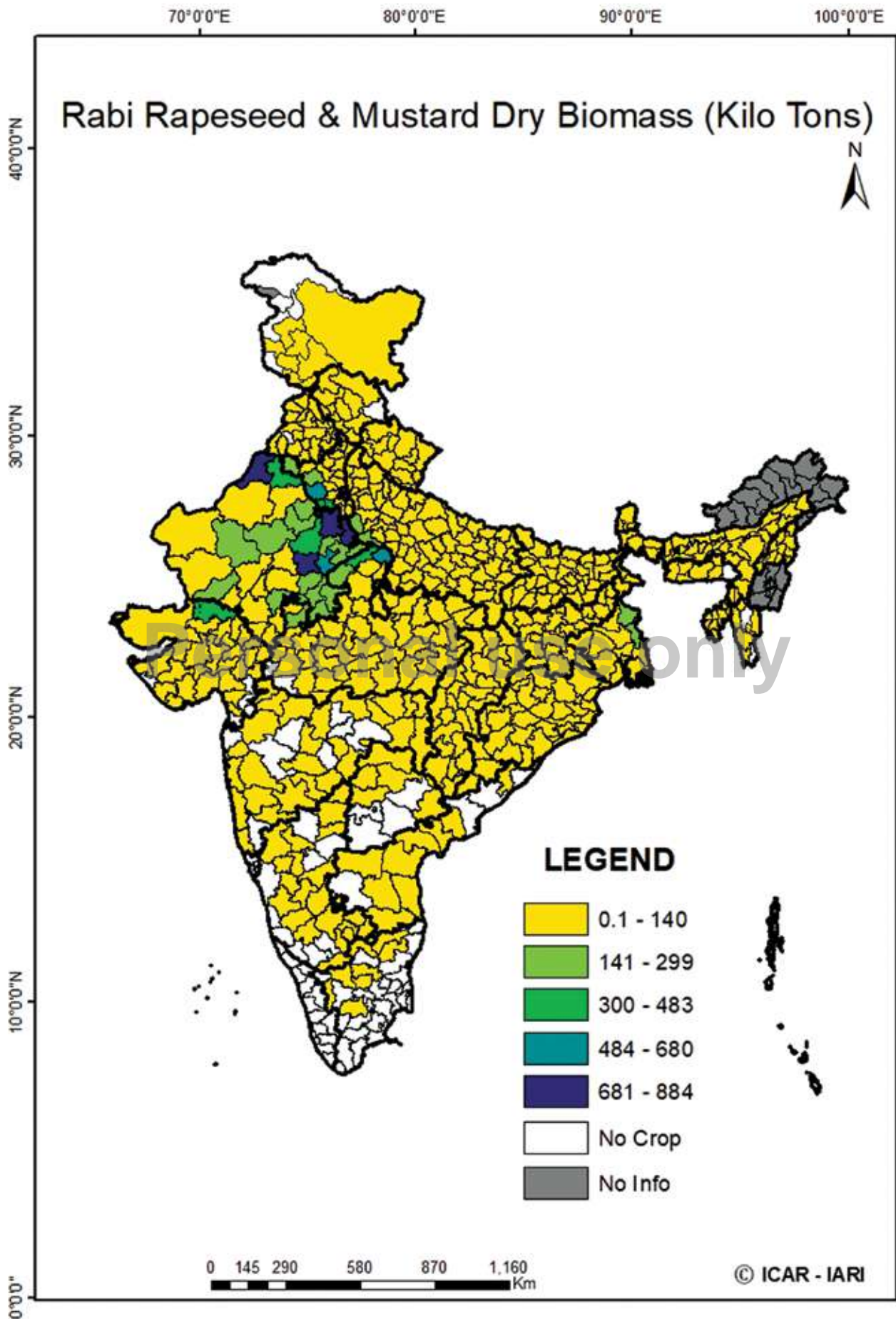


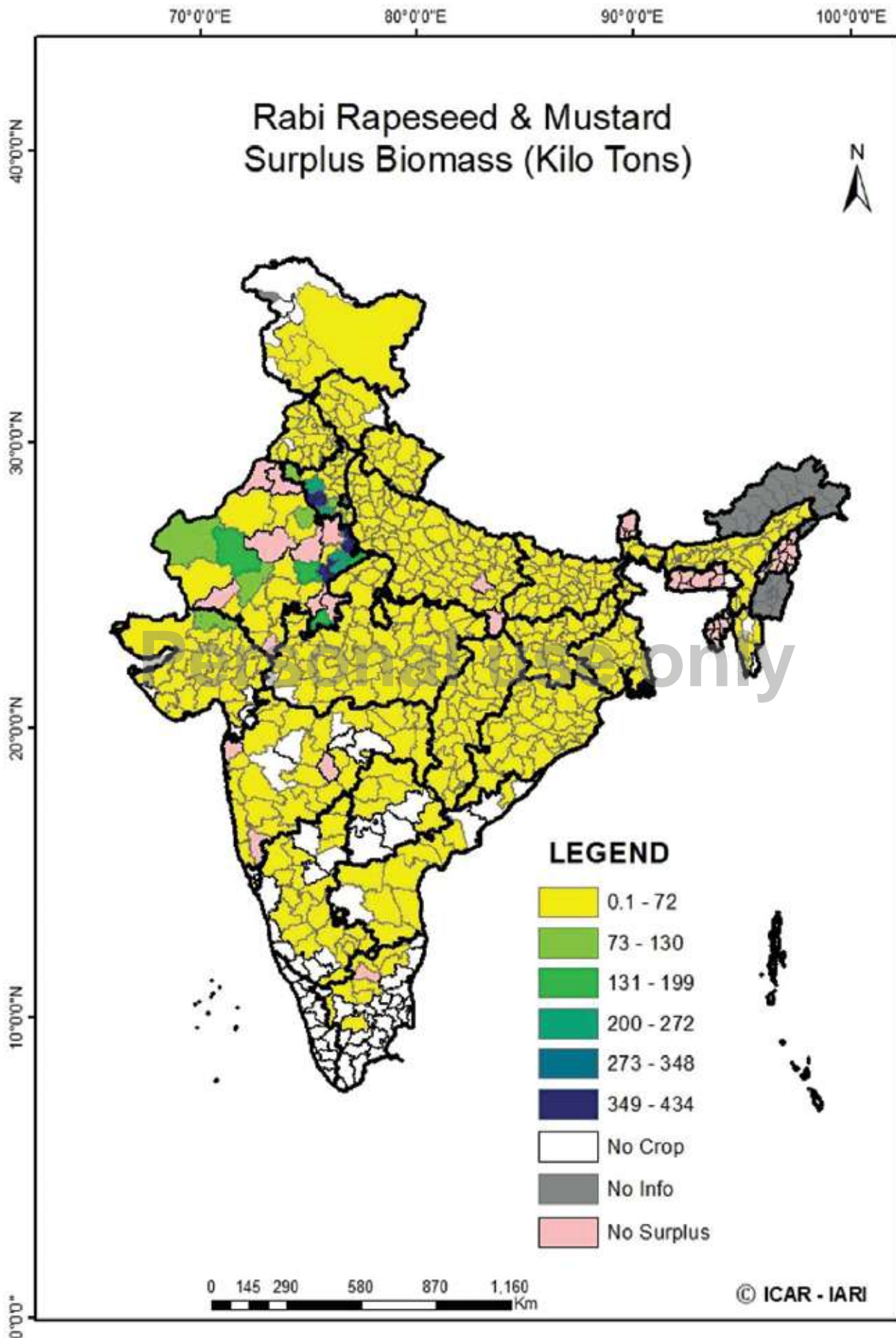




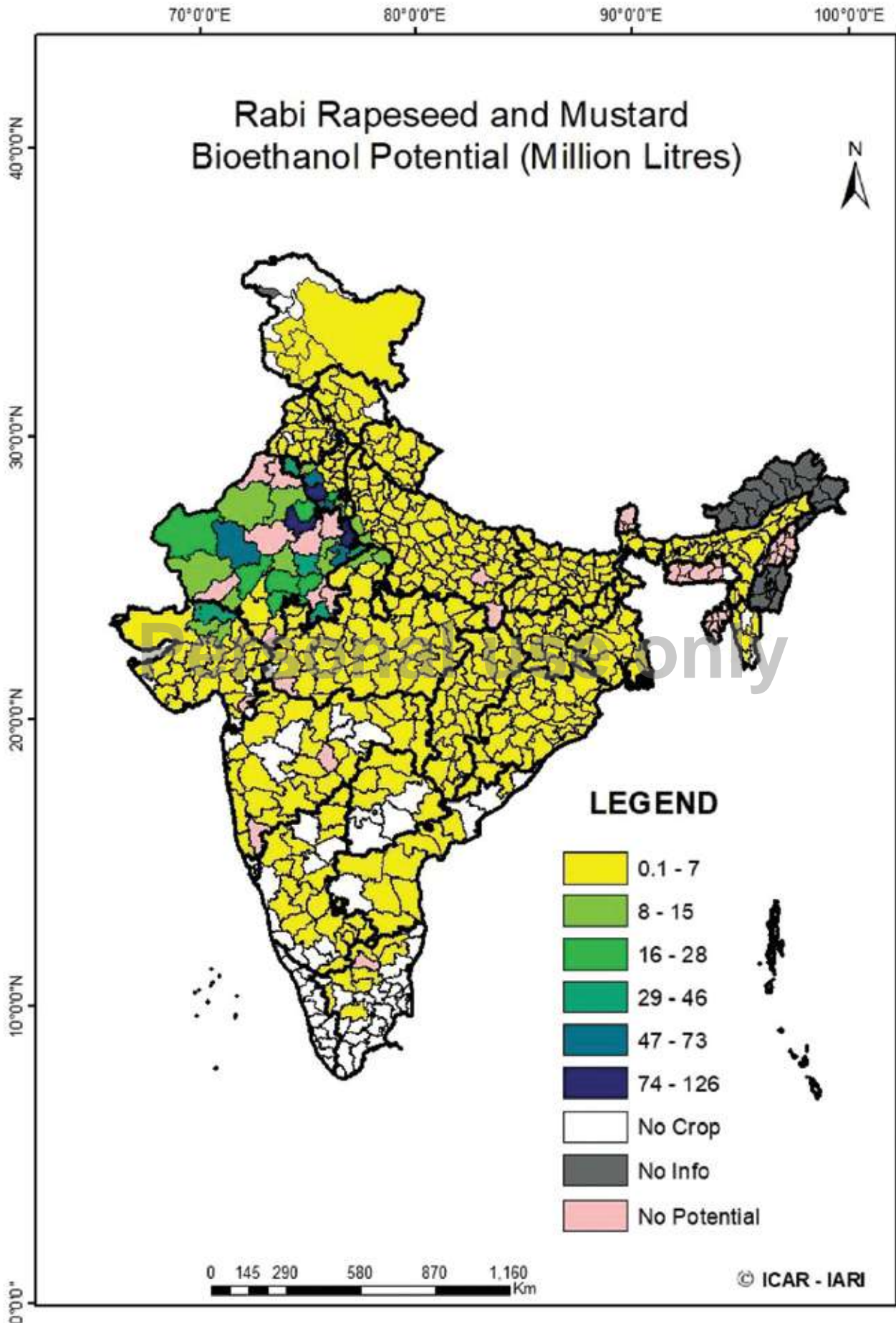


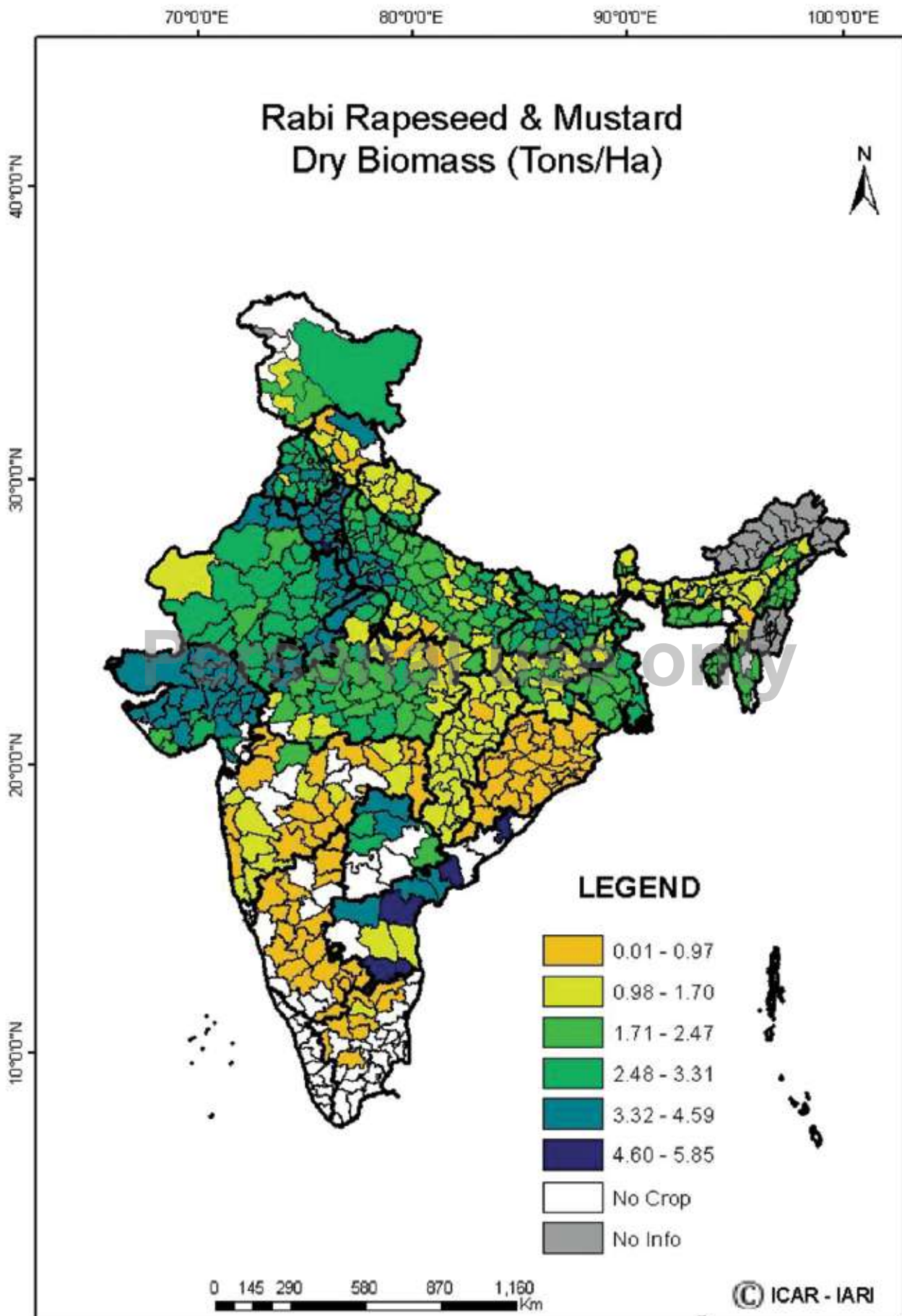


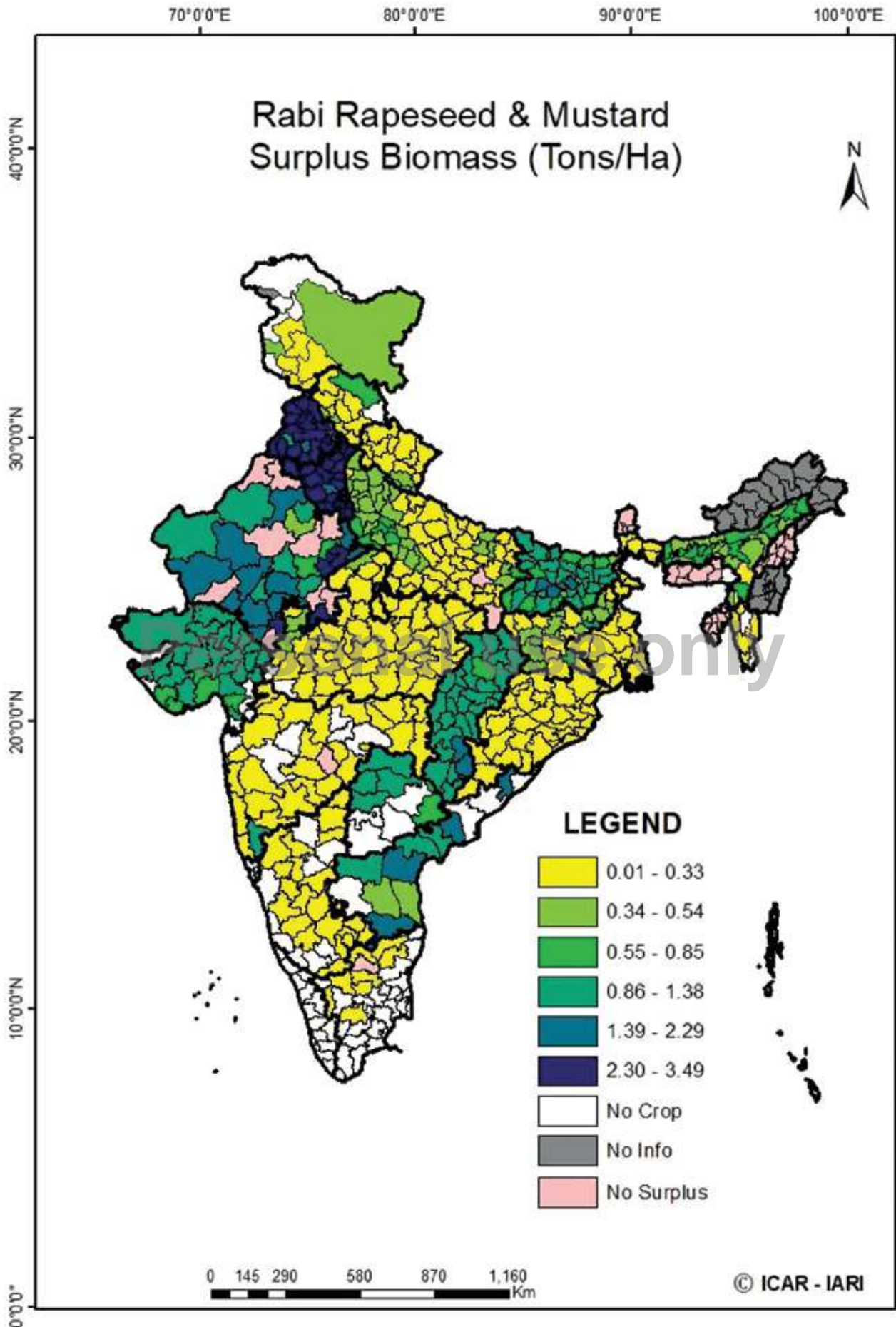




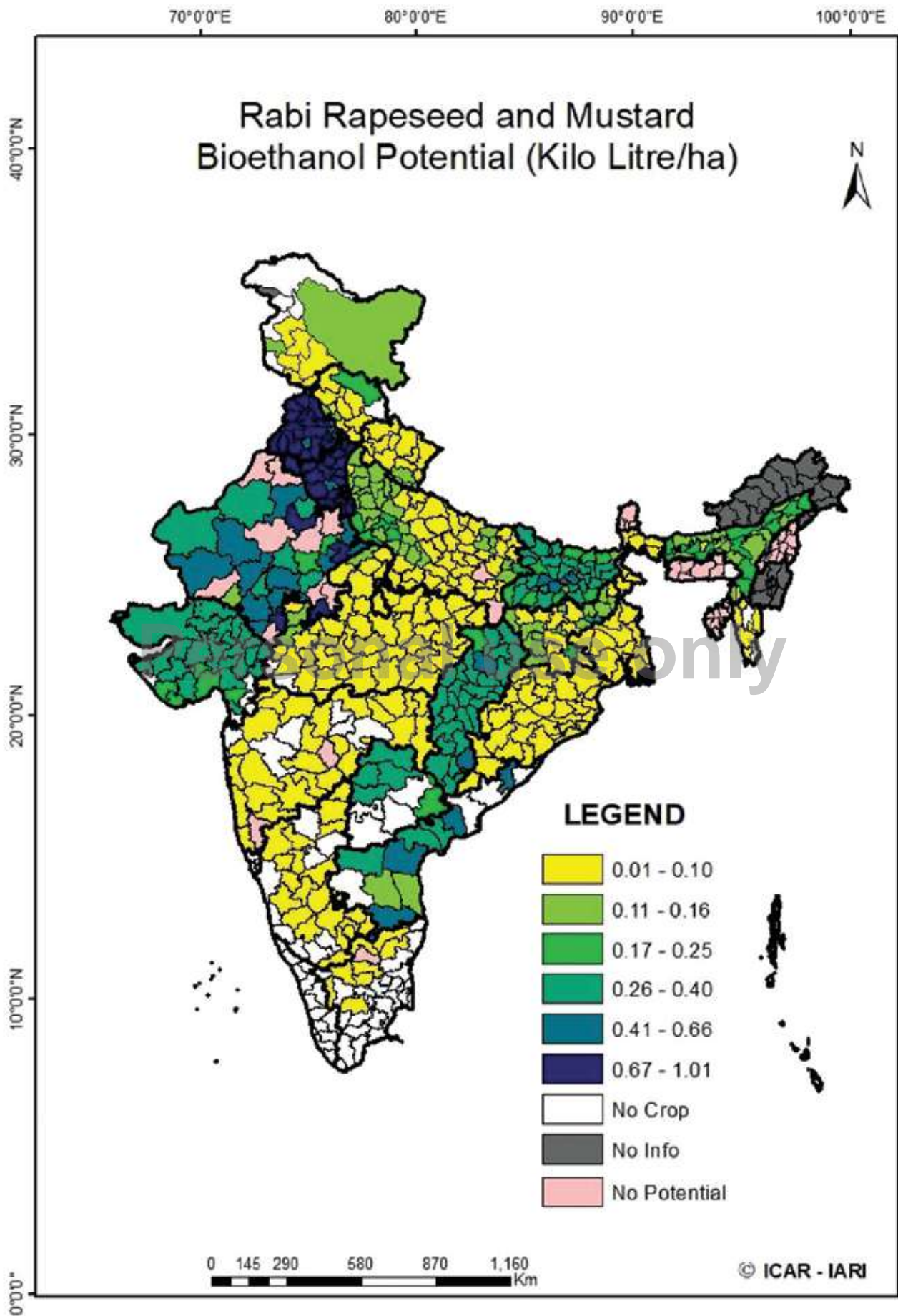


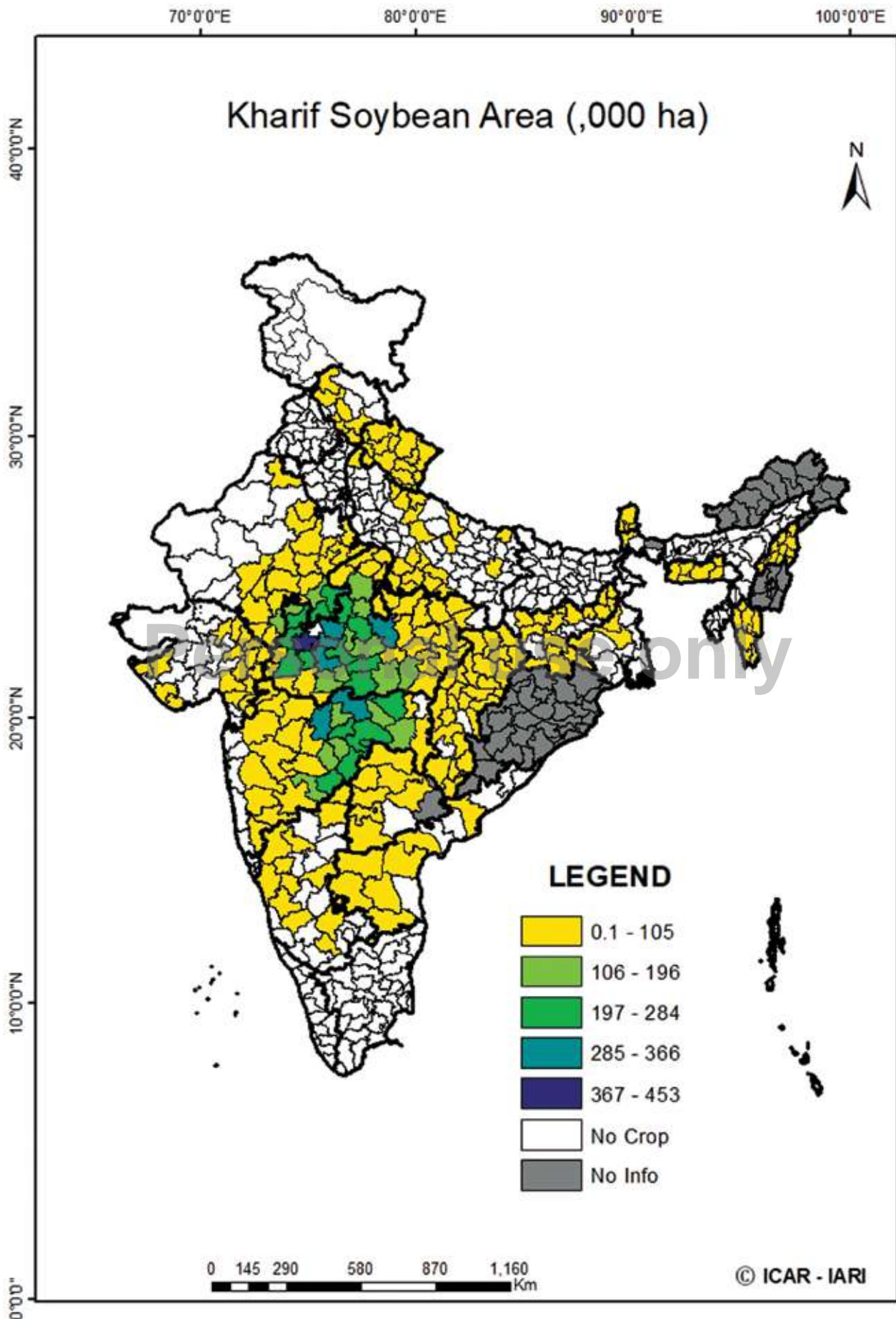




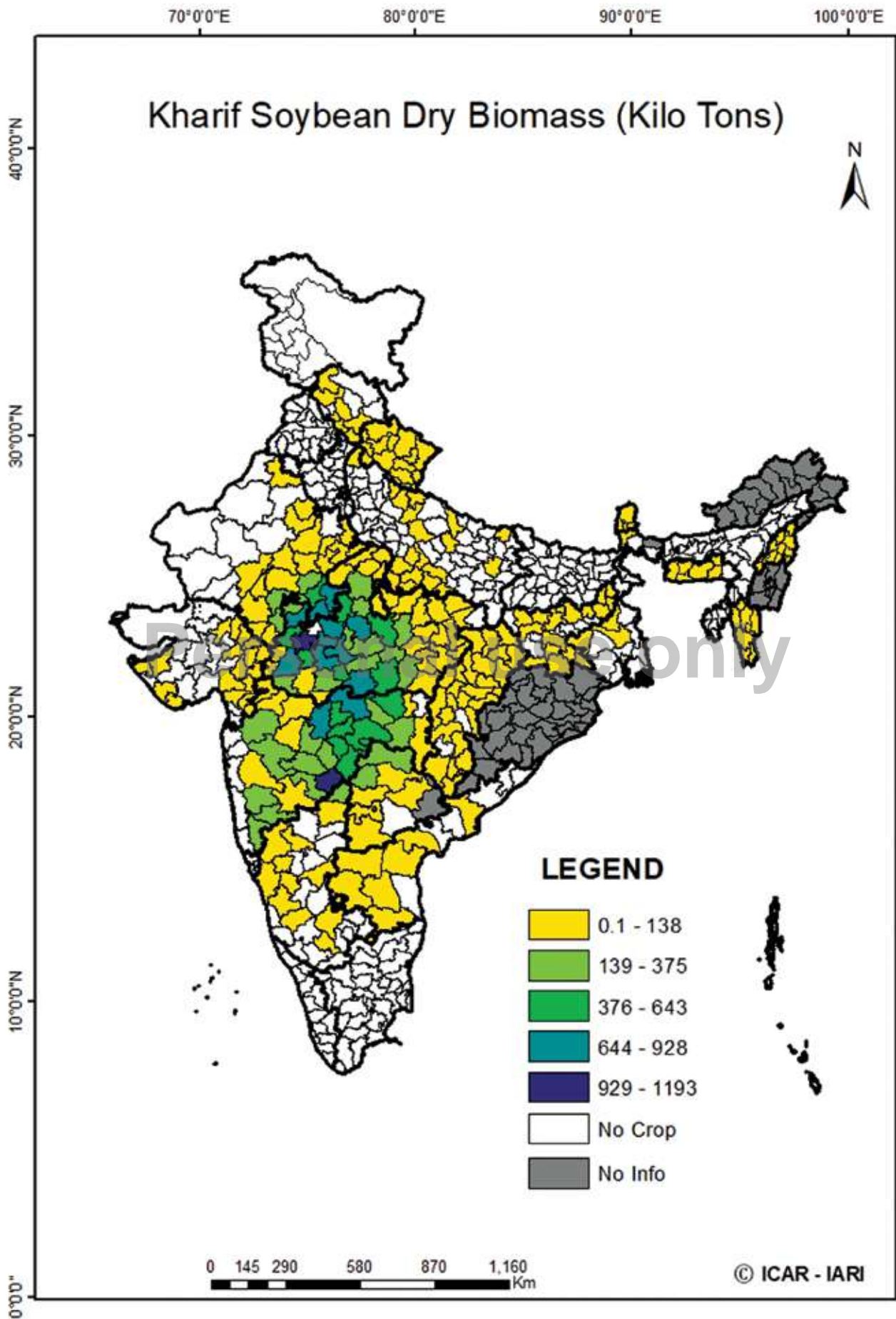


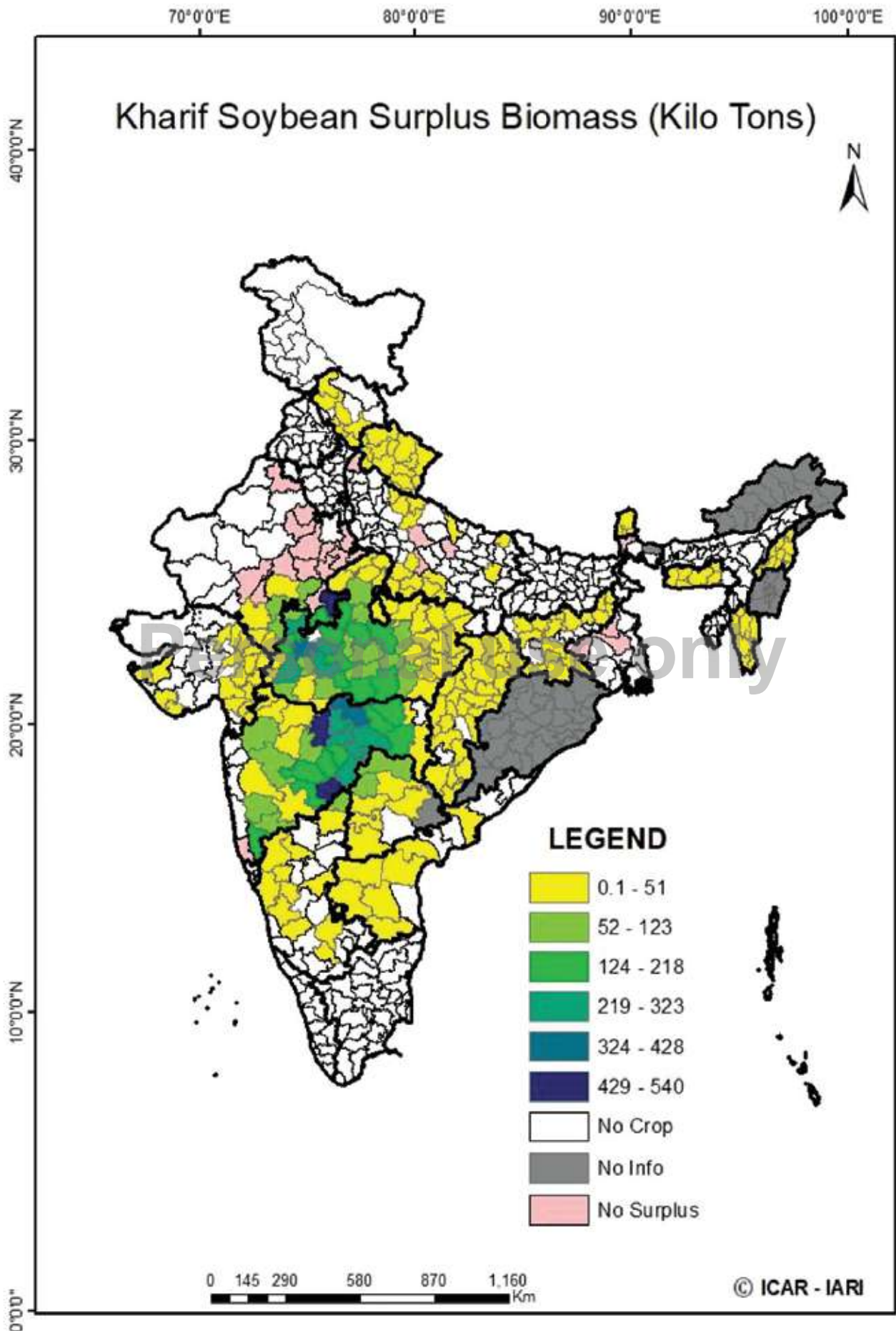


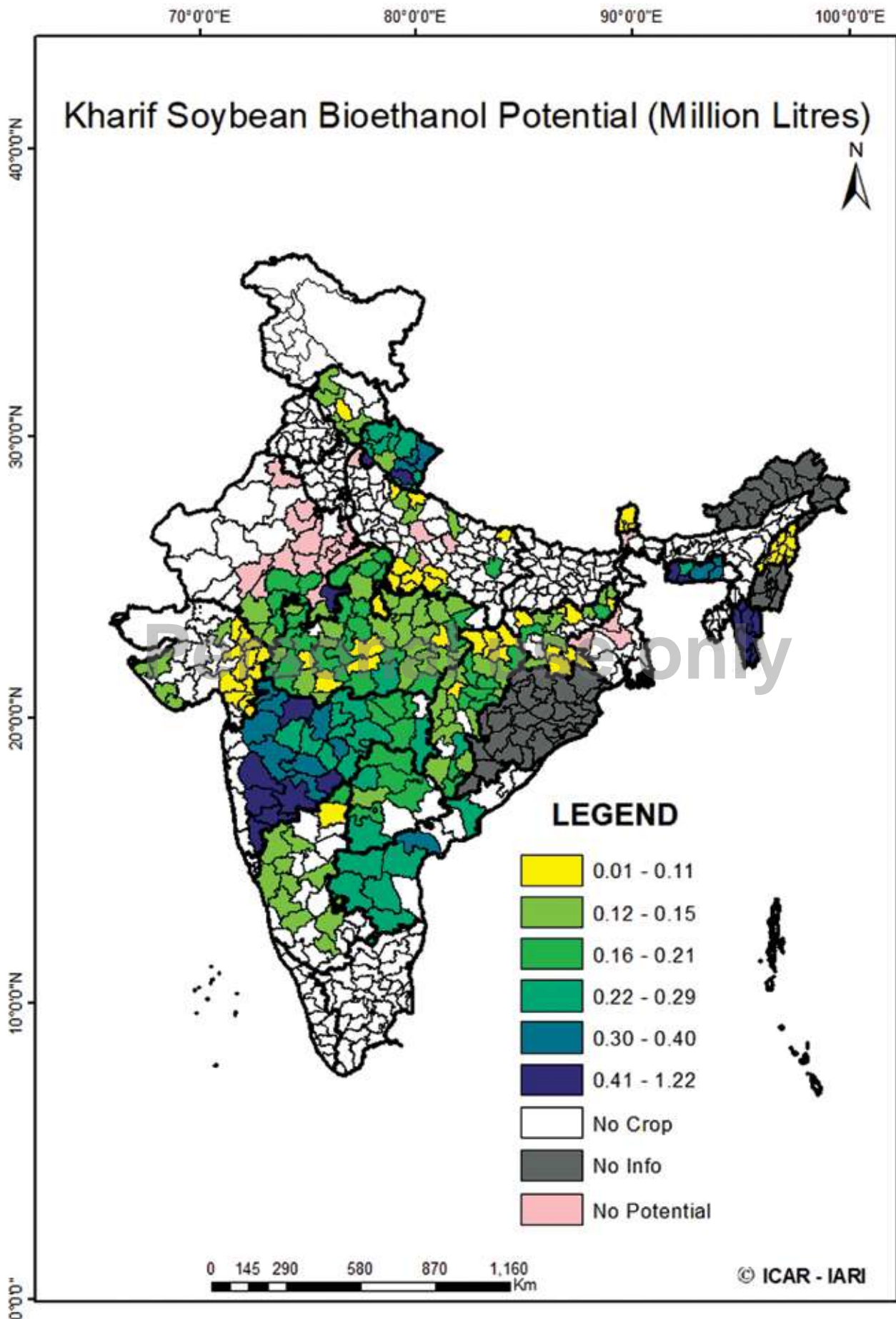




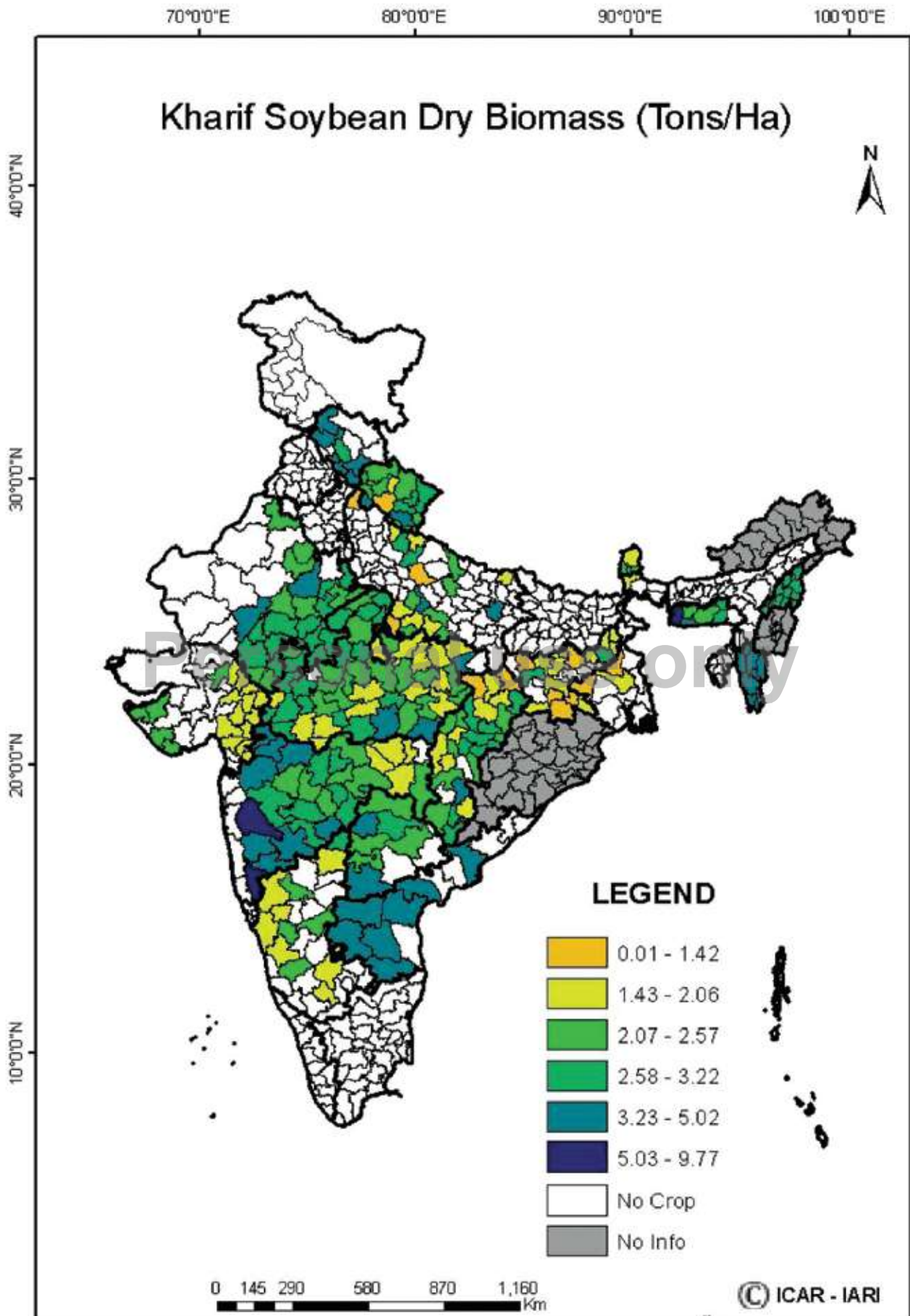


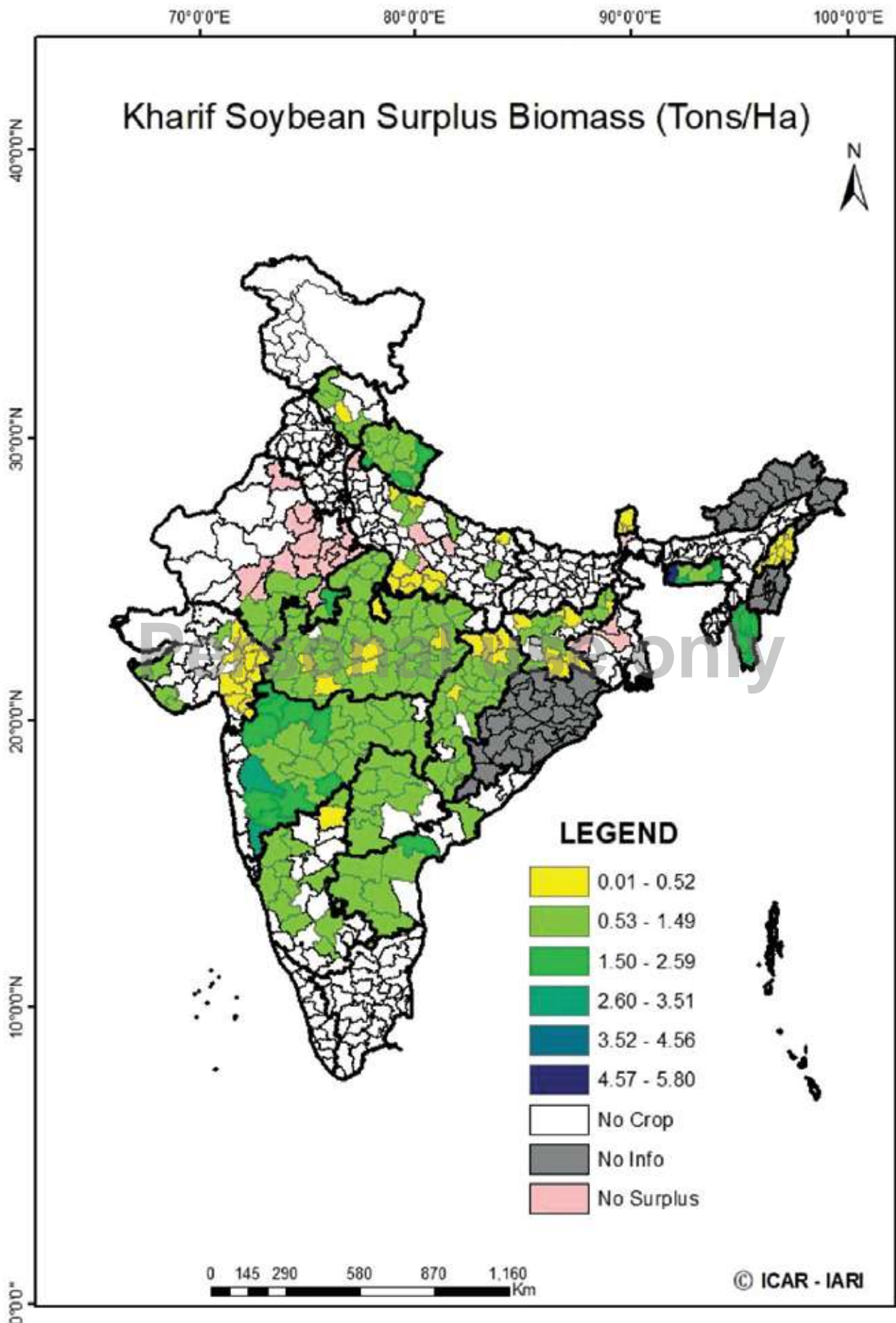




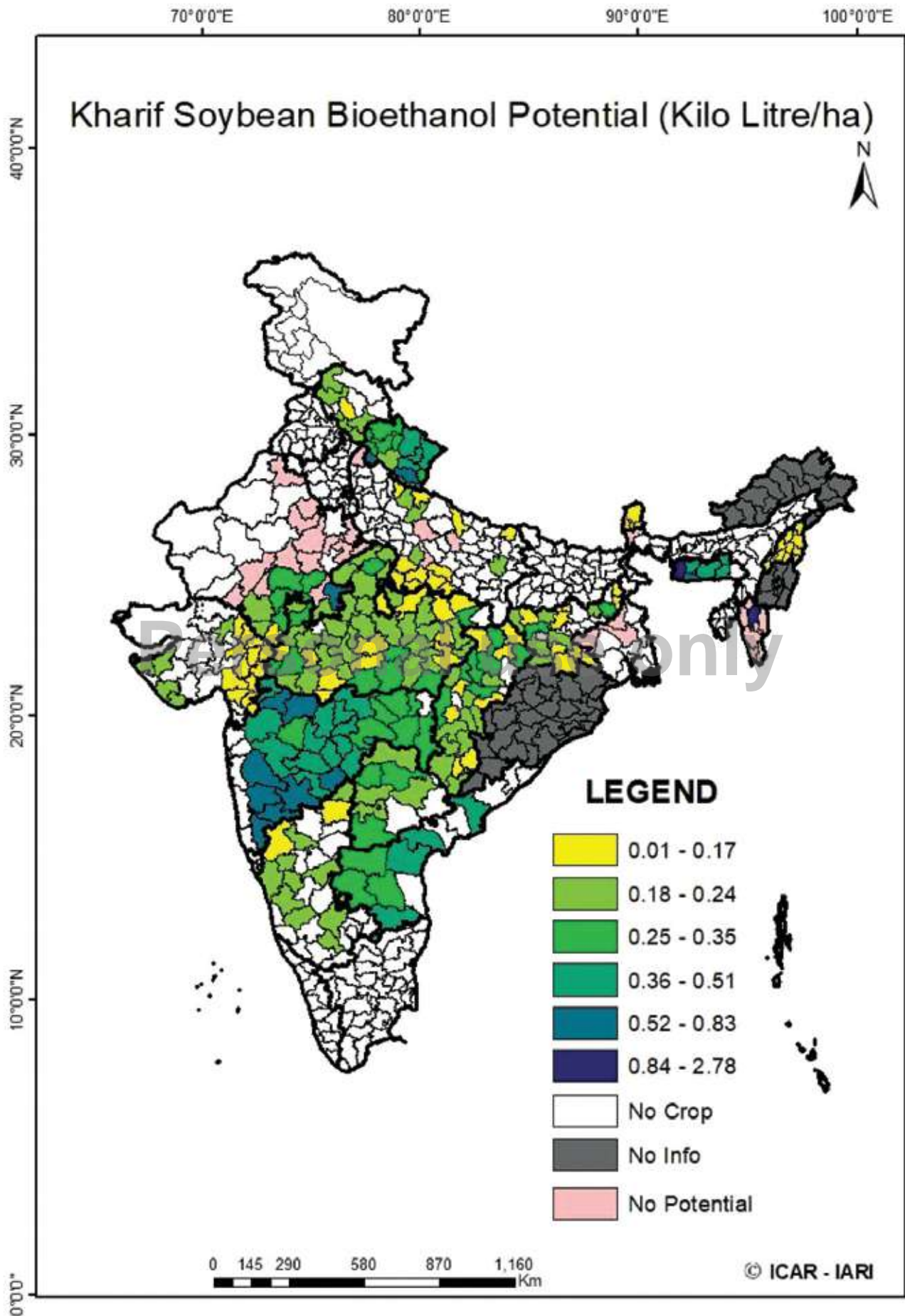


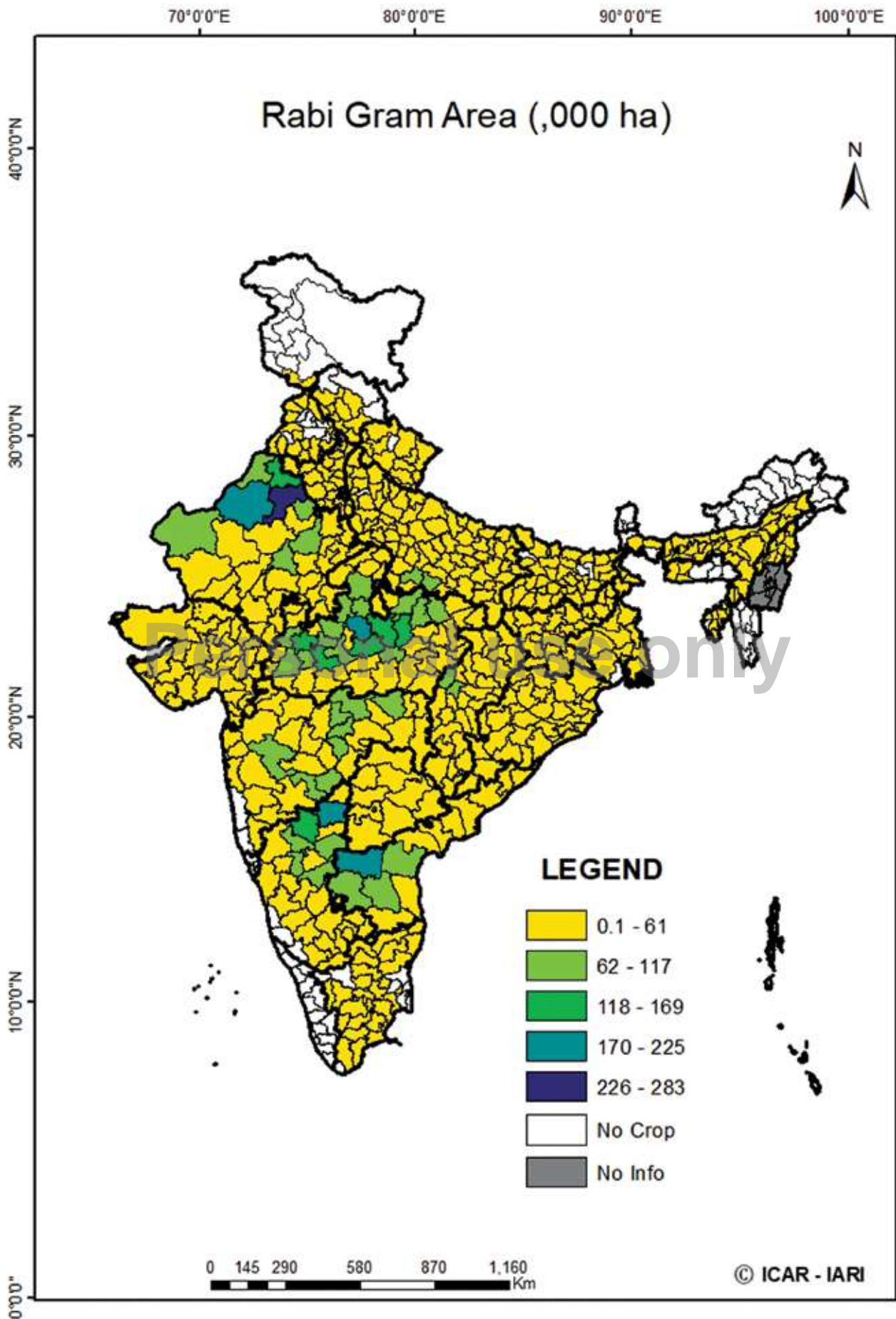


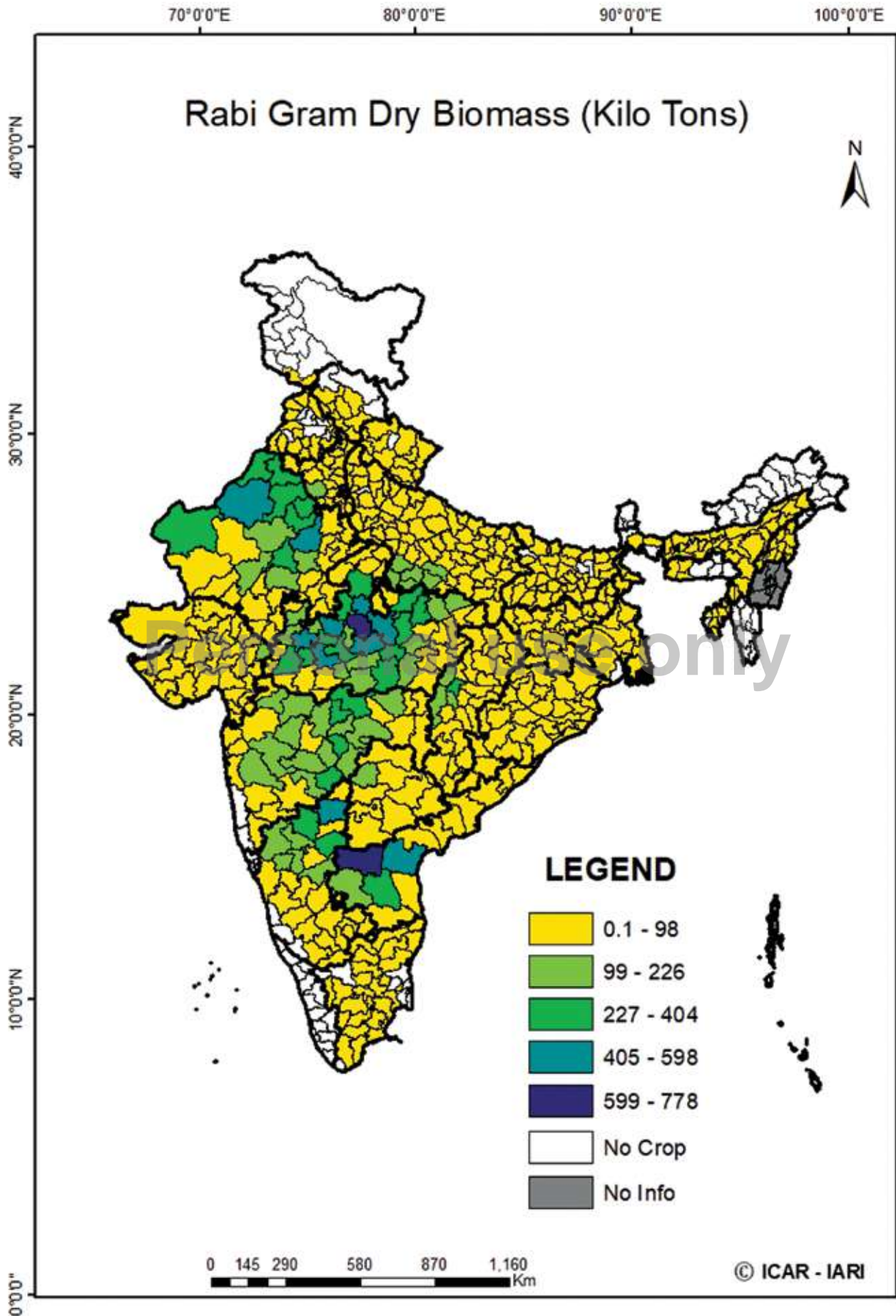




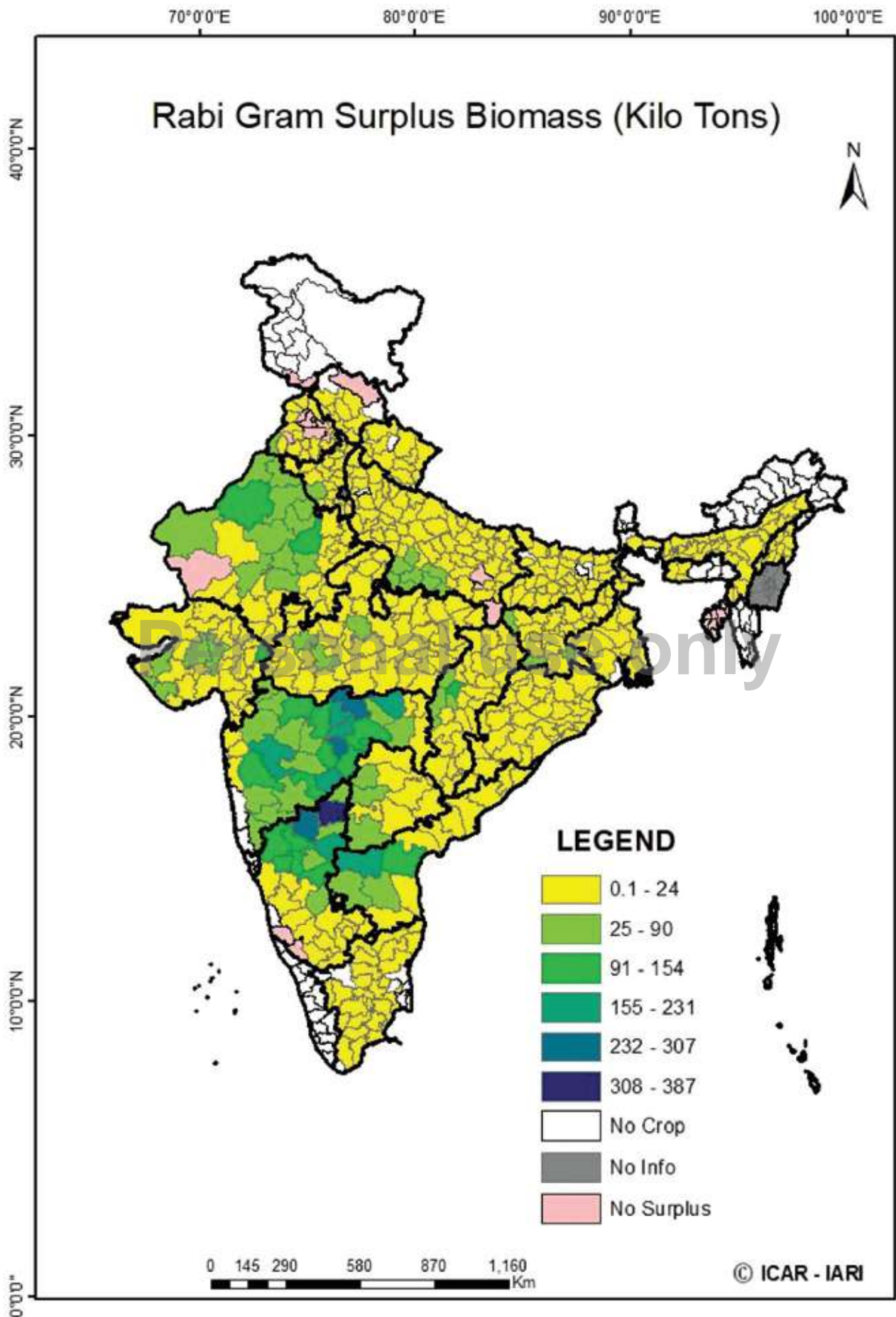


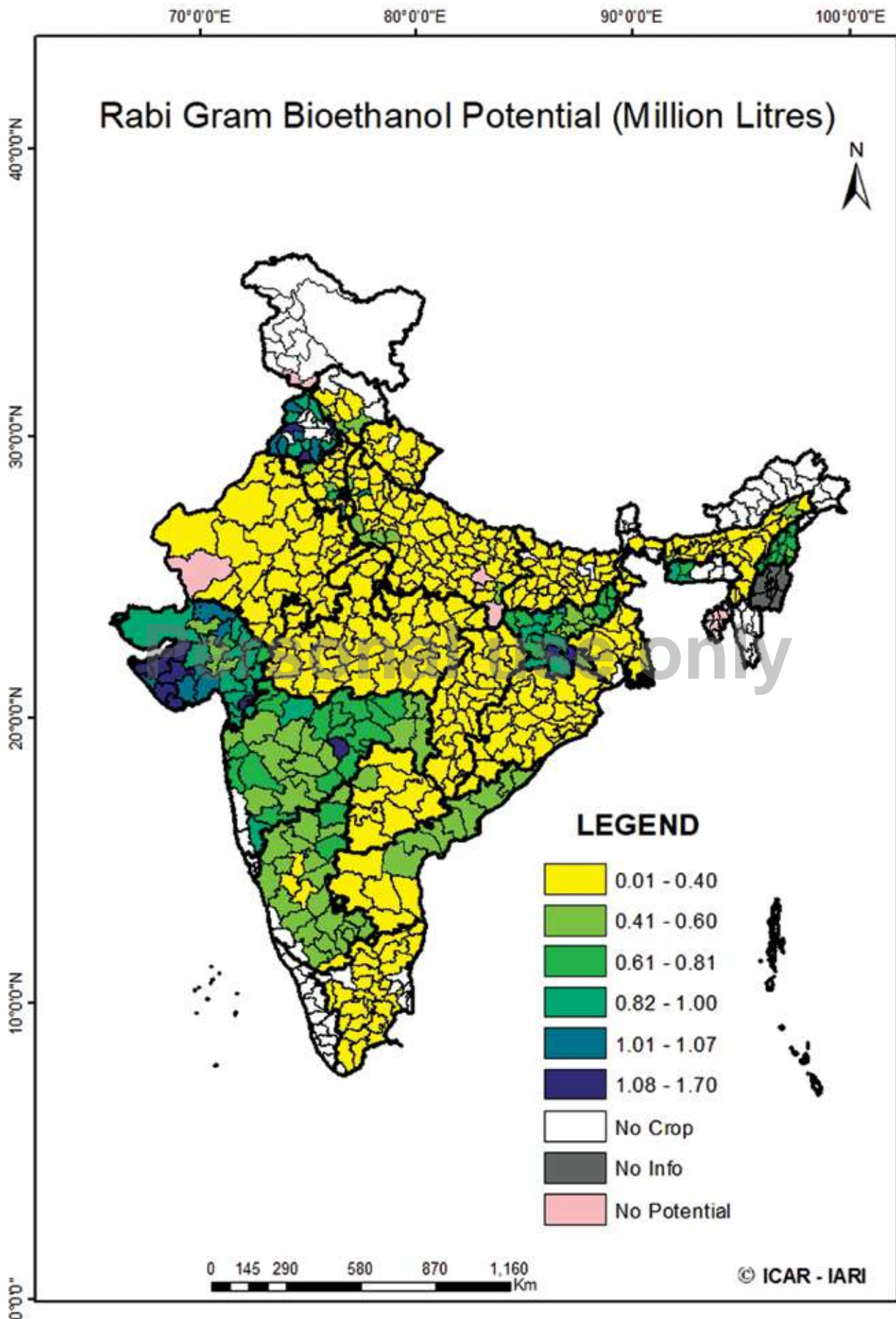




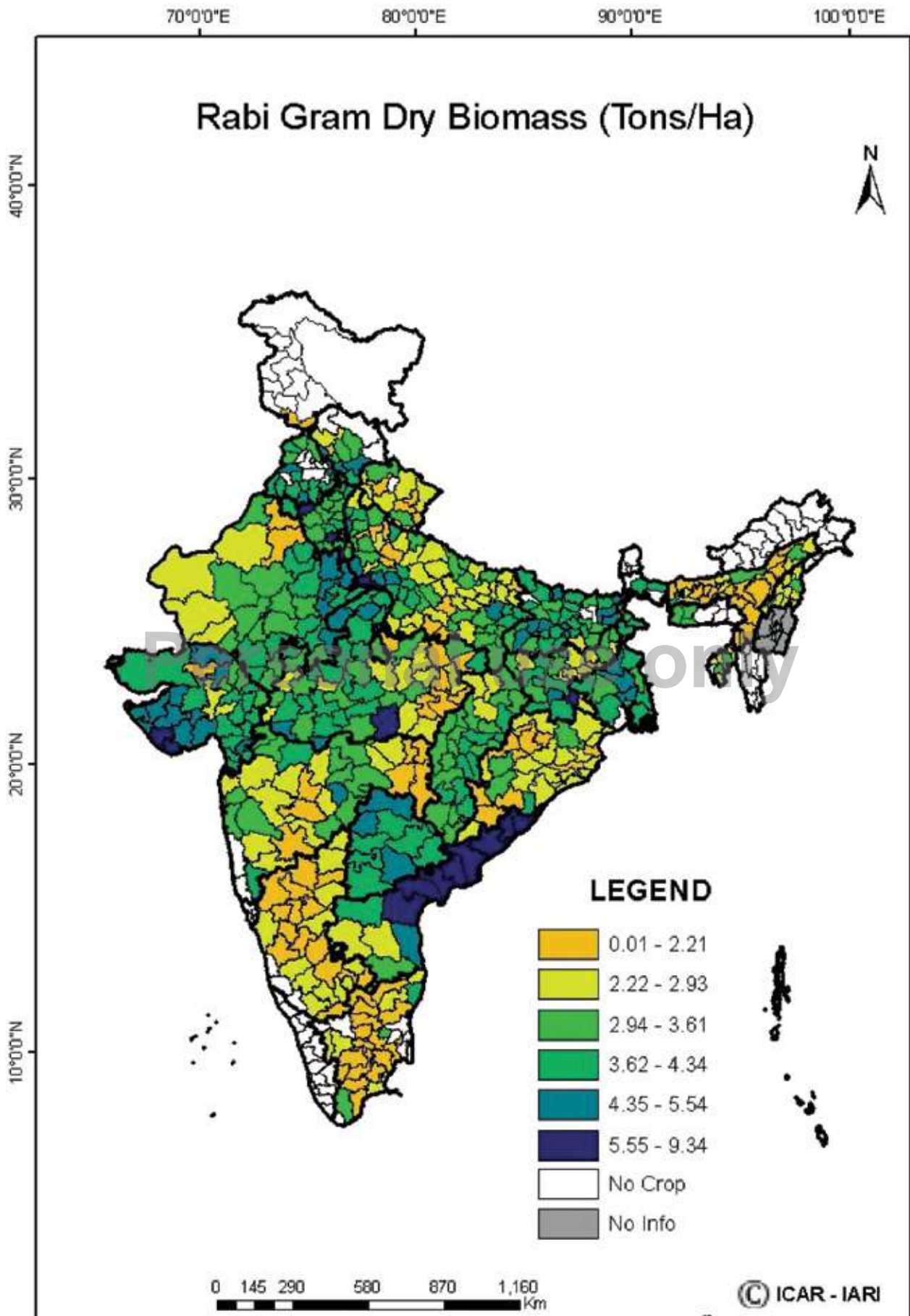


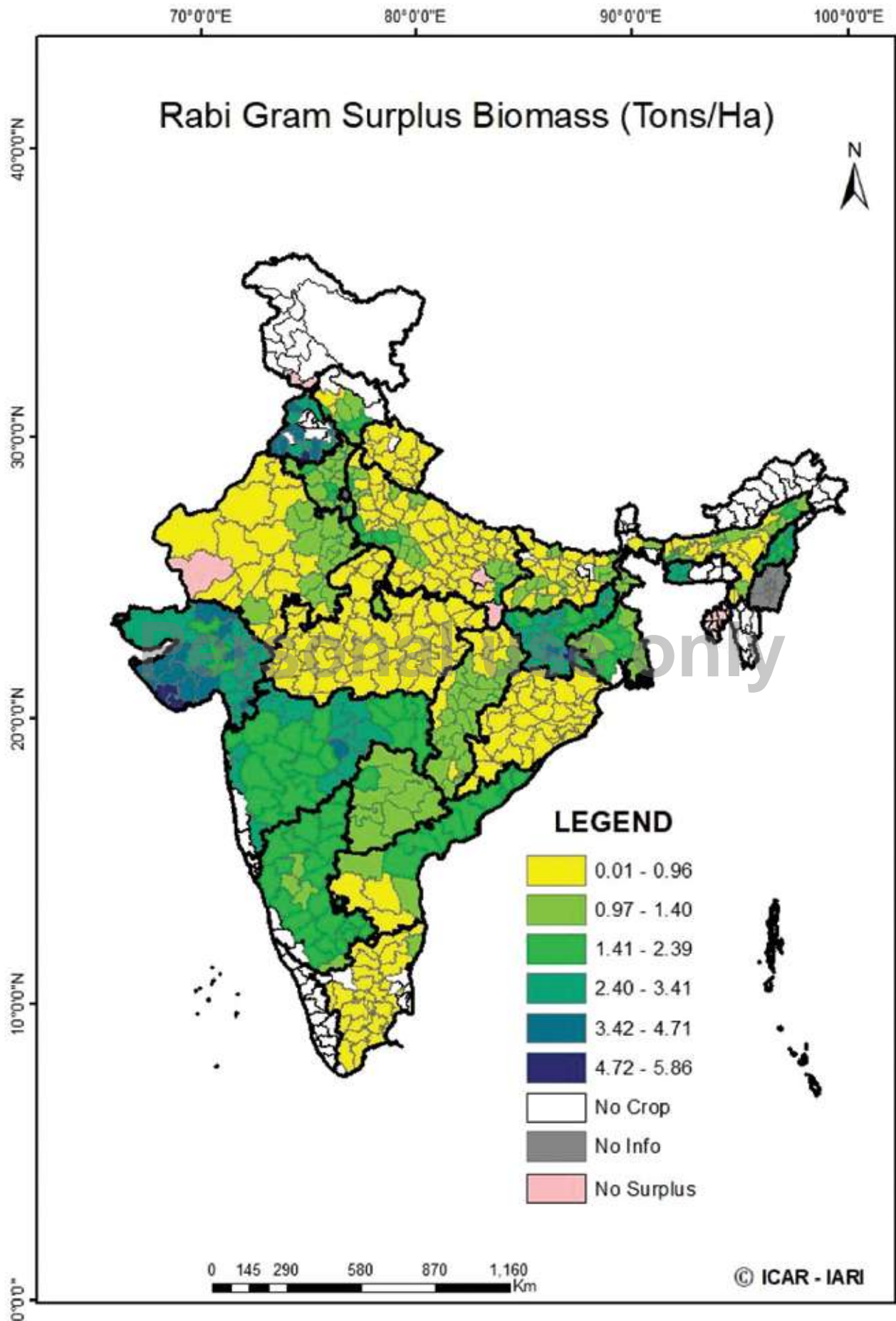


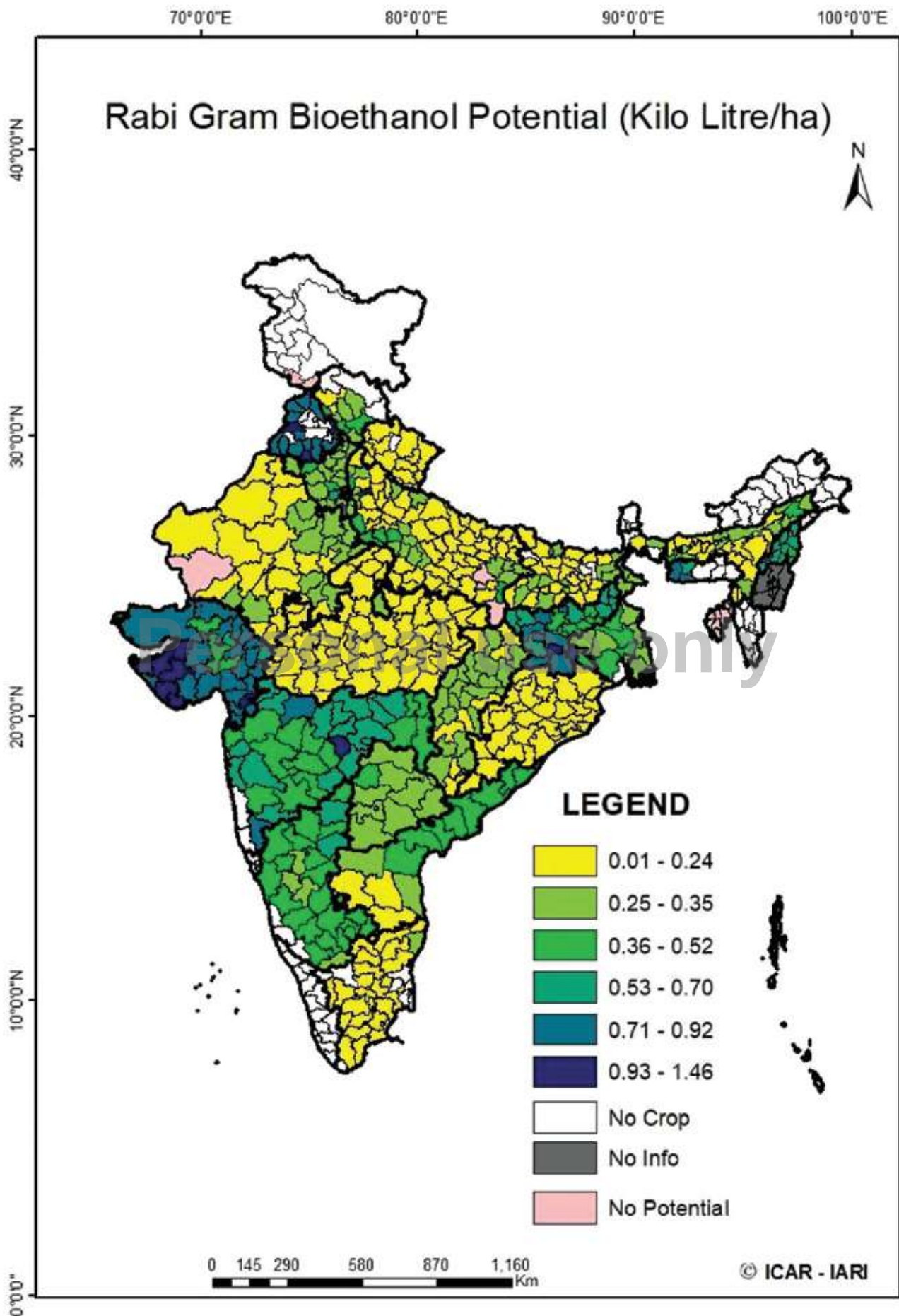




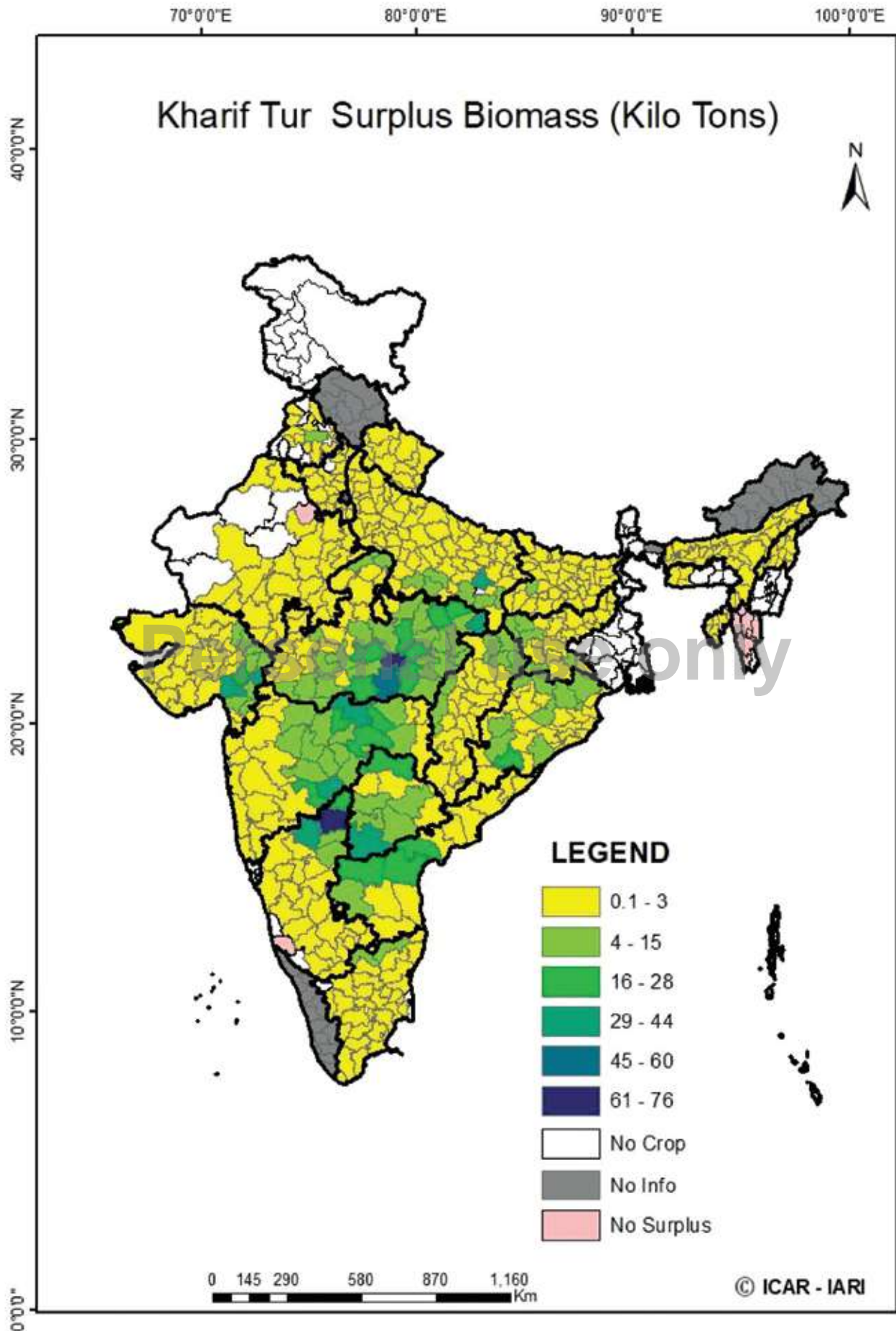




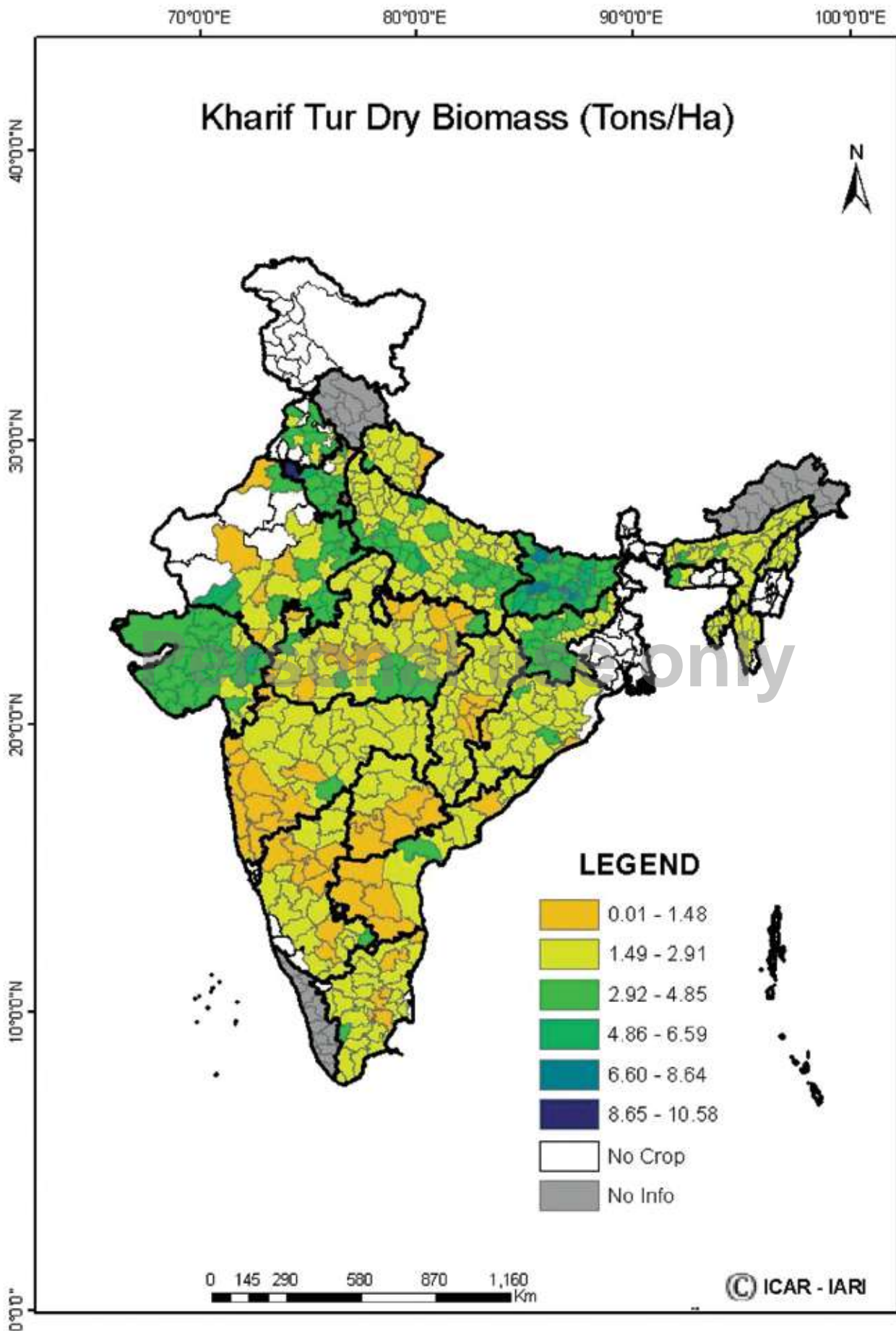


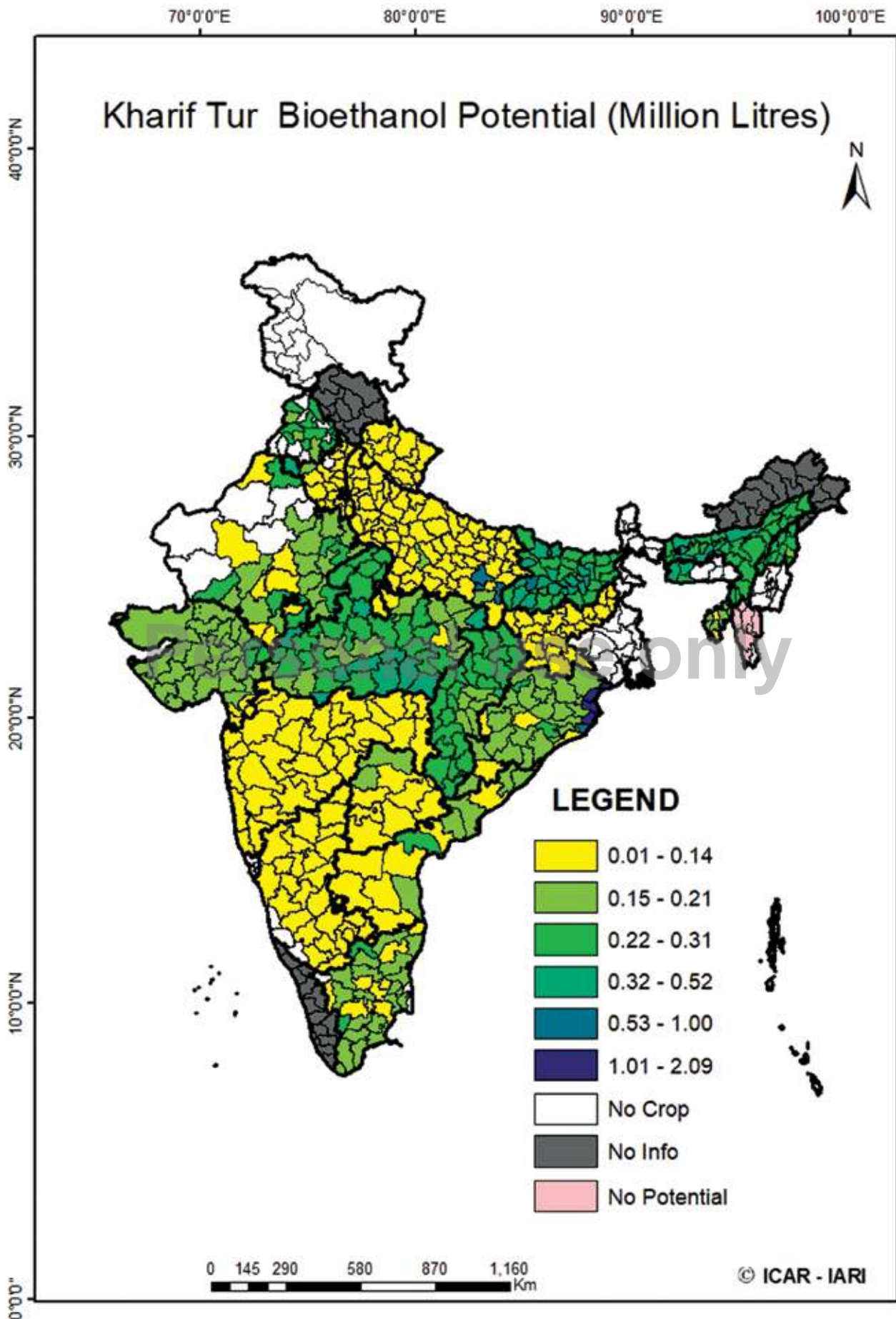


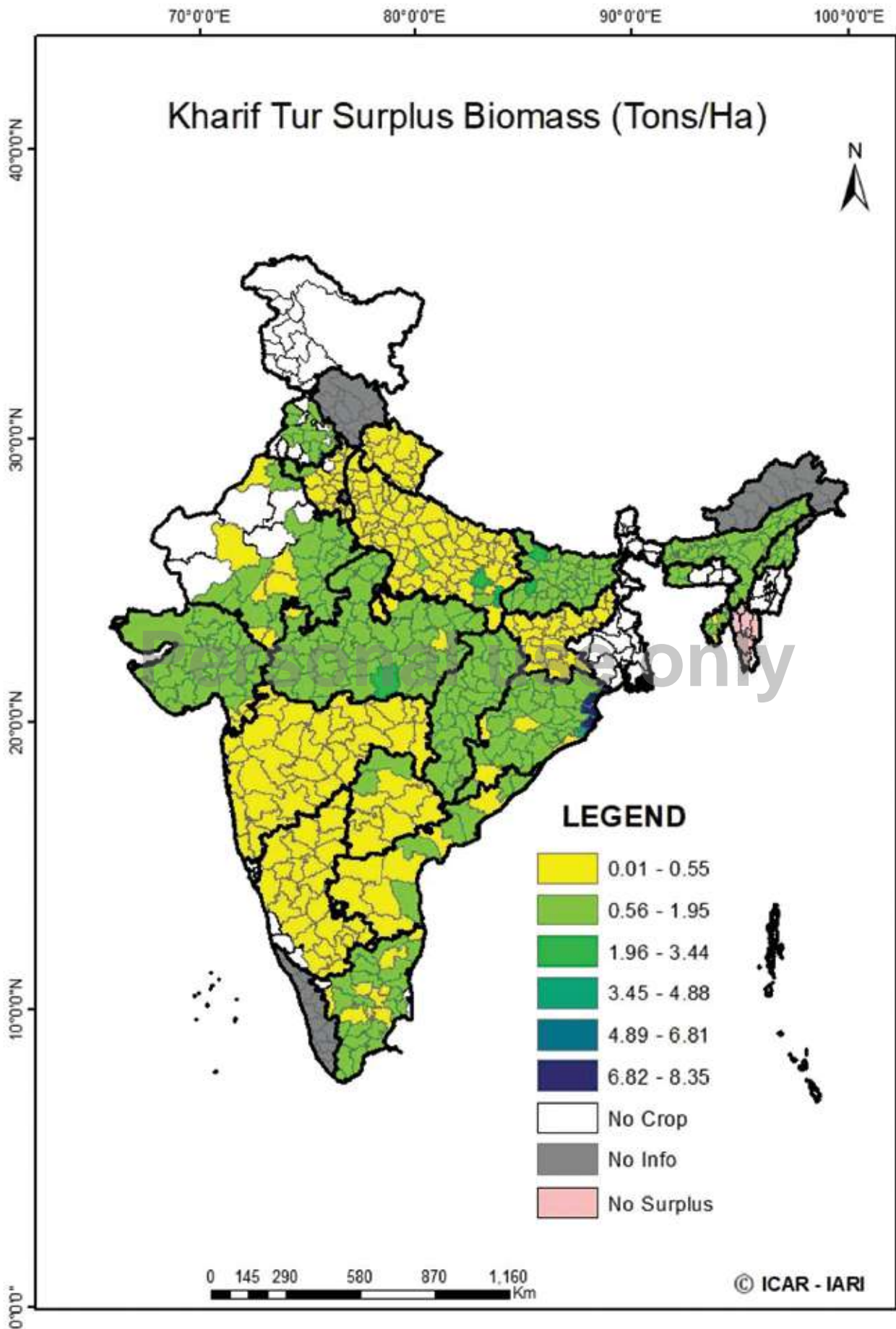




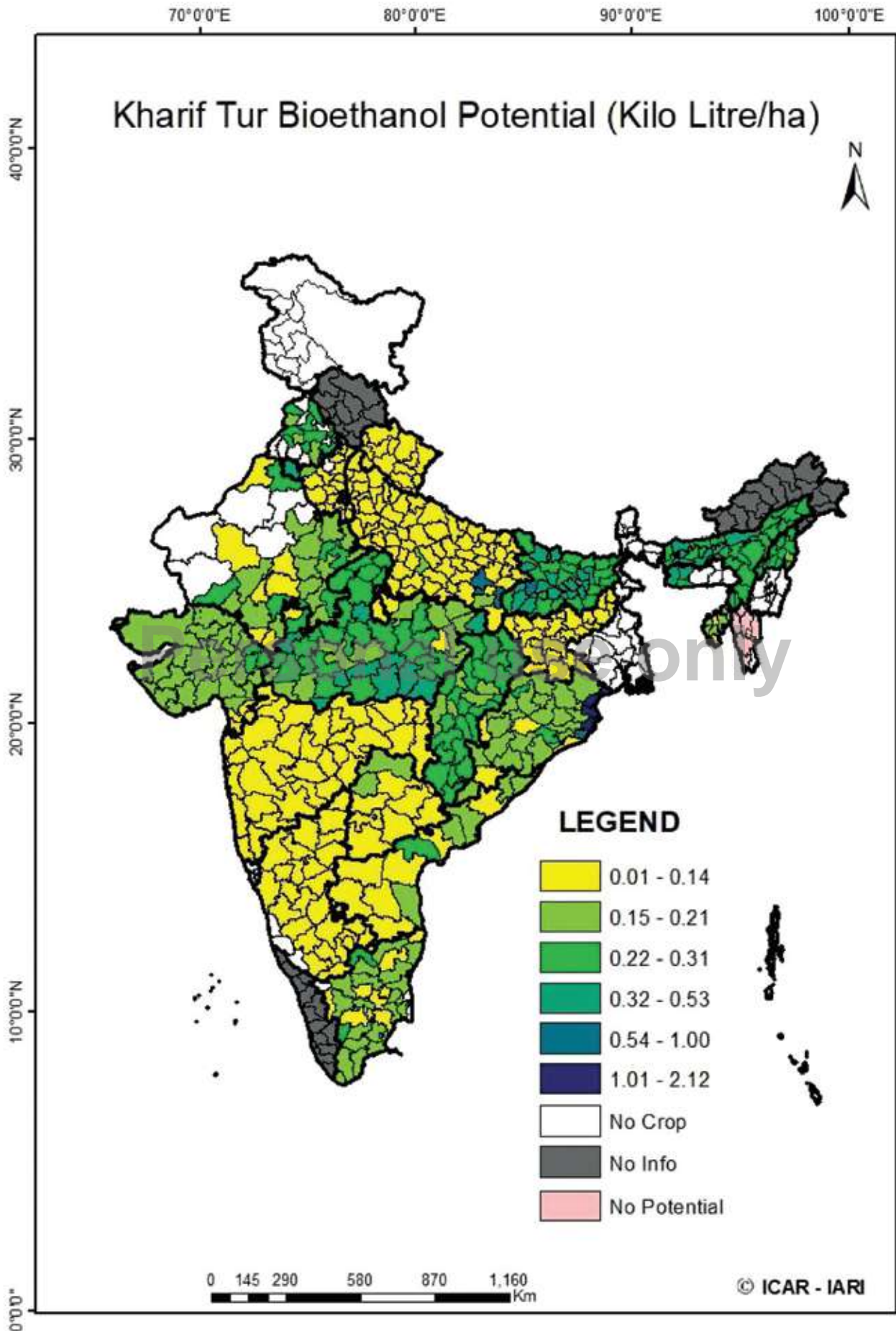




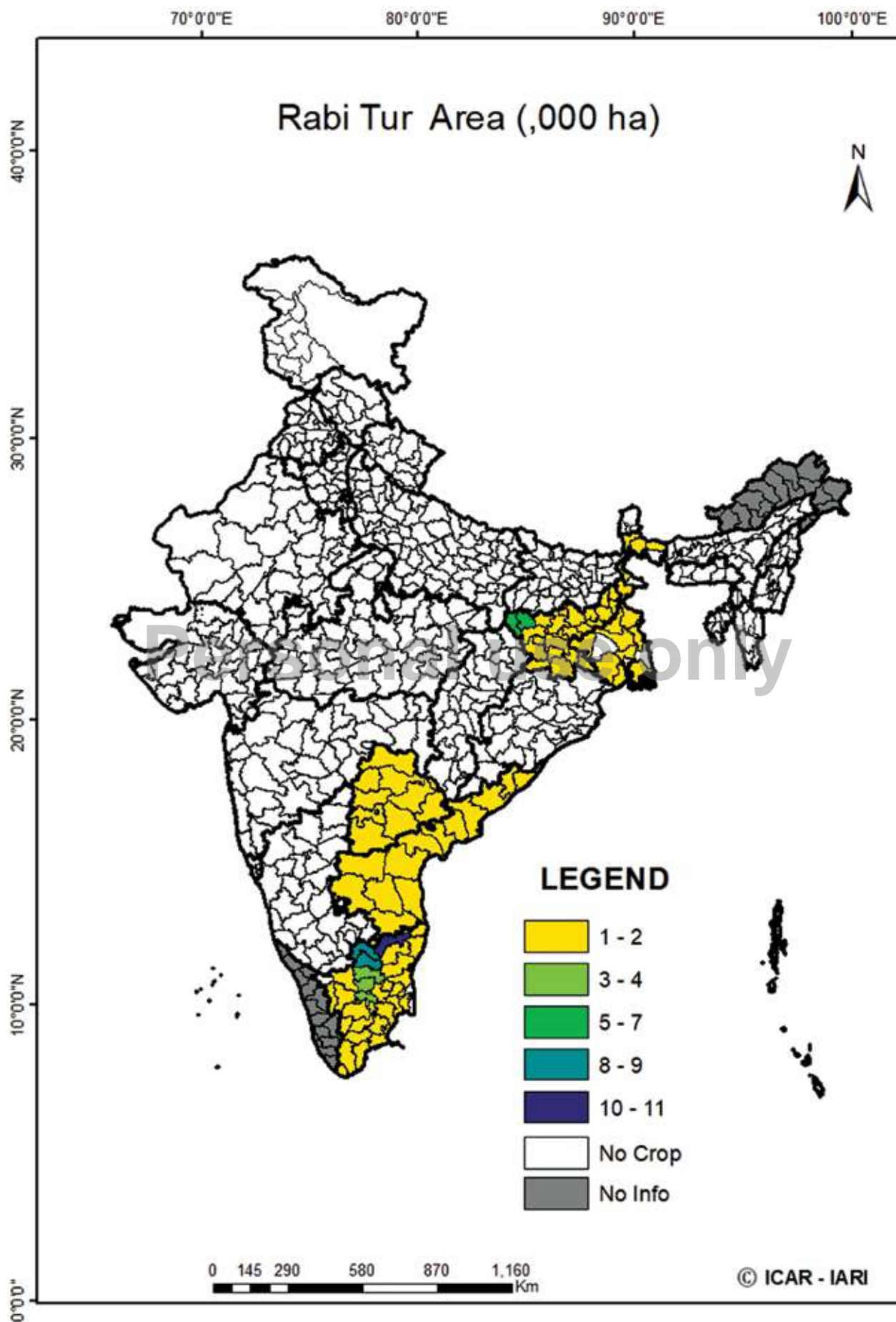


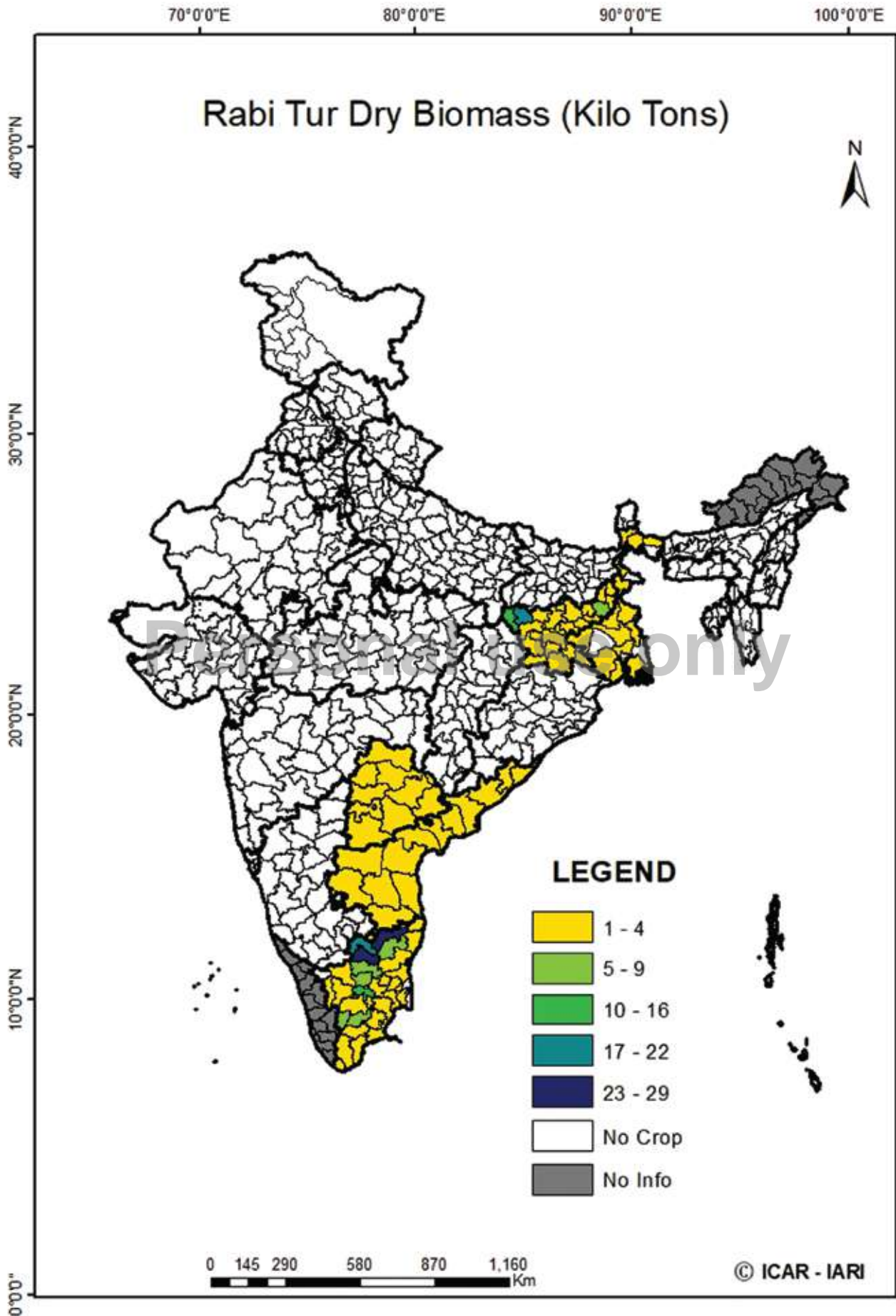


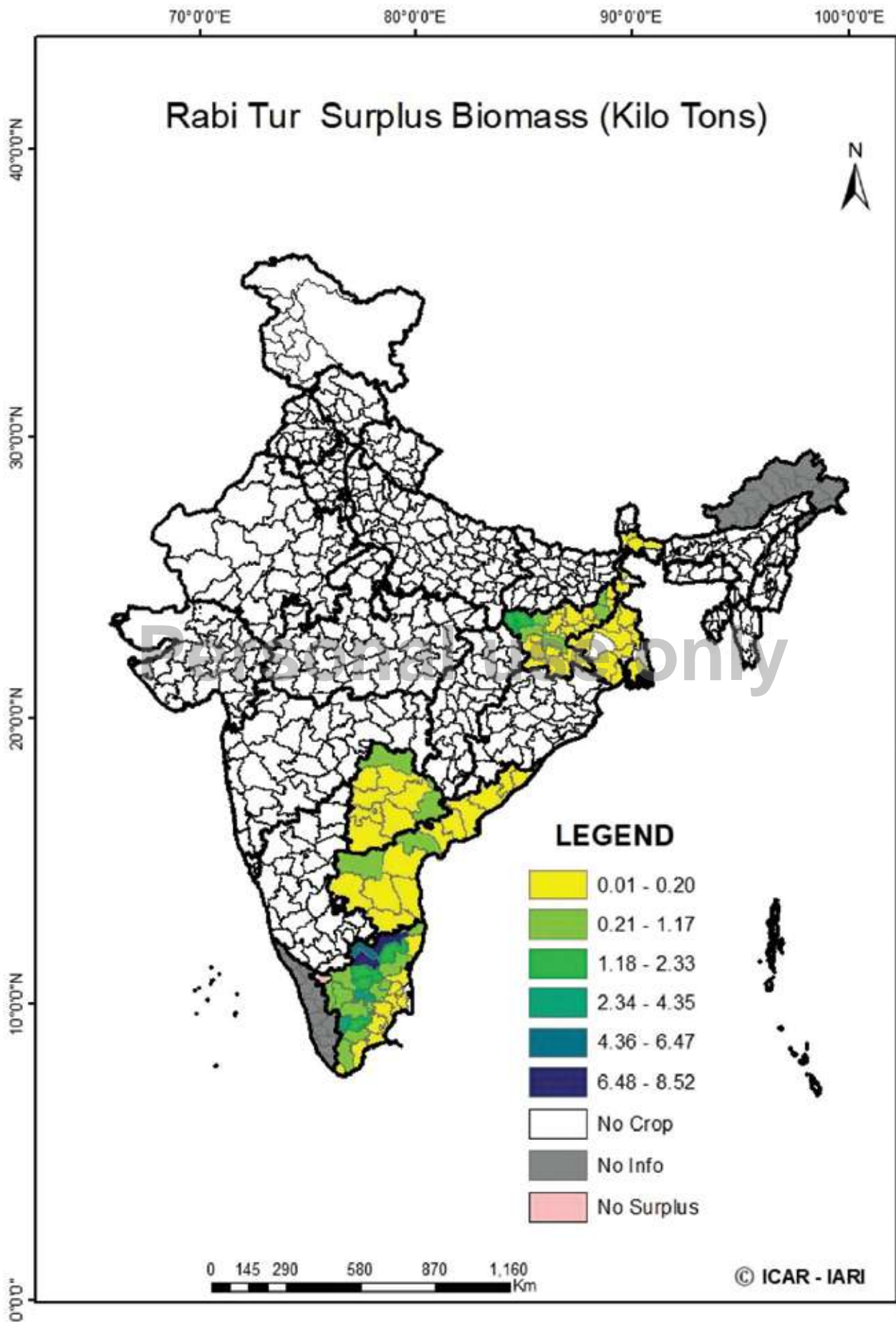




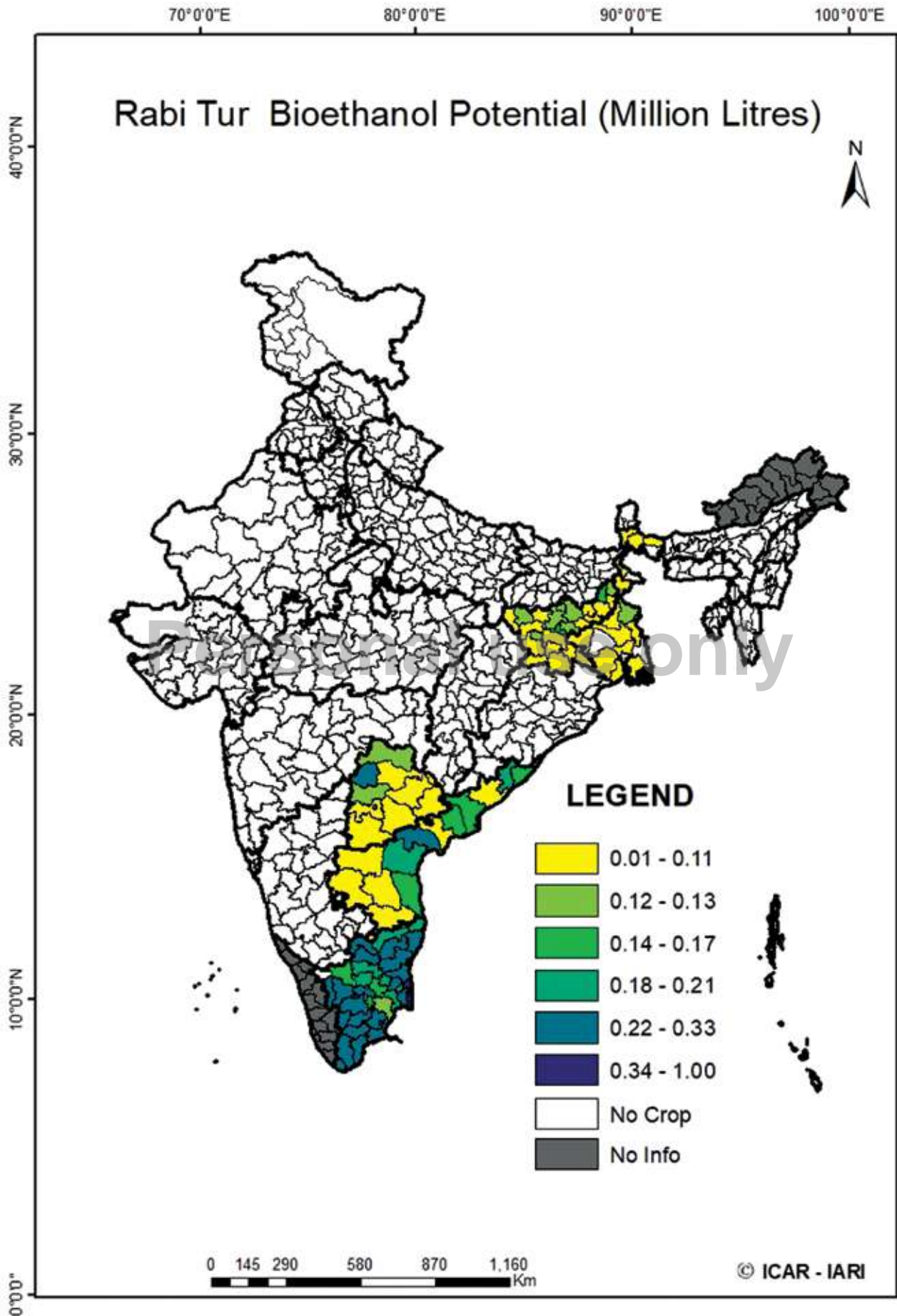




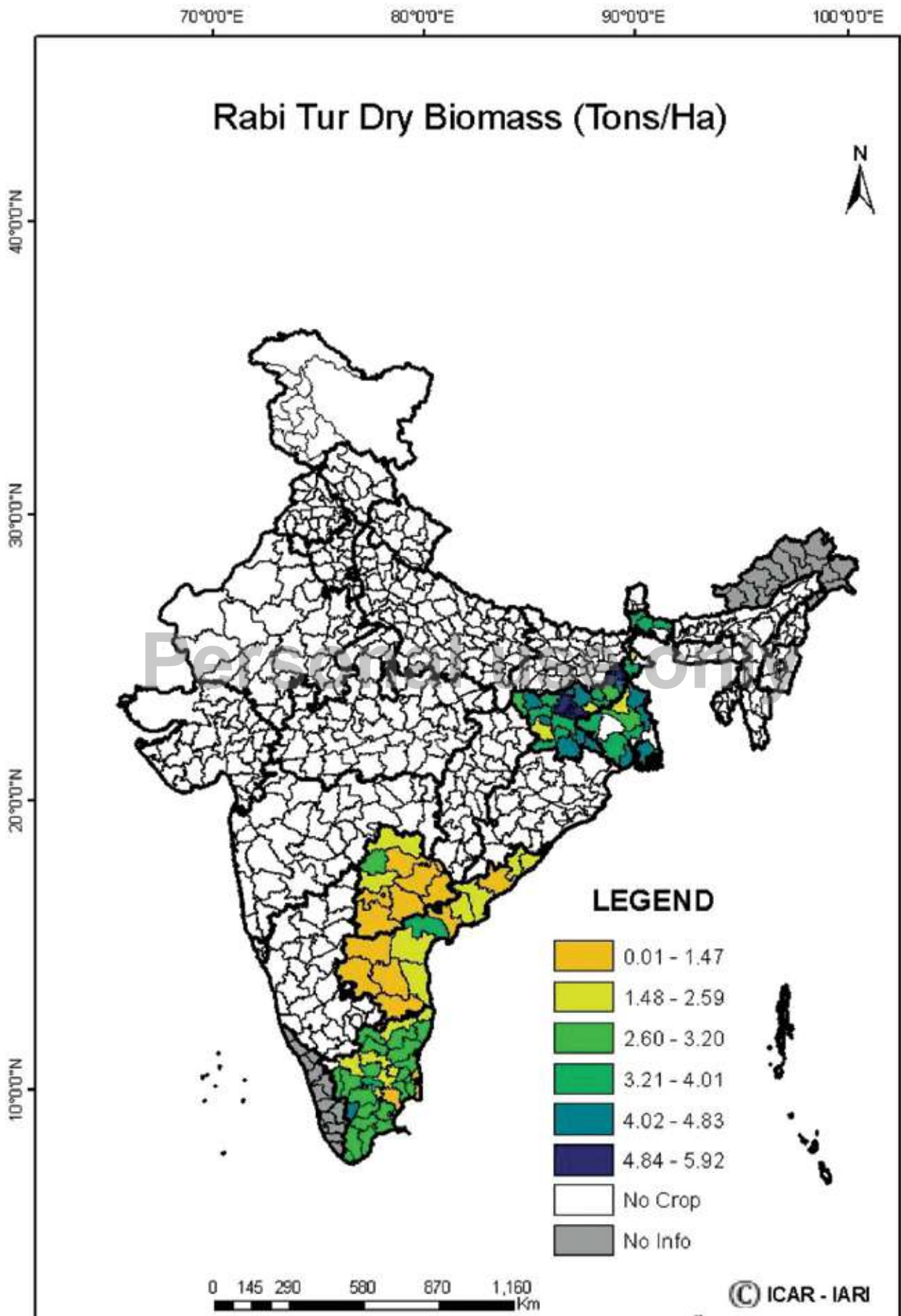


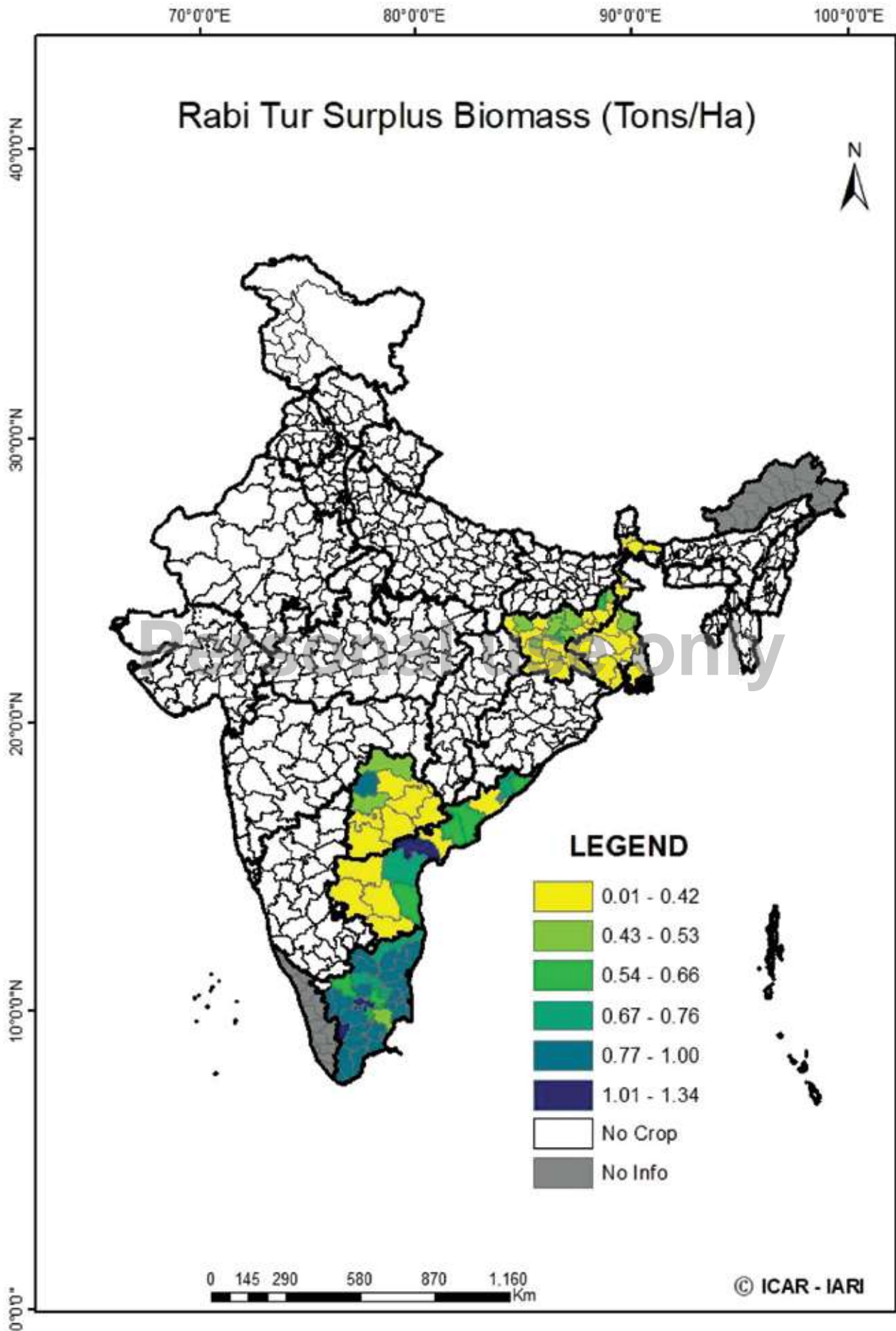


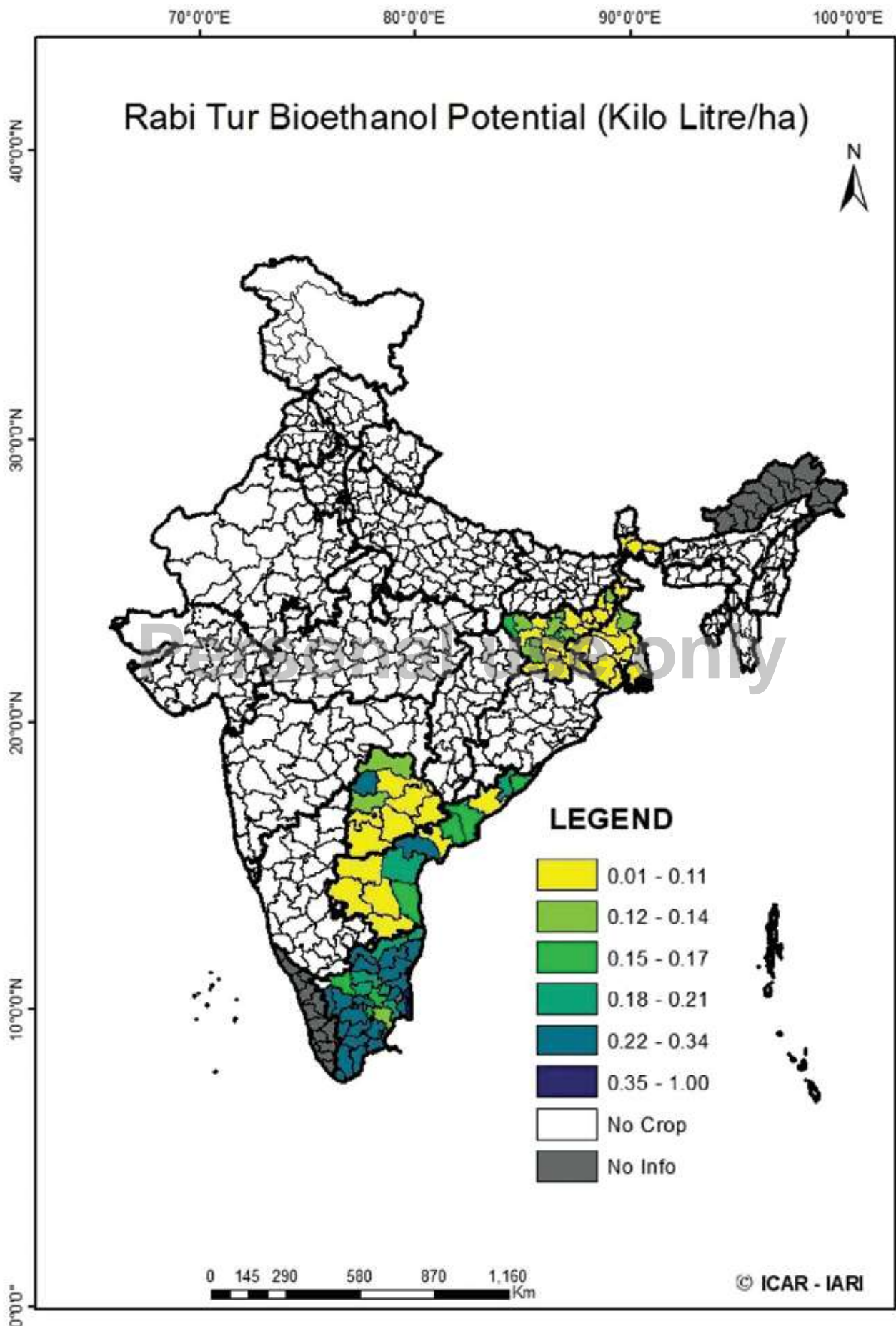




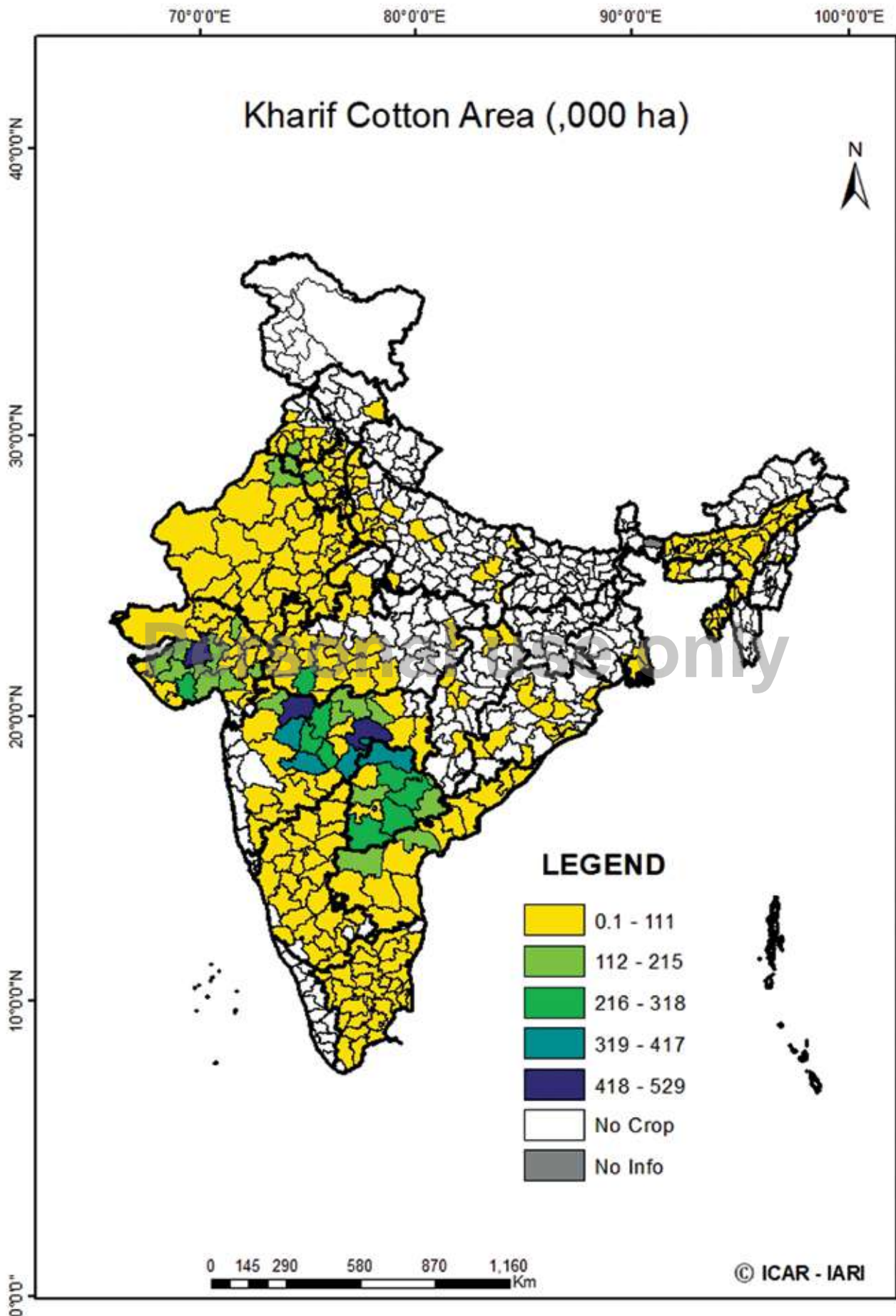




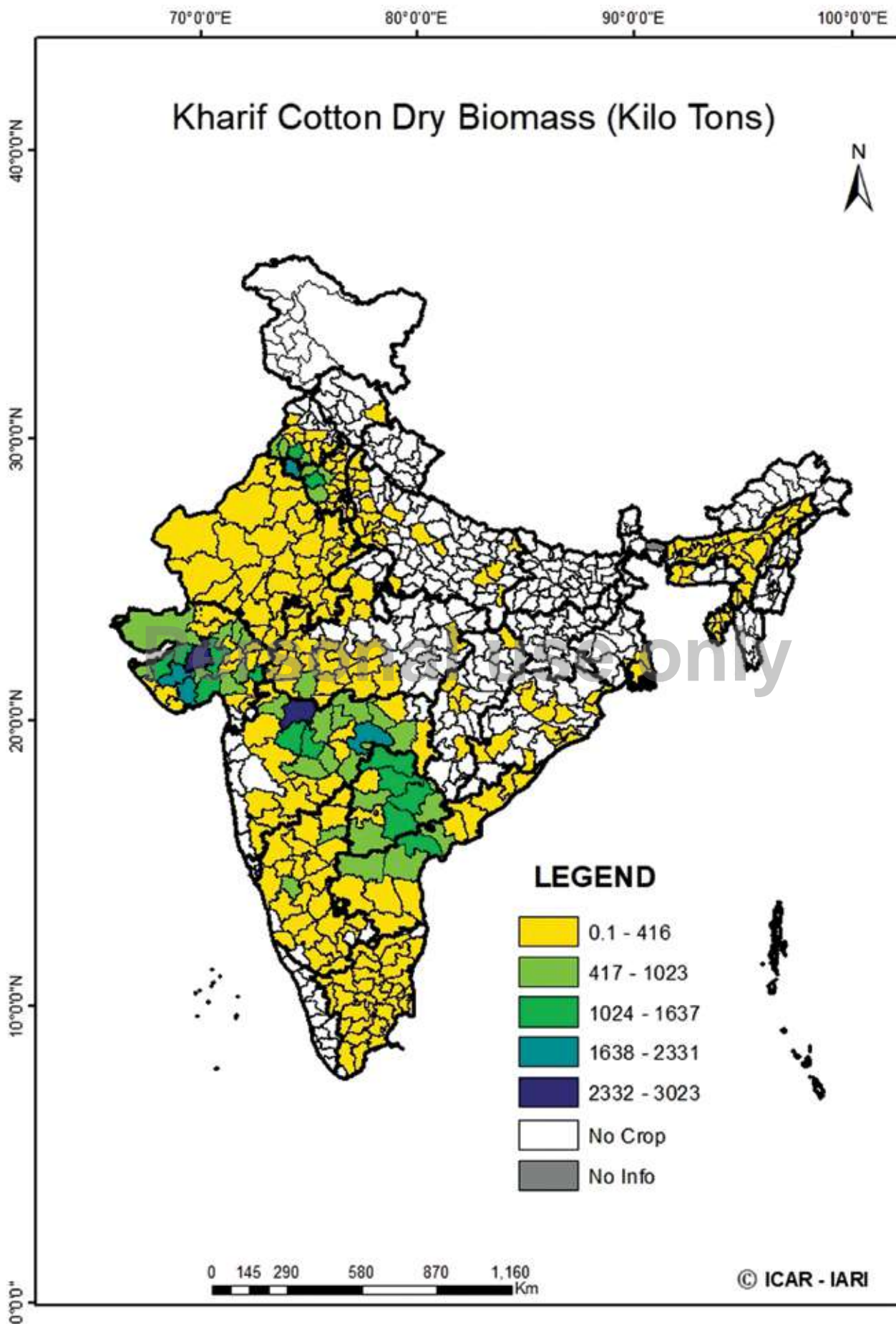


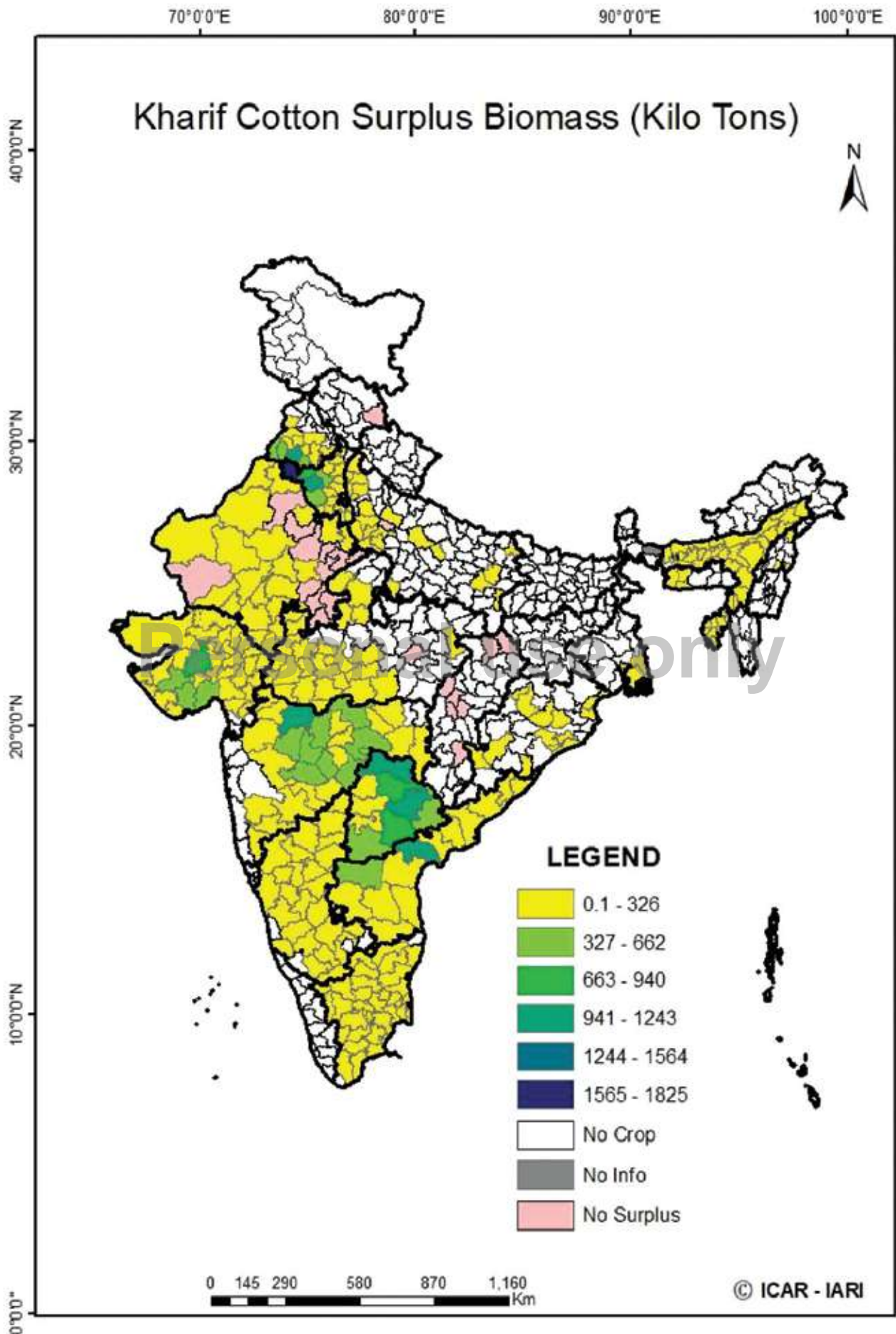


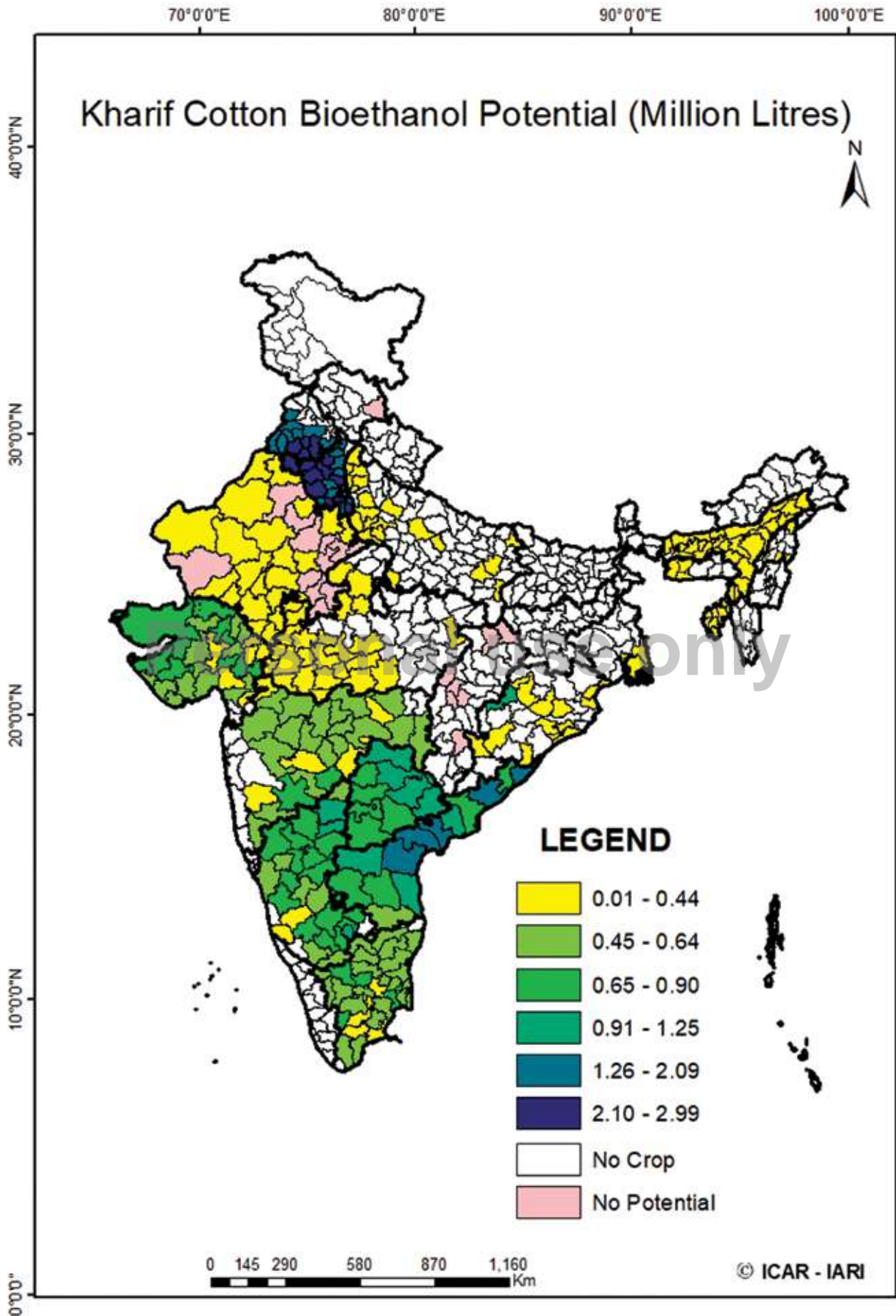




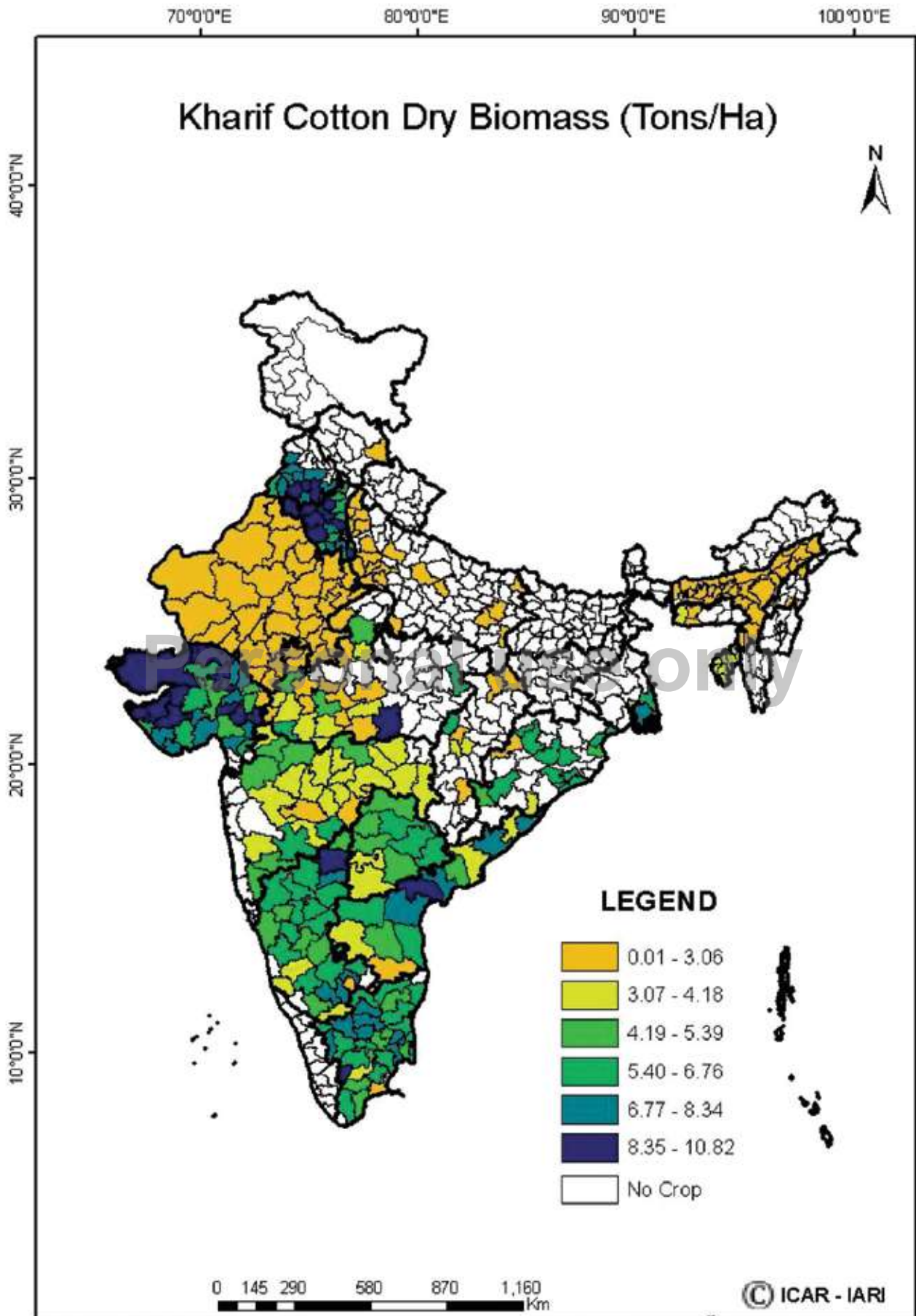




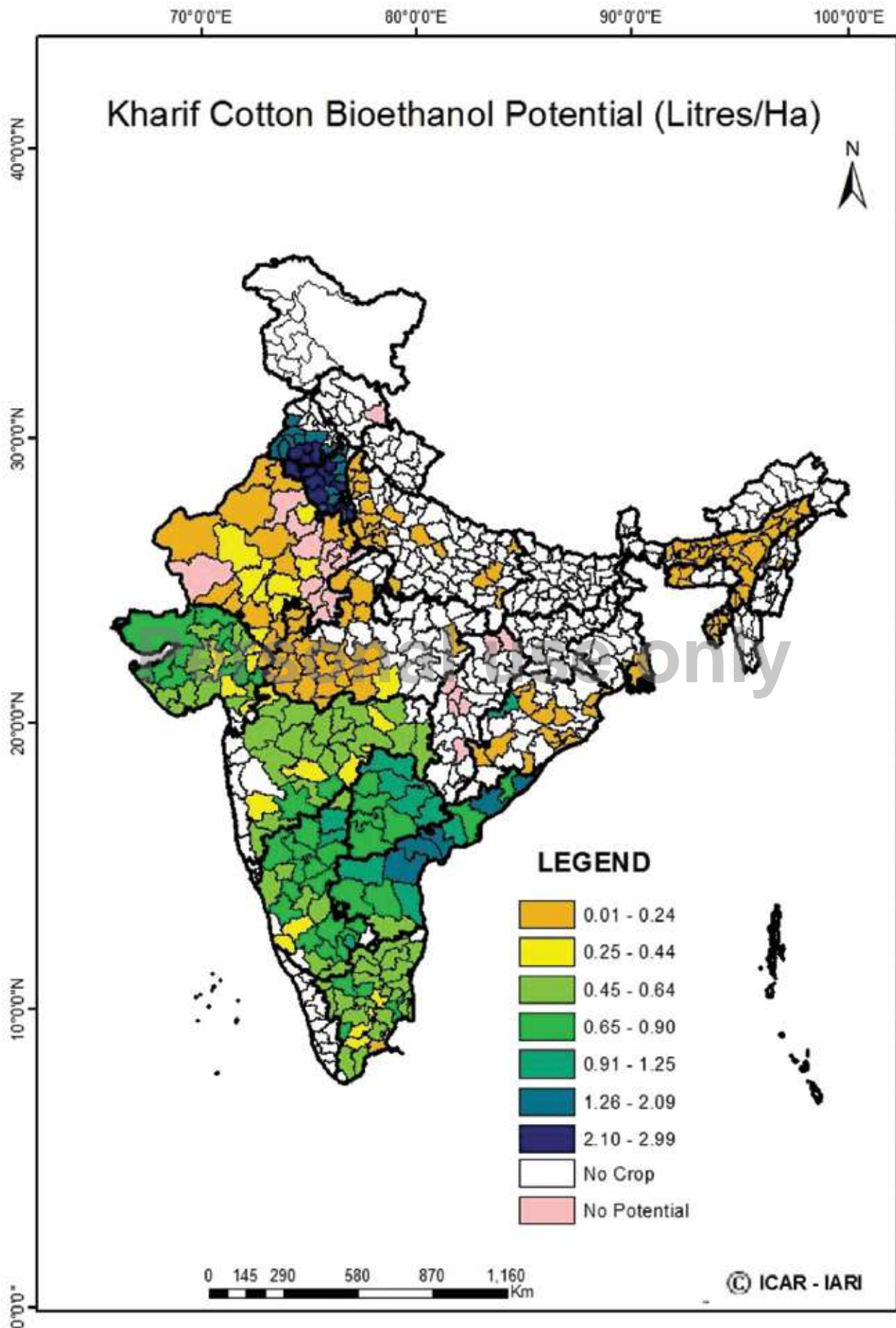


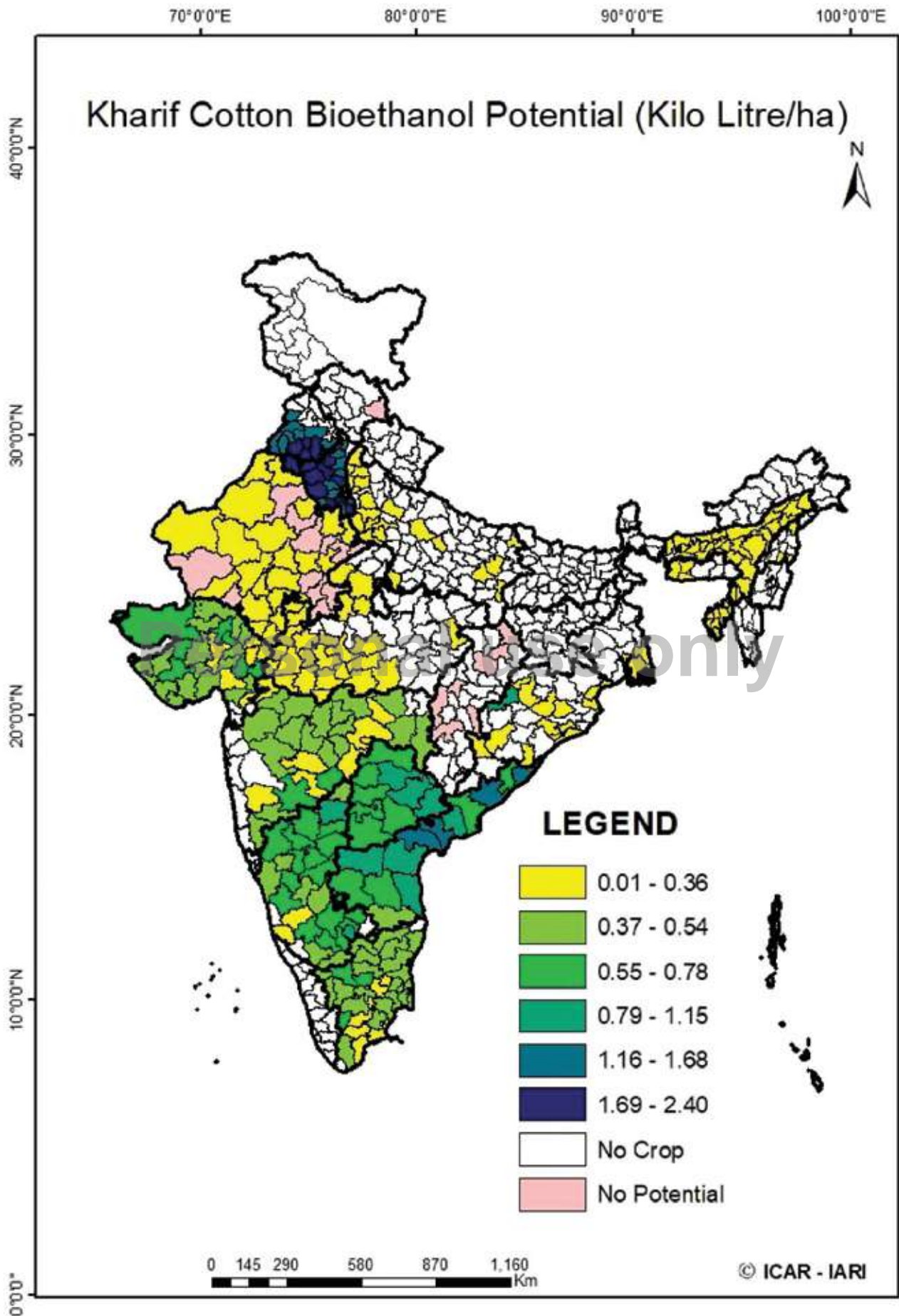


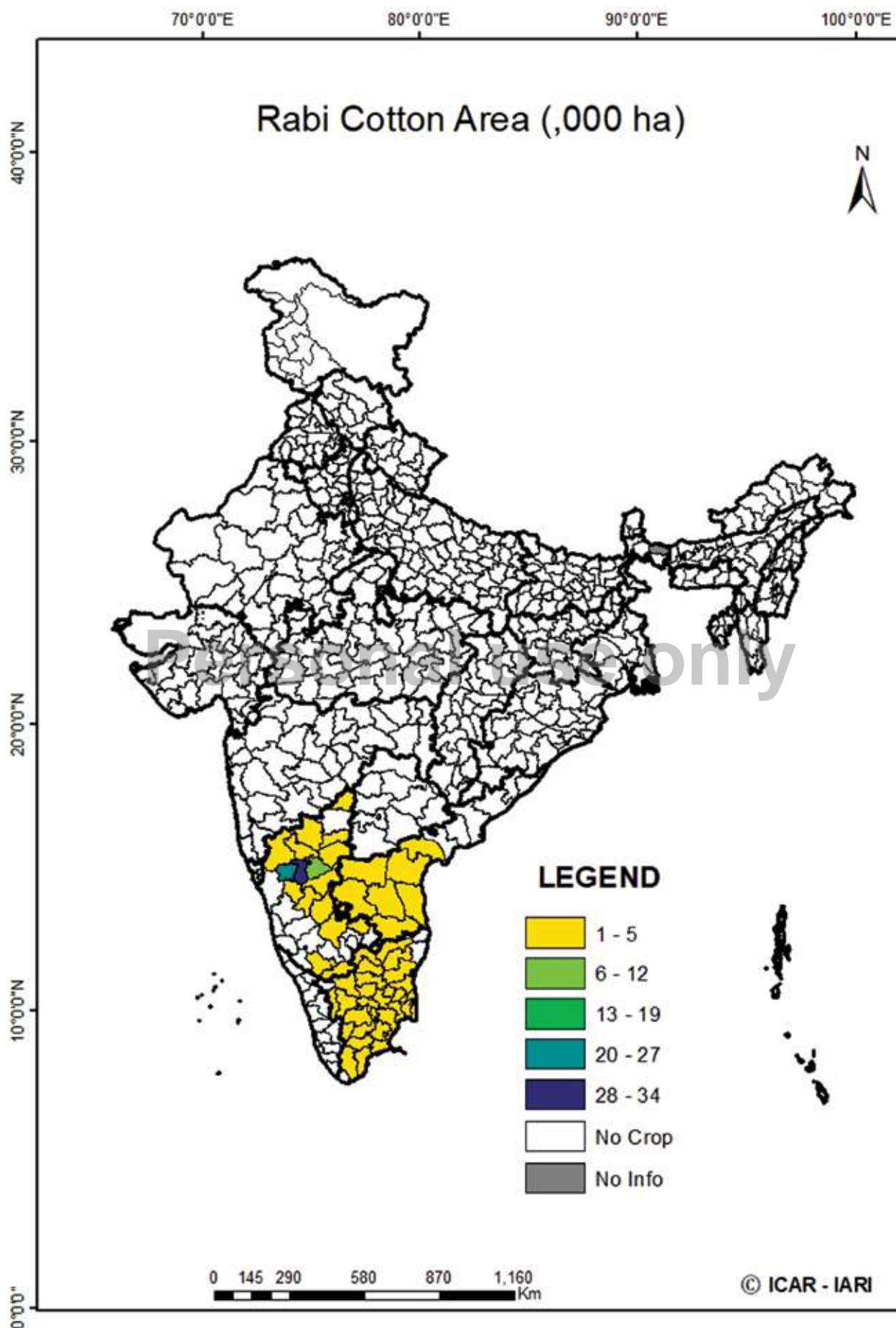




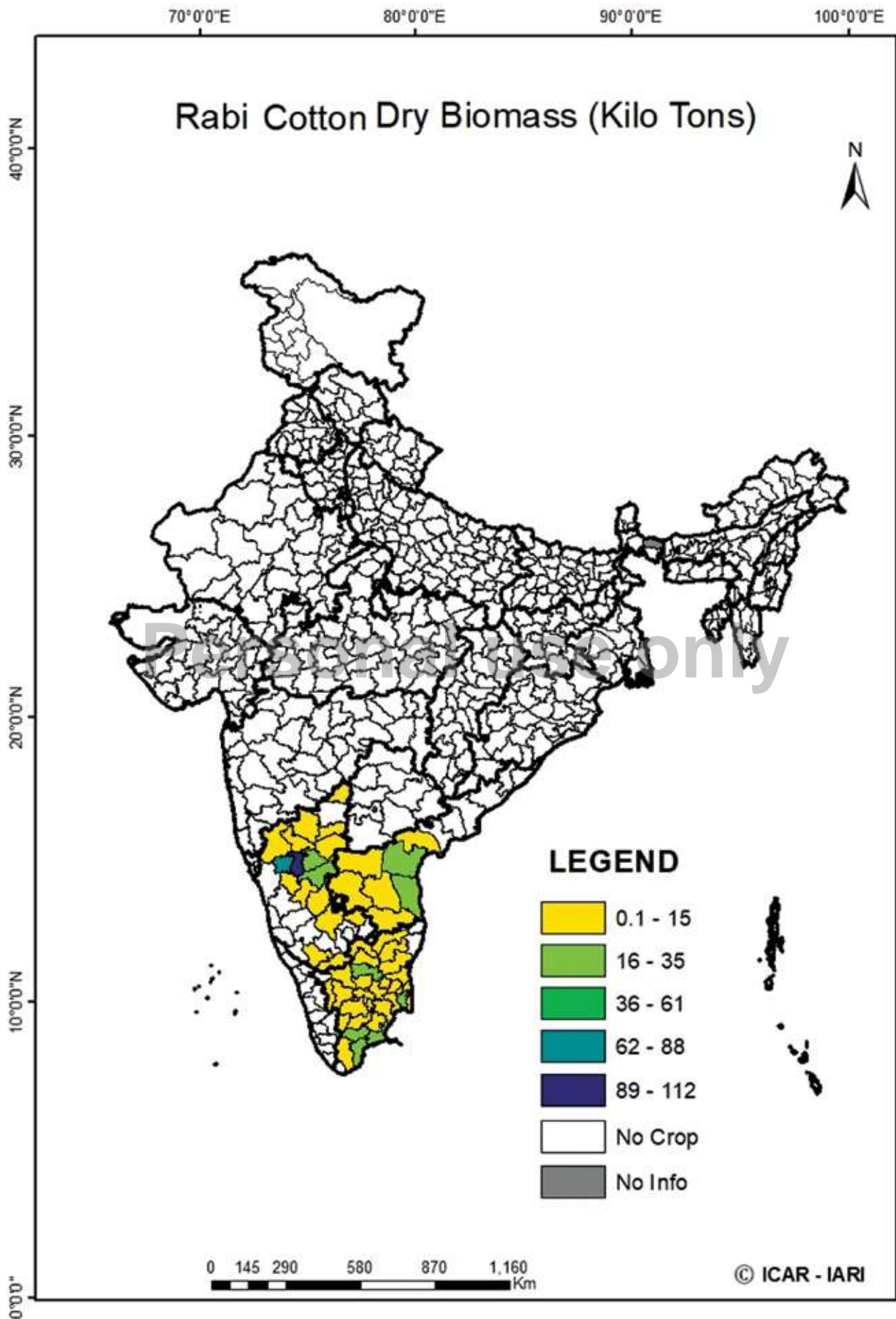




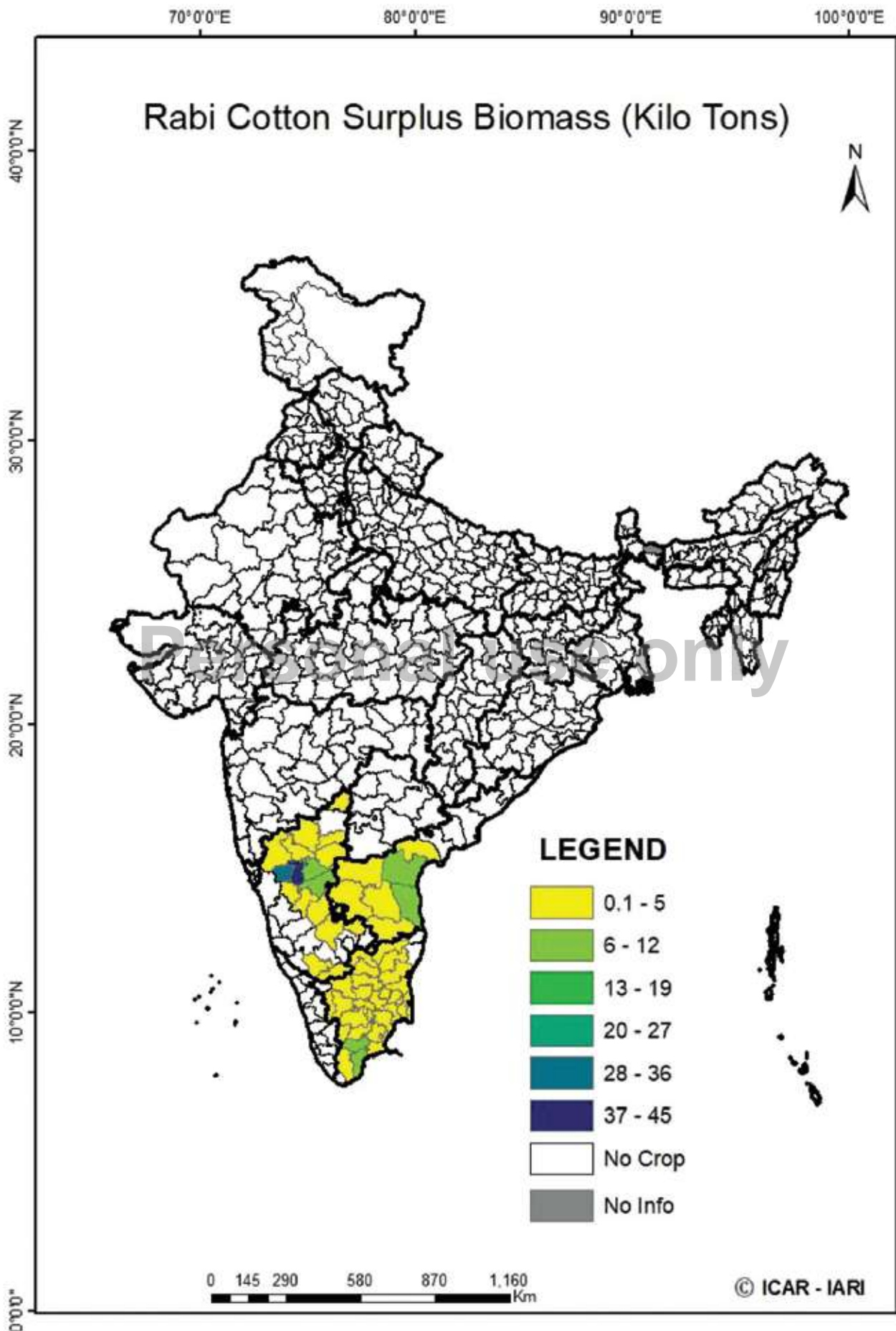


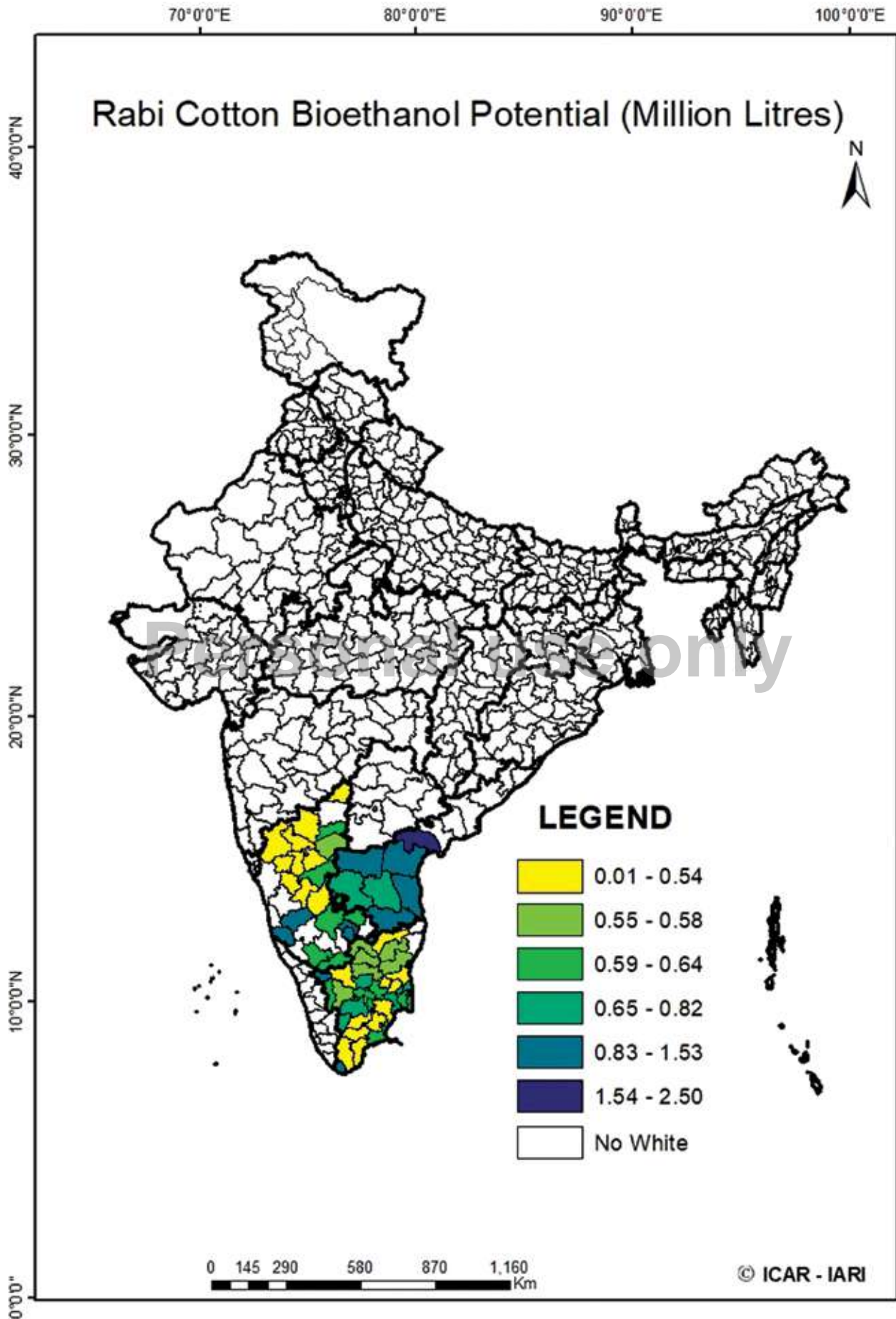


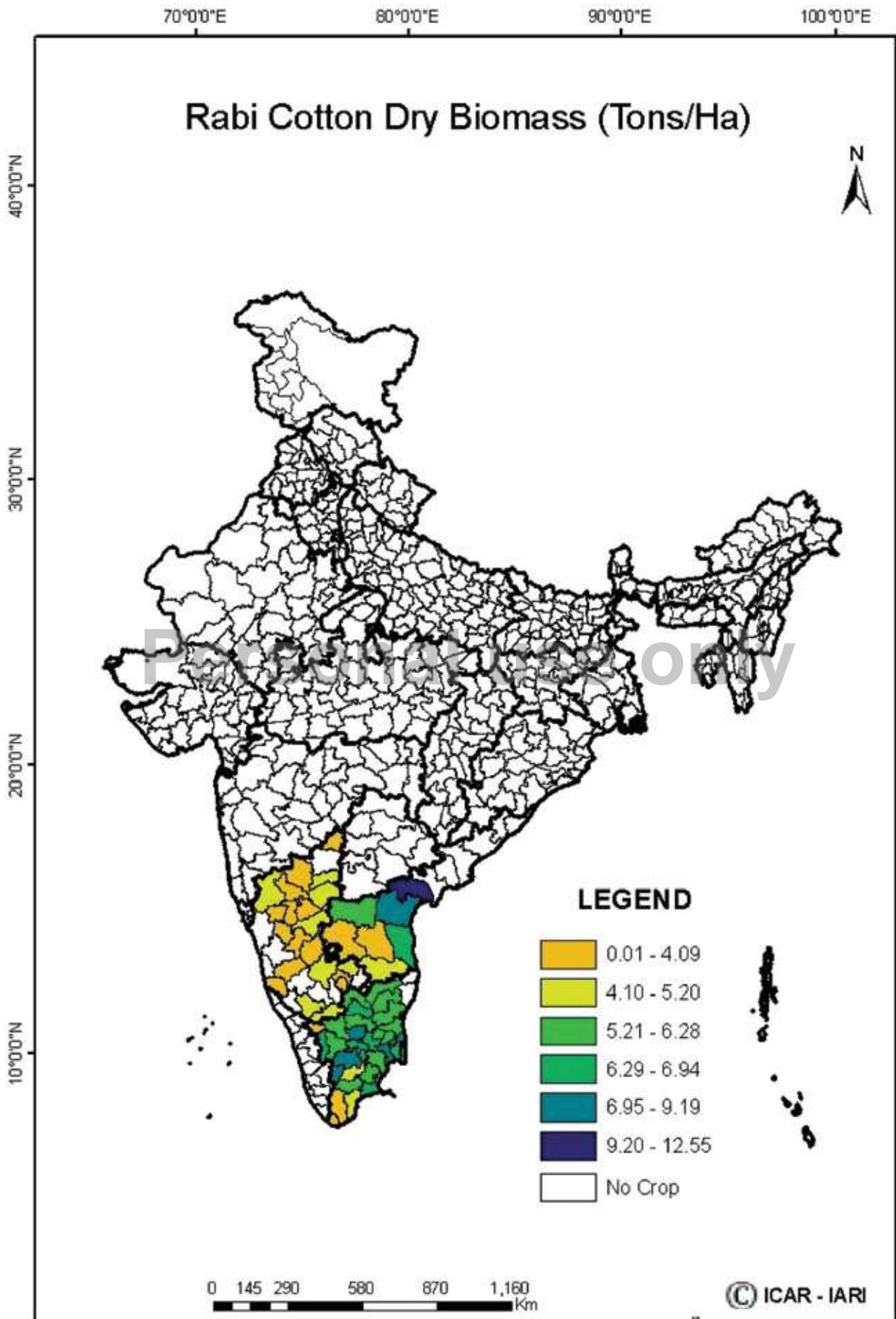




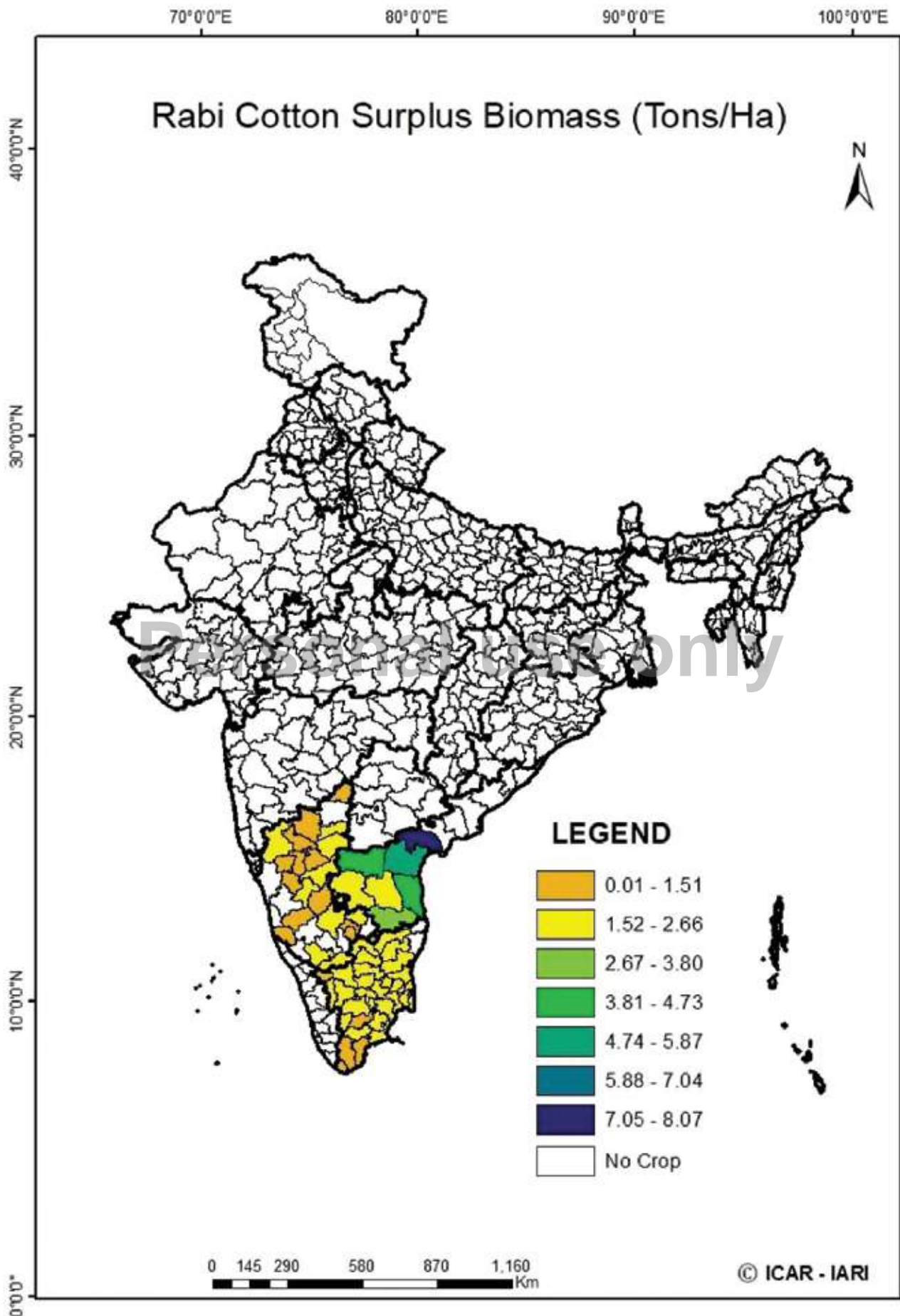




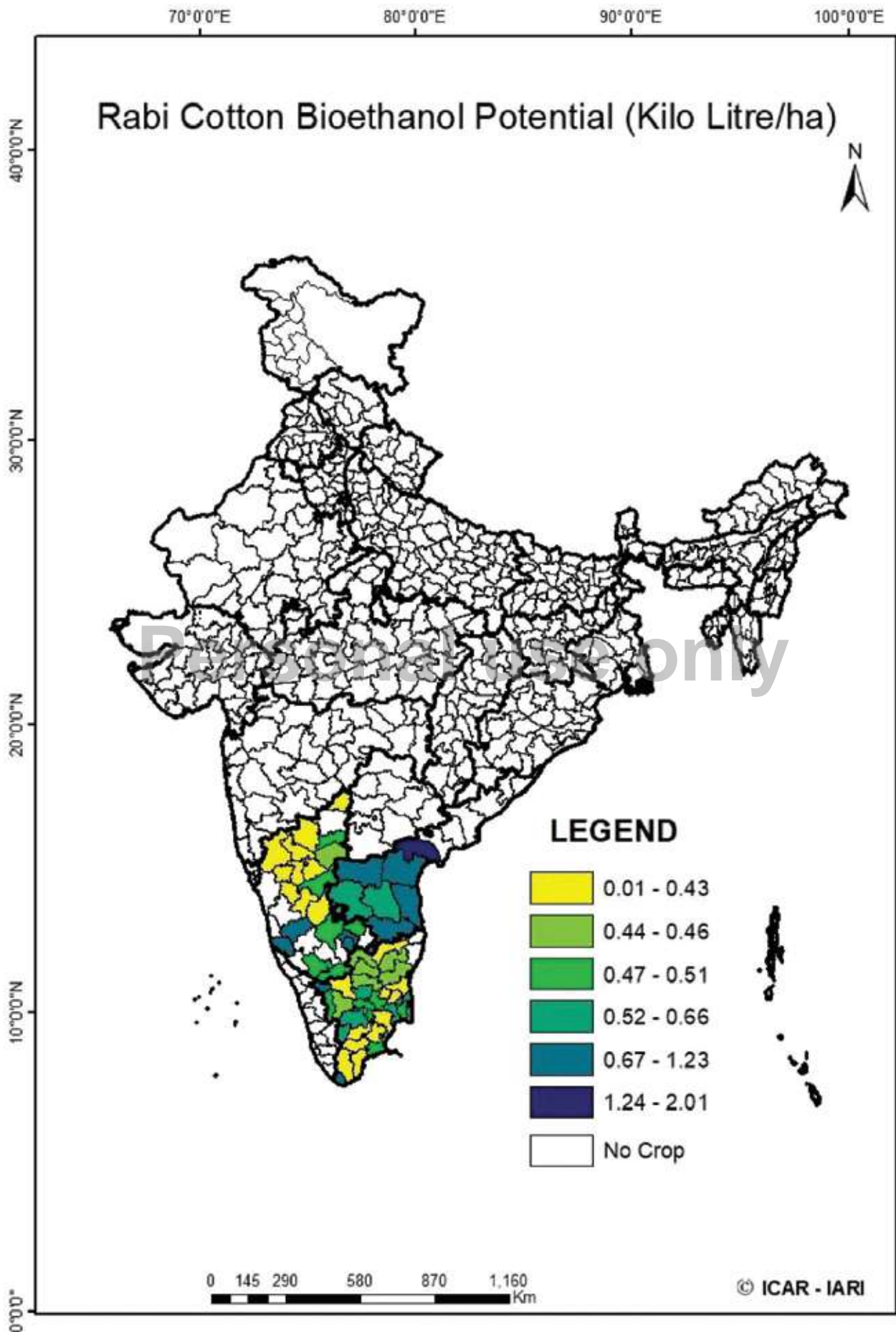


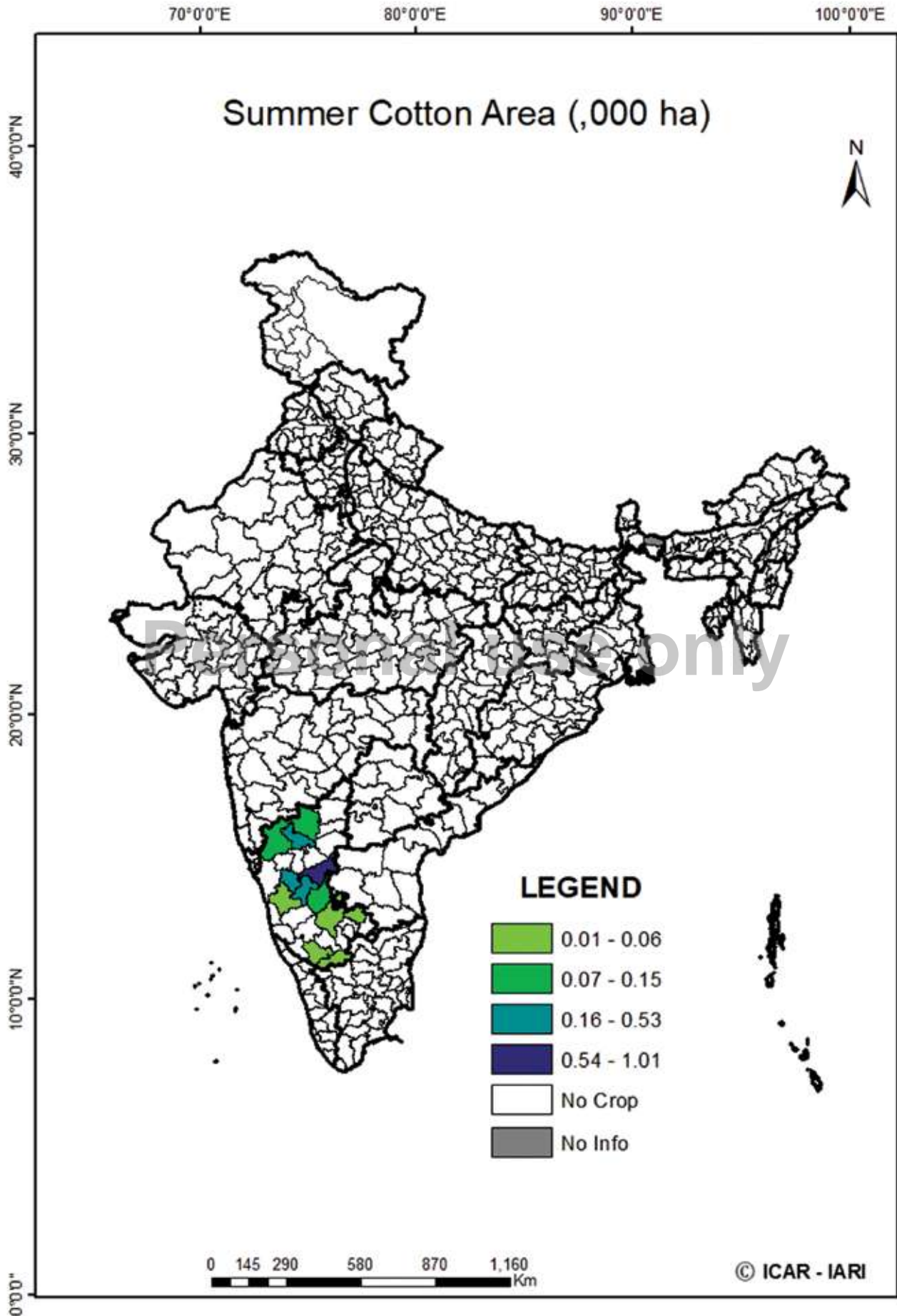


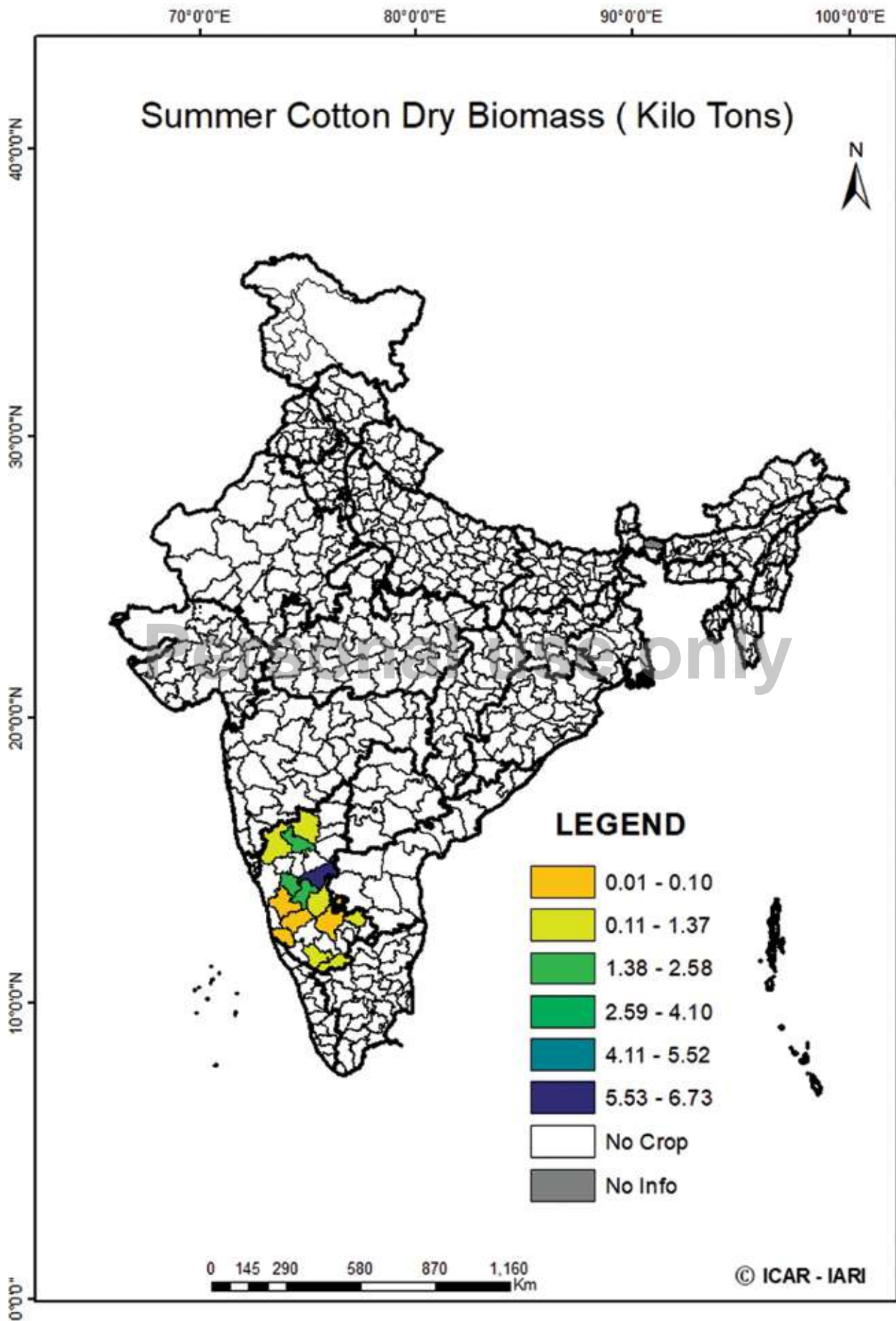




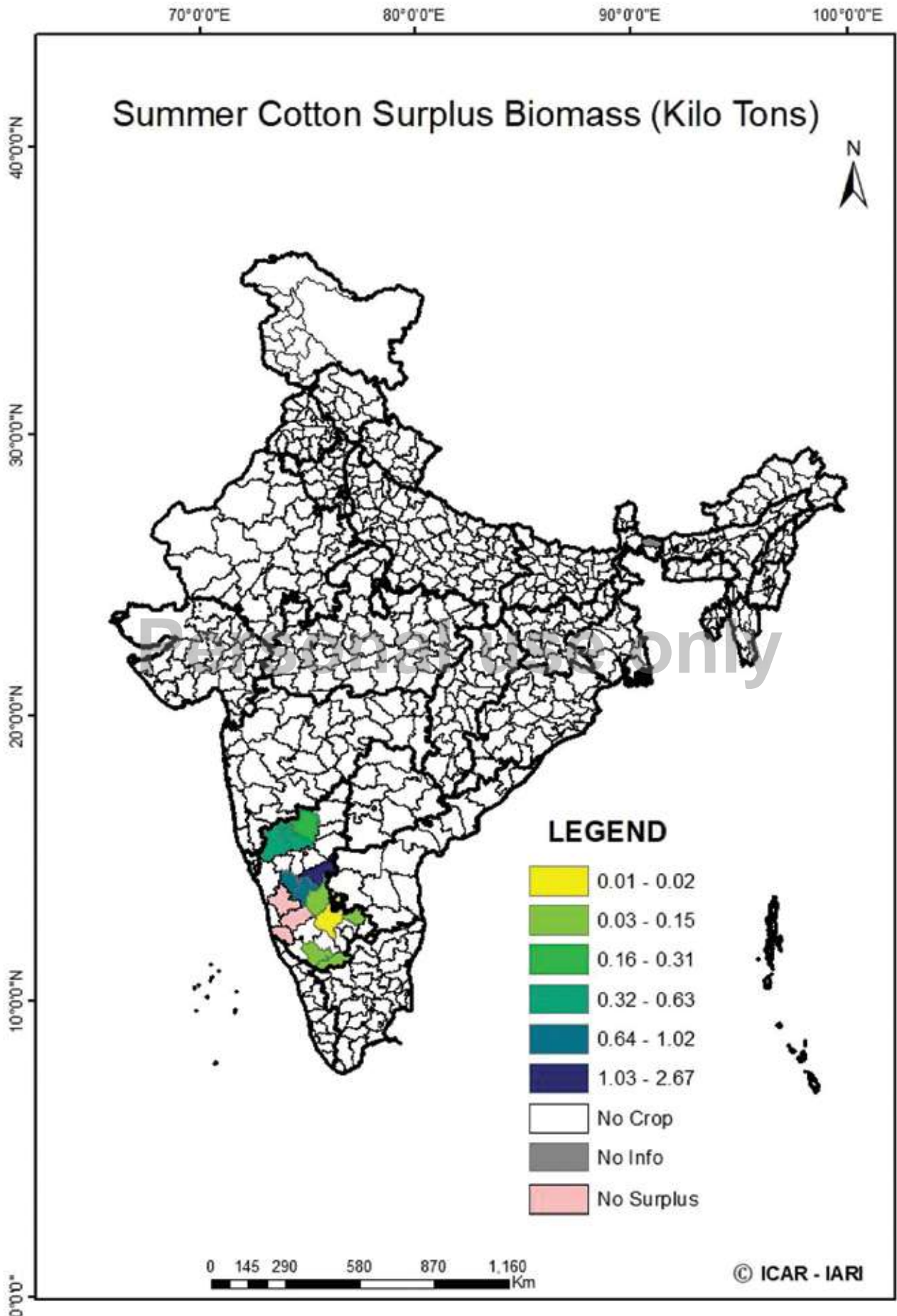




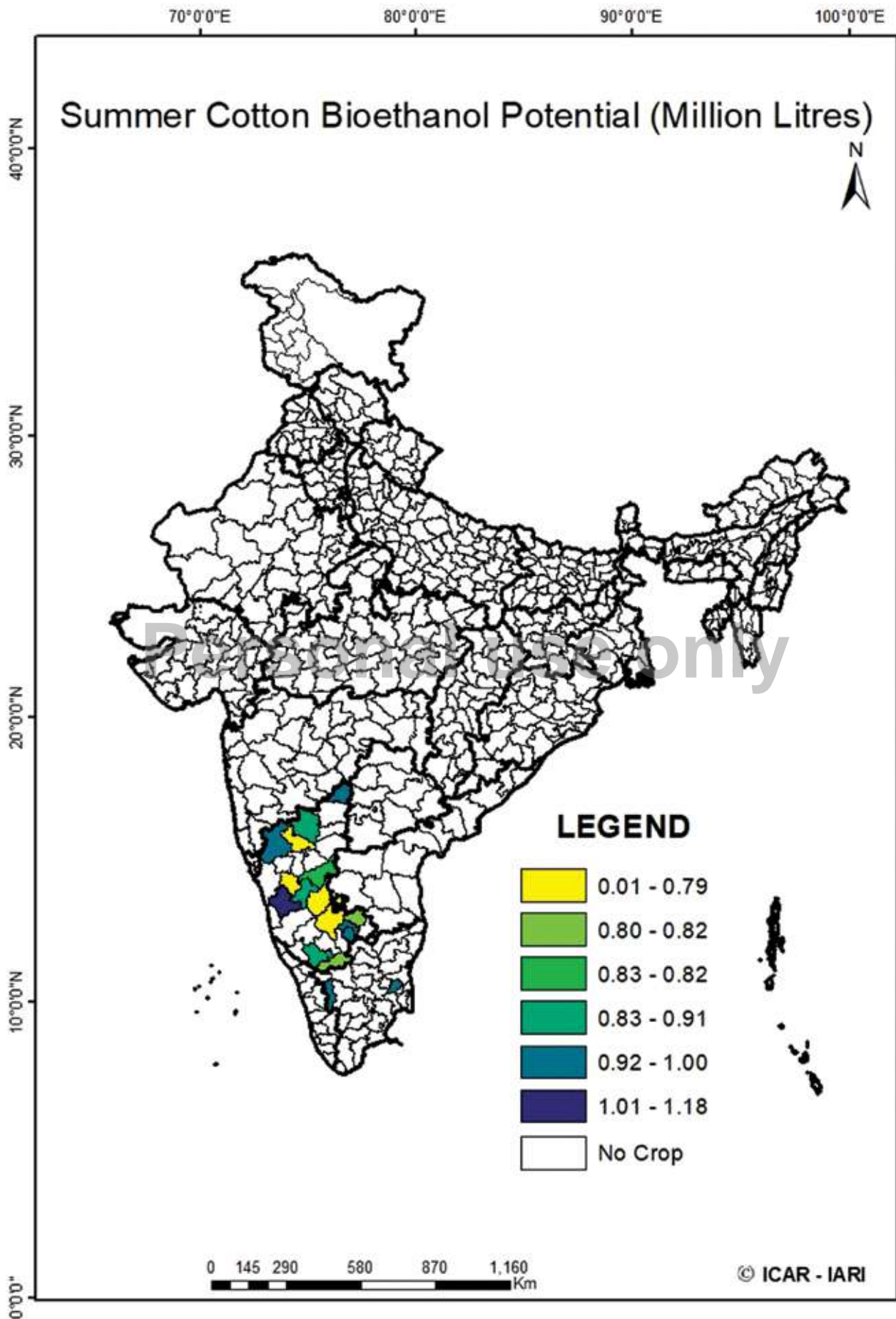


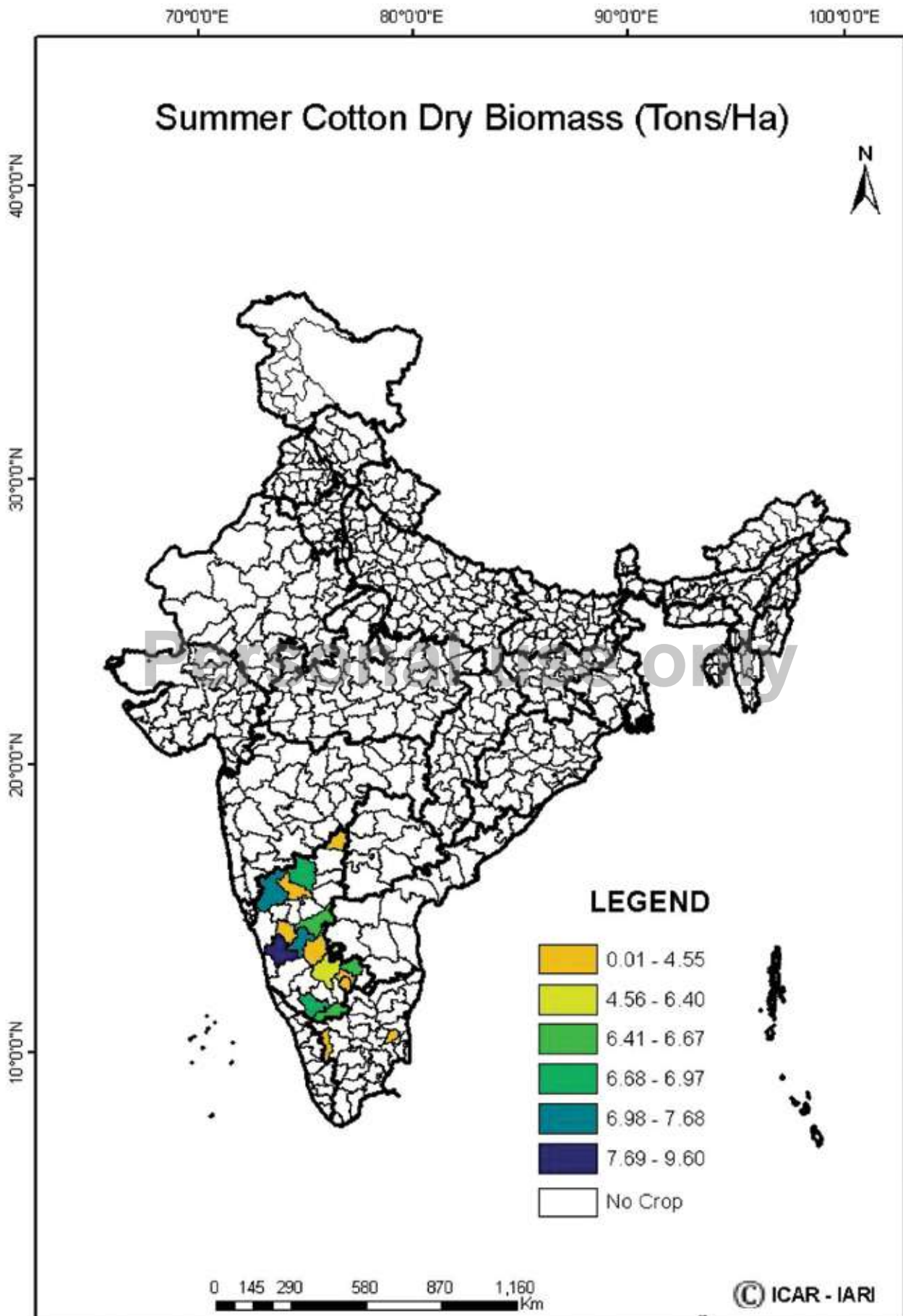


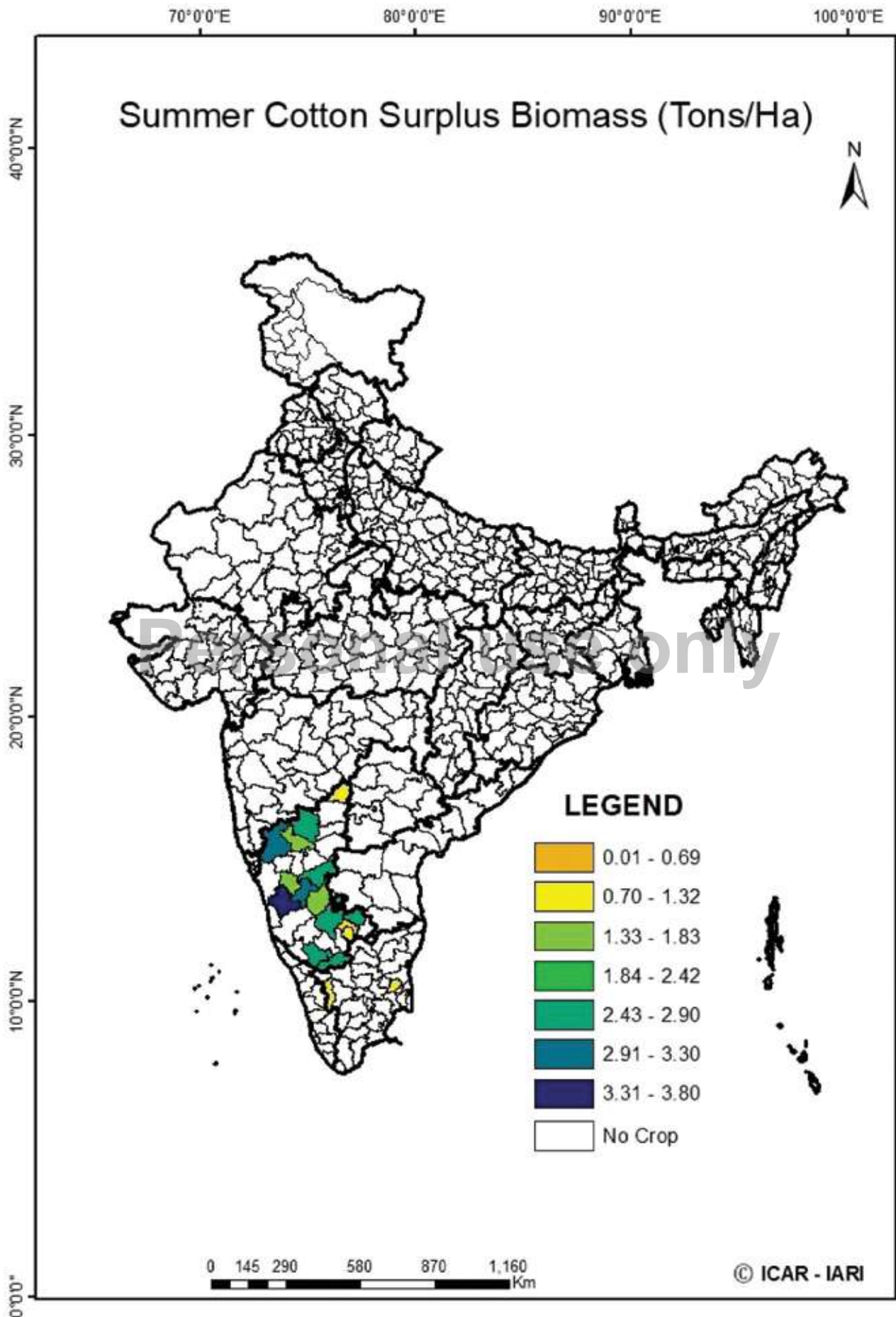




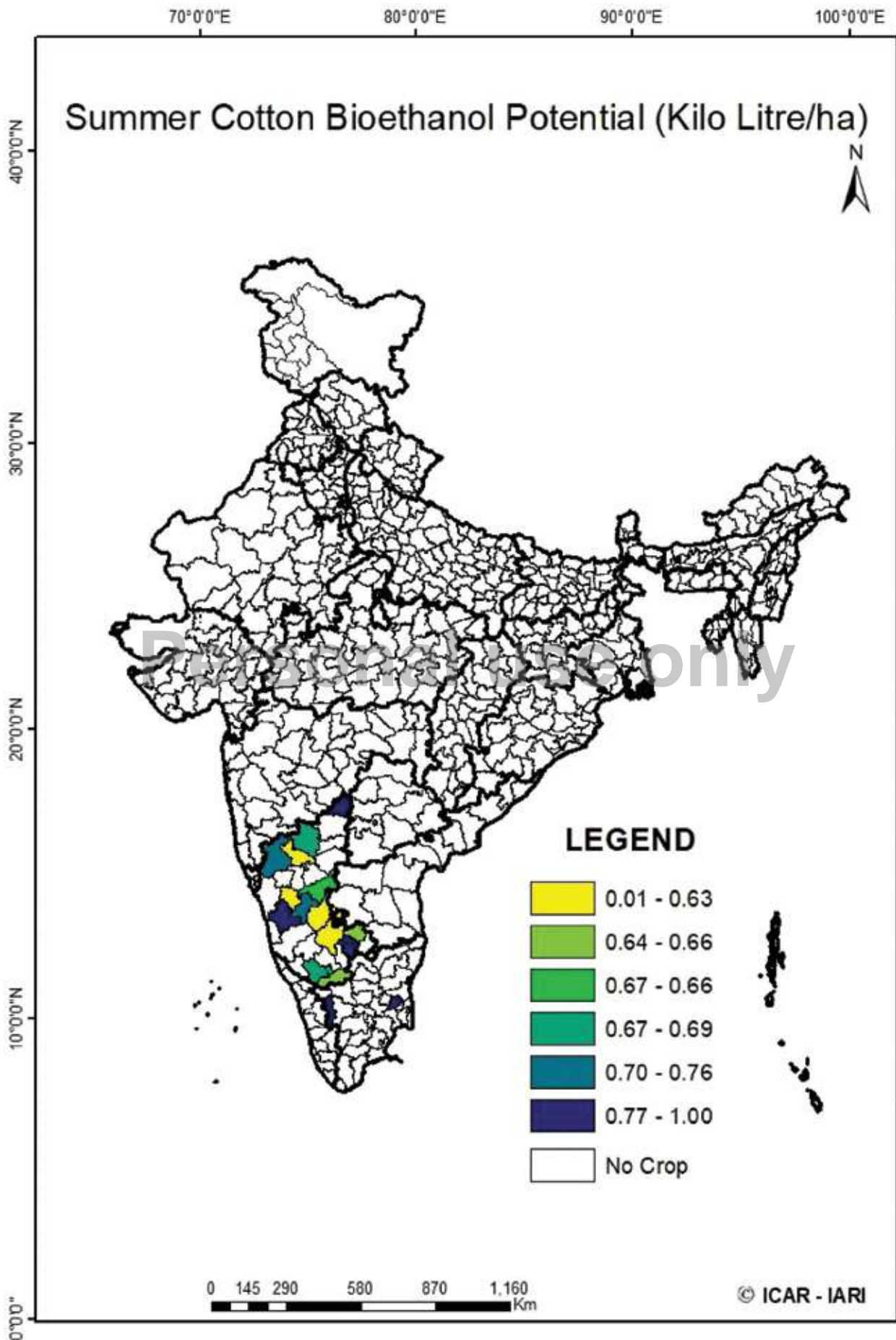




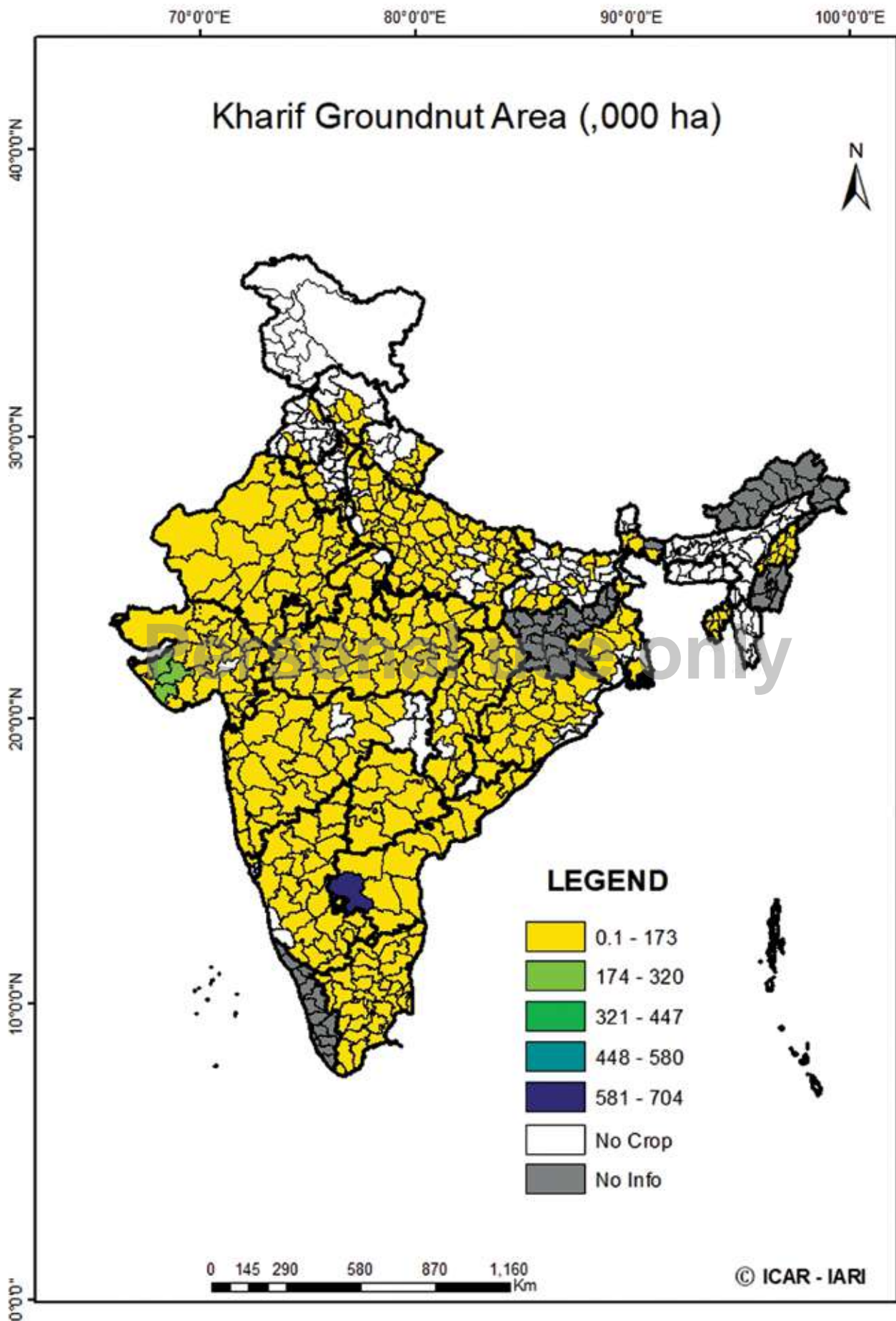


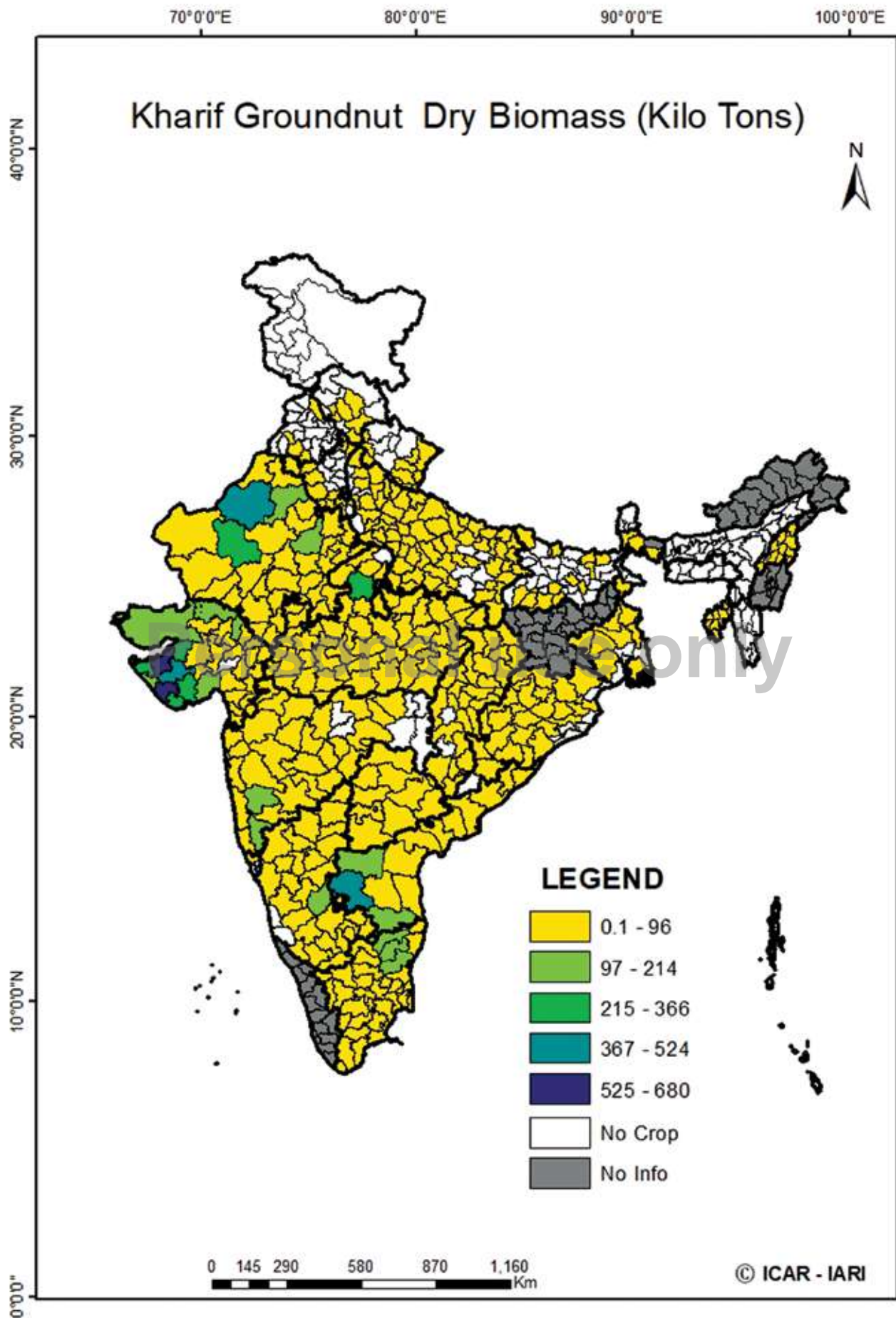


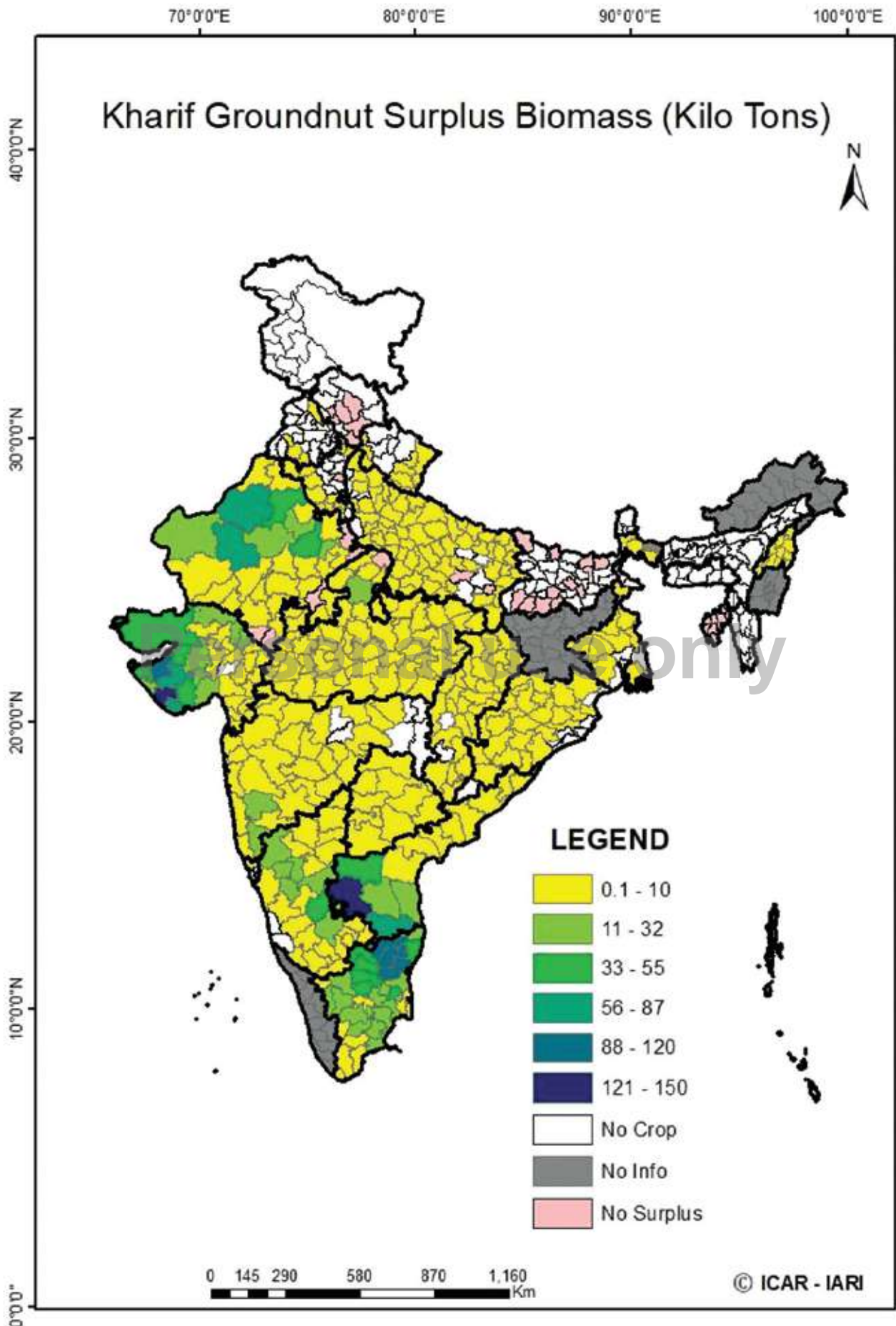




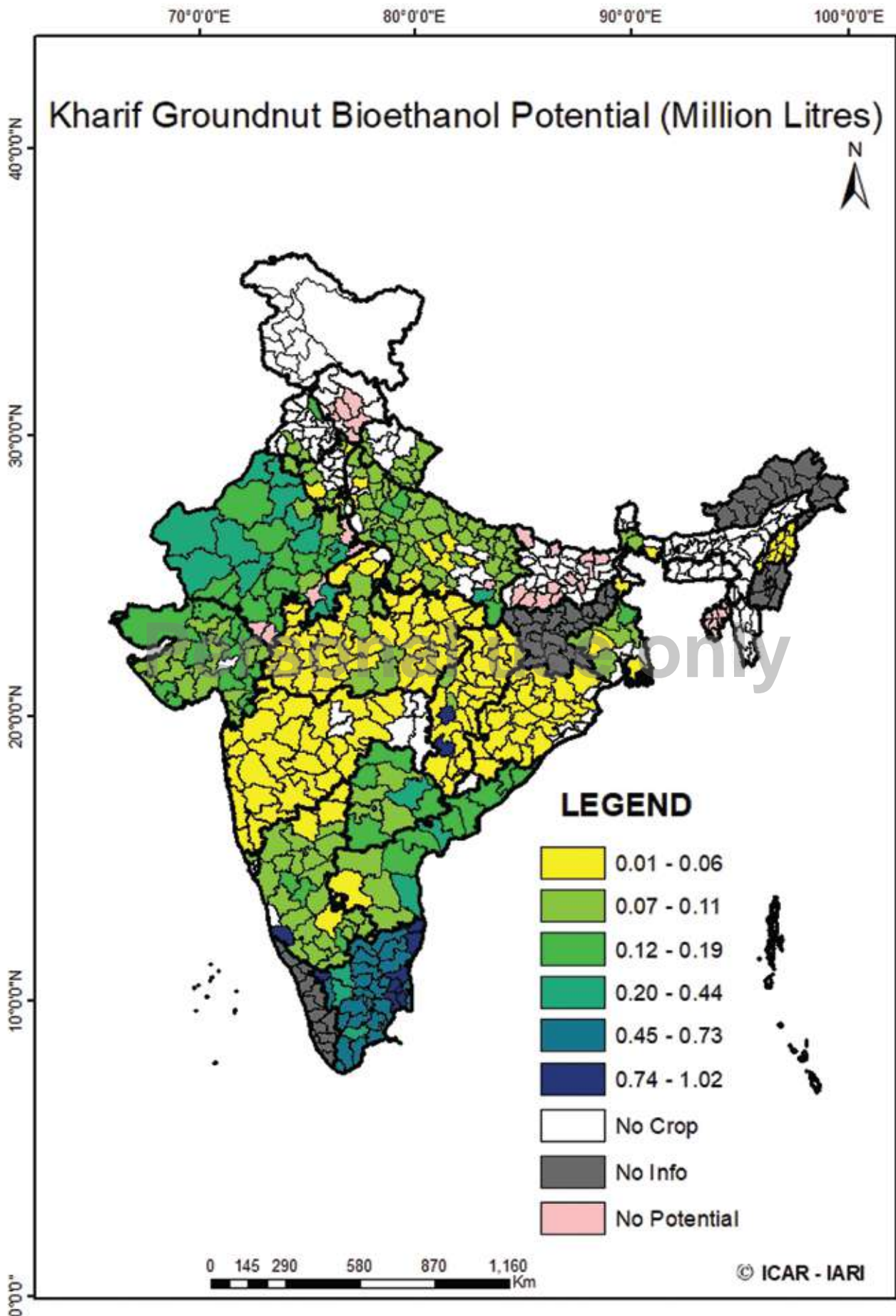




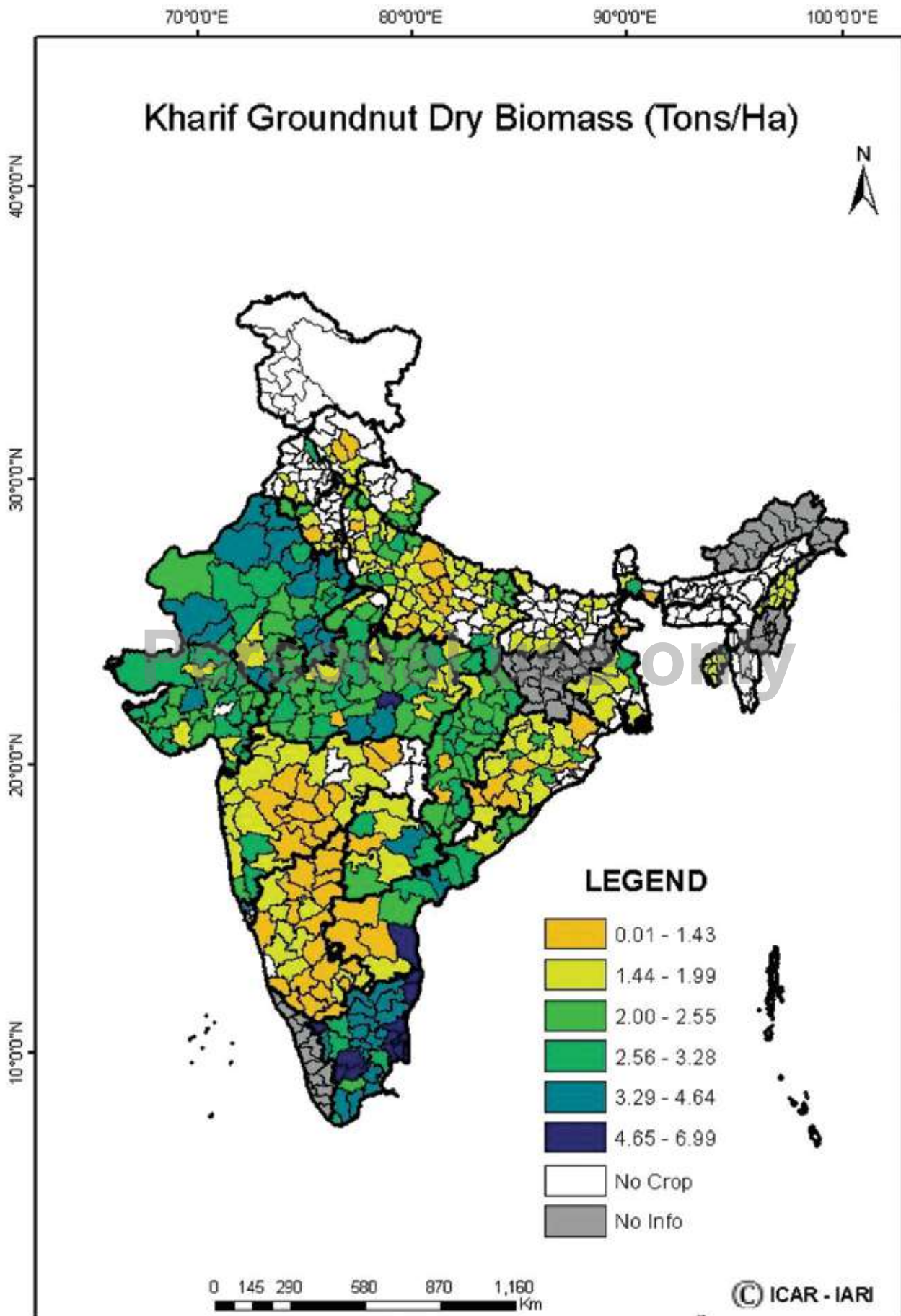


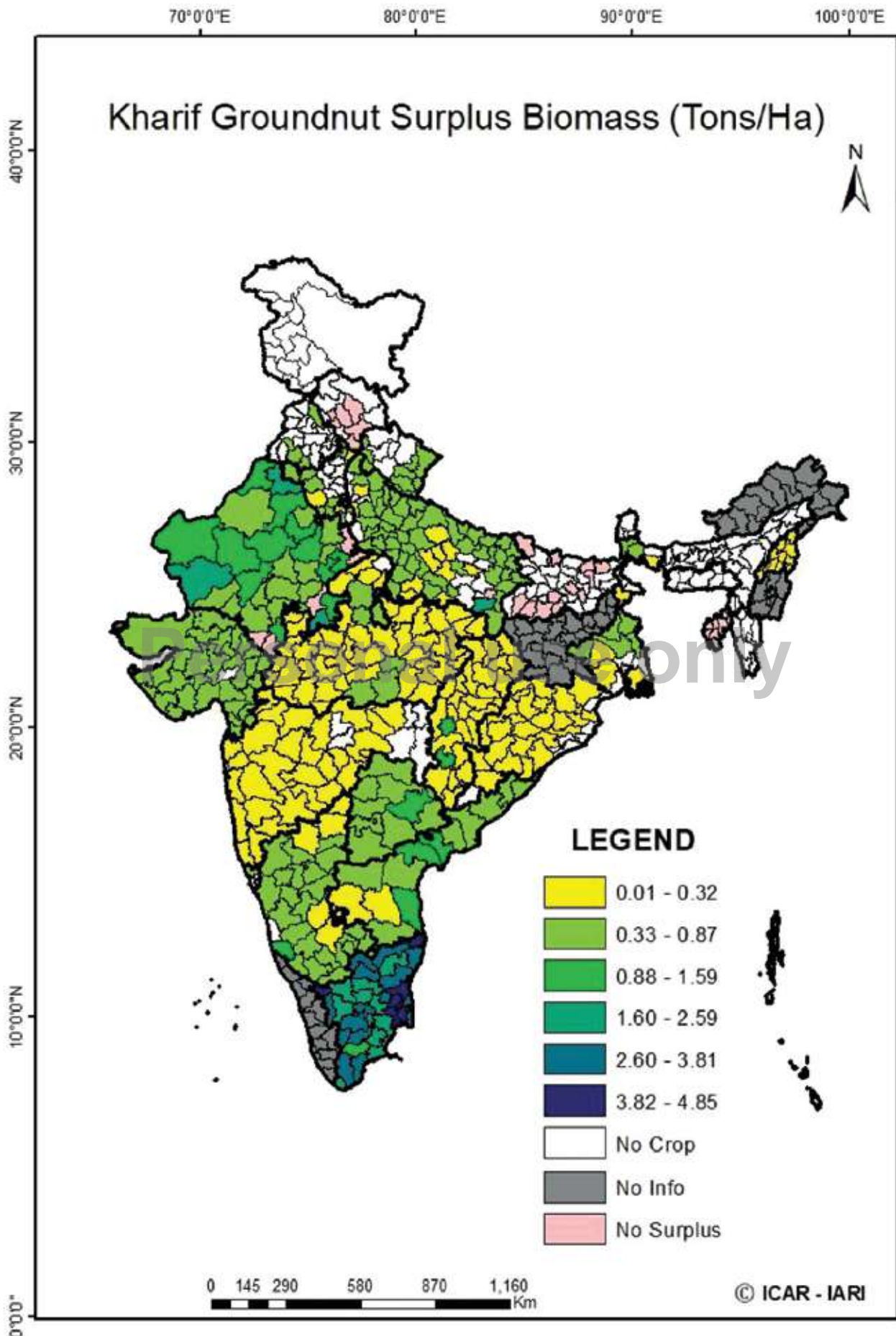


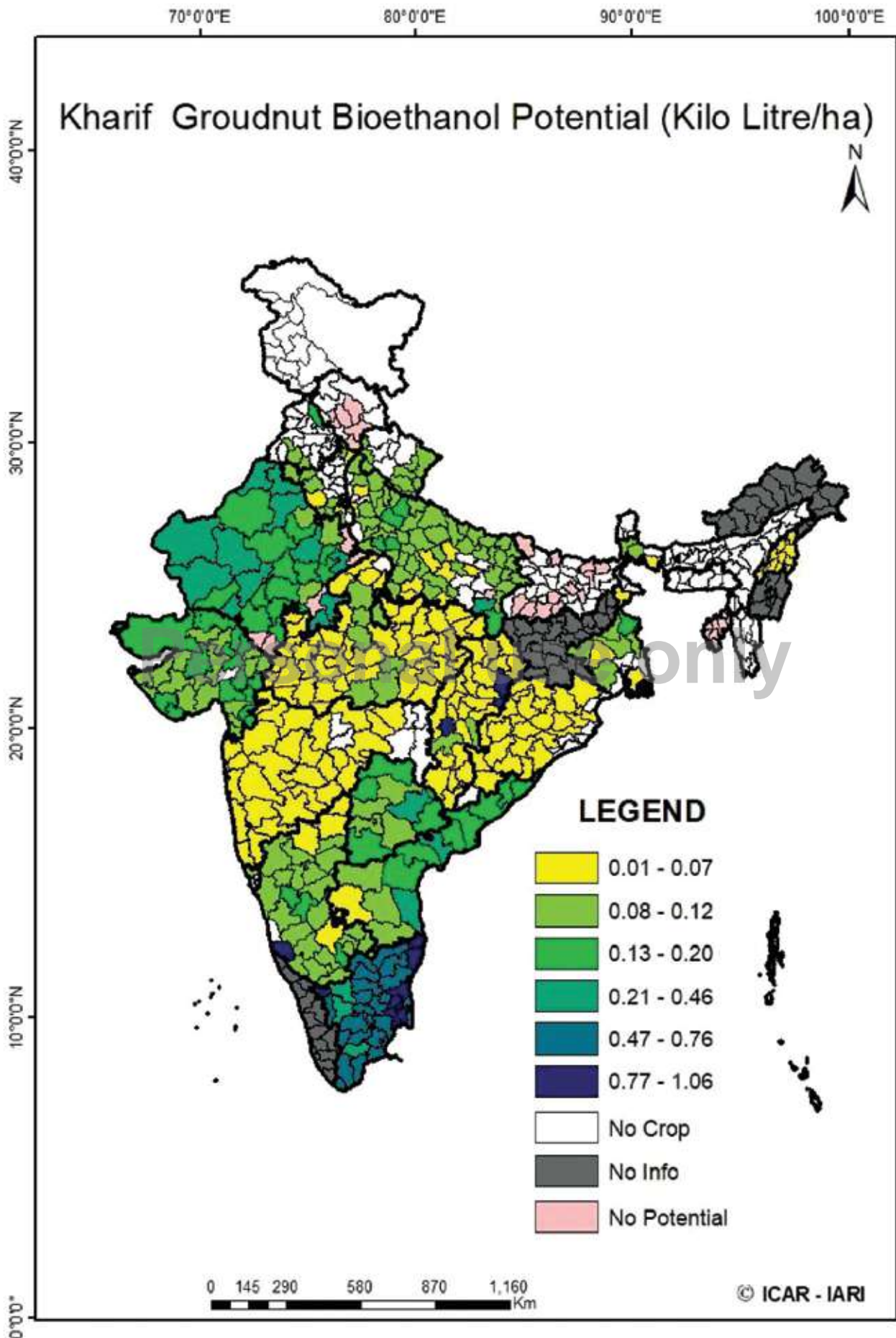




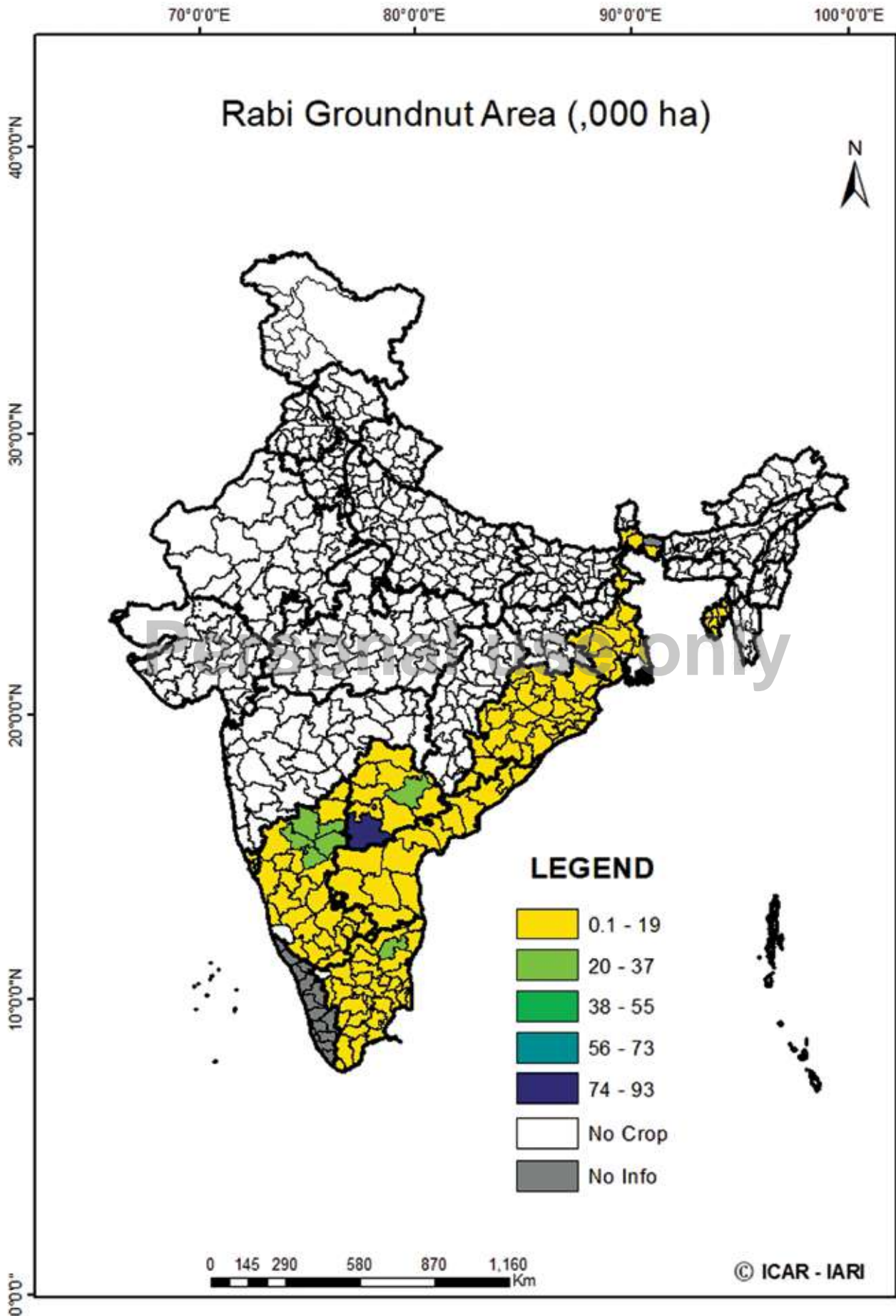




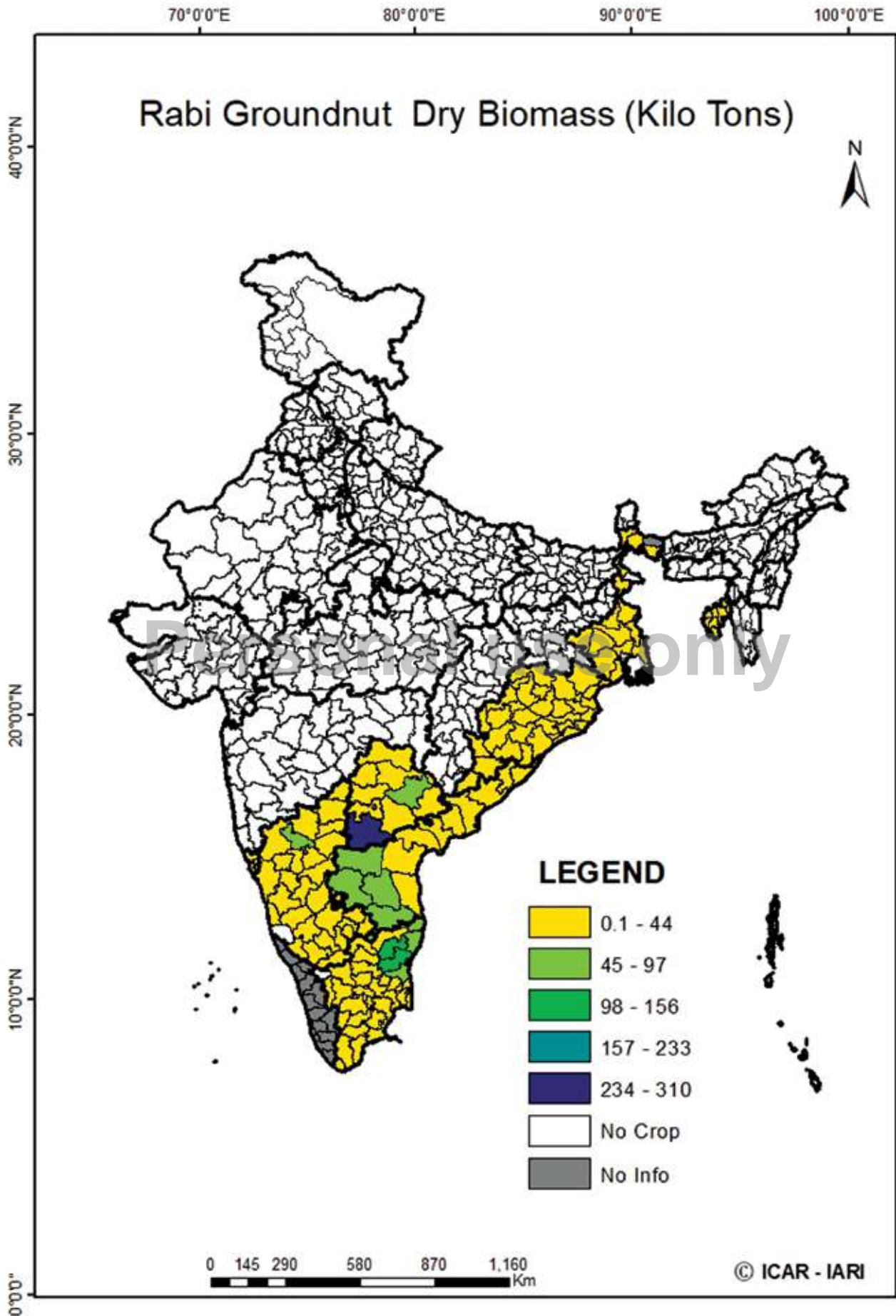


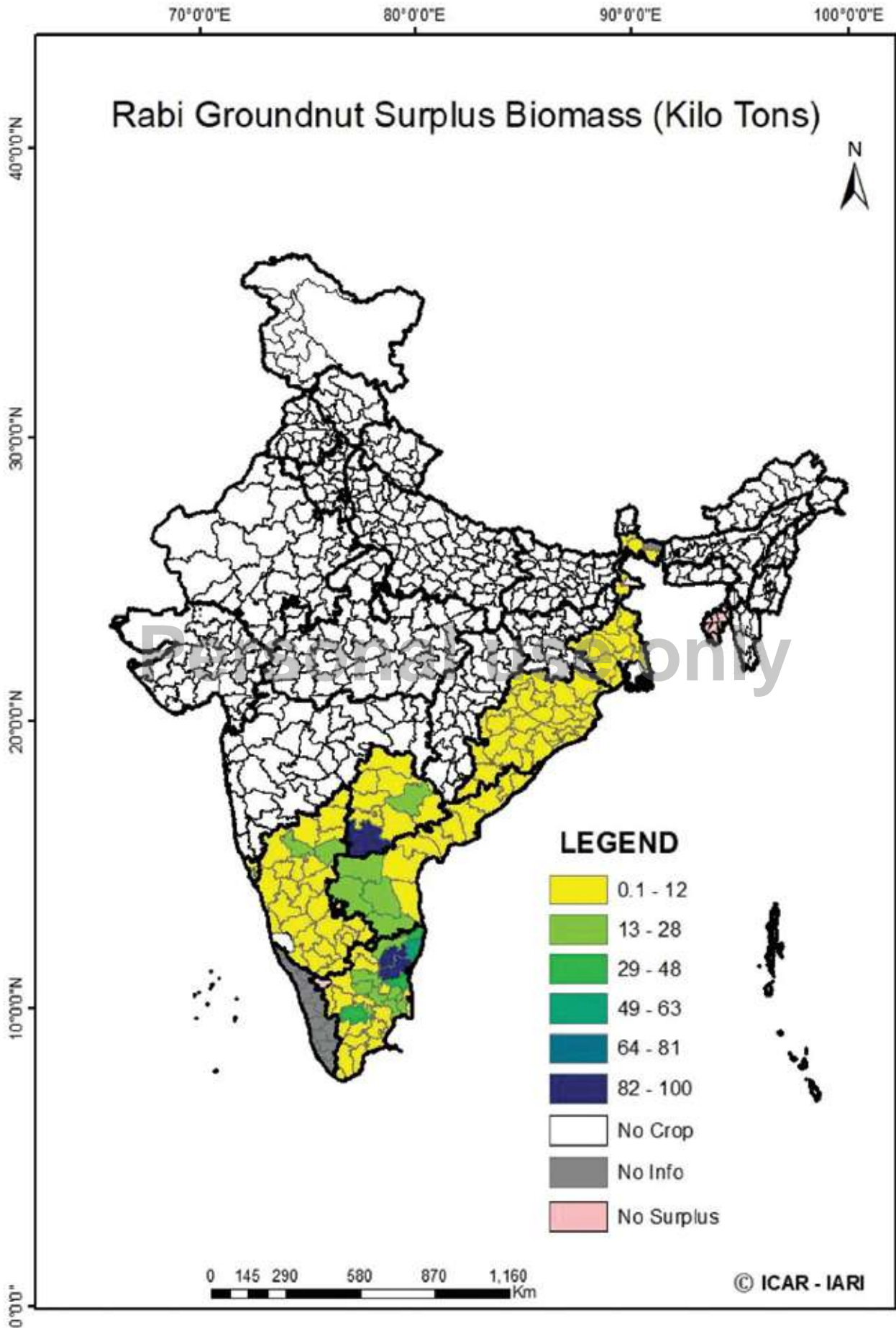


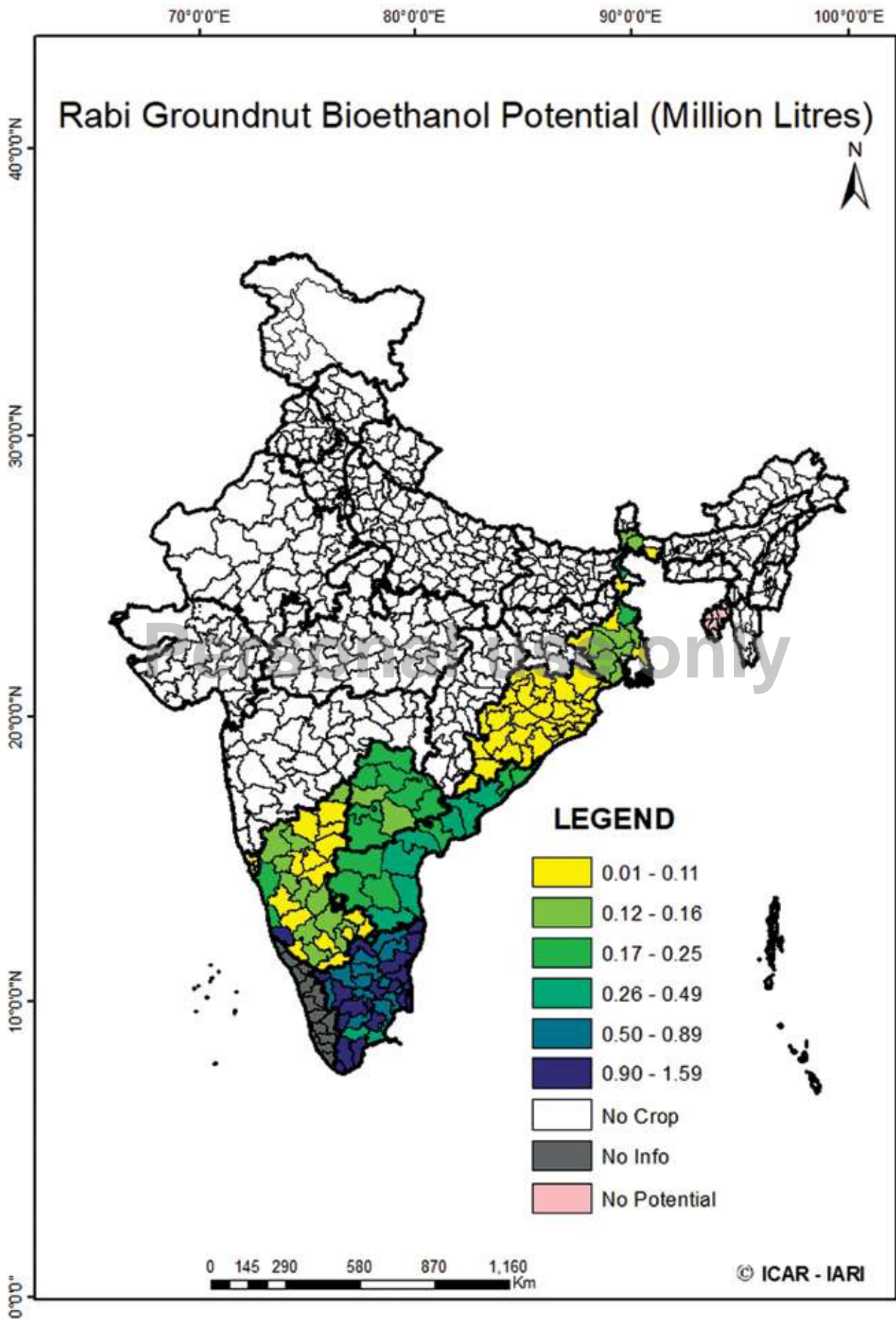




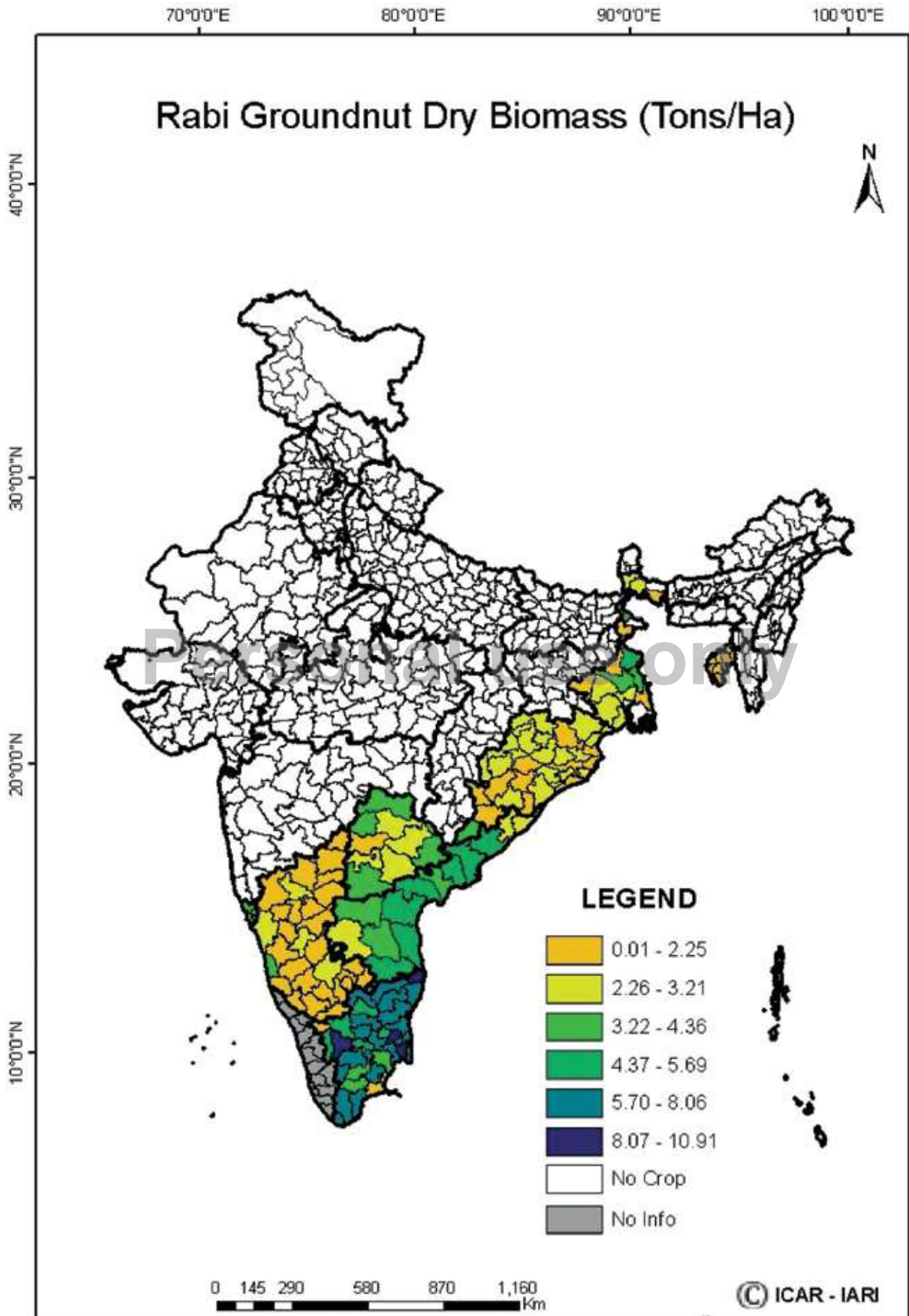




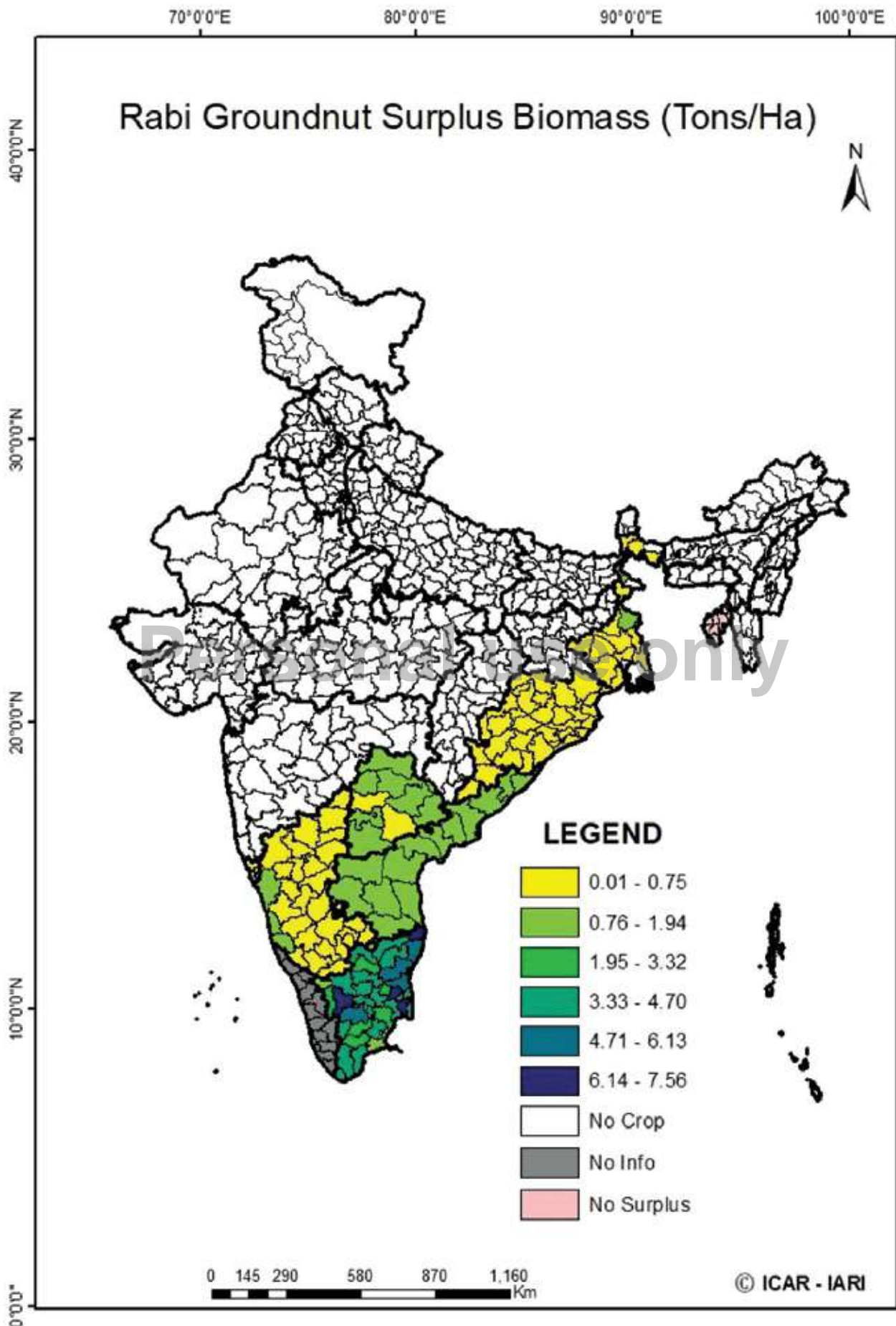


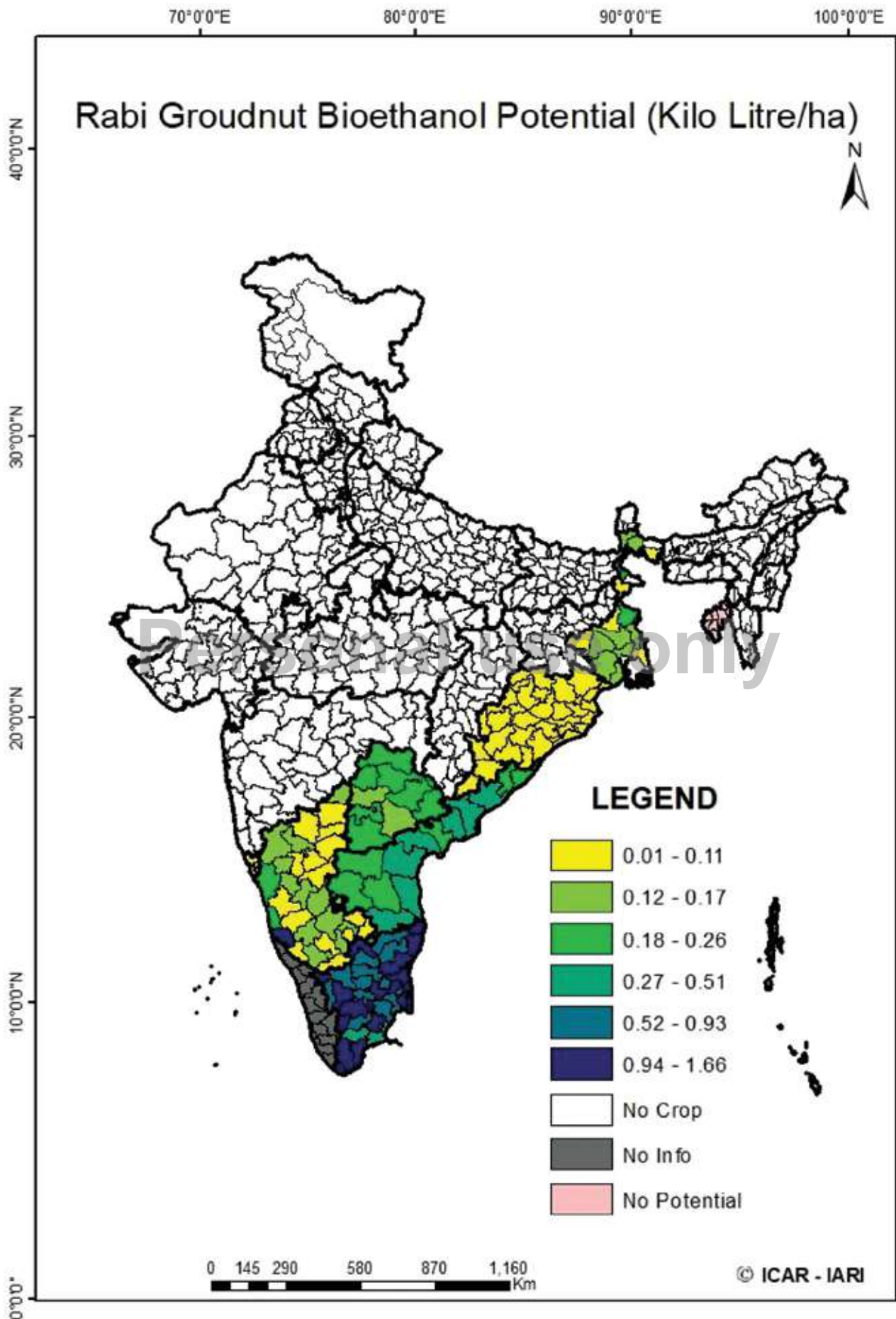


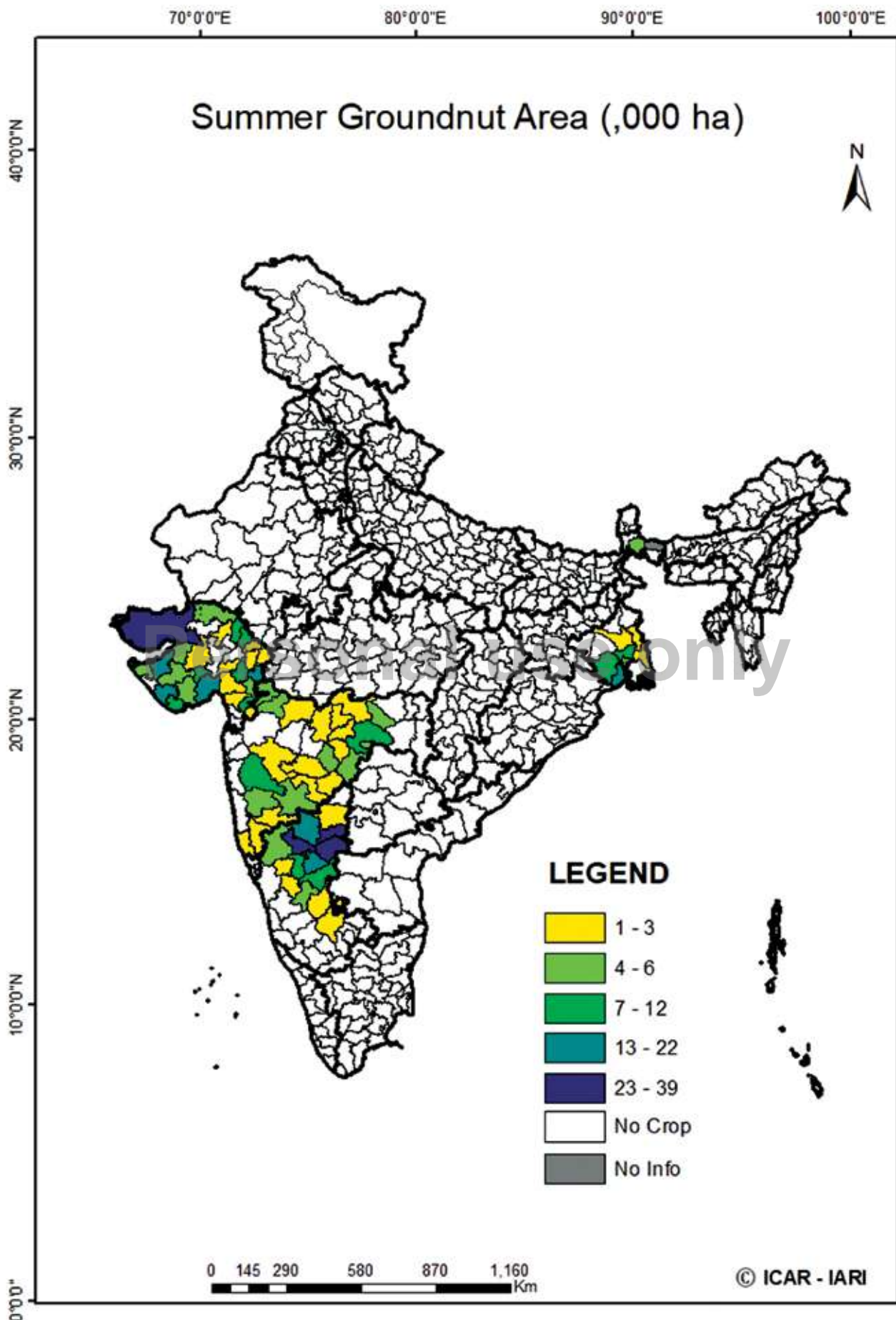




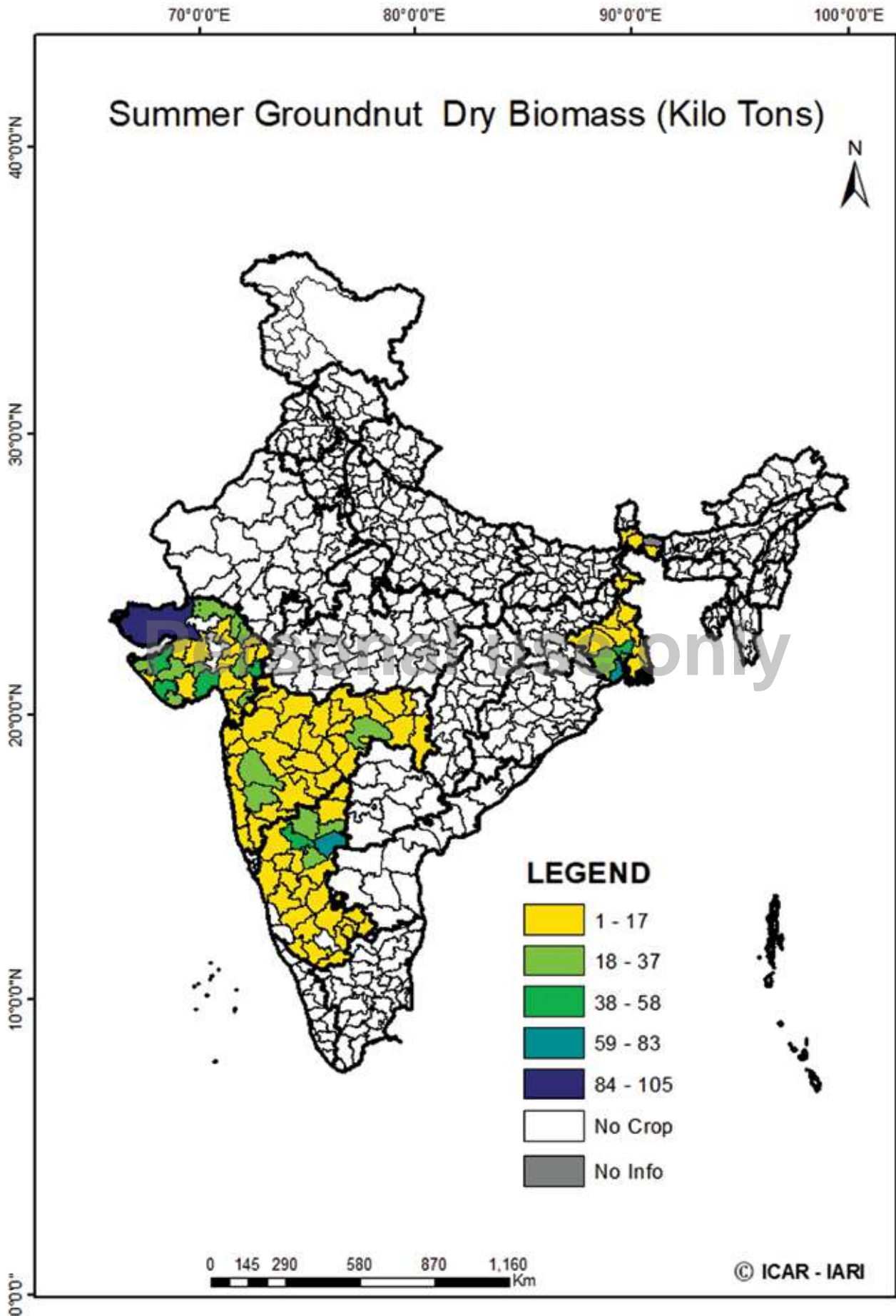




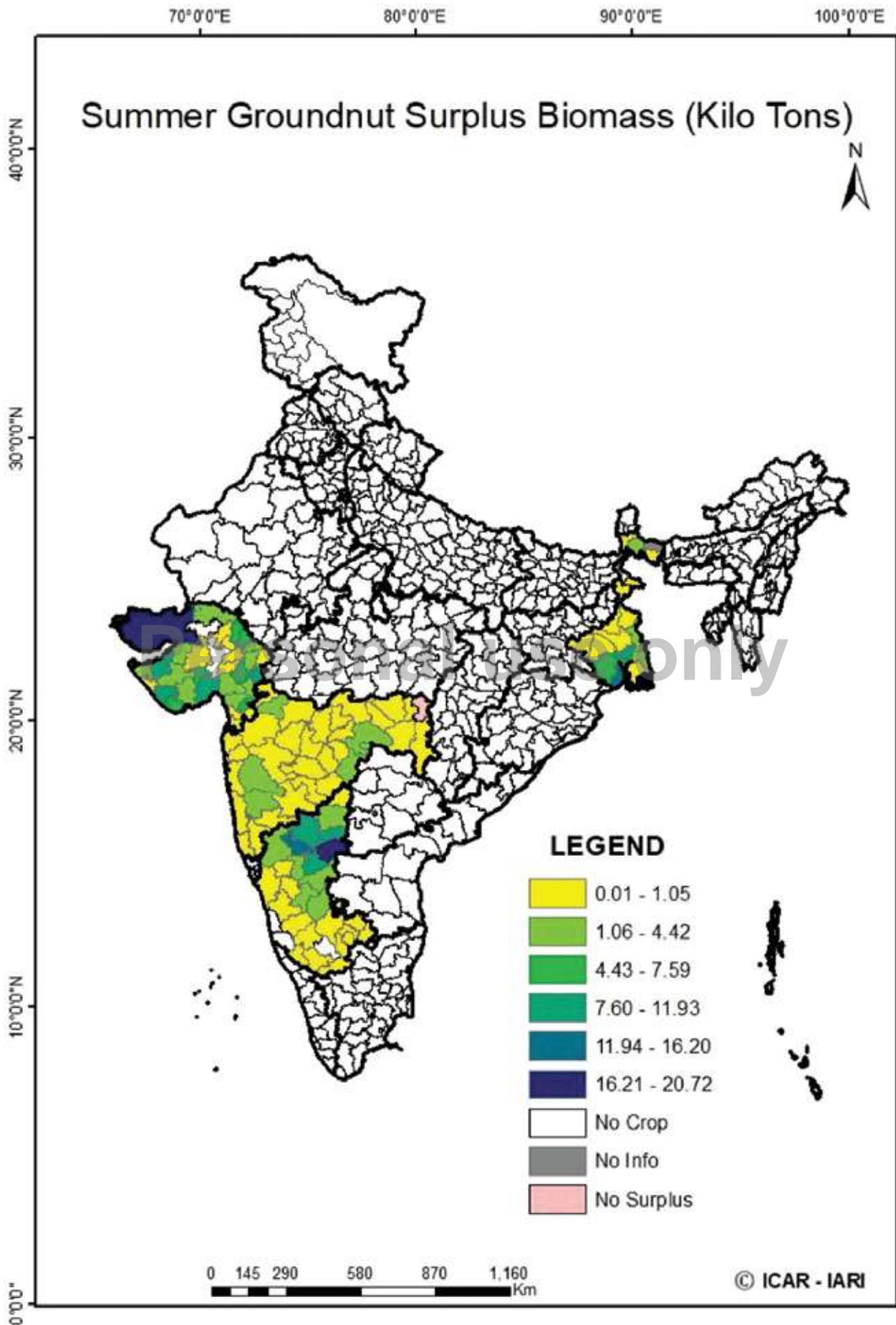


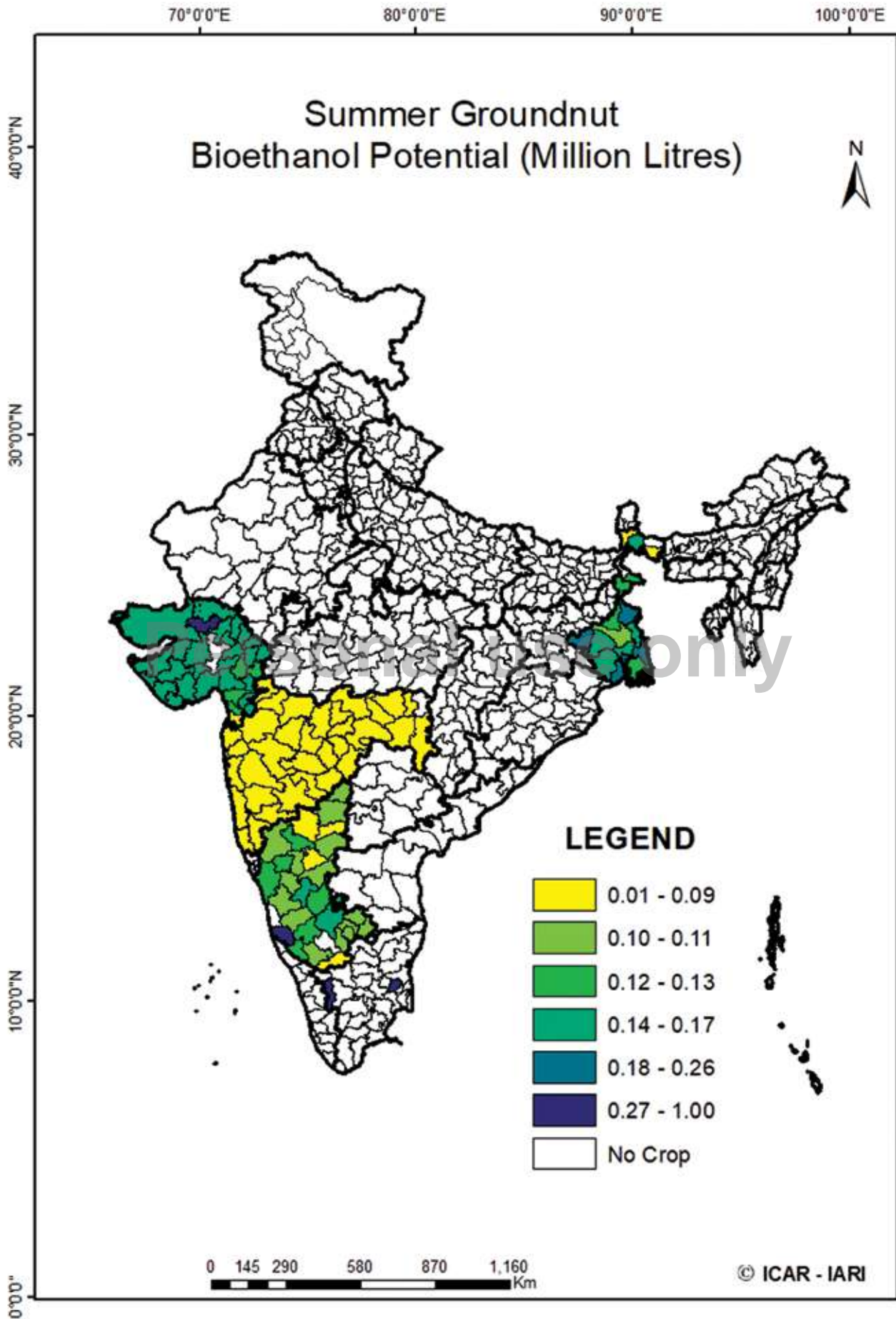


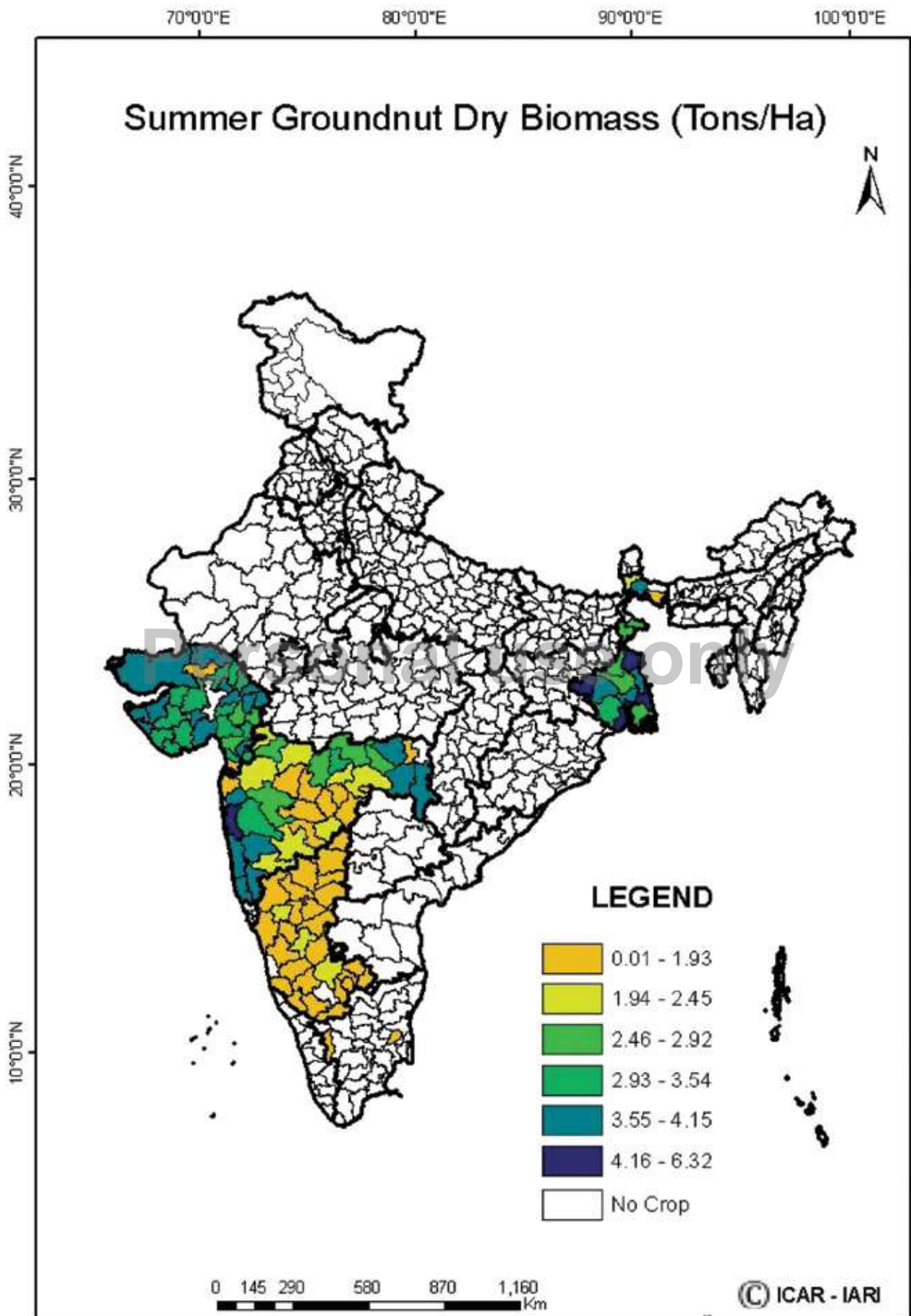




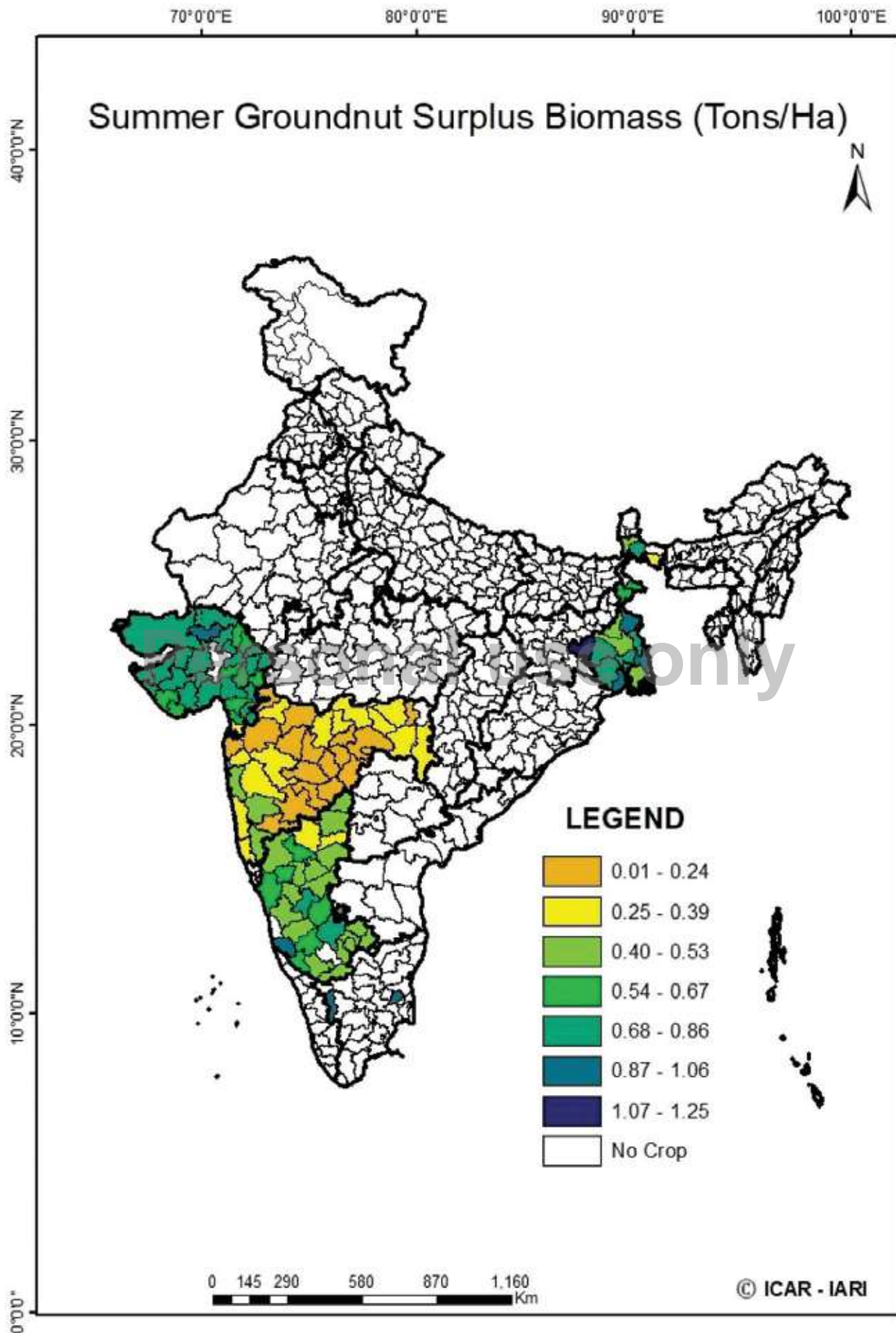




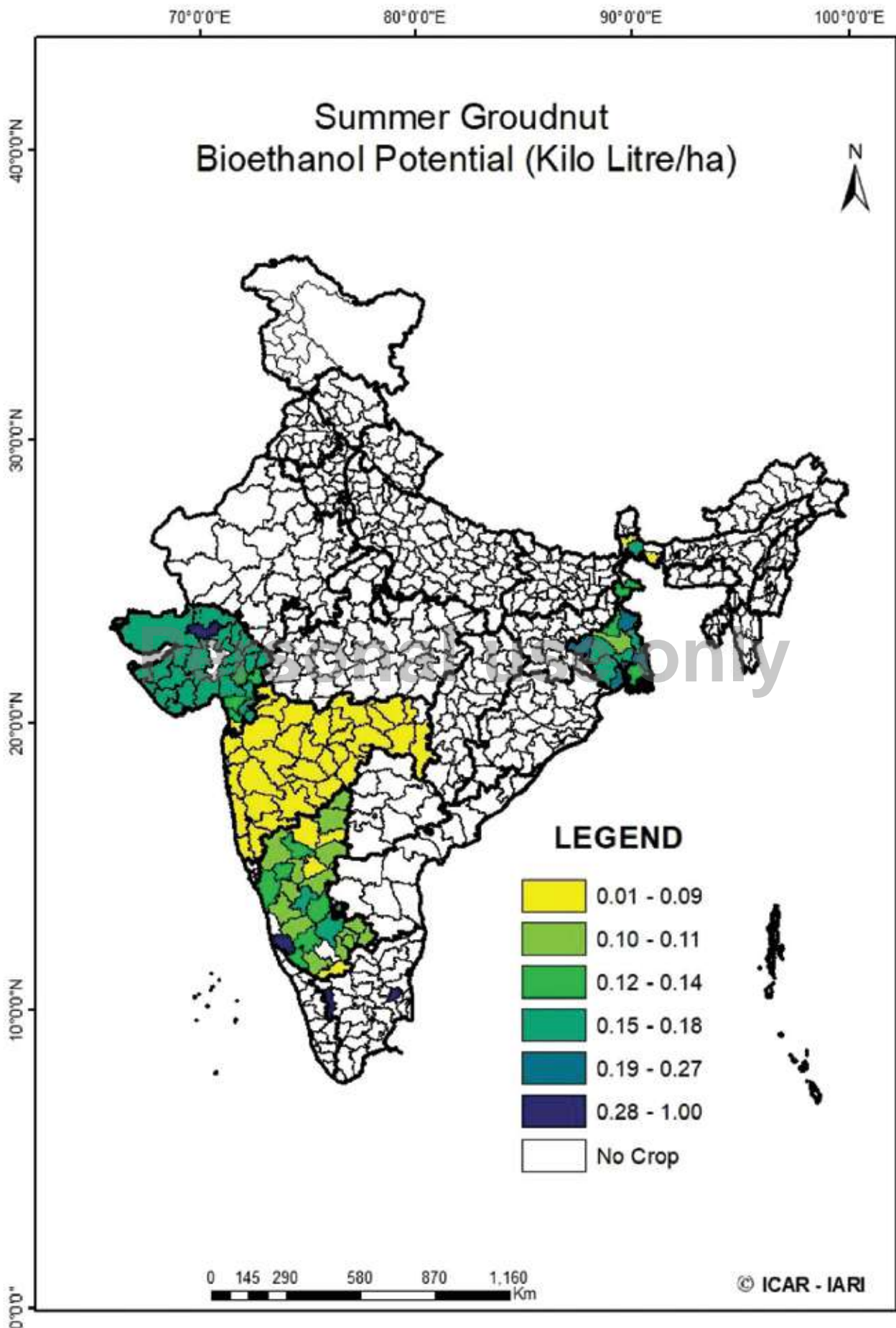


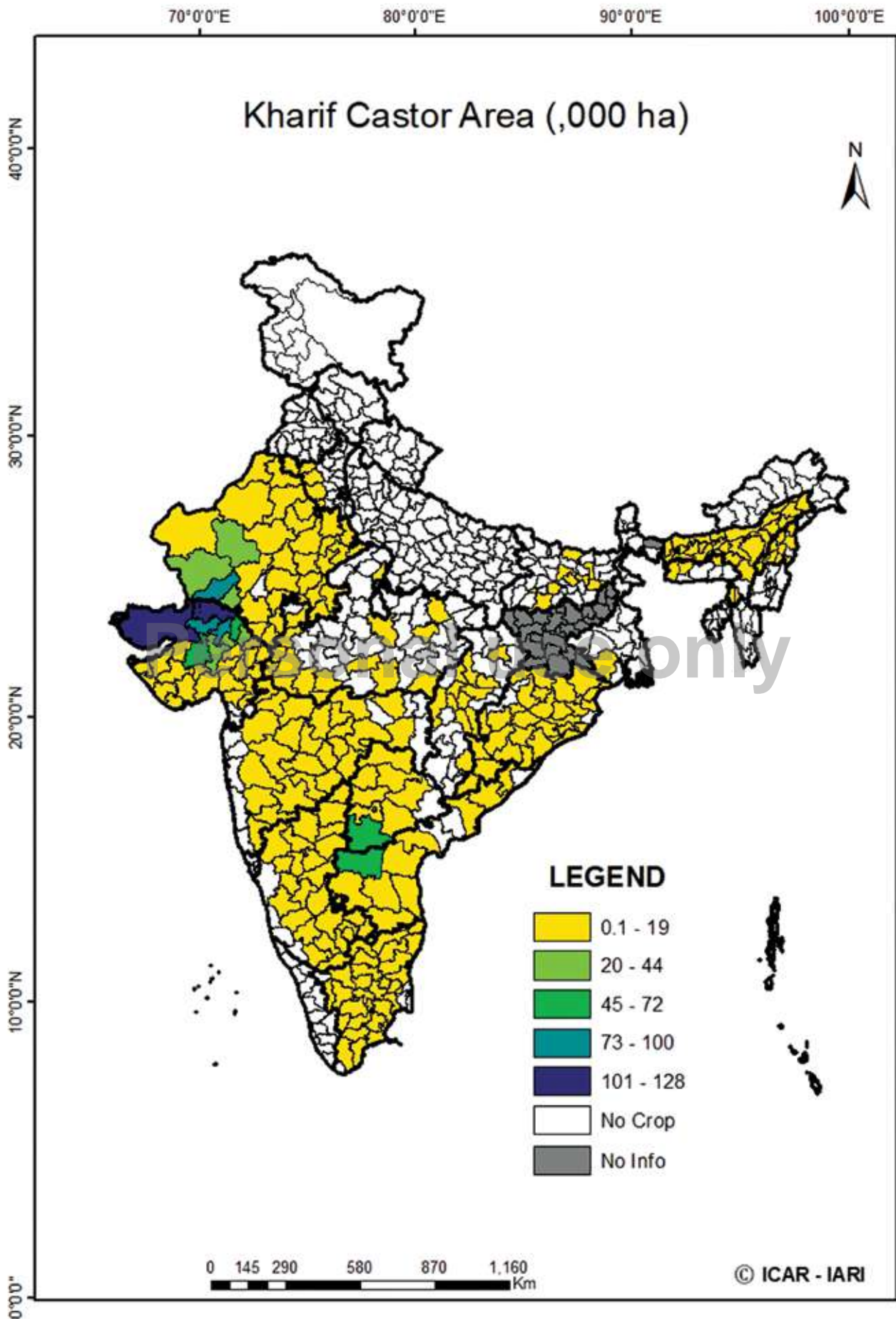


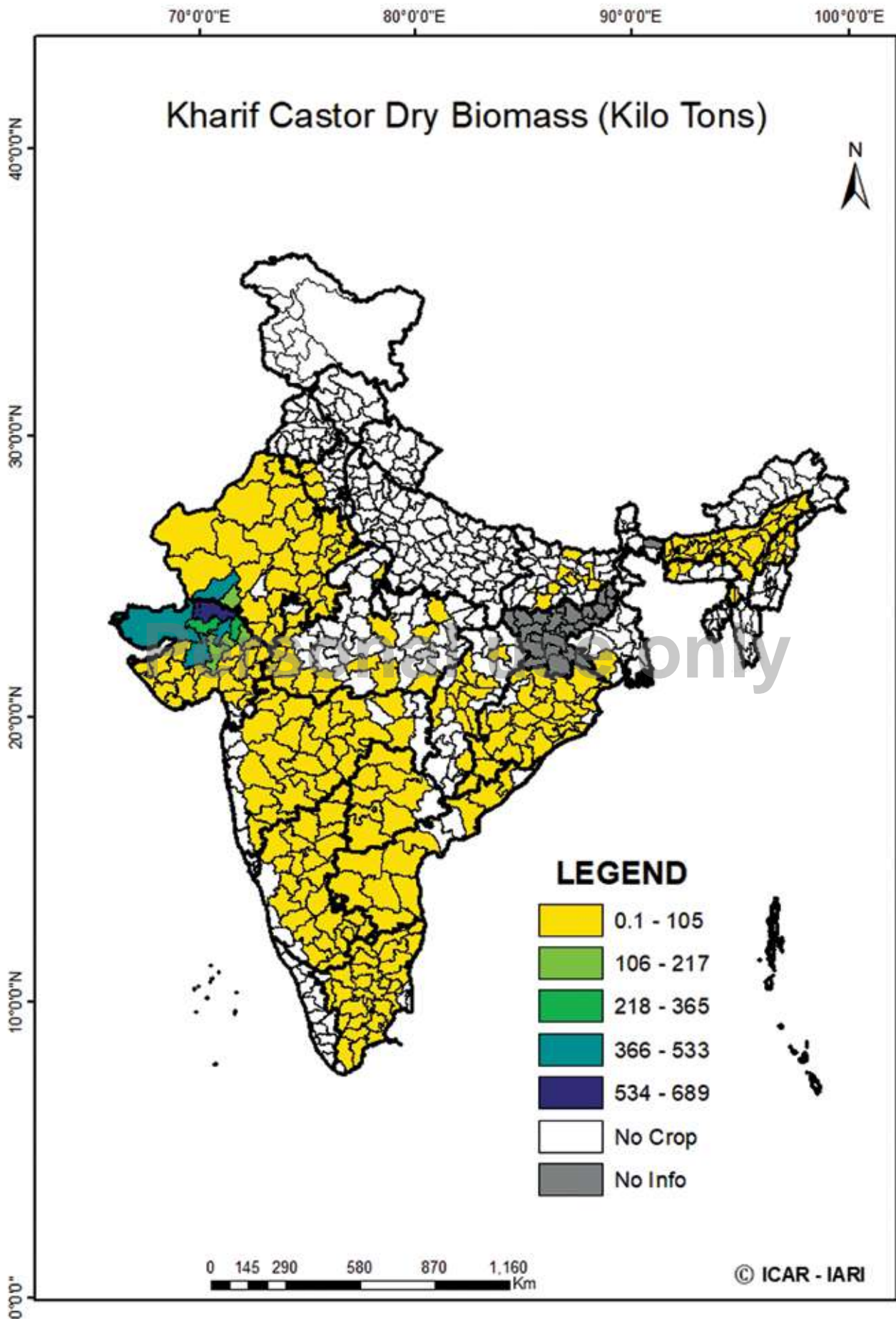




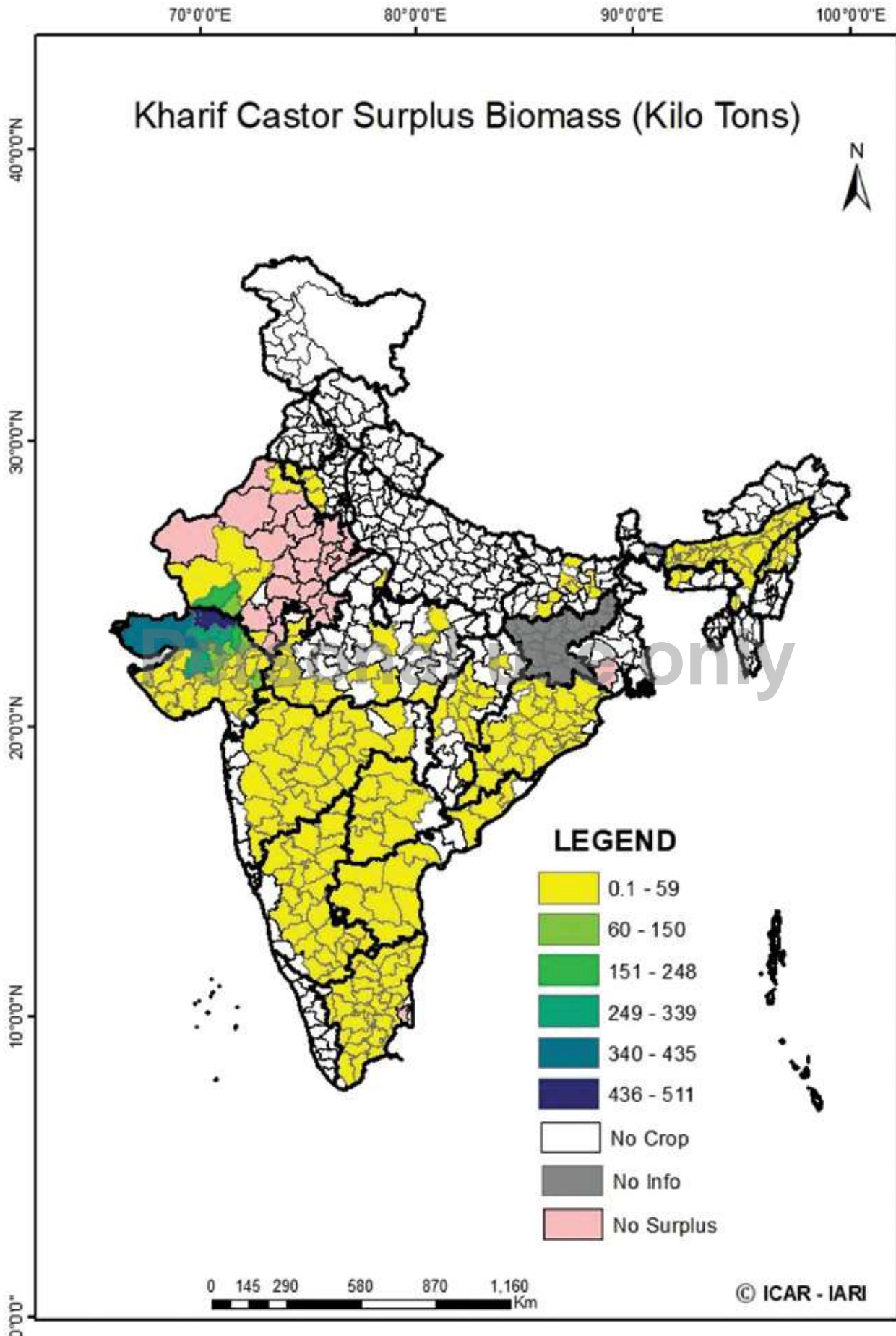




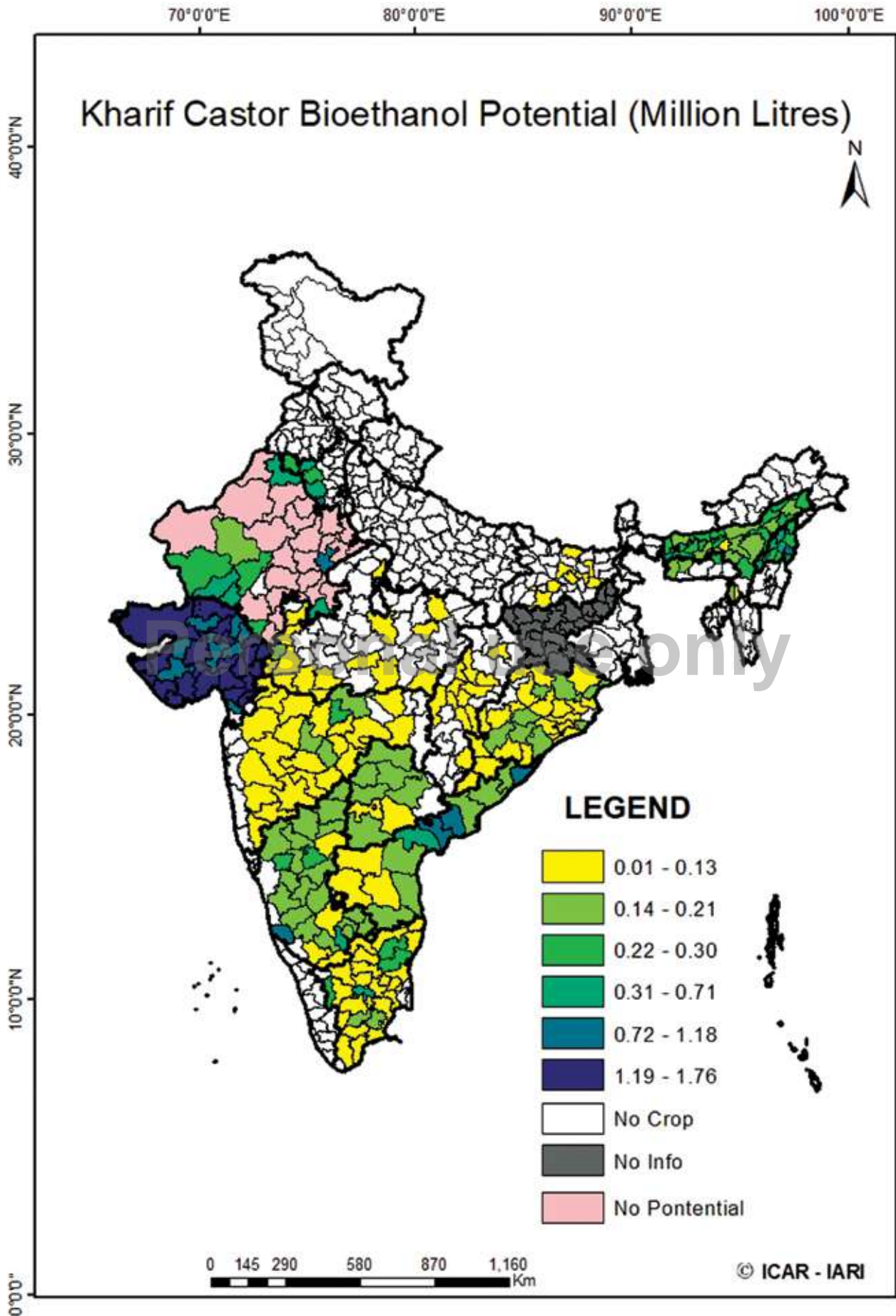


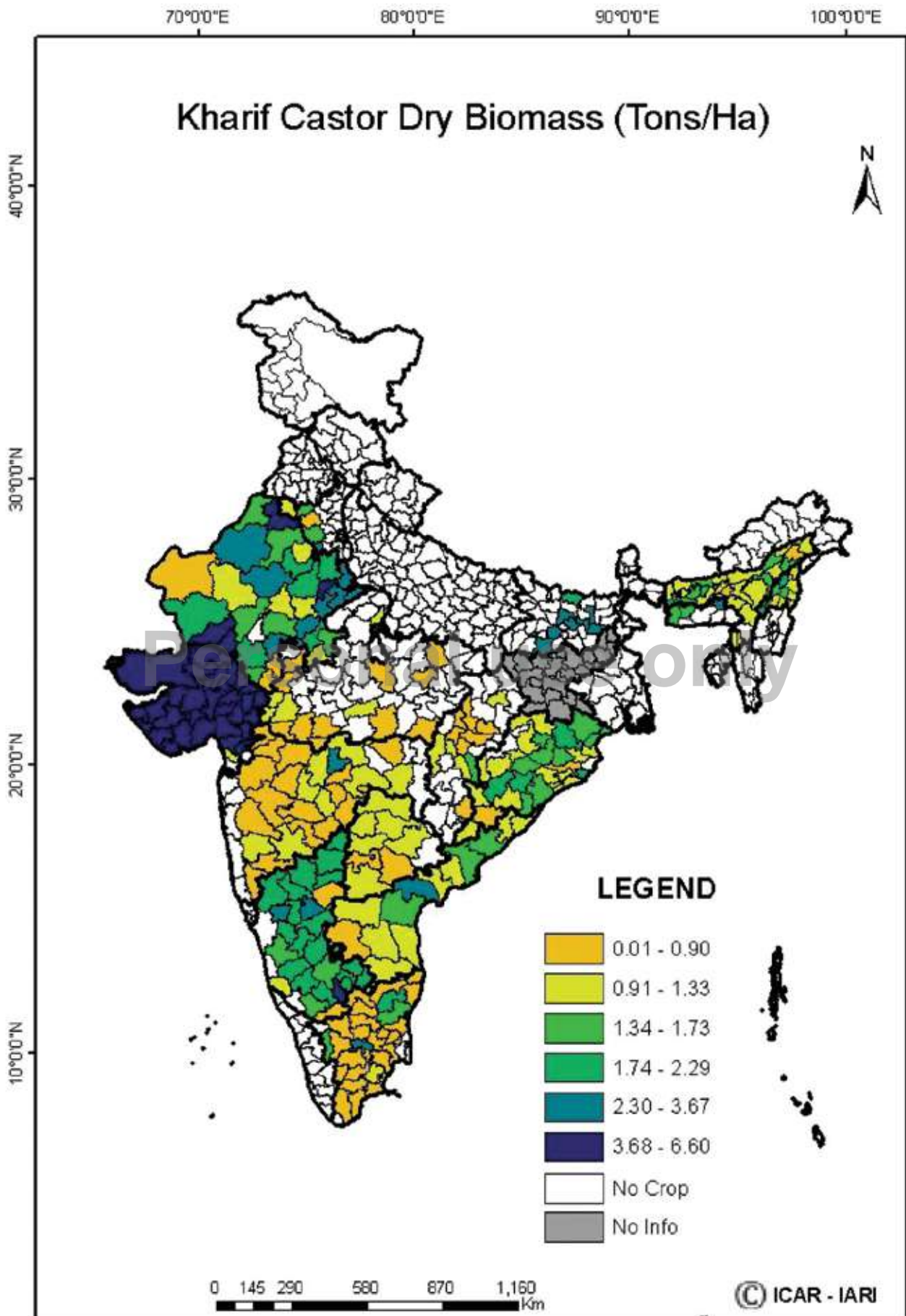


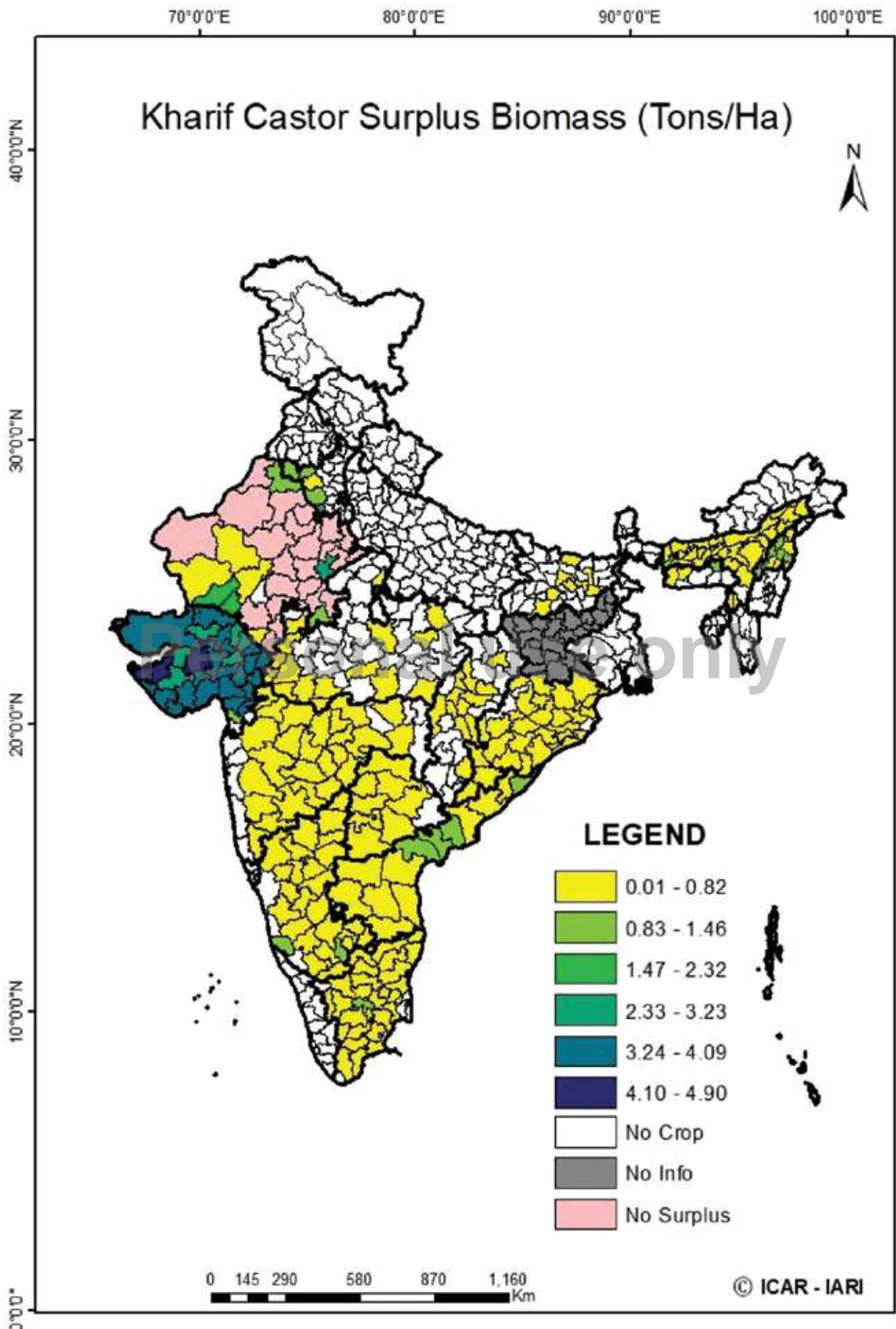




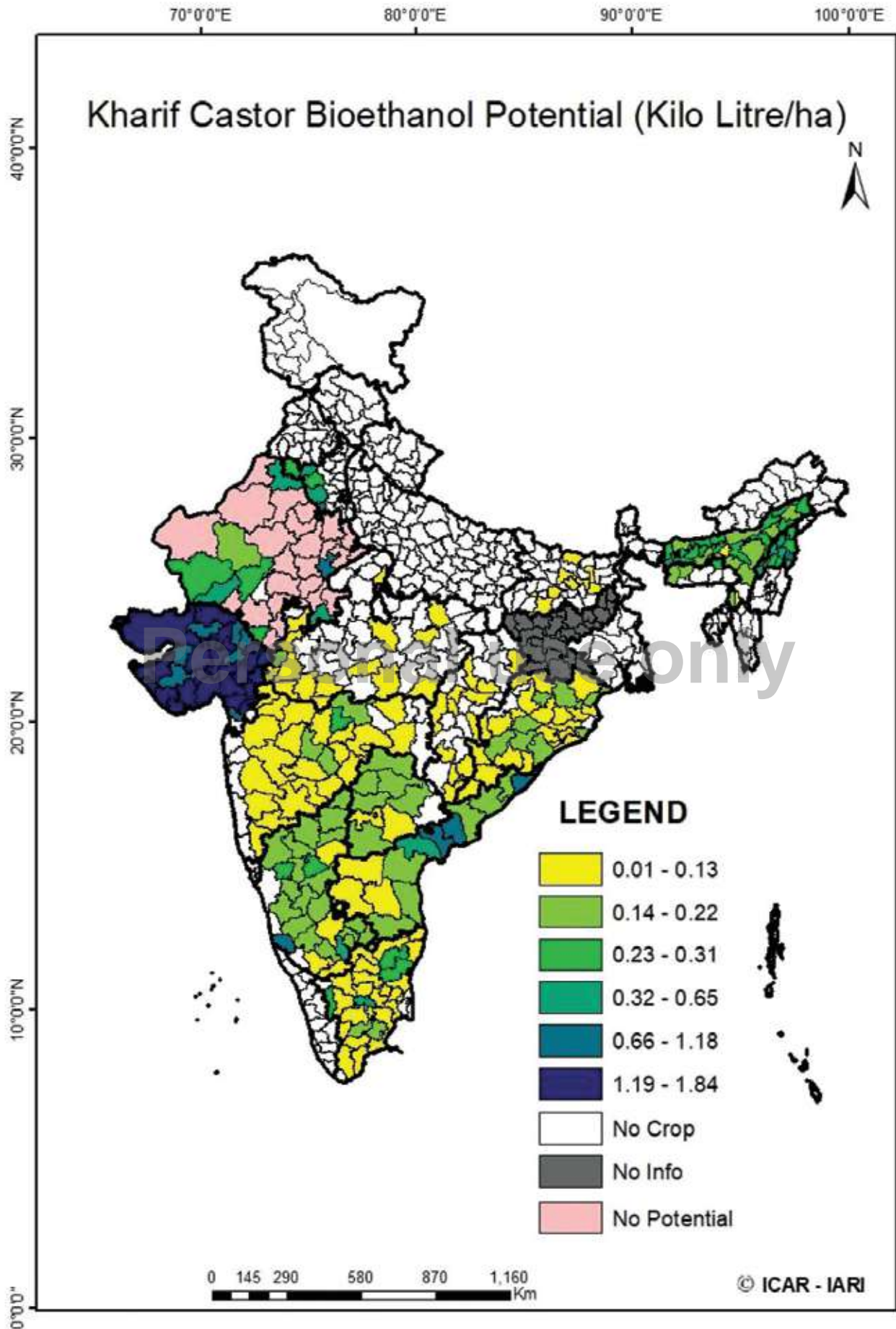




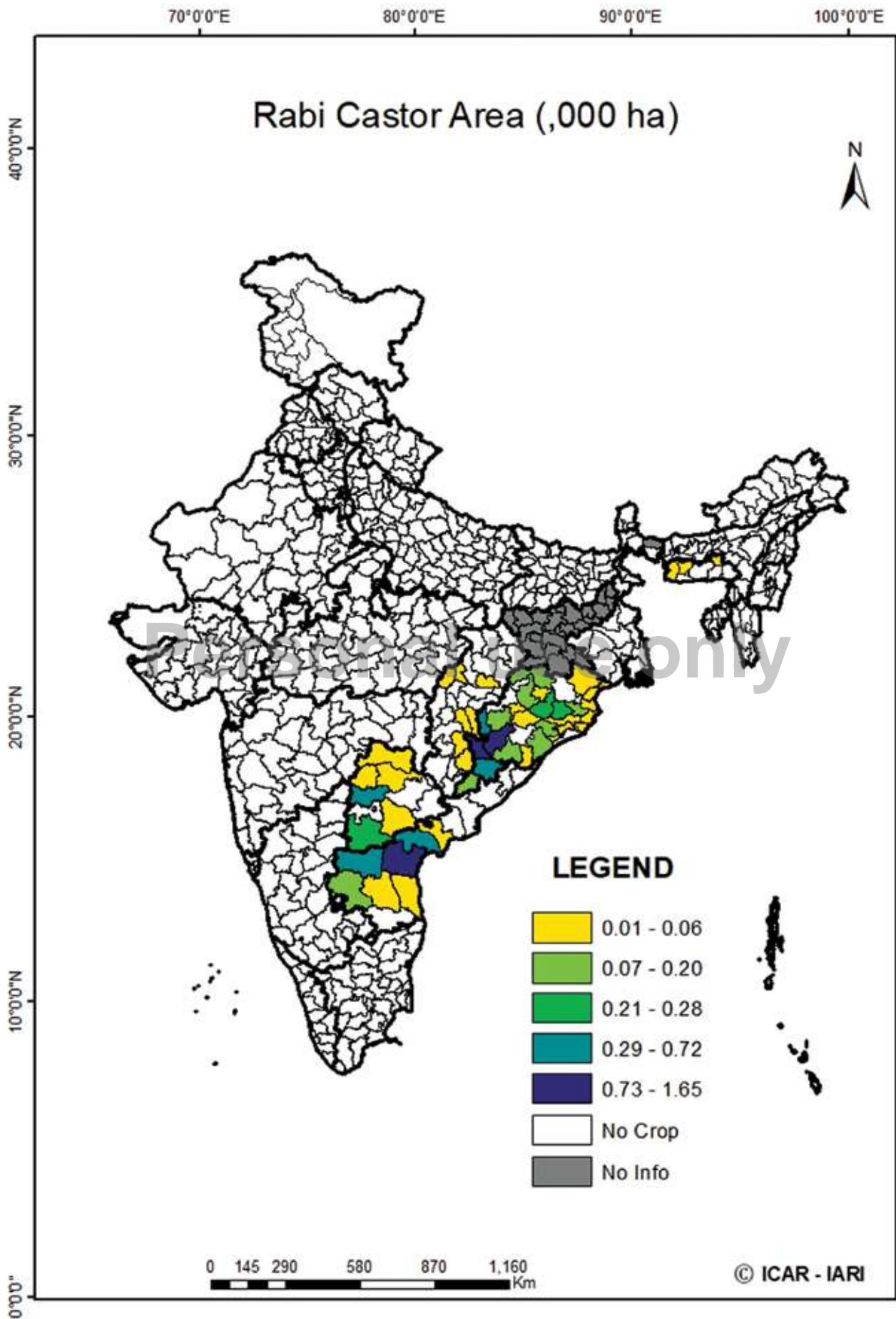


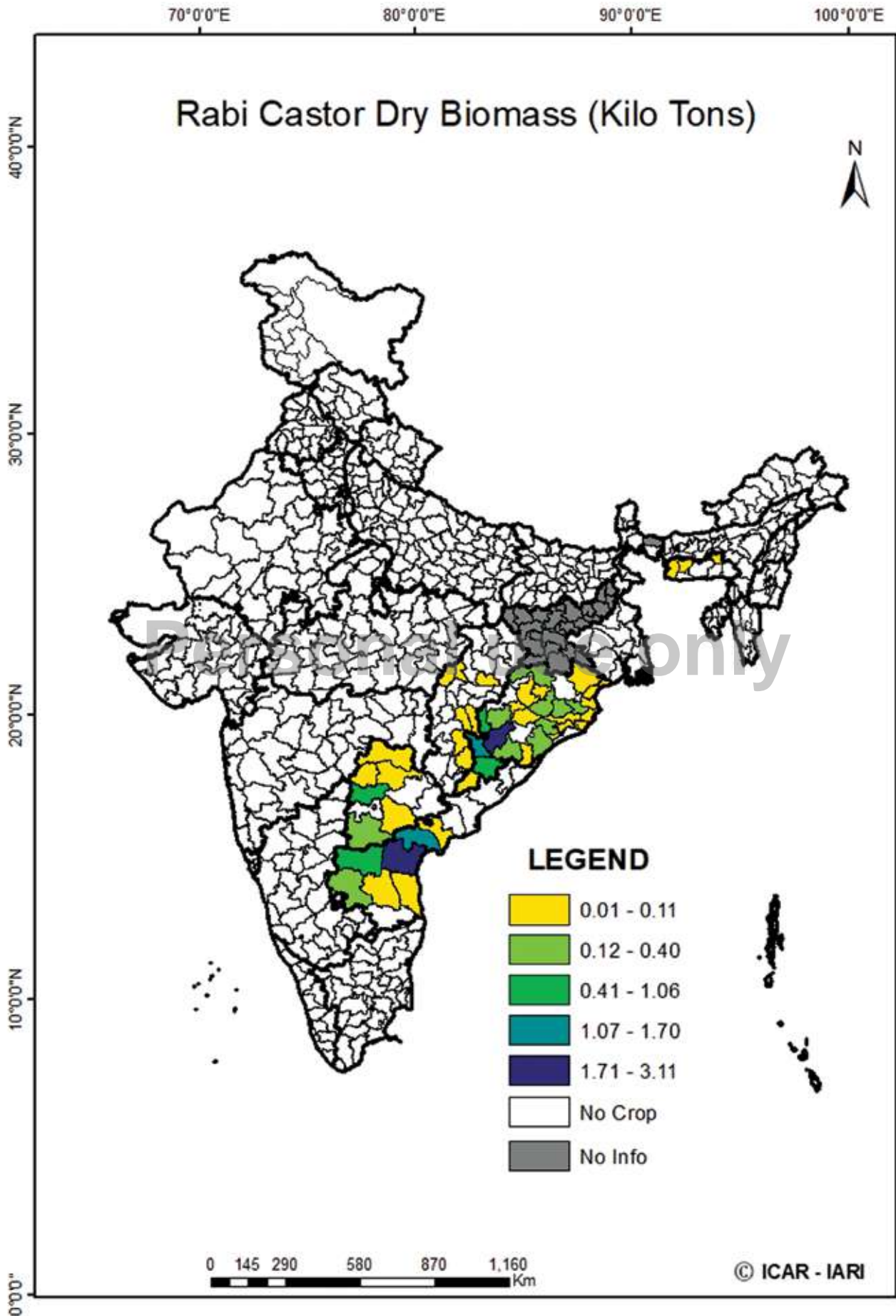


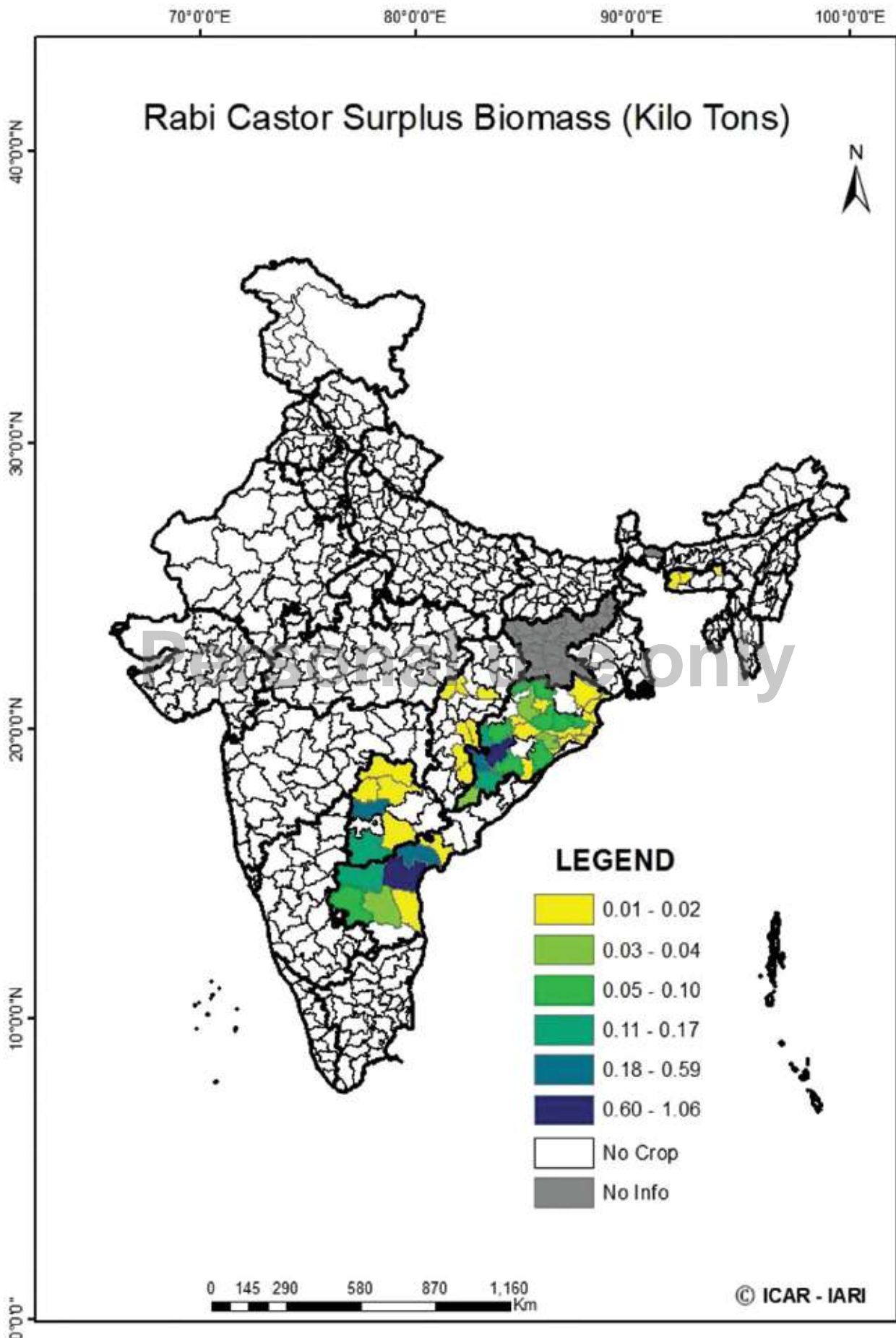




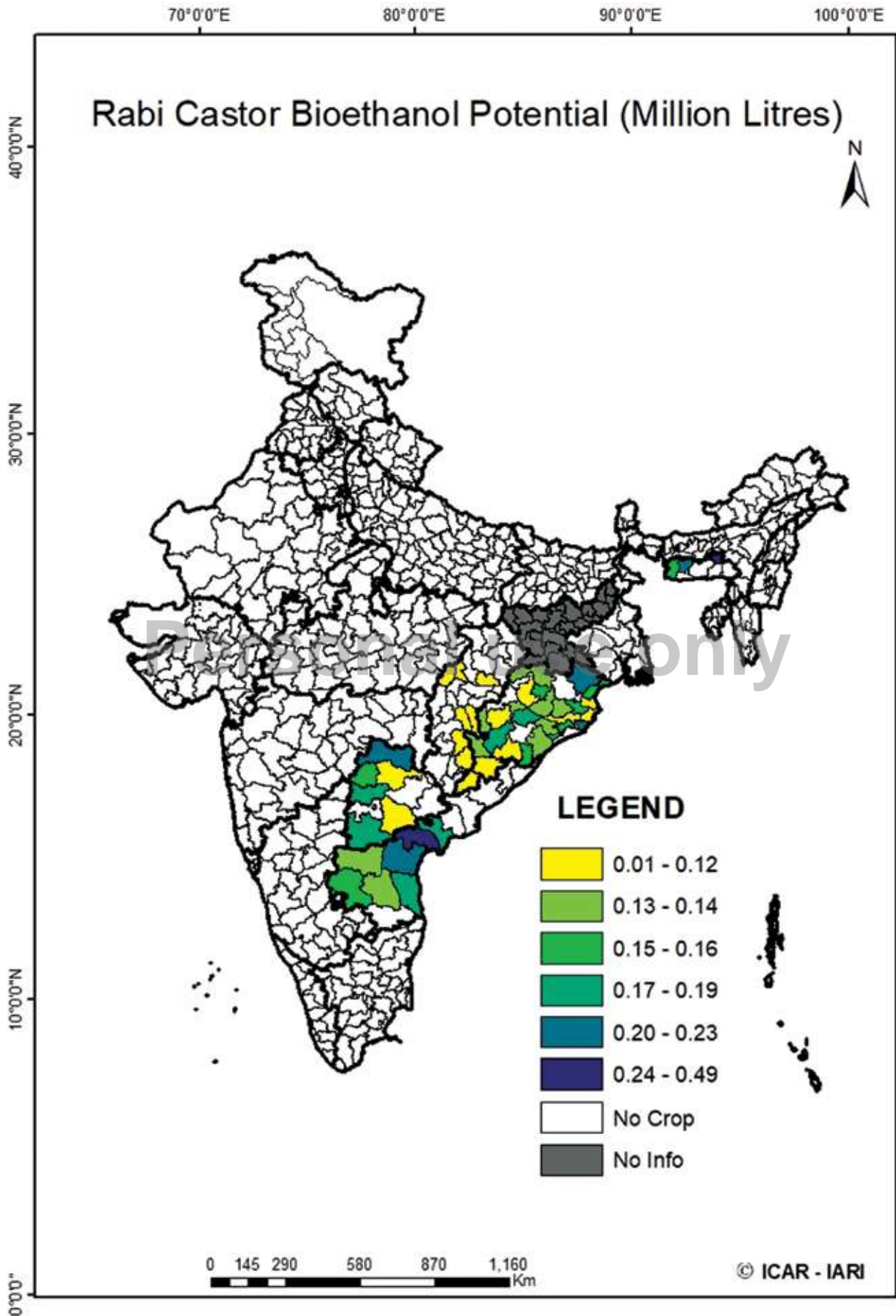




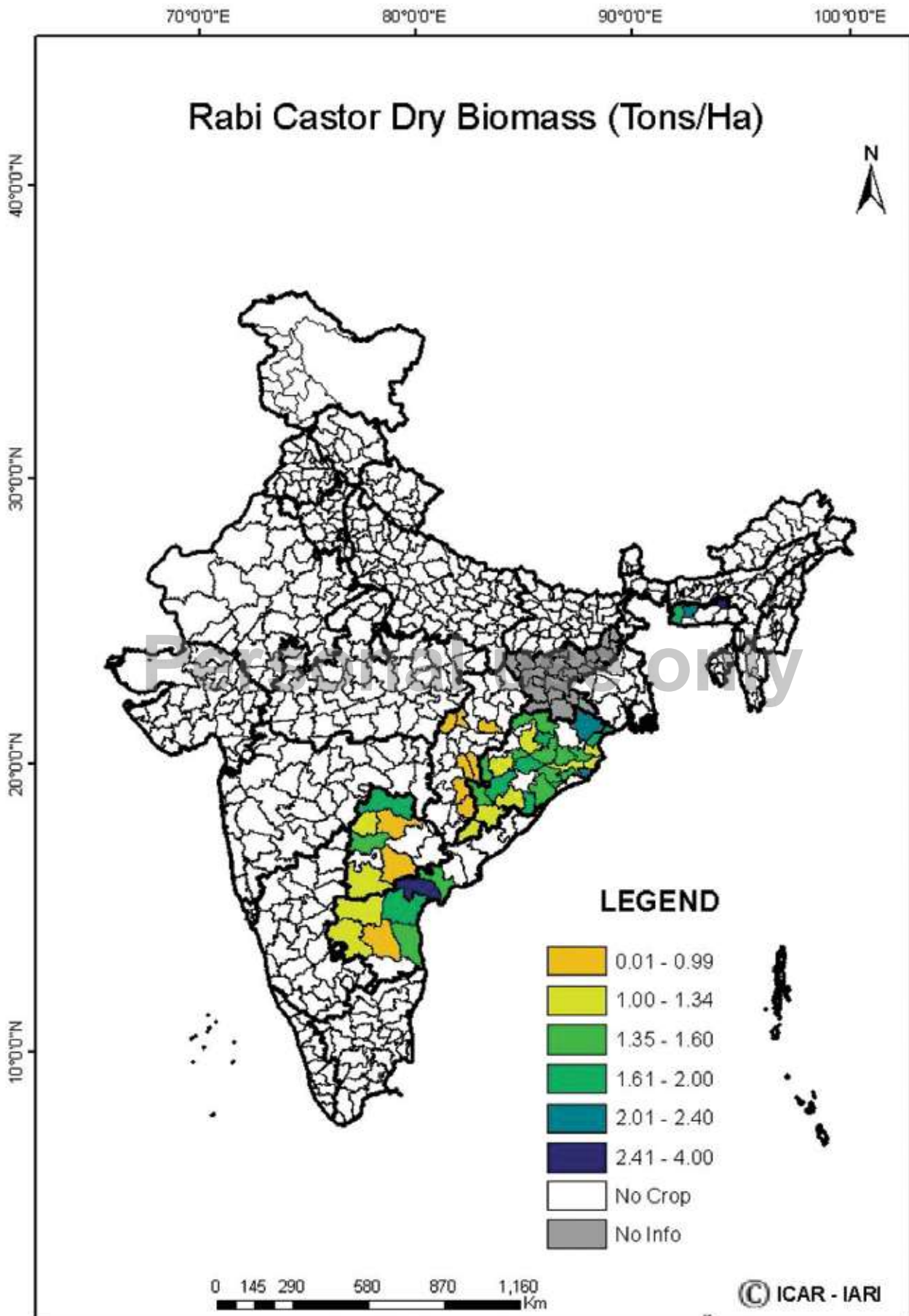


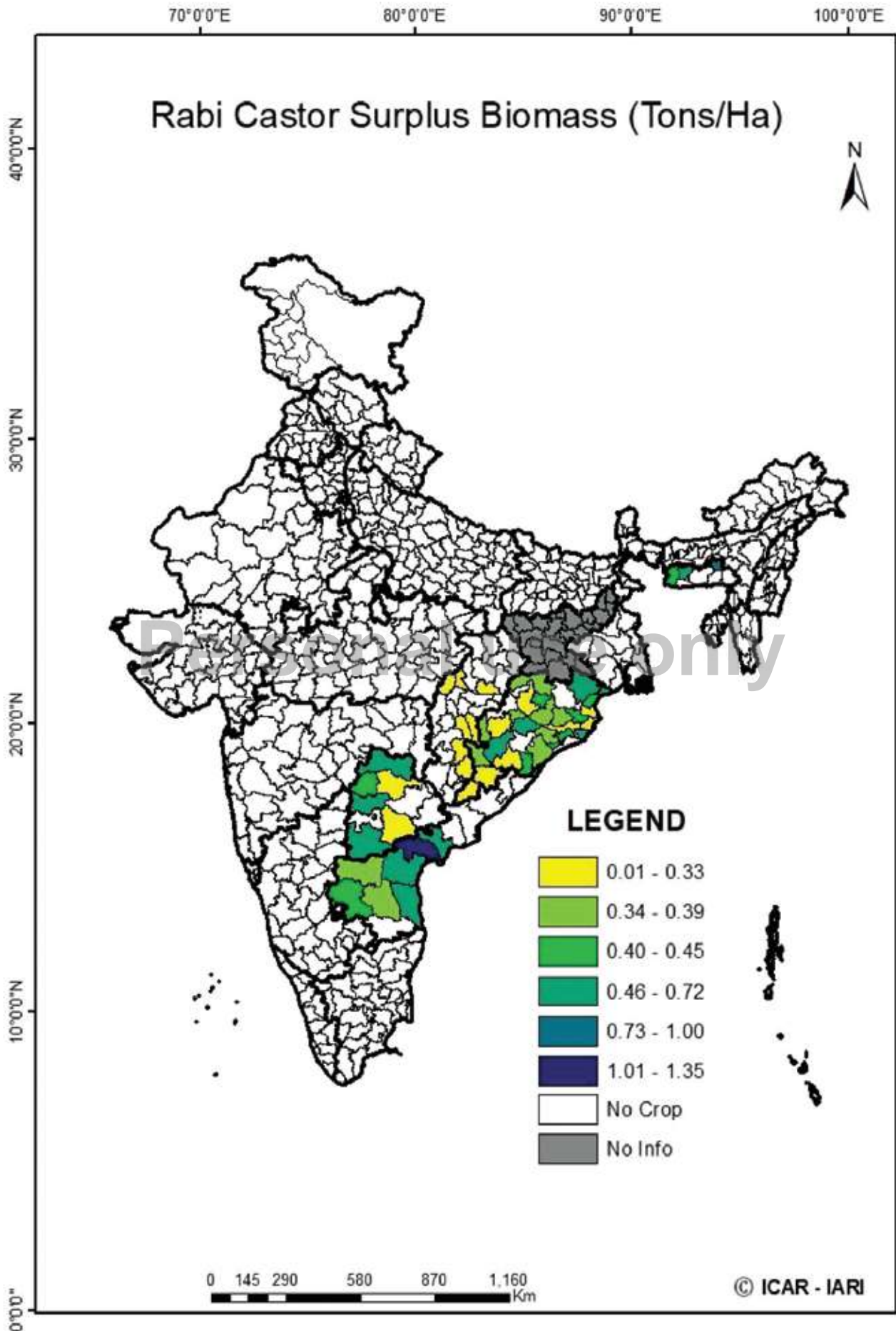


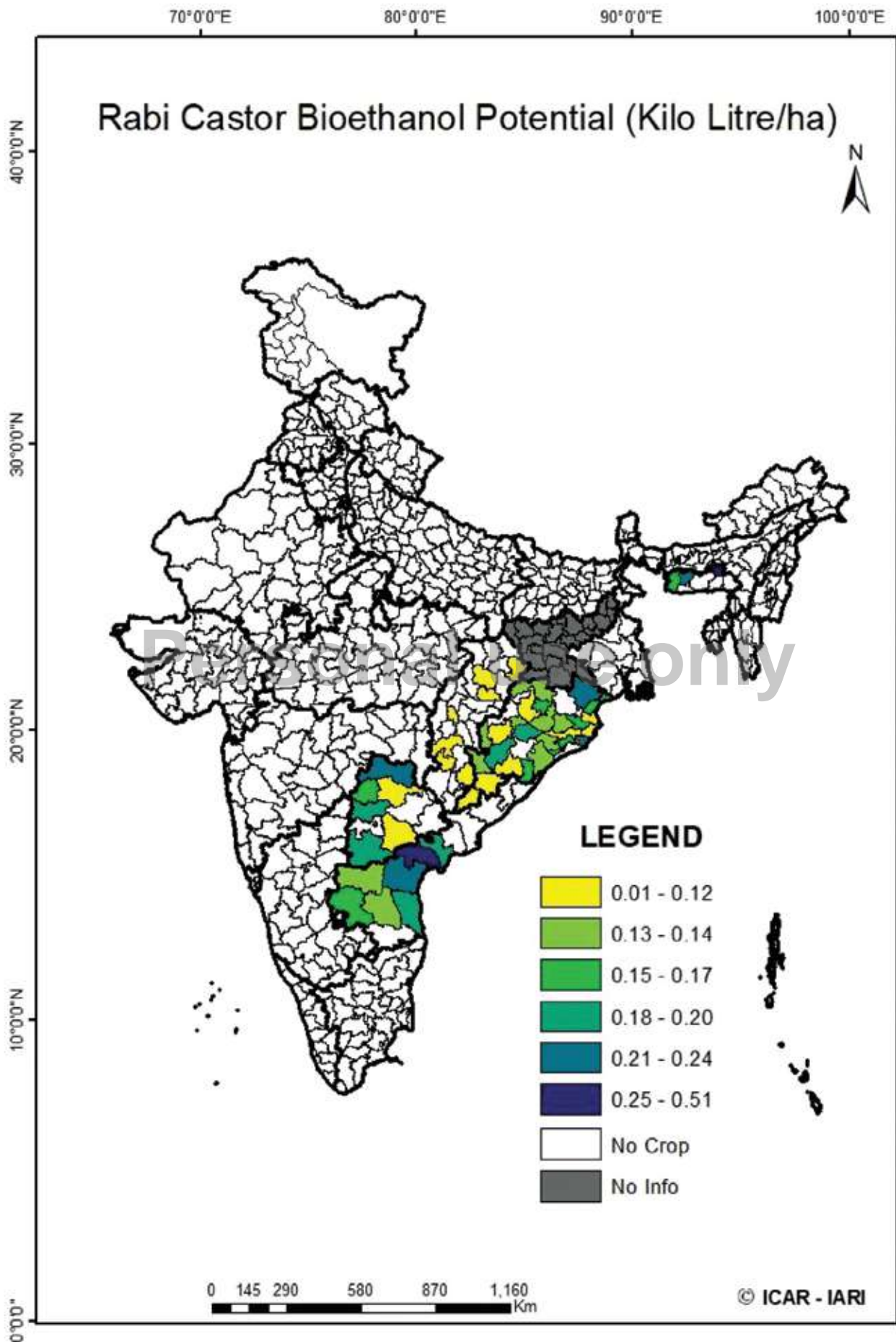












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# ANNEXURE - 2

## Questionnaire

(1) Village and Block

(2) District, State

Parameter	Crop 1	Crop 2	Crop 3	Crop 4
Crop name				
Area (acre)				
Yield (q/ac)				
Mode of harvesting (Manual/Harvester/Combine)				
Usage of residue				
1. Packaging (%)				
2. Burned in field (%)				
3. Fodder (%)				
4. Fuel for cooking (%)				
5. Sold to other farmers/industry (%)				
6. Thatching (%)				
7. Bedding for animals (%)				
8. Crop residue incorporated/retained on the soil (%)				
9. Others (%)				
TOTAL				

**Note: Used in DST ; NICRA project; IARI MGMG program; Maya MSc Work**

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## ANNEXURE - 3

### Districtwise seasonwise data tables for selected crops

Notations used in the districts table			
No Crop	-1		
No surplus/BE	0		
No information	Blank		
Kh	Kharif		
rb	Rabi		
sum	Summer		
Tot	Total		
Cot	Cotton		
RM	Rapeseed Mustard		
GN	Ground nut		
Area	Area	000 ha	
Db	dry biomass	kt	kilo tons
SB	Surplus biomass	kt	kilo tons
BE	bioethanol	ML	Million litres
t_ha	Tons per ha		
kL_ha	kiloLitres per ha		







# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor		
Bihar	Golaghat	0.3	0.1	0.1	0.1	0.1	0.1	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Hailakandi	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Jorhat	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Kamrup Metro	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Kamrup Rural	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Karbi Anglong	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Karimganj	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Kokrajhar	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Lakhimpur	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Margaon	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Nagaon	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Nalbari	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	North Cachar Hills	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Sibsagar	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Sonitpur	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Tinsukia	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Udalguri	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Arariya	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	-1.0	0.4	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	-1.0
	Arwal	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Aurangabad	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	0.1	-1.0
Banka	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	0.1	-1.0	
Begusarai	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	0.1	-1.0	
Bhabua	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	0.1	-1.0	

Bhagalpur	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Bhojpur	0.0	0.2	0.2	0.0	0.1	0.0	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Buxar	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	-1.0	0.3	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Darbhanga	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Gaya	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Gopalganj	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Jahanaabad	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Jamui	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Katihar	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Khagaria	0.9	0.3	0.2	0.5	0.1	0.0	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Kishanganj	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Lakhisarai	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Madhepura	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Madhubani	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Munger	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Muzaffarpur	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Nalanda	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Nawada	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Pashchim Champaran	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Patna	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Purbi Champaran	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Purnia	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Rohtas	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.3	-1.0	0.4	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor	
Chhattisgarh	Saharsa	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Samas-tipur	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Saran	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Sheikhpura	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Sheohar	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Sitamarhi	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Siwan	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Supaul	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Vaishali	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
	Chandigarh	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.3	-1.0	0.4	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	0.1	-1.0
Chhattisgarh	Balod	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Baloda Bazar	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Balrampur	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Bastar	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Bemetara	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Bijapur	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Bilaspur	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Dantewara	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	DhamTari	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Durg	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
Chhattisgarh	Gariyaband	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Janjir-Champa	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Jashpur	0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
		0.1	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0



	Kabirdham	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Kanker	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Konda-gaon	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Korba	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Korea	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Ma-hasam-und	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Mungeli	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Narain-pur	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Raigarh	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Raipur	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Raj Nand-gaon	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Sukma	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Surajpur	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
	Surguja	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
Dadar & Nagar Haveli	Dadar & Nagar Haveli	0.1	-1.0	-1.0	0.2	0.1	0.0	0.4	0.3	0.6	0.3	1.0	0.0	-1.0	-1.0	0.1	-1.0	-1.0	0.2	0.0
Daman & Diu	Daman	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.0	0.1	-1.0	-1.0	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0	-1.0
Delhi	Diu	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Central	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	East																			
	New Delhi																			
	North																			
	North East																			
	North West																			
	Delhi																			

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice	Wheat	Maize	Sugarcane	Gram	Tur	Soybean	Mustard	Cotton	Groundnut	Castor	
	Shahadra												
	South												
	South East												
	South West												
	Delhi												
	West Delhi												
Goa	North Goa												
	South Goa	0.3	-1.0	-1.0	0.4	-1.0	-1.0	-1.0	-1.0	-1.0	0.1	0.0	0.0
Gujarat	Ahmada-bad	0.3	-1.0	-1.0	0.4	-1.0	-1.0	-1.0	-1.0	-1.0	0.1	0.0	0.0
	Amreli	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Anand	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Aravalli	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Banas Kantha	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Bharuch	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Bhavna-gar	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Botad	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Chhota Udepur	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Dahod	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Dangs	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Devbhumi Dwarka	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0
	Gandhinagar	0.3	-1.0	0.3	0.4	0.8	0.2	0.3	0.3	-1.0	0.2	0.8	-1.0

	Gir Somnath	0.3	-1.0	0.3	0.3	0.3	0.3	0.3	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Jamnagar	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Junagadh	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Kachchh	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Kheda	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Mahesana	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Mahisagar	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Morbi	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Narmada	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Navsari	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Panch Mahals	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Patan	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Porbandar	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Rajkot	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Sabar Kantha	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Surat	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Suren- dranagar	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Tapi	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Vadodara	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Valsad	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
	Ambala	0.3	-1.0	0.3	0.3	0.3	0.4	0.8	0.4	0.8	0.2	0.3	0.3	0.3	0.3	-1.0	-1.0	0.2	0.2	0.8	-1.0
Haryana	Bhiwani	0.3	-1.0	-1.0	0.1	0.1	0.4	0.4	0.4	0.4	0.2	0.0	0.8	0.9	0.9	-1.0	-1.0	-1.0	-1.0	0.8	-1.0
	Faridabad	0.3	-1.0	-1.0	0.1	0.1	0.4	0.4	0.4	0.4	0.2	0.0	0.8	0.9	0.9	-1.0	-1.0	-1.0	-1.0	0.8	-1.0
	Fatehabad	0.5	-1.0	-1.0	0.1	0.1	0.4	0.4	0.4	0.4	0.2	0.0	0.8	0.9	0.9	-1.0	-1.0	-1.0	-1.0	0.8	-1.0
	Gurugram	0.5	-1.0	-1.0	0.1	0.1	0.4	0.4	0.4	0.4	0.2	0.0	0.8	0.9	0.9	-1.0	-1.0	-1.0	-1.0	0.8	-1.0
	Hisar	0.1	-1.0	-1.0	0.1	0.1	0.4	0.4	0.4	0.4	0.2	0.0	0.8	0.9	0.9	-1.0	-1.0	-1.0	-1.0	0.8	-1.0
	Jhajjar	0.3	-1.0	-1.0	0.1	0.1	0.4	0.4	0.4	0.4	0.2	0.0	0.8	0.9	0.9	-1.0	-1.0	-1.0	-1.0	0.8	-1.0
	Jind	0.3	-1.0	-1.0	0.1	0.1	0.4	0.4	0.4	0.4	0.2	0.0	0.8	0.9	0.9	-1.0	-1.0	-1.0	-1.0	0.8	-1.0

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor		
Hi-machal Pradesh	Kaithal	0.3	-1.0	-1.0	0.1	0.1	-1.0	0.4	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Karnal	0.2	-1.0	-1.0	0.1	0.1	-1.0	0.4	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Kurukshetra	0.0	-1.0	-1.0	0.1	0.1	-1.0	0.2	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Mahendragarh	0.2	-1.0	-1.0	0.1	0.1	-1.0	0.3	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Mewat	0.0	-1.0	-1.0	0.0	0.1	-1.0	0.3	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Palwal	0.0	-1.0	-1.0	0.0	0.1	-1.0	0.3	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Panchkula	0.0	-1.0	-1.0	0.0	0.1	-1.0	0.3	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Panipat	0.1	-1.0	-1.0	0.0	0.1	-1.0	0.3	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Rewari	0.1	-1.0	-1.0	0.1	0.1	-1.0	0.3	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Rohtak	0.8	-1.0	-1.0	0.1	0.1	-1.0	0.4	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Sirsa	0.1	-1.0	-1.0	0.1	0.1	-1.0	0.4	0.4	0.2	0.0	0.6	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Sonapat	0.9	-1.0	-1.0	0.1	0.1	-1.0	0.4	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Yamunanagar	0.1	-1.0	-1.0	0.1	0.1	-1.0	0.4	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Bilaspur	0.3	-1.0	-1.0	0.1	0.1	-1.0	0.4	0.4	0.2	0.0	0.8	0.9	-1.0	-1.0	0.2	-1.0	-1.0	0.8	-1.0
	Chamba	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
	Hamirpur	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
	Kangra	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
	Kinnaur	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
	Kullu	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
	Lahul & Spiti	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
Mandi	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	
Shimla	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	
Sirmaur	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	
Solan	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	
Una	0.6	-1.0	-1.0	0.2	0.4	-1.0	0.4	0.4	-1.0	0.2	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	



Jammu & Kashmir	Anantnag	0.6	-1.0	-1.0	0.2	0.4	0.4	-1.0	0.2	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Baramulla	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Chilas	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Gilgit	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Gilgit Wazarat	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Jammu	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Kathua	0.1	-1.0	-1.0	0.1	0.0	0.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Leh And Ladakh	0.1	-1.0	-1.0	0.1	0.0	0.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Mirpur	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Muzaf-farabad	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Punch	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Riasi	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Tribal Territory	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Udham-pur	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Jharkhand	Bokaro	0.1	-1.0	-1.0	0.1	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Chatra	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Devgarh	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Dhanbad	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Dumka	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Garhwa	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Giridih	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Godda	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Gumla	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Hazarib-agh	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	JaMTara	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Khunti	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Kodarma	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Latehar	0.2	-1.0	-1.0	0.1	0.4	0.8	0.1	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor	
Karnataka	Lohardaga	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Pakur	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Palamu	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Pashchimi Singhbhum	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Purbi Singhbhum	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Ramgarh	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Ranchi	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Sahibganj	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Saraikela Kharasawan	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Simdega	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Bagalkot	0.2	-1.0	0.1	0.1	-1.0	0.4	0.8	0.1	0.3	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Ballari	0.1	0.1	0.1	0.4	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.0
	Belagavi	0.1	0.1	0.1	0.4	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.0
	Bengaluru Rural	0.1	0.1	0.1	0.4	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.0
	Bengaluru Urban	0.1	0.1	0.1	0.4	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.0
Bidar	0.1	0.1	0.1	0.4	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.0	
Chamarajanagar	0.1	0.1	0.1	0.4	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.0	
Chikbalapur	0.1	0.1	0.1	0.4	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.0	
Chikmagalur	0.1	0.1	0.1	0.4	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.0	

Chitradurga	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
DakshinKannada	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Davan-gere	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Dharwad	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Gadag	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Hassan	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Haveri	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Kalabur-agi	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Kodagu	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Kolar	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Koppal	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Mandhya	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Mysuru	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Raichur	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Ramnagar	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Shiva-mogga	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Tumak-uru	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Udupi	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
UttarKannada	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Vijay-apura	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Yadgir	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Kerala	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Alappu-zha	0.1	0.1	0.1	0.1	0.4	0.2	0.8	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.0
Ernakulam	0.1	0.1	0.1	0.1	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Idukki	0.1	0.1	0.1	0.1	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Kannur	0.1	0.1	0.1	0.1	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice			Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor			
		0.1	0.1	0.1		-1.0	-1.0						-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Lakshadweep	Kasargod	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Kollam	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Kottayam	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Kozhikod	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Malappuram	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Palakkad	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Pattanamittia	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Thiruvananthapuram	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Thrissur	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Wayanad	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Lakshadweep	0.1	0.1	0.1	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Madhya Pradesh	Agar Malwa																				
		Alirajpur	0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0	
		Anuppur	0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0	
Ashoknagar		0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0		
Balaghat		0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0		
Barwani		0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0		
Betul		0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0		
Bhind		0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0		
Bhopal		0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0		
Burhanpur		0.1	-1.0	-1.0	0.4	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0		
Chhatarpur	0.1	-1.0	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	-1.0	0.1	-1.0	-1.0	0.3	-1.0			



Chhindwara	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Damah	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Datia	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Dewas	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Dhar	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Dindori	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
East Nimar	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Guna	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Gwalior	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Harda	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Hoshangabad	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Indore	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Jabalpur	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.1	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Jhabua	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Katni	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Mandla	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Mandsaur	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Morena	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Narsinghpur	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Nimach	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Panna	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Raisen	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Rajgarh	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Ratlam	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Rewa	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Sagar	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Satna	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Sehore	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0
Seoni	0.1	-1.0	-1.0	0.1	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	-1.0	0.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.3	-1.0

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton		Groundnut		Castor	
		0.1	-1.0		0.2	0.1						-1.0	0.1	0.1	-1.0	0.1	-1.0
Maharashtra	Shahdol	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Shajapur	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Sheopur	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Shivpuri	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Sidhi	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Singrauli	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.6	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Tikamgarh	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Ujjain	0.1	-1.0	0.3	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Umaria	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Vidisha	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	West Nimar	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Ahmadnagar	0.1	-1.0	0.2	0.1	-1.0	0.3	0.1	0.5	0.3	0.1	0.1	-1.0	0.1	-1.0	0.3	-1.0
	Akola	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0
	Amravati	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0
	Aurangabad	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0
	Bhandara	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0
	Bid	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0
	Buldhana	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0
Chandrapur	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0	
Dhule	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0	
Gadchiroli	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0	
Gondiya	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0	
Hingoli	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0	
Jalgaon	0.1	-1.0	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	0.1	0.1	0.3	-1.0	

Jalna	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Kolhapur	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Latur	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Mumbai City	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Nagpur	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Nanded	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Nandurbar	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Nasik	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Osmanabad	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Palghar	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Parbhani	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Pune	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Raigarh	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Ratnagiri	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Sangli	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Satara	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Sindhudurg	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Solapur	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Suburban Mumbai	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Thane	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Wardha	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Washim	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Yavatmal	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Bishnupur	0.1	-1.0	-1.0	0.3	0.3	0.3	0.8	0.1	0.5	0.1	0.4	-1.0	-1.0	0.1	0.1	0.1	0.3	-1.0
Chandel	0.8	0.0	0.5	0.1	0.7	0.7	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0
Churachandpur	0.0	0.0	0.0	0.1	0.7	0.7	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor		
Meghalaya	Imphal East	0.0	0.0	0.1	0.7	0.7	0.4	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
	Imphal West	0.8	0.0	0.1	0.7	0.7	0.4	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
	Senapati	0.8	0.0	0.1	0.7	0.7	0.4	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
	Tamenglong	0.0	0.0	0.1	0.7	0.7	0.4	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
	Thoubal	0.0	0.0	0.1	0.7	0.7	0.4	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
	Ukhrul	0.8	0.0	0.1	0.7	0.7	0.4	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
	East Garo Hills	0.0	0.0	0.1	0.7	0.7	0.4	0.9	0.5	-1.0	0.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
	East Khasi Hills	0.3	0.3	0.1	0.7	-1.0	0.3	0.9	0.5	0.6	0.0	0.1	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	0.3	-1.0
	Jaintia Hills	0.3	0.3	-1.0	0.7	-1.0	0.3	0.9	0.5	0.6	0.0	0.1	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
	Ri Bhoi	0.3	0.3	-1.0	0.7	-1.0	0.3	0.9	0.5	0.6	0.0	0.1	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
Mizoram	South Garo Hills	0.3	0.3	0.1	0.7	-1.0	0.3	0.9	0.5	0.6	0.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	0.3	-1.0
	West Garo Hills	0.3	0.3	-1.0	0.7	-1.0	0.3	0.9	0.5	0.6	0.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	West Khasi Hills	0.3	0.3	-1.0	0.7	-1.0	0.3	0.9	0.5	0.6	0.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	0.3	-1.0
	Aizawl	0.3	0.3	0.1	0.7	-1.0	0.3	0.9	0.5	0.6	0.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Champhai	0.5	0.1	-1.0	0.7	0.7	0.4	-1.0	-1.0	0.6	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Kolasib	0.5	0.1	-1.0	0.7	0.7	0.4	-1.0	-1.0	0.6	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Lawngtlai	0.5	0.1	-1.0	0.7	0.7	0.4	-1.0	-1.0	0.6	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Lunglei	0.5	0.1	-1.0	0.7	0.7	0.4	-1.0	-1.0	0.6	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Mamit	0.5	0.1	-1.0	0.7	0.7	0.4	-1.0	-1.0	0.6	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Saiha	0.5	0.1	-1.0	0.7	0.7	0.4	-1.0	-1.0	0.6	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Serchhip	0.5	0.1	-1.0	0.7	0.7	0.4	-1.0	-1.0	0.6	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	



Na-galand	Dimapur	0.5	0.1	-1.0	-1.0	0.0	0.7	0.7	0.4	-1.0	-1.0	0.6	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Kiphire	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Kohima	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Longleng	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Mokokchung	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Mon	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Peren	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Phek	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Tuensang	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Wokha	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Zunheboto	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Odisha	Angul	0.1	0.1	-1.0	0.0	0.0	0.1	0.1	0.3	0.9	0.4	0.2	0.0	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	0.6	0.6	-1.0	-1.0	-1.0
	Balangir	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3
Baleswar	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Baragarh	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Bhadrak	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Boudh	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Cuttack	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Deogarh	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Dhenkanal	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Gajapati	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Ganjam	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Jagatsinghpur	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Jajpur	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Jharsuguda	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Kalahandi	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	
Kandhamal	0.1	0.2	0.1	0.0	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	-1.0	-1.0	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice			Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor			
		0.1	0.2	0.1		0.2	0.2						-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.1
	Kendrapara	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Kendujhar	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Khordha	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Koraput	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Malkangiri	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Mayurbhanj	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Nabarangpur	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Nayagarh	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Nuapada	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Puri	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Rayagada	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Samalpur	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Subarnapur	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Sundergarh	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3	
	Puducherry	Karaikal	0.1	0.2	0.1	0.0	0.2	-1.0	0.2	0.1	0.3	-1.0	0.2	0.1	0.1	-1.0	0.1	0.1	0.1	0.1	0.3	0.3
		Mahe	0.1	0.1	-1.0	-1.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.1	0.1	-1.0	0.0	0.1	0.1	0.1	-1.0	-1.0
Puducherry		0.1	0.1	-1.0	-1.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.1	0.1	-1.0	0.0	0.1	0.1	0.1	-1.0	-1.0	
Yanam		0.1	0.1	-1.0	-1.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.1	0.1	-1.0	0.0	0.1	0.1	0.1	-1.0	-1.0	
Punjab	Amritsar	0.1	0.1	-1.0	-1.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	0.1	0.1	-1.0	0.0	0.1	0.1	0.1	-1.0	-1.0	
	Barnala	0.8	-1.0	-1.0	0.5	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	0.9	-1.0	0.2	-1.0	-1.0	-1.0	-1.0		
	Bathinda	0.5	-1.0	-1.0	0.3	0.3	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	0.9	-1.0	0.2	-1.0	-1.0	-1.0	-1.0		
	Faridkot	0.9	-1.0	-1.0	0.3	0.3	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	0.9	-1.0	0.2	-1.0	-1.0	-1.0	-1.0		

	Fatehgarh Sahib	0.9	-1.0	-1.0	-1.0	0.3	0.3	0.3	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Fazilka	0.6	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Firozpur	0.7	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Gurdaspur	0.9	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Hoshiarpur	0.5	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Jalandhar	0.9	-1.0	-1.0	0.3	0.7	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Kapurthala	0.8	-1.0	-1.0	0.6	0.4	0.3	0.3	-1.0	0.3	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Ludhiana	0.7	-1.0	-1.0	0.6	0.1	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Mansa	0.9	-1.0	-1.0	0.4	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Moga	0.3	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Muktsar	0.9	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Na-wahahr	0.5	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Pathankot	0.6	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Patiala	0.5	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Rupnagar	0.9	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Sangrur	0.5	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Sas Nagar	0.9	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Tarn Taran	0.5	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Ajmer	0.3	-1.0	-1.0	0.3	0.3	0.3	0.4	-1.0	0.4	0.9	0.3	-1.0	0.9	0.9	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Alwar	0.0	-1.0	-1.0	0.0	0.0	0.0	0.4	-1.0	0.4	0.3	0.2	0.0	0.3	0.5	-1.0	-1.0	0.4	-1.0	-1.0	-1.0	0.0	0.0	-1.0
	Banswara	0.0	-1.0	-1.0	0.0	0.0	0.0	0.4	-1.0	0.4	0.3	0.2	-1.0	0.0	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	0.0	0.0	-1.0
	Baran	0.0	-1.0	-1.0	0.0	0.0	0.0	0.4	-1.0	0.4	0.3	0.2	0.3	0.0	0.9	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	0.0	0.0	-1.0
	Barmer	0.0	-1.0	-1.0	0.0	0.0	0.0	0.4	-1.0	0.4	0.3	0.2	0.6	0.0	0.0	-1.0	-1.0	0.4	-1.0	-1.0	-1.0	0.0	0.0	-1.0
	Bharatpur	-1.0	-1.0	-1.0	0.0	0.0	0.0	0.4	-1.0	0.4	0.0	0.2	-1.0	0.9	0.0	-1.0	-1.0	0.6	-1.0	-1.0	-1.0	0.4	0.0	-1.0
	Bhilwara	0.0	-1.0	-1.0	0.0	0.0	0.0	0.4	-1.0	0.4	0.3	0.2	0.0	0.5	0.4	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	0.0	0.0	-1.0
	Bikaner	0.0	-1.0	-1.0	0.0	0.0	0.0	0.4	-1.0	0.4	0.3	0.2	0.4	0.6	0.8	-1.0	-1.0	0.4	-1.0	-1.0	-1.0	0.0	0.0	-1.0
	Bundi	0.0	-1.0	-1.0	0.0	0.0	0.0	0.4	-1.0	0.4	0.3	0.2	-1.0	0.4	0.7	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	0.0	0.0	-1.0
Rajasthan																								

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor		
	Chittaurgarh	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.4	0.4	0.0	-1.0	-1.0	0.2	-1.0	-1.0	0.0	0.0	-1.0
	Churu	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.4	0.5	0.6	-1.0	-1.0	0.3	-1.0	-1.0	0.0	0.0	-1.0
	Dausa	-1.0	-1.0	0.0	-1.0	-1.0	0.4	0.3	0.2	-1.0	0.8	0.0	-1.0	-1.0	0.4	-1.0	-1.0	0.0	0.0	-1.0
	Dholpur	-1.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.2	0.0	-1.0	-1.0	0.4	-1.0	-1.0	0.0	0.0	-1.0
	Dungarpur	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.7	0.0	-1.0	-1.0	0.0	-1.0	-1.0	0.0	0.0	-1.0
	Gangana- gar	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.3	0.6	0.9	-1.0	-1.0	0.0	-1.0	-1.0	0.5	0.5	-1.0
	Hanu- mangarh	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	-1.0	0.0	0.4	-1.0	-1.0	0.4	-1.0	-1.0	0.0	0.0	-1.0
	Jaipur	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.0	0.3	-1.0	-1.0	0.5	-1.0	-1.0	0.3	0.3	-1.0
	Jaisalmer	-1.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.0	0.0	-1.0	-1.0	0.4	-1.0	-1.0	0.0	0.0	-1.0
	Jalor	-1.0	-1.0	0.0	-1.0	-1.0	0.4	0.3	0.2	-1.0	0.9	0.5	-1.0	-1.0	0.6	-1.0	-1.0	0.0	0.0	-1.0
	Jhalawar	-1.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	-1.0	0.0	0.3	-1.0	-1.0	0.3	-1.0	-1.0	0.4	0.4	-1.0
	Jhunjhu- nun	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.3	0.9	0.0	-1.0	-1.0	0.6	-1.0	-1.0	-1.0	-1.0	-1.0
	Jodhpur	-1.0	-1.0	0.0	-1.0	-1.0	0.4	0.3	0.2	0.0	0.3	0.7	-1.0	-1.0	0.1	-1.0	-1.0	0.0	0.0	-1.0
	Karauli	-1.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	-1.0	0.9	0.9	-1.0	-1.0	0.4	-1.0	-1.0	0.4	0.4	-1.0
	Kota	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.9	0.0	-1.0	-1.0	0.6	-1.0	-1.0	0.0	0.0	-1.0
	Nagaur	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.0	0.0	-1.0	-1.0	0.0	-1.0	-1.0	0.0	0.0	-1.0
	Pali	-1.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	-1.0	0.0	0.5	-1.0	-1.0	0.3	-1.0	-1.0	0.0	0.0	-1.0
	Pratap- garh	-1.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.8	0.8	-1.0	-1.0	0.4	-1.0	-1.0	0.5	0.5	-1.0
	Rajsa- mand	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.4	0.8	0.8	-1.0	-1.0	0.4	-1.0	-1.0	0.0	0.0	-1.0
	Sawai Mad- hopur	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.5	0.7	-1.0	-1.0	0.4	-1.0	-1.0	-1.0	-1.0	-1.0
	Sikar	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.9	0.0	-1.0	-1.0	0.4	-1.0	-1.0	-1.0	-1.0	-1.0
	Sirohi	-1.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	0.0	0.2	0.0	-1.0	-1.0	0.4	-1.0	-1.0	0.0	0.0	-1.0
	Tonk	0.0	-1.0	0.0	0.0	-1.0	0.4	0.3	0.2	-1.0	0.8	0.5	-1.0	-1.0	0.3	-1.0	-1.0	0.5	0.5	-1.0



	Udaipur	0.0	-1.0	-1.0	0.0	0.0	0.4	0.3	0.2	0.0	0.2	0.7	-1.0	-1.0	0.3	-1.0	-1.0	0.0	-1.0
Sikkim	East	0.0	-1.0	-1.0	0.0	0.0	0.4	0.3	0.2	0.3	0.6	0.7	-1.0	-1.0	0.4	-1.0	-1.0	0.0	-1.0
	North	0.1	-1.0	-1.0	0.1	0.1	-1.0	-1.0	-1.0	0.2	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	South	0.1	-1.0	-1.0	0.1	0.1	-1.0	-1.0	-1.0	0.2	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	West	0.1	-1.0	-1.0	0.1	0.1	-1.0	-1.0	-1.0	0.2	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Tamil Nadu	Ariyalur	0.1	-1.0	-1.0	0.1	0.1	-1.0	-1.0	-1.0	0.2	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Chennai	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Coimbatore	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Cuddalore	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Dharampuri	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Dindigul	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Erode	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Kanchipuram	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Kanyakumari	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Karur	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Krishnagiri	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Madurai	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Nagapattinam	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
	Namakkal	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0
Nilgiri	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0	
Perambalur	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0	
Pudukkottai	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0	
Ramanathapuram	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0	
Salem	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0	
Sivaganga	0.1	-1.0	-1.0	0.0	0.3	0.4	0.3	0.3	-1.0	0.1	0.3	0.3	-1.0	0.7	-1.0	-1.0	0.5	-1.0	

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor	
Telangana	Teni	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Thanjavur	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Thiruvavur	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Tiruchirappalli	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Tirunelveli	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Tiruppur	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Tiruvallur	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Tiruvannamalai	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Tuticorin	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Vellore	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Villupuram	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Virudhunagar	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Adilabad	0.1	-1.0	0.0	0.3	0.3	0.4	0.3	0.3	0.3	-1.0	0.3	0.3	-1.0	0.7	0.7	-1.0	0.5	-1.0
	Hyderabad	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.7	-1.0	0.3	0.3	-1.0	0.4	0.4
Karimnagar	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.7	-1.0	0.3	0.3	-1.0	0.4	0.4	
Khammam	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.7	-1.0	0.3	0.3	-1.0	0.4	0.4	
Mahabubnagar	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.7	-1.0	0.3	0.3	-1.0	0.4	0.4	
Medak	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.7	-1.0	0.3	0.3	-1.0	0.4	0.4	
Nalgonda	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.7	-1.0	0.3	0.3	-1.0	0.4	0.4	
Nizamabad	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.7	-1.0	0.3	0.3	-1.0	0.4	0.4	

	Ranga Reddy	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.3	0.7	-1.0	-1.0	0.3	0.3	-1.0	0.4	0.4
Tripura	Warangal	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.3	0.7	-1.0	-1.0	0.3	0.3	-1.0	0.4	0.4
	Dhalai	0.1	0.1	-1.0	0.0	0.1	0.1	0.8	0.3	0.3	0.3	0.3	0.3	0.7	-1.0	-1.0	0.3	0.3	-1.0	0.4	0.4
	Gomati	0.1	0.1	-1.0	0.0	0.1	-1.0	0.4	0.0	0.3	-1.0	0.0	0.0	0.1	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
	Khowai	0.1	0.1	-1.0	0.0	0.1	-1.0	0.4	0.0	0.3	-1.0	0.0	0.0	0.1	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
	North Tripura	0.1	0.1	-1.0	0.0	0.1	-1.0	0.4	0.0	0.3	-1.0	0.0	0.0	0.1	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
	Sepahijala	0.1	0.1	-1.0	0.0	0.1	-1.0	0.4	0.0	0.3	-1.0	0.0	0.0	0.1	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
	South Tripura	0.1	0.1	-1.0	0.0	0.1	-1.0	0.4	0.0	0.3	-1.0	0.0	0.0	0.1	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
	Unokoti	0.1	0.1	-1.0	0.0	0.1	-1.0	0.4	0.0	0.3	-1.0	0.0	0.0	0.1	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
	West Tripura	0.1	0.1	-1.0	0.0	0.1	-1.0	0.4	0.0	0.3	-1.0	0.0	0.0	0.1	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
	Agra	0.1	0.1	-1.0	0.0	0.1	-1.0	0.4	0.0	0.3	-1.0	0.0	0.0	0.1	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
Uttar Pradesh	Aligarh	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Allahabad	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Ambekarnagar	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Amethi	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Amroha	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Auraiya	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Azamgarh	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Badaun	0.2	-1.0	-1.0	0.2	0.0	0.0	0.0	0.3	0.1	0.2	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Baghpat	0.3	-1.0	-1.0	0.0	0.4	0.4	0.1	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
	Bahraich	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0
Ballia	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	
Balrampur	0.1	0.4	-1.0	0.2	0.4	0.4	0.4	0.3	0.1	-1.0	0.3	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	
Banda	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	
Barabanki	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor			
	Bareilly	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Basti	0.3	-1.0	0.3	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Bhadohi	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Bijnor	0.6	-1.0	0.1	0.4	0.4	0.4	0.0	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Bulandshahr	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Chandauli	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Chitrakoot	0.5	-1.0	0.5	0.3	0.3	0.4	0.5	0.9	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Deoria	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Etah	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Etawah	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Faizabad	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Farrukhabad	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Fatehpur	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Firozabad	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Gautambudhgar	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Gazipur	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Ghaziaabad	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Gonda	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Gorakhpur	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Hamirpur	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Hapur	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Hardoi	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Hathras	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Jalaun	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0



Jaunpur	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Jhansi	0.7	-1.0	-1.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.9	-1.0	0.0	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Kannauj	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Kanpur	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Kanpur Dehat	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Kasganj	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Kaushambi	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Kheri	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Kushinagar	0.2	-1.0	-1.0	0.8	0.4	0.4	0.2	0.3	0.3	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Lalitpur	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Lucknow	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Maharajganj	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Mahoba	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Mainpuri	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Mathura	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Mau	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Meerut	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Mirzapur	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Moradabad	0.3	-1.0	-1.0	0.3	0.1	0.1	0.0	0.1	0.0	0.1	0.3	-1.0	0.1	0.3	-1.0	-1.0	0.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Muzafarnagar	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Pilibhit	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Pratapgarh	0.6	-1.0	-1.0	0.3	0.4	0.4	0.8	0.3	0.3	0.3	0.1	0.2	0.2	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Rae Bareli	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Rampur	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Saharanpur	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Sambhal	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Santkabirnagar	0.3	-1.0	-1.0	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice		Wheat	Maize		Sugarcane	Gram	Tur	Soybean	Mustard	Cotton			Groundnut			Castor							
		0.3	-1.0		-1.0	-1.0						0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0
Uttarakhand	Shahjahanpur	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0					
	Shamali	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0				
	Shrawasti	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			
	Siddharthnagar	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
	Sitapur	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
	Sonbhadra	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.3	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Sultanpur	0.5	-1.0	0.3	0.4	0.4	0.4	0.0	0.1	-1.0	0.0	0.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Unnao	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
	Varanasi	0.3	-1.0	0.1	0.4	0.4	0.4	0.3	0.1	-1.0	0.1	0.1	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Almora	0.1	-1.0	0.1	0.2	0.2	0.1	0.0	0.1	-1.0	0.0	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Bageshwar	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Chamoli	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Champawat	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Dehradun	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Haridwar	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Nainital	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Pauri Garhwal	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Pithoragarh	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Rudrapur	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Tehri Garwal	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Udham Singh Nagar	0.2	0.2	-1.0	0.4	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

	Ut-tarkashi	0.2	0.2	-1.0	0.1	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
West Bengal	Alipurduar	0.2	0.2	-1.0	0.1	0.4	0.4	0.2	0.2	0.2	0.5	0.2	-1.0	-1.0	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
	Bankura	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Bardhaman	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Birbhum	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Dakshin-dinajpur	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Darjeeling	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Eastmedinipur	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Haora	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Hugli	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Jalpaiguri	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Kochbihar	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Kolkata	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Malda	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Mursidabad	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Nadia	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	North 24 Pargana	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Pashchim Medinipur	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Puruliya	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	South 24 Parganas	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Uttar_Dinajpur	0.1	0.1	0.0	0.1	0.1	0.1	-1.0	0.4	0.1	0.0	0.1	0.1	-1.0	-1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
<b>All India Total</b>		<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>-1.0</b>	<b>0.4</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>-1.0</b>	<b>-1.0</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>-1.0</b>

Table 37: Districtwise rice crop area, dry and surplus biomass generator and its bioethanol potential in different growing seasons

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil_lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil_lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil_lion L
Andaman & Nicobar	Nicobar	0.003	0.014	0.001	0.0002	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	North & Middle Andaman	6.894	30.805	1.525	0.4178	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	South Andaman	0.583	2.644	0.131	0.0359	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	Ananthapur	29.104	158.004	12.514	3.4288	26.530	177.221	14.036	3.8458	-1.00	-1.00	-1.00	-1.00
	Chittoor	15.365	102.303	8.102	2.2201	116.729	1093.899	86.637	23.7385	-1.00	-1.00	-1.00	-1.00
	Cuddapah	43.732	242.668	19.219	5.2661	37.358	297.533	23.565	6.4567	-1.00	-1.00	-1.00	-1.00
	East Godavari	225.723	1039.857	82.357	22.5657	79.740	727.326	57.604	15.7836	-1.00	-1.00	-1.00	-1.00
	Guntur	252.646	1754.963	138.993	38.0841	18.145	123.737	9.800	2.6852	-1.00	-1.00	-1.00	-1.00
	Krishna	255.185	1722.874	136.452	37.3877	134.548	1132.300	89.678	24.5718	-1.00	-1.00	-1.00	-1.00
	Kurnool	90.577	662.143	52.442	14.3690	11.749	74.536	5.903	1.6175	-1.00	-1.00	-1.00	-1.00
	Nellore	54.270	407.219	32.252	8.8370	201.213	1664.806	131.853	36.1276	-1.00	-1.00	-1.00	-1.00
	Prakasam	39.124	279.644	22.148	6.0685	93.650	689.632	54.619	14.9656	-1.00	-1.00	-1.00	-1.00
	Srikakulam	205.031	771.713	61.120	16.7468	4.638	22.100	1.750	0.4796	-1.00	-1.00	-1.00	-1.00
Arunachal Pradesh	Vishakhapatnam	103.068	343.446	27.201	7.4531	4.940	12.751	1.010	0.2767	-1.00	-1.00	-1.00	-1.00
	Vizianagaram	119.472	611.687	48.446	13.2741	4.166	26.926	2.133	0.5843	-1.00	-1.00	-1.00	-1.00
	West Godavari	242.223	1263.485	100.068	27.4186	161.944	1522.964	120.619	33.0495	-1.00	-1.00	-1.00	-1.00
	Anjaw	3.624	6.041	0.598	0.1639	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Changlang	9.642	40.689	4.028	1.1037	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Assam	Dibang Valley	1.651	2.907	0.288	0.0788	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	East Kameng	8.674	17.323	1.715	0.4699	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00



East Siang	16.035	54.480	5.393	1.4778	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kurung Kumey	0.264	0.759	0.075	0.0206	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Lohit	11.866	45.242	4.479	1.2272	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Lower Dibang Valley	12.500	31.420	3.111	0.8523	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Lower Subansiri	8.155	23.189	2.296	0.6290	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Papum-Pare	10.327	38.485	3.810	1.0440	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Tawang	0.809	1.968	0.195	0.0534	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Tirap	5.101	9.622	0.953	0.2610	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Upper Siang	6.635	17.241	1.707	0.4677	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Upper Subansiri	4.591	15.184	1.503	0.4119	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
West Kameng	0.875	1.943	0.192	0.0527	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
West Siang	25.319	50.286	4.978	1.3641	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Baksa	10.933	32.785	8.114	2.2233	85.709	337.437	33.406	9.1533	3.3125	15.0947	1.4944	0.4095								
Barpeta	22.166	34.707	8.590	2.3537	69.746	234.177	23.184	6.3523	50.3333	308.8129	30.5725	8.3769								
Bongaigaon	12.381	30.117	7.454	2.0424	35.048	120.353	11.915	3.2647	11.4730	71.9077	7.1189	1.9506								
Cachar	7.384	28.403	7.030	1.9261	89.873	392.139	38.822	10.6372	7.8890	28.7749	2.8487	0.7805								
Chirang	12.681	30.610	7.576	2.0758	35.845	113.161	11.203	3.0696	2.4747	13.0875	1.2957	0.3550								
Darrang	8.261	24.648	6.100	1.6715	49.041	213.803	21.167	5.7996	18.8578	126.3598	12.5096	3.4276								
Dhemaji	9.261	22.071	5.463	1.4968	67.389	207.957	20.588	5.6410	4.1603	13.5935	1.3458	0.3687								
Dhuburi	4.882	7.794	1.929	0.5286	34.139	110.403	10.930	2.9948	50.8332	364.4044	36.0760	9.8848								
Dibrugarh	0.200	0.578	0.143	0.0392	76.228	290.902	28.799	7.8910	0.5347	3.1868	0.3155	0.0864								
Goalpara	8.847	21.443	5.307	1.4541	49.795	211.510	20.939	5.7374	24.3372	151.7181	15.0201	4.1155								
Golaghat	2.121	8.187	2.026	0.5552	111.547	520.016	51.482	14.1059	5.1242	23.9042	2.3665	0.6484								
Hailakandi	4.075	17.106	4.234	1.1601	41.004	208.345	20.626	5.6516	2.8725	12.3775	1.2254	0.3358								
Jorhat	3.274	6.565	1.625	0.4452	83.391	354.872	35.132	9.6263	4.4852	13.2591	1.3127	0.3597								
Assam																				

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil-lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil-lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil-lion L	
Bihar	Kamrup Metro	1.054	2.993	0.741	0.2030	20.449	91.645	9.073	2.4860	8.0283	45.7272	4.5270	1.2404	
	Kamrup Rural	12.778	33.490	8.289	2.2711	69.673	296.154	29.319	8.0335	35.7720	210.5263	20.8421	5.7107	
	Karbi Ang-long	9.394	27.133	6.716	1.8400	116.267	398.194	39.421	10.8014	2.1340	9.2453	0.9153	0.2508	
	Karimganj	2.238	7.902	1.956	0.5359	67.797	287.216	28.434	7.7910	6.6263	23.8437	2.3605	0.6468	
	Kokrajhar	21.788	60.608	15.000	4.1101	65.380	233.162	23.083	6.3248	21.7047	113.6476	11.2511	3.0828	
	Lakhimpur	12.949	29.521	7.306	2.0019	109.939	460.391	45.579	12.4886	17.1587	63.7707	6.3133	1.7298	
	Marigaon	3.447	9.196	2.276	0.6236	42.935	172.469	17.074	4.6784	42.2257	254.1613	25.1620	6.8944	
	Nagaon	13.466	42.803	10.594	2.9027	137.192	528.797	52.351	14.3442	42.7097	241.3040	23.8891	6.5456	
	Nalbari	4.300	10.065	2.491	0.6826	63.733	266.912	26.424	7.2403	10.3262	59.8708	5.9272	1.6241	
	North Cachar Hills	6.364	21.627	5.353	1.4666	9.150	44.883	4.443	1.2175	0.0210	0.1228	0.0122	0.0033	
	Sibsagar	0.135	0.347	0.086	0.0235	96.046	438.711	43.432	11.9005	0.7405	4.4221	0.4378	0.1200	
	Sonitpur	22.475	68.595	16.977	4.6517	127.117	518.632	51.345	14.0684	20.8457	143.2330	14.1801	3.8853	
	Tinsukia	5.860	19.606	4.852	1.3295	57.057	209.875	20.778	5.6931	0.1317	0.7829	0.0775	0.0212	
	Udalguri	25.721	52.386	12.965	3.5525	62.468	222.008	21.979	6.0222	5.8208	31.5066	3.1192	0.8546	
	Arariya	20.839	73.893	14.631	4.0088	92.450	457.069	90.500	24.7969	16.8552	91.0839	18.0346	4.9415	
	Arwal	0.006	0.021	0.004	0.0011	25.730	162.358	32.147	8.8082					
	Aurangabad					157.620	1053.394	208.572	57.1488					
	Banka					93.044	607.717	120.328	32.9699					
	Begusarai	7.768	18.380	3.639	0.9971	17.722	59.656	11.812	3.2364	0.5373	2.6301	0.5208	0.1427	
Bhabua	0.213	0.456	0.090	0.0247	107.995	712.416	141.058	38.6500	-1.0000	-1.0000	-1.0000	-1.0000		
Bhagalpur	1.050	3.106	0.000	0.0000	30.931	147.790	29.262	8.0179	0.3898	1.8163	0.3596	0.0985		
Bhojpur	0.327	0.958	0.341	0.0936	97.982	637.029	126.132	34.5601	0.0053	0.0213	0.0042	0.0012		
Buxar	0.003	0.009	0.002	0.0005	74.853	448.895	88.881	24.3534	-1.0000	-1.0000	-1.0000	-1.0000		

Darbhanga	34.671	105.879	20.964	5.7441	38.710	125.905	24.929	6.8306	2.2718	8.9545	1.7730	0.4858
Gaya	0.394	1.392	0.276	0.0755	97.321	569.814	112.823	30.9135	0.0087	0.0337	0.0067	0.0018
Gopalganj	58.361	186.565	36.940	10.1215	28.567	109.065	21.595	5.9170	-1.0000	-1.0000	-1.0000	-1.0000
Jahanabad	-1.000	-1.000	-1.000	-1.000	46.446	189.604	37.542	10.2864	-1.0000	-1.0000	-1.0000	-1.0000
Jamui	0.025	0.066	0.013	0.0036	42.162	279.200	55.282	15.1472	-1.0000	-1.0000	-1.0000	-1.0000
Katihar	15.742	68.518	63.763	17.4711	56.914	331.617	82.075	22.4886	28.7463	154.2324	30.5380	8.3674
Khagaria	8.981	17.366	3.438	0.9421	12.811	53.805	10.653	2.9190	0.1634	0.7282	0.1442	0.0395
Kishan-ganj	1.980	5.174	1.025	0.2807	65.848	279.525	55.346	15.1648	12.9666	62.7877	12.4320	3.4064
Lakhisarai	-1.000	-1.000	-1.000	-1.000	13.585	83.099	16.454	4.5083	-1.0000	-1.0000	-1.0000	-1.0000
Madhep- ura	15.632	47.740	9.453	2.5900	56.094	245.650	48.639	13.3270	1.2792	5.2054	1.0307	0.2824
Madhu- bani	55.664	142.408	28.197	7.7259	121.558	267.445	52.954	14.5094	6.1848	26.3036	5.2081	1.4270
Munger	0.015	0.041	0.008	0.0022	25.280	140.854	27.889	7.6416	0.1788	0.8294	0.1642	0.0450
Muzaffar- pur	21.067	59.340	11.749	3.2193	102.325	317.454	62.856	17.2225	0.1780	0.8508	0.1685	0.0462
Nalanda	0.158	0.995	0.197	0.0540	87.976	474.222	93.896	25.7275	0.0200	0.0826	0.0163	0.0045
Nawada	0.914	2.645	0.524	0.1435	63.598	332.780	65.890	18.0540	-1.0000	-1.0000	-1.0000	-1.0000
Pashchim Cham- paran	43.426	165.384	32.746	8.9724	112.051	509.096	100.801	27.6195	0.4430	2.0107	0.3981	0.1091
Patna	0.165	0.519	0.103	0.0282	60.779	353.042	69.902	19.1532	0.0020	0.0098	0.0019	0.0005
Purbi Cham- paran	96.412	271.980	53.852	14.7555	92.408	248.287	49.161	13.4701	-1.0000	-1.0000	-1.0000	-1.0000
Purnia	11.245	36.804	7.287	1.9967	70.351	310.208	61.421	16.8294	10.3816	46.3793	9.1831	2.5162
Rohtas	0.053	0.150	0.030	0.0081	192.349	1587.086	314.243	86.1026	0.0105	0.0408	0.0081	0.0022
Saharsa	22.910	70.648	13.988	3.8328	67.795	267.750	53.014	14.5260	1.7550	7.4217	1.4695	0.4026
Samas- tipur	41.169	129.658	25.672	7.0342	52.403	191.372	37.892	10.3823	1.1402	4.3146	0.8543	0.2341
Saran	2.008	5.802	1.149	0.3148	70.067	269.670	53.395	14.6302	0.7274	3.5237	0.6977	0.1912
Sheikh- pura	0.063	0.196	0.039	0.0106	19.574	127.616	25.268	6.9234	-1.0000	-1.0000	-1.0000	-1.0000
Sheohar	5.871	21.783	4.313	1.1818	18.577	49.074	9.717	2.6624	-1.0000	-1.0000	-1.0000	-1.0000

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil_lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil_lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil_lion L
Chhattisgarh	Sitamardi	18.171	38.526	7.628	2.0901	84.384	272.596	53.974	14.7889	0.0040	0.0190	0.0038	0.0010
	Siwan	27.781	94.444	18.700	5.1238	66.313	259.787	51.438	14.0940	0.0188	0.0867	0.0172	0.0047
	Supaul	29.395	84.924	16.815	4.6073	64.408	238.560	47.235	12.9424	7.1376	29.3678	5.8148	1.5933
	Vaishali	6.004	16.488	3.265	0.8945	37.606	141.440	28.005	7.6734	0.4694	2.2778	0.4510	0.1236
	Chandigarh	0.020	0.213	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Balod	179.771	627.664	62.139	17.0260	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Baloda Bazar	229.675	699.745	69.275	18.9813	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Balrampur	80.607	263.877	26.124	7.1579	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bastar	152.346	471.099	46.639	12.7790	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bemetara	158.553	528.674	52.339	14.3408	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bijapur	59.848	203.833	20.180	5.5292	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bilaspur	241.341	886.562	87.770	24.0489	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Dantewara	80.059	276.926	27.416	7.5119	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	DhamTari	180.428	915.182	90.603	24.8252	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Durg	185.336	708.433	70.135	19.2170	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Gariyaband	135.598	371.243	36.753	10.0703	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Janjira Champa	263.519	1549.171	153.368	42.0228	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Jashpur	180.638	524.146	51.890	14.2180	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Kabirdham	98.633	282.733	27.991	7.6694	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Kanker	176.344	759.475	75.188	20.6015	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Kondagaon	99.915	315.216	31.206	8.5505	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Korba	109.328	295.339	29.239	8.0114	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Korea	68.932	203.097	20.107	5.5092	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Mahasamund	269.867	950.092	94.059	25.7722	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_Kt	Rice_Kh_BE_mil_lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_Kt	Rice_rb_BE_mil_lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_Kt	Rice_sum_BE_mil_lion L
	Aravalli	2.453	11.425	3.393	0.9297	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Banas Kantha	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Bharuch	10.433	34.262	10.176	2.7882	-1.000	-1.000	-1.000	-1.000	1.00	6.1920	1.8390	0.5039
	Bhavnagar	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Botad	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Chhota Udepur	32.663	87.299	25.928	7.1042	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Dahod	34.600	68.456	20.331	5.5708	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Dangs	16.600	52.219	15.509	4.2495	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Devbhumi Dwarka	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Gandhinagar	9.433	44.789	13.302	3.6448	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Gir Somnath	0.070	0.361	0.107	0.0294	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Jamnagar	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Junagadh	0.130	0.671	0.199	0.0546	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Kachchh	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Kheda	88.833	424.978	126.218	34.5838	-1.000	-1.000	-1.000	-1.000	5.90	32.4048	9.6240	2.6370
	Mahesana	5.000	20.846	6.191	1.6964	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Mahisagar	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Morbi	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Narmada	13.833	26.144	7.765	2.1275	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Navsari	55.367	291.299	86.516	23.7053	-1.000	-1.000	-1.000	-1.000	10.70	66.4608	19.7389	5.4084
	Panch Mahals	32.400	85.666	25.443	6.9714	-1.000	-1.000	-1.000	-1.000	0.40	2.4768	0.7356	0.2016
	Patan	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Porbandar	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Rajkot	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil_lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil_lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil_lion L
Himachal Pradesh	Bilaspur	1.554	5.503	3.269	0.8957	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Chamba	3.430	10.437	6.200	1.6987	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Hamirpur	2.021	6.065	3.602	0.9871	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Kangra	36.319	121.749	72.319	19.8154	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Kinnaur	0.009	0.036	0.021	0.0059	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Kullu	1.405	4.028	2.392	0.6555	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Lahul & Spiti	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Mandi	18.994	62.086	36.879	10.1048	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Shimla	1.144	3.504	2.081	0.5703	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Sirmaur	6.241	29.984	17.810	4.8800	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Solan	1.977	10.048	5.969	1.6354	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Una	1.746	8.992	5.341	1.4635	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Anantnag	62.325	115.192	11.404	3.1247	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Jammu & Kashmir	Baramula	64.335	137.950	13.657	3.7420	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00
Chilas		-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Gilgit		-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Gilgit Wazarat		-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Jammu		74.593	272.683	26.996	7.3968	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Kathua		33.206	105.636	10.458	2.8655	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Leh And Ladakh		-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Mirpur		-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Muzaffarabad		17.680	37.786	3.741	1.0250	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Punch		3.349	8.970	0.888	0.2433	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Riasi		9.489	14.262	1.412	0.3869	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Tribal Territory						-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00



	Udhampur	10.884	19.236	1.904	0.5218	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Jhar- khand	Bokaro	29.893	138.128	27.349	7.4937	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Chatra	34.695	229.546	45.450	12.4533	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Deogarh	44.688	398.149	78.834	21.6004	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Dhanbad	33.758	176.824	35.011	9.5930	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Dumka	93.356	572.089	113.274	31.0370	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Garhwa	32.307	142.710	28.257	7.7423	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Giridih	73.913	432.751	85.685	23.4776	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Godda	38.392	298.048	59.013	16.1697	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Gumla	166.545	632.283	125.192	34.3026	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Hazarib- agh	74.208	313.766	62.126	17.0224	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	JaMTara	44.457	238.234	47.170	12.9247	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Khunti	62.175	300.134	59.427	16.2829	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kodarma	14.465	74.027	14.657	4.0161	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Latehar	23.328	101.369	20.071	5.4995	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Lohardaga	32.575	221.806	43.918	12.0334	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Pakur	44.562	220.005	43.561	11.9357	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Palamu	30.099	129.640	25.669	7.0332	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Pashchimi Singhb- hum	158.477	425.757	84.300	23.0982	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Purbi Singbhum	85.821	485.344	96.098	26.3309	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Ramgarh	28.543	109.442	21.670	5.9375	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Ranchi	136.551	619.687	122.698	33.6193	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Sahibganj	40.740	149.369	29.575	8.1036	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Saraikela Khar- sawan	91.215	509.179	100.817	27.6240	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Simdega	87.110	570.654	112.989	30.9591	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Bagalkot	0.066	0.414	0.021	0.0056	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.0048	0.0013	
Karna- taka																			

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil-lion l	Rice_Kh_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil-lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil-lion L
	Ballari	79.532	617.171	30.652	8.3987	0.134	0.993	0.049	0.0135	37.4700	261.3235	12.9788	3.5562
	Belagavi	63.743	286.089	14.209	3.8932	-1.000	-1.000	-1.000	-1.000	0.0915	0.6218	0.0309	0.0085
	Bengaluru Rural	1.047	6.773	0.336	0.0922	-1.000	-1.000	-1.000	-1.000	0.1014	0.6919	0.0344	0.0094
	Bengaluru Urban	1.188	8.022	0.398	0.1092	-1.000	-1.000	-1.000	-1.000	0.2036	1.5014	0.0746	0.0204
	Bidar	4.398	9.518	0.473	0.1295	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Chamara-janagar	13.260	88.337	4.387	1.2021	0.134	0.662	0.033	0.0090	0.6610	4.4809	0.2225	0.0610
	Chikbal-lapur	3.545	22.052	1.095	0.3001	5.816	29.937	1.487	0.4074	0.5078	2.9627	0.1471	0.0403
	Chikkama-galuru	38.689	209.636	10.412	2.8528	-1.000	-1.000	-1.000	-1.000	3.0720	15.9729	0.7933	0.2174
	Chitra-durga	3.554	16.807	0.835	0.2287	8.949	46.805	2.325	0.6369	1.4828	6.7699	0.3362	0.0921
	Dakshin Kannada	31.545	171.931	8.539	2.3397	8.787	43.808	2.176	0.5962	1.5200	7.7359	0.3842	0.1053
	Davangere	75.944	539.285	26.784	7.3388	-1.000	-1.000	-1.000	-1.000	57.8616	457.4551	22.7198	6.2252
	Dharwad	24.767	58.257	2.893	0.7928	-1.000	-1.000	-1.000	-1.000	0.1552	1.0436	0.0518	0.0142
	Gadag	1.046	5.561	0.276	0.0757	-1.000	-1.000	-1.000	-1.000	1.0740	6.3480	0.3153	0.0864
	Hassan	45.283	257.943	12.811	3.5102	2.446	14.112	0.701	0.1920	1.9642	10.8001	0.5364	0.1470
	Haveri	43.360	177.057	8.794	2.4095	-1.000	-1.000	-1.000	-1.000	5.8074	34.6459	1.7207	0.4715
	Kalaburagi	2.990	12.057	0.599	0.1641	0.888	3.737	0.186	0.0508	1.0026	3.3420	0.1660	0.0455
	Kodagu	32.691	179.126	8.896	2.4376	0.288	1.907	0.095	0.0260	0.1076	0.6266	0.0311	0.0085
	Kolar	3.769	16.121	0.801	0.2194	-1.000	-1.000	-1.000	-1.000	0.5578	2.0516	0.1019	0.0279
	Koppal	40.784	307.144	15.254	4.1797	-1.000	-1.000	-1.000	-1.000	35.6394	258.1957	12.8234	3.5136
	Mandhya	53.807	401.516	19.941	5.4640	-1.000	-1.000	-1.000	-1.000	13.0604	92.6666	4.6023	1.2610
	Mysuru	97.638	658.192	32.689	8.9569	-1.000	-1.000	-1.000	-1.000	10.4636	71.8813	3.5700	0.9782
	Raichur	105.061	693.437	34.440	9.4365	-1.000	-1.000	-1.000	-1.000	56.9592	344.2302	17.0964	4.6844
	Ramnagar	6.278	32.757	1.627	0.4458	-1.000	-1.000	-1.000	-1.000	0.5008	2.5102	0.1247	0.0342

	Shiva-mogga	109.211	640.780	31.825	8.7200	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	17.0242	118.6449	5.8926	1.6146
	Tumakuru	15.944	89.160	4.428	1.2133	1.810	8.764	0.435	0.1193	3.9400	24.7403	3.9400	24.7403	1.2287	0.3367
	Udupi	45.286	244.976	12.167	3.3337	3.578	17.182	0.853	0.2338	0.1124	0.5812	0.1124	0.5812	0.0289	0.0079
	Uttar Kan-nada	70.504	306.055	15.200	4.1649	7.235	34.467	1.712	0.4690	1.3014	6.0009	1.3014	6.0009	0.2980	0.0817
	Vijayapura	0.072	0.440	0.022	0.0060	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Yadgir	51.115	215.428	10.699	2.9316	9.149	39.077	1.941	0.5318	16.0600	64.2511	16.0600	64.2511	3.1911	0.8744
Kerala	Alappuzha	9.716	56.042	5.548	1.5202	6.032	36.274	3.591	0.9840	20.6936	122.5607	20.6936	122.5607	6.0668	1.6623
	Ernakulam	2.020	8.282	0.820	0.2246	3.538	15.677	1.552	0.4253	0.6090	2.6262	0.6090	2.6262	0.1300	0.0356
	Idukki	0.207	1.067	0.106	0.0289	0.998	5.460	0.541	0.1481	0.0898	0.4533	0.0898	0.4533	0.0224	0.0061
	Kannur	2.902	12.949	1.282	0.3513	3.105	13.496	1.336	0.3661	0.0582	0.2526	0.0582	0.2526	0.0125	0.0034
	Kasargod	1.982	10.057	0.996	0.2728	1.440	5.933	0.587	0.1609	0.3600	1.7160	0.3600	1.7160	0.0849	0.0233
	Kollam	0.480	2.309	0.229	0.0626	1.608	7.158	0.709	0.1942	0.0512	0.2002	0.2002	0.0512	0.0099	0.0027
	Kottayam	4.560	27.728	2.745	0.7521	2.270	12.648	1.252	0.3431	9.4964	56.2056	9.4964	56.2056	2.7822	0.7623
	Kozikod	0.109	0.310	0.031	0.0084	2.454	6.306	0.624	0.1710	0.5554	2.7224	2.7224	0.5554	0.1348	0.0369
	Malap-puram	0.593	2.581	0.255	0.0700	5.318	22.811	2.258	0.6188	1.6924	12.4141	12.4141	1.6924	0.6145	0.1684
	Palakkad	37.307	194.087	19.215	5.2648	41.757	221.921	21.970	6.0198	4.0742	23.0128	23.0128	4.0742	1.1391	0.3121
	Pattana-mittia	0.047	0.208	0.021	0.0056	0.451	2.378	0.235	0.0645	2.1158	12.5681	12.5681	2.1158	0.6221	0.1705
	Thiru-vananth-puram	1.026	5.473	0.542	0.1485	1.139	5.529	0.547	0.1500	0.1236	0.5866	0.5866	0.1236	0.0290	0.0080
	Thrissur	2.605	11.510	1.139	0.3122	11.545	62.593	6.197	1.6979	7.5718	54.3323	54.3323	7.5718	2.6894	0.7369
	Wayanad	-1.000	-1.000	-1.000	-1.000	5.970	31.224	3.091	0.8470	3.2426	18.4117	18.4117	3.2426	0.9114	0.2497
Lakshad-weep	Lakshad-weep														
Madhya Pradesh	Agar Malwa	0.002	0.002	0.000	0.0001	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Alirajpur	6.595	9.596	0.950	0.2603	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Anuppur	103.012	281.343	27.851	7.6313	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Ashokna-gar	1.244	4.478	0.443	0.1215	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil-lion l	Rice_Kh_Area_000ha	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil-lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil-lion L
	Balaghat	253.559	854.065	84.548	23.1661	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Barwani	1.218	2.429	0.240	0.0659	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Betul	44.386	187.306	18.542	5.0806	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Bhind	5.351	36.370	3.600	0.9865	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Bhopal	2.625	12.653	0.626	0.1716	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Burhanpur	1.261	3.761	0.372	0.1020	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Chhatarpur	7.455	11.379	1.126	0.3086	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Chhindwara	16.841	75.989	7.522	2.0612	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Damoh	56.278	123.298	12.206	3.3444	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Datia	12.670	31.301	3.099	0.8490	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Dewas	0.321	0.487	0.048	0.0132	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Dhar	0.917	1.472	0.146	0.0399	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Dindori	80.000	217.426	21.524	5.8976	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	East Nimar	6.160	15.550	1.539	0.4218	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Guna	0.672	2.658	0.263	0.0721	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Gwalior	42.153	204.781	20.272	5.5546	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Harda	1.854	7.198	0.713	0.1952	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Hoshangabad	43.050	223.973	22.172	6.0752	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Indore	0.004	0.007	0.000	0.0001	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Jabalpur	76.600	210.379	20.826	5.7064	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Jhabua	11.938	20.376	2.017	0.5527	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Katni	96.874	306.976	30.389	8.3266	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Mandla	125.558	235.671	23.330	6.3925	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Mandsaur	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Morena	0.443	2.641	0.261	0.0716	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Narsinghpur	14.782	45.259	4.480	1.2276	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil-lion l	Rice_r_b_Area_000ha	Rice_r_b_DB_Kt	Rice_r_b_SB_Kt	Rice_r_b_BE_mil-lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil-lion L
	Dhule	5.680	12.012	1.189	0.3258	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Gadchiroli	153.240	442.315	43.787	11.9976	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Gondiya	178.260	647.477	64.097	17.5625	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Hingoli	0.767	0.757	0.075	0.0205	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Jalgaon	0.200	0.619	0.061	0.0168	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Jalna	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Kolhapur	108.660	642.936	63.647	17.4393	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Latur	6.940	7.100	0.703	0.1926	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Mumbai City	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Nagpur	74.480	201.529	19.950	5.4664	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Nanded	2.960	2.807	0.278	0.0761	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Nandurbar	20.600	47.100	4.663	1.2776	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Nasik	66.740	149.681	14.818	4.0600	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Osmana-bad	11.920	7.926	0.785	0.2150	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Palghar	74.800	388.651	38.474	10.5420	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Parbhani	1.620	1.445	0.143	0.0392	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Pune	72.940	228.278	22.598	6.1919	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Raigarh	122.560	657.178	65.057	17.8256	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Ratnagiri	74.760	453.131	44.857	12.2909	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Sangli	17.160	73.561	7.282	1.9953	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Satara	51.120	167.390	16.571	4.5404	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Sindhudurg	72.780	438.270	43.386	11.8879	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Solapur	0.520	0.289	0.029	0.0078	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Suburban Mumbai	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Thane	120.740	590.387	58.445	16.0140	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Wardha	-1.000	-1.000	-1.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0

	Washim	0.200	0.412	0.041	0.0112	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Yavatmal	0.100	0.144	0.012	0.0034	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Ma-nipur	Bishnupur	24.625	174.300	138.045	37.8244									-1.00	-1.00
	Chandel	9.205	23.473	0.000	0.0000									-1.00	-1.00
	Churachandpur	25.978	57.116	0.000	0.0000									-1.00	-1.00
	Imphal East	29.998	200.358	158.683	43.4792									-1.00	-1.00
	Imphal West	34.115	231.514	183.359	50.2403									-1.00	-1.00
	Senapati	10.838	30.521	0.000	0.0000									-1.00	-1.00
	Tamenglong	24.363	53.122	0.000	0.0000									-1.00	-1.00
	Thoubal	26.808	197.845	156.693	42.9339									-1.00	-1.00
Meghalaya	Ukhrul	9.533	26.337	0.000	0.0000									-1.00	-1.00
	East Garo Hills	9.946	41.614	12.359	3.3865	0.061	0.184	0.055	0.0150	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East Khasi Hills	0.279	1.586	0.471	0.1291	0.122	0.495	0.147	0.0403	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jaintia Hills	0.100	0.441	0.131	0.0359	0.035	0.152	0.045	0.0124	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ri Bhoi	0.156	0.815	0.242	0.0663	0.119	0.412	0.122	0.0336	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South Garo Hills	4.877	17.768	5.277	1.4459	0.225	0.721	0.214	0.0587	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West Garo Hills	15.733	59.482	17.666	4.8405	6.257	53.664	15.938	4.3671	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West Khasi Hills	0.078	0.311	0.092	0.0253	2.480	23.995	7.127	1.9527	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Mizoram	Aizawl	5.069	16.078	7.852	2.1515	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Champhai	7.424	23.550	11.501	3.1514	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kolasib	7.146	22.667	11.070	3.0332	0.030	0.112	0.111	0.0303	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lawngtlai	5.400	17.128	8.365	2.2919	0.191	0.712	0.705	0.1932	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lunglei	4.657	14.772	7.215	1.9768	0.256	0.954	0.945	0.2589	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mamit	3.695	11.722	5.725	1.5685	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil-lion l	Rice_Kh_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil-lion l	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil-lion l
Nagaland	Saiha	0.970	3.078	1.503	0.4118	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Serchhip	3.550	11.261	5.500	1.5069	-1.000	-1.000	-1.000	-1.000	-1.0	-1.0	-1.0	-1.0
	Dimapur	44.635	224.377	22.213	6.0865	-1.000	-1.000	-1.000	-1.000	-1.0	-1.00	-1.00	-1.00
	Kiphire	10.115	41.191	4.078	1.1173	2.003	10.664	1.056	0.2893	-1.0	-1.00	-1.00	-1.00
	Kohima	14.957	70.998	7.029	1.9259	-1.000	-1.000	-1.000	-1.000	-1.0	-1.00	-1.00	-1.00
	Longleng	6.992	28.370	2.809	0.7696	-1.000	-1.000	-1.000	-1.000	-1.0	-1.00	-1.00	-1.00
	Mokokchung	15.627	68.951	6.826	1.8704	-1.000	-1.000	-1.000	-1.000	-1.0	-1.00	-1.00	-1.00
	Mon	18.395	76.492	7.573	2.0749	-1.000	-1.000	-1.000	-1.000	-1.0	-1.00	-1.00	-1.00
	Peren	14.623	69.065	6.837	1.8735	1.038	5.535	0.548	0.1501	-1.0	-1.00	-1.00	-1.00
	Phek	14.533	75.085	7.433	2.0368	0.300	1.635	0.162	0.0443	-1.0	-1.00	-1.00	-1.00
	Tuensang	14.963	64.775	6.413	1.7571	-1.000	-1.000	-1.000	-1.000	-1.0	-1.00	-1.00	-1.00
	Wokha	16.067	72.753	7.203	1.9735	-1.000	-1.000	-1.000	-1.000	-1.0	-1.00	-1.00	-1.00
	Zunheboto	11.190	47.702	4.723	1.2940	-1.000	-1.000	-1.000	-1.000	-1.0	-1.00	-1.00	-1.00
	Odisha	Angul	13.870	31.005	1.535	0.4205	66.648	205.327	30.491	8.3545	0.5775	2.2549	0.1116
Balangir		56.312	161.092	7.974	2.1849	128.700	699.221	103.834	28.4506	3.7100	20.4130	1.0104	0.2769
Baleswar		15.590	39.226	1.942	0.5320	197.925	633.462	94.069	25.7749	28.6900	189.1346	9.3622	2.5652
Baragarh		47.062	112.753	5.581	1.5293	180.040	848.165	125.952	34.5110	71.9125	591.2173	29.2653	8.0187
Bhadrak		17.313	75.228	3.724	1.0203	163.333	596.976	88.651	24.2904	3.6900	14.5564	0.7205	0.1974
Boudh		5.673	11.572	0.573	0.1570	59.185	217.463	32.293	8.8484	1.1550	4.6904	0.2322	0.0636
Cuttack		4.510	12.501	0.619	0.1696	122.413	521.836	77.493	21.2330	3.0075	15.7328	0.7788	0.2134
Deogarh		16.630	52.567	2.602	0.7130	26.725	121.239	18.004	4.9331	0.9800	6.3107	0.3124	0.0856
Dhenkanal		5.435	14.331	0.709	0.1944	84.368	396.231	58.840	16.1223	0.8725	4.6956	0.2324	0.0637
Gajapathi		0.465	0.872	0.043	0.0118	35.685	109.263	16.226	4.4458	0.4950	1.5016	0.0743	0.0204
Ganjam		0.948	1.940	0.096	0.0263	259.338	586.186	87.049	23.8513	0.5225	2.0950	0.1037	0.0284
Jagatsinghpur		1.510	4.568	0.226	0.0620	78.650	359.420	53.374	14.6244	0.5900	3.1837	0.1576	0.0432
Jajpur		14.215	26.667	1.320	0.3617	108.138	308.769	45.852	12.5635	1.7125	8.7152	0.4314	0.1182
Jharsuguda		17.578	28.862	1.429	0.3914	25.693	90.770	13.479	3.6933	0.5175	2.6264	0.1300	0.0356



	Kalahandi	58.613	172.127	8.520	2.3346	147.738	707.560	105.073	28.7899	37.1325	193.6858	9.5874	2.6270	
	Kandhamal	5.910	12.790	0.633	0.1735	82.853	247.179	36.706	10.0575	1.6225	7.8690	0.3895	0.1067	
	Kendrapara	13.158	26.082	1.291	0.3538	136.423	423.450	62.882	17.2298	2.3850	12.0744	0.5977	0.1638	
	Kendujhar	18.855	49.096	2.430	0.6659	120.695	408.135	60.608	16.6066	1.6625	9.4222	0.4664	0.1278	
	Khordha	13.290	29.427	1.457	0.3991	87.863	296.334	44.006	12.0575	8.9425	41.8889	2.0735	0.5681	
	Koraput	17.360	39.911	1.976	0.5413	83.348	351.510	52.199	14.3026	10.0425	48.6227	2.4068	0.6595	
	Malkangiri	18.443	31.473	1.558	0.4269	169.395	562.884	83.588	22.9032	2.6050	11.2333	0.5560	0.1524	
	Mayurbhanj	31.262	70.878	3.508	0.9613	189.040	603.978	89.691	24.5753	2.1875	9.9278	0.4914	0.1347	
	Nabarangapur	28.328	71.838	3.556	0.9743	90.043	436.918	64.882	17.7777	2.6325	11.9815	0.5931	0.1625	
	Nayagarh	1.040	2.580	0.128	0.0350	93.075	259.796	38.580	10.5708	0.1325	0.5934	0.0294	0.0080	
	Nuapada	24.453	62.157	3.077	0.8430	48.908	197.040	29.260	8.0174	2.3025	12.8587	0.6365	0.1744	
	Puri	0.358	1.228	0.061	0.0167	112.243	344.626	51.177	14.0225	32.0875	187.3441	9.2735	2.5409	
	Rayagada	6.452	12.776	0.632	0.1733	51.440	228.598	33.947	9.3014	2.4825	10.3200	0.5108	0.1400	
	Sambalpur	42.950	93.616	4.634	1.2697	86.840	368.517	54.725	14.9946	20.3625	165.3212	8.1834	2.2423	
	Subarnapur	15.472	42.794	2.118	0.5804	88.295	543.436	80.700	22.1119	29.2700	232.4219	11.5049	3.1523	
	Sundergarh	83.055	217.559	10.769	2.9508	118.313	490.252	72.802	19.9478	1.5100	6.0991	0.3019	0.0827	
Puducherry	Karaikal	0.499	2.635	0.130	0.0357	4.605	21.022	1.041	0.2851	-1.00	-1.00	-1.00	-1.00	
	Mahe	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
	Puducherry	3.078	20.950	1.037	0.2841	4.549	26.652	1.319	0.3615	-1.00	-1.00	-1.00	-1.00	
	Yanam	0.309	1.594	0.079	0.0216	0.200	1.913	0.095	0.0260	-1.00	-1.00	-1.00	-1.00	
Punjab	Amritsar	183.800	1053.466	792.628	217.1799	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
	Barnala	106.200	999.389	494.697	135.5471	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
	Bathinda	109.000	963.475	858.456	235.2171	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
	Faridkot	102.800	875.962	754.466	206.7236	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
	Fatehgarh Sahib	86.200	759.139	413.351	113.2583	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Fazilka	91.333	606.128	420.047	115.0928	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil-lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil-lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil-lion L
Rajasthan	Firozpur	213.800	1695.782	1427.001	390.9982	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Gurdaspur	185.000	1178.544	583.379	159.8459	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Hosharpur	71.600	527.558	470.055	128.7949	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Jalandhar	165.400	1241.702	971.135	266.0911	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Kapurthala	117.400	919.718	646.470	177.1328	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Ludhiana	257.000	2333.146	2125.029	582.2579	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Mansa	78.600	643.555	159.280	43.6427	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Moga	175.000	1621.478	1444.737	395.8580	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Muktsar	118.400	939.533	465.069	127.4288	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Na-washahr	57.000	462.749	274.873	75.3151	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Pathankot	28.333	155.488	76.967	21.0888	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Patiala	232.400	1882.781	1584.360	434.1147	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Rupnagar	37.400	279.053	138.131	37.8479	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Sangrur	273.200	2577.110	2296.205	629.1603	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Sas Nagar	31.200	227.866	112.793	30.9054	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Tarn Taran	175.400	1124.054	278.203	76.2277	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Ajmer	0.007	0.031	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Alwar	0.458	1.854	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Banswara	28.568	54.722	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Baran	7.749	47.711	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Barmer	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Bharatpur	1.705	7.715	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Bhilwara	0.363	1.520	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Bikaner	0.031	0.127	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Bundi	25.439	108.998	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Chittaurgarh	0.499	2.073	0.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Churu	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	

Dausa	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Dholpur	0.618	2.545	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Dungarpur	19.542	34.732	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Gangana-gar	8.790	54.698	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Hanuman-garh	23.681	171.979	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jaipur	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jaisalmer	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jalor	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jhalawar	2.196	11.351	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jhunjhunun	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jodhpur	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Karauli	1.758	4.647	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kota	12.654	62.964	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Nagaur	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Pali	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Pratapgarh	1.173	4.848	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Rajsamand	0.049	0.201	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Sawai Madhopur	0.649	2.727	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Sikar	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Sirohi	0.001	0.004	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Tonk	0.004	0.018	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Udaipur	4.953	10.996	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
East	4.899	18.058	1.788	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
North	0.975	2.662	0.263	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
South	2.153	8.262	0.818	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
West	3.473	13.404	1.327	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Ariyalur	22.817	187.399	18.552	5.0834															
Chennai	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Coimbatore	2.402	20.090	1.989	0.5450															
Sikkim																			
Tamil Nadu																			

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil_lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil_lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil_lion L
	Cuddalore	119.060	750.777	74.327	20.3656								
	Dharam-puri	22.155	210.341	20.824	5.7057								
	Dindigul	12.804	133.124	13.179	3.6111								
	Erode	26.968	253.377	25.084	6.8731								
	Kanchi-puram	87.377	779.548	77.175	21.1460								
	Kanyakumar	14.909	152.262	15.074	4.1303								
	Karur	13.843	122.137	12.092	3.3131								
	Krishnagiri	20.976	194.614	19.267	5.2791								
	Madurai	44.998	409.320	40.523	11.1032								
	Nagapattinam	155.763	879.994	87.119	23.8707								
	Namakkal	9.228	83.045	8.221	2.2527								
	Nilgiri	0.352	2.897	0.287	0.0786								
	Perambalur	10.455	87.846	8.697	2.3829								
	Pudukkottai	85.432	466.168	46.151	12.6453								
	Ramathapuram	122.961	410.077	40.598	11.1237								
	Salem	23.530	218.325	21.614	5.9223								
	Sivaganga	75.947	348.291	34.481	9.4477								
	Teni	13.228	129.820	12.852	3.5215								
	Thanjavur	165.329	1270.378	125.767	34.4603								
	Thiruvarur	169.954	1077.907	106.713	29.2393								
	Tiruchirappalli	56.098	482.628	47.780	13.0918								
	Tirunelveli	68.543	700.151	69.315	18.9923								

Personal use only





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil-lion l	Rice_rh_Area_000ha	Rice_rh_DB_Kt	Rice_rh_SB_Kt	Rice_rh_BE_mil-lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil-lion L
Uttar Pradesh	Agra	7.146	35.931	8.893	2.4366	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Aligarh	80.962	378.248	93.616	25.6509	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Allahabad	150.149	741.724	183.577	50.3000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Ambedkarnagar	115.199	609.821	150.931	41.3550	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Amethi	111.150	491.146	121.559	33.3071	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Amroha	25.049	109.988	27.222	7.4588	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Auraiya	50.447	313.817	77.670	21.2815	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Azamgarh	208.700	903.711	205.775	56.3824	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Badaun	80.612	344.963	92.209	25.2651	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Baghpat	5.809	33.245	8.228	2.2545	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Bahraich	161.734	730.475	180.793	49.5372	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Ballia	115.677	501.850	38.504	10.5502	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Balrampur	106.747	460.281	113.920	31.2140	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Banda	50.073	160.515	39.727	10.8853	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Barabanki	183.045	1042.420	257.999	70.6917	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Bareilly	159.755	702.619	173.898	47.6481	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Basti	106.659	498.423	123.360	33.8006	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Bhadohi	-1.000	-1.000	-1.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Bijnor	53.324	271.391	67.169	18.4044	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Bulandshahar	92.270	481.565	119.187	32.6573	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Chandauli	107.880	629.072	323.846	88.7338	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Chitrakoot	9.924	22.745	5.629	1.5424	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Deoria	130.648	528.479	130.799	35.8388	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Etah	22.426	101.664	25.162	6.8944	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Etawah	51.386	285.359	70.626	19.3516	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Faizabad	97.981	474.533	117.447	32.1804	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Farrukhabad	14.106	69.573	17.219	4.7181	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	

Fatehpur	77.923	363.294	89.915	24.6368	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Firozabad	22.177	121.848	30.157	8.2631	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Gautam-budhnagar	21.969	107.872	26.698	7.3153	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Gazipur	148.760	669.551	165.714	45.4056	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Ghaziabad	16.311	88.949	22.015	6.0321	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Gonda	124.571	577.319	142.887	39.1509	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Gorakhpur	151.813	652.726	161.550	44.2646	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Hamirpur	0.088	0.268	0.066	0.0181	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Hapur	20.628	124.154	30.728	8.4195	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Hardoi	142.033	660.075	163.369	44.7630	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Hathras	22.509	95.836	23.719	6.4991	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jalaun	0.750	2.610	0.646	0.1770	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jaunpur	143.345	647.455	434.951	119.1767	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jhansi	8.708	34.730	8.596	2.3552	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kannauj	20.475	112.829	27.925	7.6515	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kanpur	31.895	158.941	39.338	10.7786	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kanpur Dehat	40.589	220.508	54.576	14.9538	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kasganj	17.538	83.757	20.730	5.6800	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kaushambi	45.374	204.678	50.658	13.8802	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kheri	172.432	897.244	186.537	51.1111	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kushinagar	123.056	576.670	142.726	39.1069	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Lalitpur	1.527	2.341	0.579	0.1587	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Lucknow	52.030	221.392	54.794	15.0137	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Maharajganj	165.957	822.643	203.604	55.7875	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Mahoba	0.045	0.140	0.035	0.0095	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Mainpuri	64.201	344.740	85.323	23.3786	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Mathura	48.740	232.284	57.490	15.7523	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Mau	87.544	352.636	87.277	23.9140	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil_lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil_lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil_lion L
Uttarakhand	Meerut	16.001	88.467	21.896	5.9994	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Mirzapur	81.920	365.269	96.552	26.4551	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Moradabad	103.669	464.783	115.034	31.5192	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Muzafarnagar	20.845	101.647	25.158	6.8932	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Pilibhit	141.094	800.689	457.377	125.3214	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Pratapgarh	103.536	467.194	115.631	31.6828	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Rae Bareli	93.097	440.200	108.950	29.8522	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Rampur	133.047	598.805	148.204	40.6080	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Saharanpur	59.017	290.325	71.855	19.6884	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Sambhal	36.282	172.286	42.641	11.6836	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Santkabir-nagar	88.146	369.778	91.520	25.0765	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Shahjahanpur	195.026	1061.909	262.823	72.0134	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Shamali	20.572	110.157	27.264	7.4703	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Shrawasti	74.572	312.829	77.425	21.2145	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Siddharth-nagar	172.419	884.043	218.801	59.9514	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Sitapur	161.523	752.768	186.310	51.0490	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Sonbhadra	33.116	125.648	58.464	16.0191	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Sultanpur	92.608	435.549	107.798	29.5367	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Unnao	93.717	351.900	87.095	23.8641	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
	Varanasi	45.383	205.919	29.560	8.0994	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00
Almora	17.723	40.665	6.039	1.6546	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Bageshwar	13.629	39.628	5.885	1.6124	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Chamoli	11.664	32.010	4.754	1.3025	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	
Champawat	6.541	17.439	2.590	0.7096	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	



	Dehradun	10.448	44.358	6.587	1.8049	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Haridwar	14.381	59.600	8.851	2.4251	0.038	0.005	0.001	0.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Nanital	12.038	67.624	10.042	2.7516	0.410	0.007	0.001	0.0003	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Pauri Garhwal	14.949	36.918	5.482	1.5022	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Pithoragarh	20.934	56.028	8.320	2.2797	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Rudraprayag	9.048	26.244	3.897	1.0679	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Tehri Garwal	11.525	36.995	5.494	1.5053	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Udham Singh Nagar	102.619	643.953	95.627	26.2018	15.127	50.055	15.342	4.2037	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Uttarkashi	10.100	35.899	5.331	1.4607	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Alipurduar	13.548	54.621	2.704	0.7408	80.132	181.567	18.550	5.0828	8.65	42.69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Bankura	17.987	103.295	5.113	1.4010	280.097	1597.894	79.096	21.6722	38.9156	234.9497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Bardhaman	10.260	64.152	3.176	0.8701	407.331	2592.933	128.350	35.1680	169.7180	1161.4661	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Birbhum	2.600	13.319	0.659	0.1806	292.737	1837.472	90.955	24.9216	60.1290	417.5319	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Dakshindinajpur	1.678	7.110	0.352	0.0964	156.147	894.957	44.300	12.1383	25.1188	161.4531	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Darjeeling	3.564	14.283	0.707	0.1937	27.194	125.569	6.216	1.7031	1.5792	7.7392	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Eastmedinipur	13.129	55.419	2.743	0.7517	254.725	1101.923	54.545	14.9454	146.0206	1038.4991	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Haora	1.581	8.852	0.438	0.1201	68.241	301.657	14.932	4.0914	42.1228	272.5483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Hugli	6.006	30.351	1.502	0.4117	191.443	1149.429	56.897	15.5897	83.5700	542.3470	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Jalpaiguri	16.559	66.759	3.305	0.9054	97.939	221.916	22.673	6.2123	10.5780	52.1780	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Kochbihar	3.677	12.493	0.618	0.1694	218.316	1032.327	51.100	14.0015	53.3880	348.7462	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Kolkata	-1.000	-1.000	-1.000	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Malda	3.256	13.407	0.664	0.1818	140.004	865.873	42.861	11.7438	59.9878	482.5265	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Mursidabad	13.050	63.490	3.143	0.8611	213.010	1201.690	59.484	16.2985	119.0942	840.0682	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Nadia	48.130	230.394	11.405	3.1248	95.568	511.315	25.310	6.9350	96.8240	735.5068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
West Bengal																			

State	District	Rice_Kh_Area_000ha	Rice_Kh_DB_Kt	Rice_Kh_SB_Kt	Rice_Kh_BE_mil_lion l	Rice_rb_Area_000ha	Rice_rb_DB_Kt	Rice_rb_SB_Kt	Rice_rb_BE_mil_lion L	Rice_sum_Area_000ha	Rice_sum_DB_Kt	Rice_sum_SB_Kt	Rice_sum_BE_mil_lion L
	North 24 Pargana	16.071	86.674	4.290	1.1756	133.227	738.380	36.550	10.0147	72.3746	498.1402	0.0000	0.0000
	Pashchim Medinipur	36.638	171.641	8.496	2.3280	474.230	2462.527	121.895	33.3992	170.2312	1132.3570	0.0000	0.0000
	Puruliya	0.160	0.593	0.029	0.0080	258.621	1259.379	62.339	17.0810	0.2658	1.4568	0.0000	0.0000
	South 24 Parganas	5.224	25.301	1.252	0.3432	313.672	1467.852	72.659	19.9085	66.5050	435.8309	0.0000	0.0000
	Uttar Dinajpur	0.491	1.992	0.099	0.0270	176.977	925.398	45.807	12.5512	54.1724	319.2744	0.0000	0.0000
<b>All India Total</b>		<b>28637</b>	<b>28597</b>	<b>142761</b>	<b>35993</b>	<b>9862</b>	<b>13334.207</b>	<b>66997.49</b>	<b>7267.50</b>	<b>1991.29</b>	<b>2428.85</b>	<b>15728</b>	<b>596</b>

Personal use only

**Table 38: Districtwise area, dry biomass generation, surplus available and its bioethanol potential of wheat and maize crops in different growing seasons**

State	District	Wheat_rb_Area_000ha	Wheat_rb_DB_Kt	Wheat_rb_SB_Kt	Wheat_rb_BE_million L	Maize_Kh_Area_000ha	Maize_Kh_DB_Kt	Maize_Kh_SB_Kt	Maize_Kh_BE_million l	Maize_rb_Area_000ha	Maize_rb_DB_Kt	Maize_rb_SB_Kt	Maize_rb_BE_million L	
Andaman & Nicobar	Nicobar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.004	0.0077	0.00	0.0001	
	North & Middle Andaman	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.08	0.2416	0.01	0.0027	
	South Andaman	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.06	0.1861	0.01	0.0021	
	Andhra Pradesh	Anantapur	0.101	0.172	0.000	0.0000	20.4276	65.7763	6.512	1.4521	6.0558	55.4784	2.97	0.6614
		Chittoor	-1.000	-1.000	-1.000	-1.000	1.5152	6.9434	0.687	0.1533	0.8500	7.6169	0.41	0.0908
		Cuddapah	0.065	0.076	0.000	0.0000	0.6060	2.8740	0.285	0.0634	2.3022	20.2162	1.08	0.2410
		East Godavari	-1.000	-1.000	-1.000	-1.000	0.5400	2.2056	0.218	0.0487	9.5710	88.9759	4.76	1.0607
		Guntur	0.043	0.084	0.000	0.0000	0.8122	3.3859	0.335	0.0748	76.4654	827.6882	44.25	9.8674
		Krishna	-1.000	-1.000	-1.000	-1.000	4.9186	25.3704	2.512	0.5601	20.8102	186.9379	9.99	2.2286
		Kurnool	0.284	0.519	0.000	0.0000	29.4240	164.2596	16.262	3.6284	8.5748	76.4640	4.09	0.9116
Nellore		-1.000	-1.000	-1.000	-1.000	0.1682	0.6970	0.069	0.0154	1.0644	9.7949	0.52	0.1168	
Prakasam		-1.000	-1.000	-1.000	-1.000	1.3292	7.2782	0.721	0.1607	15.4944	140.9971	7.54	1.6809	
Srikakulam		-1.000	-1.000	-1.000	-1.000	5.9302	26.0376	2.578	0.5748	5.0024	47.3645	2.53	0.5647	
Arunachal Pradesh	Vishakhapatnam	-1.000	-1.000	-1.000	-1.000	5.9654	15.4111	1.526	0.3402	1.1636	10.9771	0.59	0.1309	
	Vizianagaram	-1.000	-1.000	-1.000	-1.000	11.7144	42.7054	4.228	0.9428	12.3556	86.7866	4.64	1.0346	
	West Godavari	-1.000	-1.000	-1.000	-1.000	2.8632	17.7370	1.756	0.3916	48.1478	390.4529	20.87	4.6548	
	Anjaw	0.132	0.446	0.044	0.0122	3.1780	4.8478	0.480	0.1070					
	Changlang	0.236	0.775	0.077	0.0212	0.8894	1.4162	0.140	0.0313					
East Kasmeng	Dibang Valley	-1.000	-1.000	-1.000	-1.000	1.8074	3.0605	0.303	0.0676					
	East Kasmeng	0.059	0.244	0.024	0.0067	2.6100	4.3356	0.429	0.0957					

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Wheat_r_b_Area_000ha	Wheat_rb_DB_Kt	Wheat_rb_SB_Kt	Wheat_rb_BE_million L	Maize_Kh_Area_000ha	Maize_Kh_DB_Kt	Maize_Kh_SB_Kt	Maize_Kh_BE_million l	Maize_rb_Area_000ha	Maize_rb_DB_Kt	Maize_rb_SB_Kt	Maize_rb_BE_million L
Assam	East Siang	0.312	0.970	0.096	0.0265	3.8158	10.0934	0.999	0.2228				
	Kirung Kumey	-1.000	-1.000	-1.000	-1.000	0.3912	0.6886	0.068	0.0152				
	Lohit	0.442	1.190	0.118	0.0325	10.2586	14.9647	1.482	0.3304				
	Lower Dibang Valley	0.286	0.776	0.077	0.0212	8.1150	12.7920	1.266	0.2824				
	Lower Subansiri	-1.000	-1.000	-1.000	-1.000	0.6562	1.6577	0.164	0.0366				
	Papum-Pare	0.352	0.958	0.095	0.0262	2.2808	5.5733	0.552	0.1230				
	Tawang	0.915	2.198	0.218	0.0601	0.7374	1.9838	0.196	0.0438				
	Tirap	-1.000	-1.000	-1.000	-1.000	2.5926	4.6046	0.456	0.1017				
	Upper Siang	-1.000	-1.000	-1.000	-1.000	1.4654	2.1276	0.211	0.0470				
	Upper Subansiri	-1.000	-1.000	-1.000	-1.000	1.0736	1.6114	0.160	0.0356				
	West Kameng	0.608	1.138	0.113	0.0311	2.8920	5.8932	0.583	0.1301				
	West Siang	0.321	0.784	0.078	0.0214	3.4246	5.4643	0.541	0.1206				
	Baksa	0.438	0.952	0.047	0.0130	0.3830	1.0673	0.264	0.0589	-1.00	-1.00	-1.00	-1.00
	Barpeta	6.264	12.538	0.621	0.1713	0.0668	0.1181	0.029	0.0065	-1.00	-1.00	-1.00	-1.00
	Bongaigaon	4.139	7.758	0.384	0.1060	0.3772	1.1606	0.287	0.0641	-1.00	-1.00	-1.00	-1.00
	Cachar	0.069	0.129	0.006	0.0018	0.0970	0.1663	0.041	0.0092	-1.00	-1.00	-1.00	-1.00
Chirang	0.811	1.444	0.071	0.0197	0.4088	0.6204	0.154	0.0342	-1.00	-1.00	-1.00	-1.00	
Darrang	1.666	3.395	0.168	0.0464	2.6428	6.8614	1.698	0.3787	-1.00	-1.00	-1.00	-1.00	
Dhemaji	0.302	0.403	0.020	0.0055	0.2692	0.9199	0.228	0.0508	-1.00	-1.00	-1.00	-1.00	
Dhuburi	3.074	5.803	0.287	0.0793	1.0164	2.4370	0.603	0.1345	-1.00	-1.00	-1.00	-1.00	
Dibrugarh	0.040	0.074	0.004	0.0010	0.1176	0.2232	0.055	0.0123	-1.00	-1.00	-1.00	-1.00	
Goalpara	2.522	4.948	0.245	0.0676	0.1526	0.2863	0.071	0.0158	-1.00	-1.00	-1.00	-1.00	



	Golaghat	0.436	0.509	0.025	0.0069	0.1684	0.5110	0.126	0.0282	-1.00	-1.00	-1.00	-1.00
	Haila-kandi	0.050	0.094	0.005	0.0013	0.0280	0.0264	0.007	0.0015	-1.00	-1.00	-1.00	-1.00
	Jorhat	0.046	0.073	0.004	0.0010	0.0346	0.0598	0.015	0.0033	-1.00	-1.00	-1.00	-1.00
	Kamrup Metro	0.135	0.253	0.013	0.0035	0.0616	0.1236	0.031	0.0068	-1.00	-1.00	-1.00	-1.00
	Kamrup Rural	1.831	3.131	0.155	0.0428	0.2390	0.5052	0.125	0.0279	-1.00	-1.00	-1.00	-1.00
	Karbi Anglong	1.191	2.329	0.115	0.0318	10.3520	21.3686	5.289	1.1794	-1.00	-1.00	-1.00	-1.00
	Karimganj	0.006	0.011	0.001	0.0001	0.0262	0.0439	0.011	0.0024	-1.00	-1.00	-1.00	-1.00
	Kokrajhar	1.931	5.522	0.273	0.0754	0.8986	1.5617	0.387	0.0862	-1.00	-1.00	-1.00	-1.00
	Lakhimpur	0.040	0.052	0.003	0.0007	0.1456	0.3216	0.080	0.0177	-1.00	-1.00	-1.00	-1.00
	Marigaon	3.983	6.664	0.330	0.0910	0.1494	0.3106	0.077	0.0171	-1.00	-1.00	-1.00	-1.00
	Nagaon	2.810	4.456	0.221	0.0609	0.4876	1.1801	0.292	0.0651	-1.00	-1.00	-1.00	-1.00
	Nalbari	0.562	0.836	0.041	0.0114	0.0752	0.2086	0.052	0.0115	-1.00	-1.00	-1.00	-1.00
	North Cachar Hills	0.026	0.047	0.002	0.0006	2.8076	7.0538	1.746	0.3893	-1.00	-1.00	-1.00	-1.00
	Sibsagar	0.022	0.041	0.002	0.0006	0.0444	0.0770	0.019	0.0043	-1.00	-1.00	-1.00	-1.00
	Sonitpur	0.963	1.565	0.077	0.0214	0.8924	3.2006	0.792	0.1767	-1.00	-1.00	-1.00	-1.00
	Tinsukia	0.034	0.063	0.003	0.0009	0.8622	1.8840	0.466	0.1040	-1.00	-1.00	-1.00	-1.00
	Udalguri	1.437	2.292	0.113	0.0313	0.5528	1.1318	0.280	0.0625	-1.00	-1.00	-1.00	-1.00
Bihar	Arariya	47.437	184.957	18.311	5.0538	5.6002	31.9362	6.323	1.4101	13.7227	81.8428	16.20	3.6137
	Arwal	11.152	35.371	3.502	0.9665	0.2897	0.9216	0.182	0.0407	0.2497	1.2164	0.24	0.0537
	Aurangabad	74.838	256.837	25.427	7.0178	0.3527	1.0334	0.205	0.0456	0.0073	0.0352	0.01	0.0016
	Banka	24.488	87.675	8.680	2.3956	6.9025	24.7622	4.903	1.0934	0.8687	3.9044	0.77	0.1724
	Begusarai	54.628	219.962	21.776	6.0102	35.9000	73.3836	14.530	3.2402	17.0855	80.7004	15.98	3.5632
	Bhabua	77.306	277.169	27.440	7.5734	0.3117	0.6808	0.135	0.0301	-1.00	-1.00	-1.00	-1.00
	Bhagalpur	44.564	166.593	16.493	4.5520	18.8273	86.4636	0.000	0.0000	16.9198	113.8498	0.00	0.0000
	Bhojpur	75.385	288.204	57.064	15.7498	3.6047	9.1024	1.802	0.4019	0.0658	0.2480	0.05	0.0110
	Buxar	81.916	326.585	32.332	8.9236	1.8113	4.1692	0.826	0.1841	0.0086	0.0348	0.01	0.0015

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Wheat_r_b_Area_000ha	Wheat_r_b_DB_Kt	Wheat_r_b_SB_Kt	Wheat_r_b_BE_million L	Maize_Kh_Area_000ha	Maize_Kh_DB_Kt	Maize_Kh_SB_Kt	Maize_Kh_BE_million l	Maize_r_b_Area_000ha	Maize_r_b_DB_Kt	Maize_r_b_SB_Kt	Maize_r_b_BE_million L
	Darbhanga	59.745	230.999	22.869	6.3118	1.8283	6.4978	1.287	0.2869	14.5832	54.9622	10.88	2.4268
	Gaya	64.106	230.125	22.782	6.2879	5.0138	17.2038	3.406	0.7596	0.1737	0.8548	0.17	0.0377
	Gopalganj	80.204	335.850	33.249	9.1768	6.6238	17.1304	3.392	0.7564	5.8185	23.3568	4.62	1.0313
	Jahanabad	29.104	127.469	12.619	3.4830	0.6718	2.1626	0.428	0.0955	0.0570	0.2764	0.05	0.0122
	Jamui	15.786	39.158	3.877	1.0700	2.6568	6.3378	1.255	0.2798	0.3370	1.5310	0.30	0.0676
	Katihar	35.927	150.195	14.869	4.1039	11.8670	78.1046	0.000	0.0000	21.2522	147.0830	66.98	14.9369
	Khagaria	30.668	119.079	11.789	3.2537	17.2233	34.7236	6.875	1.5332	33.0902	177.5854	35.16	7.8411
	Kishanganj	16.727	46.043	4.558	1.2581	0.3898	1.8144	0.359	0.0801	0.9197	3.1004	0.61	0.1369
	Lakhisarai	41.371	154.641	15.309	4.2254	5.1783	12.7878	2.532	0.5646	-1.00	-1.00	-1.00	-1.00
	Madhepura	34.545	136.933	13.556	3.7416	6.9113	35.2202	6.974	1.5551	16.7080	98.8960	19.58	4.3667
	Madhubani	92.013	252.175	24.965	6.8904	0.2876	1.1530	0.228	0.0509	0.2858	1.2052	0.24	0.0532
	Munger	14.663	47.967	4.749	1.3107	3.0190	6.3038	1.248	0.2783	0.5670	1.6468	0.33	0.0727
	Muzaffarpur	89.427	362.663	35.904	9.9094	9.6208	40.0726	7.934	1.7694	14.4680	46.2124	9.15	2.0405
	Nalanda	81.669	307.119	30.405	8.3917	2.9790	8.5586	1.695	0.3779	0.9383	3.5574	0.70	0.1571
	Nawada	48.232	160.511	15.891	4.3858	1.4895	3.2804	0.650	0.1448	0.0240	0.1197	0.02	0.0053
	Pashchim Champaran	67.912	255.222	25.267	6.9737	1.9412	6.4760	1.282	0.2859	4.7732	16.0762	3.18	0.7098
	Patna	60.400	264.368	26.172	7.2236	5.0195	13.1836	2.610	0.5821	0.3990	1.4976	0.30	0.0661
	Purbi Champaran	115.546	376.007	37.225	10.2740	35.5802	100.8486	19.968	4.4529	4.5795	10.5086	2.08	0.4640
	Purnia	38.995	132.753	13.143	3.6273	10.0898	35.5994	7.049	1.5719	11.6522	38.2646	7.58	1.6895
	Rohtas	139.855	562.529	55.690	15.3705	0.1302	0.3504	0.069	0.0155	0.0010	0.0024	0.00	0.0001
	Saharsa	46.853	173.115	17.138	4.7302	6.8682	35.2788	6.985	1.5577	12.0907	73.5122	14.56	3.2459
	Samastipur	57.741	264.745	26.210	7.2339	12.6535	37.9845	7.521	1.6772	30.8055	115.0798	22.79	5.0812

	Saran	83.645	337.524	33.415	9.2225	16.7548	44.5310	8.817	1.9662	6.2613	24.2938	4.81	1.0727
	Sheikh-pura	22.182	81.072	8.026	2.2152	0.4188	0.6588	0.130	0.0291	0.0835	0.4258	0.08	0.0188
	Sheohar	14.258	56.131	5.557	1.5337	0.2122	0.8482	0.168	0.0375	1.2527	4.3302	0.86	0.1912
	Sitamarhi	81.232	296.339	29.338	8.0972	0.7738	2.5074	0.496	0.1107	3.1722	15.2462	3.02	0.6732
	Siwan	92.177	352.401	34.888	9.6290	11.6992	32.0884	6.354	1.4168	4.7297	15.0184	2.97	0.6631
	Supaul	52.985	150.398	14.889	4.1095	2.5305	11.6302	2.303	0.5135	2.7130	14.8174	2.93	0.6542
	Vaishali	44.284	191.764	18.985	5.2398	14.2558	49.7240	9.845	2.1955	6.8237	34.7282	6.88	1.5334
Chandi-garh	Chandi-garh	0.575	3.905	0.000	0.0000	0.0250	0.0660	0.000	0.0000	-1.00	-1.00	-1.00	-1.00
Chattis-garh	Balod	3.377	5.091	1.008	0.2782	0.1908	0.3147	0.031	0.0069	-1.00	-1.00	-1.00	-1.00
	Baloda Bazar	4.347	11.973	2.371	0.6543	0.1035	0.1833	0.018	0.0040	0.0330	0.1404	0.00	0.0000
	Balrampur	9.603	22.758	4.506	1.2437	19.3313	42.2355	4.181	0.9324	-1.00	-1.00	-1.00	-1.00
	Bastar	0.403	1.311	0.260	0.0717	11.6764	29.7751	2.948	0.6573	-1.00	-1.00	-1.00	-1.00
	Bemetara	15.325	23.087	4.571	1.2617	0.0210	0.0309	0.003	0.0007	-1.00	-1.00	-1.00	-1.00
	Bijapur	-1.000	-1.000	-1.000	-1.000	0.6348	1.5449	0.153	0.0341	-1.00	-1.00	-1.00	-1.00
	Bilaspur	8.837	19.115	3.785	1.0446	3.2140	6.6038	0.654	0.1458	-1.00	-1.00	-1.00	-1.00
	Dante-wara	0.006	0.017	0.003	0.0010	3.8182	9.8856	0.979	0.2182	-1.00	-1.00	-1.00	-1.00
	DhamTari	1.113	2.501	0.495	0.1367	1.9710	6.3000	0.624	0.1391	-1.00	-1.00	-1.00	-1.00
	Durg	9.786	16.073	3.182	0.8783	0.2534	0.3936	0.039	0.0087	-1.00	-1.00	-1.00	-1.00
	Gariya-band	0.450	1.131	0.224	0.0618	7.1413	13.3209	1.319	0.2941	-1.00	-1.00	-1.00	-1.00
	Janjgir-Champa	2.259	5.628	1.114	0.3076	0.3672	0.7966	0.079	0.0176	-1.00	-1.00	-1.00	-1.00
	Jashpur	1.127	2.729	0.540	0.1491	5.7298	12.5986	1.247	0.2781	-1.00	-1.00	-1.00	-1.00
	Kabird-ham	7.557	13.726	2.718	0.7501	2.5816	4.7750	0.473	0.1054	-1.00	-1.00	-1.00	-1.00
	Kanker	0.579	1.582	0.313	0.0864	10.6554	26.0614	2.580	0.5754	-1.00	-1.00	-1.00	-1.00
	Konda-gaon	0.136	0.411	0.081	0.0225	13.4063	33.8862	3.355	0.7481	-1.00	-1.00	-1.00	-1.00
	Korba	0.669	1.101	0.218	0.0601	4.6220	8.7852	0.870	0.1940	-1.00	-1.00	-1.00	-1.00
	Korea	3.882	7.312	1.448	0.3996	8.1088	16.1722	1.601	0.3570	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Wheat_ rb_Area_000ha	Wheat_ rb_DB_ Kt	Wheat_ rb_SB_ Kt	Wheat_ rb_BE_ million L	Maize_ Kh_Area_000ha	Maize_ Kh_DB_ Kt	Maize_ Kh_SB_ Kt	Maize_ Kh_BE_ million l	Maize_ rb_Area_000ha	Maize_ rb_DB_ Kt	Maize_ rb_SB_ Kt	Maize_ rb_BE_ million L
	Mahasamund	1.196	3.159	0.625	0.1726	0.1112	0.2090	0.021	0.0046	-1.00	-1.00	-1.00	-1.00
	Mungeli	5.743	12.177	2.411	0.6654	0.1913	0.3912	0.039	0.0086	-1.00	-1.00	-1.00	-1.00
	Narainpur	0.014	0.043	0.008	0.0023	1.5712	3.9845	0.394	0.0880	-1.00	-1.00	-1.00	-1.00
	Raigarh	2.936	8.007	1.585	0.4375	0.9000	2.0602	0.204	0.0455	-1.00	-1.00	-1.00	-1.00
	Raipur	4.045	10.278	2.035	0.5617	0.3716	0.6698	0.066	0.0148	-1.00	-1.00	-1.00	-1.00
	Raj Nandgaon	13.986	23.684	4.690	1.2943	1.3502	2.3820	0.236	0.0526	-1.00	-1.00	-1.00	-1.00
	Sukma	0.001	0.001	0.000	0.0001	2.6693	6.9765	0.691	0.1540	-1.00	-1.00	-1.00	-1.00
	Surajpur	6.475	14.659	2.903	0.8011	10.7018	22.0314	2.181	0.4864	-1.00	-1.00	-1.00	-1.00
	Surguja	7.854	16.228	3.213	0.8868	14.5860	31.3183	3.101	0.6914	-1.00	-1.00	-1.00	-1.00
Dadar & Nagar Haveli	Dadar				0.0000	0.0800	0.0960	0.005	0.0011				
Daman & Diu	Daman	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Diu	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
Delhi	Central				0.0000								
	East				0.0000								
	New Delhi				0.0000								
	North				0.0000								
	North East				0.0000								
	North West				0.0000								
	Delhi				0.0000								
	Shahadra				0.0000								
	South				0.0000								
	South East				0.0000								
	South West				0.0000								
	Delhi				0.0000								





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Wheat_ rb_Area_ 000ha	Wheat_ rb_DB_ Kt	Wheat_ rb_SB_ Kt	Wheat_ rb_BE_ million L	Maize_ Kh_Area_ 000ha	Maize_ Kh_DB_ Kt	Maize_ Kh_SB_ Kt	Maize_ Kh_BE_ million l	Maize_ rb_Area_ 000ha	Maize_ DB_Kt	Maize_ rb_SB_ Kt	Maize_ rb_BE_ million L
Haryana	Panch Mahals	13.005	52.285	15.529	4.2859	51.420	87.750	26.062	5.8118	11.700	21.384	6.351	1.4163
	Patan	43.867	213.878	63.522	17.5320	-1.00	-1.00	-1.00	-1.00	2.300	5.400	1.604	0.3576
	Porbandar	20.733	96.741	28.732	7.9301	-1.00	-1.00	-1.00	-1.00	0.500	1.080	0.321	0.0715
	Rajkot	58.240	345.726	102.681	28.3398	1.280	2.472	0.734	0.1637	-1.00	-1.00	-1.00	-1.00
	Sabar Kantha	81.648	336.169	99.842	27.5565	39.456	71.950	21.369	4.7653	3.213	6.804	2.021	0.4506
	Surat	7.433	31.266	9.286	2.5630	1.100	2.160	0.642	0.1431	1.000	2.040	0.606	0.1351
	Suren- dranagar	55.533	253.273	75.222	20.7613	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Tapi	5.233	24.435	7.257	2.0030	0.833	1.560	0.463	0.1033	0.600	1.080	0.321	0.0715
	Vadodara	13.995	61.595	18.294	5.0491	14.091	33.152	9.846	2.1957	12.160	32.064	9.523	2.1236
	Valsad	0.200	1.047	0.311	0.0858	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ambala	87.048	549.406	54.391	15.0120	1.1370	3.2000	0.317	0.0706	-1.0000	-1.0000	-1.0000	-1.0000
	Bhiwani	158.811	1000.076	99.008	27.3261	0.0480	0.1351	0.013	0.0030	-1.0000	-1.0000	-1.0000	-1.0000
	Faridabad	31.067	215.798	21.364	5.8965	0.0260	0.0732	0.007	0.0016	-1.0000	-1.0000	-1.0000	-1.0000
	Fatehabad	187.998	1400.256	138.625	38.2606	0.0070	0.0197	0.002	0.0004	-1.0000	-1.0000	-1.0000	-1.0000
	Gurugram	48.139	339.592	33.620	9.2790	0.0040	0.0113	0.001	0.0002	-1.0000	-1.0000	-1.0000	-1.0000
	Hisar	230.499	1573.792	155.805	43.0023	0.0447	0.1257	0.012	0.0028	-1.0000	-1.0000	-1.0000	-1.0000
	Jhajjar	97.777	632.060	62.574	17.2704	0.1087	0.3058	0.030	0.0068	-1.0000	-1.0000	-1.0000	-1.0000
	Jind	216.106	1481.788	146.697	40.4884	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Kaithal	173.801	1267.860	125.518	34.6430	0.0097	0.0272	0.003	0.0006	-1.0000	-1.0000	-1.0000	-1.0000
	Karnal	172.054	1253.274	74.444	20.5467	0.2197	0.6182	0.061	0.0136	-1.0000	-1.0000	-1.0000	-1.0000
Kuruk- shetra	112.890	811.954	88.422	24.4044	0.4023	3.6000	0.356	0.0795	-1.0000	-1.0000	-1.0000	-1.0000	
Mahen- dragarh	43.200	303.688	0.000	0.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
Mewat	71.725	452.540	0.000	0.0000	0.0090	0.0253	0.003	0.0006	-1.0000	-1.0000	-1.0000	-1.0000	
Palwal	97.316	688.160	0.000	0.0000	0.0283	0.0797	0.008	0.0018	-1.0000	-1.0000	-1.0000	-1.0000	
Panchkula	16.476	81.158	0.000	0.0000	5.8423	16.0000	1.584	0.3532	-1.0000	-1.0000	-1.0000	-1.0000	
Panipat	86.298	625.328	61.907	17.0865	0.0093	0.0256	0.003	0.0006	-1.0000	-1.0000	-1.0000	-1.0000	

	Rewari	47.027	346.698	34.323	9.4732	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Rohtak	103.046	655.996	32.472	8.9622	0.7423	3.2000	0.317	0.0706	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Sirsa	294.003	2220.064	219.786	60.6610	0.0010	0.0030	0.000	0.0001	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Sonipat	147.392	1064.778	52.707	14.5470	0.5233	3.2000	0.317	0.0706	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Yamu-nanagar	98.775	690.030	68.313	18.8544	1.0487	3.2000	0.317	0.0706	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
Hi-machal Pradesh	Bilaspur	26.439	88.028	17.429	4.8105	26.4817	64.3372	22.293	4.9713	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Chamba	20.801	53.139	10.522	2.9040	27.4180	87.8268	30.432	6.7863	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Hamirpur	33.195	65.577	12.984	3.5837	33.4200	69.0292	23.919	5.3339	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Kangra	93.462	242.729	48.060	13.2647	56.0643	120.4348	41.731	9.3059	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Kinnaur	0.181	0.452	0.089	0.0247	0.1323	0.3696	0.128	0.0286	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Kullu	19.278	42.557	8.426	2.3256	16.7637	64.2764	22.272	4.9666	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Lahul & Spiti	0.049	0.126	0.025	0.0069	0.0207	0.0576	0.020	0.0045	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
	Mandi	67.091	144.760	28.663	7.9109	49.0867	153.9192	53.333	11.8933	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Shimla	10.795	29.311	5.804	1.6018	9.5363	26.9412	9.335	2.0817	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Sirmaur	26.313	81.341	16.105	4.4451	19.8670	75.4720	26.151	5.8317	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Solan	24.663	73.356	14.525	4.0088	24.2267	79.1028	27.409	6.1122	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Una	34.977	98.501	19.503	5.3829	31.2777	80.9276	28.041	6.2532	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Anantnag	0.320	0.755	0.075	0.0206	20.8360	23.9040	2.366	0.5277	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Baramula	0.253	0.485	0.048	0.0132	41.2310	59.1600	5.857	1.3061	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Chilas	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
	Gilgit	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000
Gilgit Wazarat	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
Jammu	120.271	306.994	30.392	8.3883	14.9700	21.0780	2.087	0.4653	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
Kathua	52.493	120.670	11.946	3.2972	18.8520	33.1956	3.286	0.7329	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
Leh And Ladakh	2.416	3.224	0.319	0.0881	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
Mirpur	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
Muzaf-farabad	-1.000	-1.000	-1.000	-1.000	18.0880	18.7044	1.852	0.4129	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	
Punch	14.970	28.789	2.850	0.7866	23.8270	44.4600	4.402	0.9815	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Wheat_r_b_Area_000ha	Wheat_rb_DB_Kt	Wheat_rb_SB_Kt	Wheat_rb_BE_million L	Maize_Kh_Area_000ha	Maize_Kh_DB_Kt	Maize_Kh_SB_Kt	Maize_Kh_BE_million l	Maize_rb_Area_000ha	Maize_DB_Kt	Maize_rb_SB_Kt	Maize_rb_BE_million L
Jharkhand	Riasi	58.233	138.045	13.666	3.7719	69.5650	107.4624	10.639	2.3724	-1.0000	-1.0000	-1.0000	-1.0000
	Tribal Territory	0.000	0.000	0.000	0.0000					-1.0000	-1.0000	-1.0000	-1.0000
	Udhampur	43.424	96.045	9.508	2.6243	90.1270	123.9876	12.275	2.7373	-1.0000	-1.0000	-1.0000	-1.0000
	Bokaro	1.205	3.005	0.149	0.0411	7.1368	10.8726	1.076	0.2400				
	Chatra	8.005	29.186	1.445	0.3987	9.9913	31.5549	3.124	0.6966				
	Deogarh	6.564	20.705	1.025	0.2829	13.3173	22.0596	2.184	0.4870				
	Dhanbad	1.113	3.130	0.155	0.0428	1.7790	3.7507	0.371	0.0828				
	Dumka	9.856	34.681	1.717	0.4738	19.9850	65.5239	6.487	1.4466				
	Garhwa	11.260	24.768	1.226	0.3384	25.3558	36.8432	3.647	0.8134				
	Giridih	8.240	25.566	1.266	0.3493	17.3833	24.1122	2.387	0.5323				
	Godda	10.385	24.451	1.210	0.3341	10.9435	24.5304	2.429	0.5416				
	Gumla	5.662	11.862	0.587	0.1621	5.4983	9.1774	0.909	0.2026				
	Hazaribagh	7.322	19.369	0.959	0.2646	9.6960	16.2723	1.611	0.3592				
	JaMTara	4.284	12.395	0.614	0.1693	10.6160	22.9656	2.274	0.5070				
	Khunti	2.766	7.727	0.382	0.1056	4.3950	8.6825	0.860	0.1917				
	Kodarma	5.975	19.379	0.959	0.2648	7.7968	14.7488	1.460	0.3256				
	Latehar	5.369	10.739	0.532	0.1467	20.0053	37.4855	3.711	0.8276				
	Lohardaga	2.858	7.944	0.393	0.1085	5.7055	13.0860	1.296	0.2889				
	Pakur	5.628	13.387	0.663	0.1829	8.9560	16.5879	1.642	0.3662				
	Palamu	10.821	24.237	1.200	0.3311	24.2738	31.3725	3.106	0.6926				
Pashchimi Singhbhum	1.762	3.366	0.167	0.0460	6.3063	7.1716	0.710	0.1583					
Purbi Singhbhum	4.263	7.240	0.358	0.0989	7.6268	9.5214	0.943	0.2102					
Ramgarh	1.473	4.087	0.202	0.0558	6.9583	12.6762	1.255	0.2799					
Ranchi	5.718	19.354	0.958	0.2644	8.1688	20.9134	2.070	0.4617					
Sahibganj	6.720	14.475	0.717	0.1978	6.3540	8.7093	0.862	0.1923					

	Saraikele	3.250	13.361	0.661	0.1825	5.9953	8.6265	0.854	0.1904										
	Khar-sawan																		
	Simdega	4.913	16.318	0.808	0.2229	5.7145	17.9910	1.781	0.3972										
Karnataka	Bagalkot	22.485	47.023	3.724	1.0279	50.8708	214.8190	85.068	18.9702	22.8916	84.1634	33.33	7.4323						
	Ballari	0.568	1.103	0.087	0.0241	93.7816	281.9700	111.660	24.9002	2.4654	8.5704	3.39	0.7568						
	Belagavi	46.343	82.299	6.518	1.7990	112.2356	450.2827	178.312	39.7636	34.9512	131.4130	52.04	11.6048						
	Bengaluru Rural	0.008	0.016	0.001	0.0003	11.9566	54.2083	21.466	4.7870	0.1090	0.4099	0.16	0.0362						
	Bengaluru Urban	-1.000	-1.000	-1.000	-1.000	0.7070	2.6062	1.032	0.2301	0.0980	0.3701	0.15	0.0327						
	Bidar	6.532	12.383	0.981	0.2707	1.4030	4.4359	1.757	0.3917	0.4012	1.3838	0.55	0.1222						
	Chamara-janagar	-1.000	-1.000	-1.000	-1.000	32.1318	125.8764	49.847	11.1159	2.5764	11.1288	4.41	0.9828						
	Chikbal-lapur	-1.000	-1.000	-1.000	-1.000	55.7524	189.0070	74.847	16.6908	0.7562	2.5901	1.03	0.2287						
	Chik-kamag-aluru	0.002	0.001	0.000	0.0000	21.9406	68.8306	27.257	6.0783	-1.00	-1.00	-1.00	0.0000						
	Chitra-durga	0.535	1.186	0.094	0.0259	94.7346	266.1254	105.386	23.5010	4.7384	13.9260	5.51	1.2298						
	Dakshin Kannada	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	-1.0000	-1.00	-1.00	-1.00	-1.00					
	Davangere	0.526	0.907	0.072	0.0198	178.1678	681.6974	269.952	60.1993	2.4776	9.1562	3.63	0.8086						
	Dharwad	37.235	47.123	3.732	1.0301	35.9018	111.9149	44.318	9.8830	3.2520	10.6502	4.22	0.9405						
	Gadag	28.363	29.373	2.326	0.6421	52.1106	149.8270	59.331	13.2309	1.7810	4.8022	1.90	0.4241						
	Hassan	-1.000	-1.000	-1.000	-1.000	63.8882	273.8822	108.457	24.1860	6.2890	22.5914	8.95	1.9950						
	Haveri	0.867	0.940	0.074	0.0205	141.2958	509.8817	201.913	45.0266	6.1314	26.2678	10.40	2.3197						
	Kalabur-agi	14.621	33.951	2.689	0.7421	5.2852	15.5258	6.148	1.3711	0.4606	0.6161	0.24	0.0544						
Kodagu	-1.000	-1.000	-1.000	-1.000	3.2262	17.2915	6.847	1.5270	0.0277	0.1044	0.04	0.0092							
Kolar	-1.000	-1.000	-1.000	-1.000	0.4568	1.7117	0.678	0.1512	0.0672	0.2498	0.10	0.0221							
Koppal	6.692	7.666	0.607	0.1676	50.2018	180.8863	71.631	15.9737	5.2546	18.1867	7.20	1.6060							
Mandhya	-1.000	-1.000	-1.000	-1.000	3.9618	11.8910	4.709	1.0501	0.2278	0.8712	0.34	0.0769							

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Kerala	Mysuru	-1.000	-1.000	-1.000	-1.000	29.6926	105.4097	41.742	9.3085	5.1562	19.1434	7.58	1.6905
	Raichur	1.781	1.859	0.147	0.0406	0.2506	0.8585	0.340	0.0758	0.2194	0.8107	0.32	0.0716
	Ramnagar	-1.000	-1.000	-1.000	-1.000	2.4870	11.8879	4.708	1.0498	0.1366	0.5950	0.24	0.0525
	Shivamogga	0.002	0.004	0.000	0.0001	60.0226	273.2978	108.226	24.1344	0.4772	2.6359	1.04	0.2328
	Tumakuru	-1.000	-1.000	-1.000	-1.000	24.7980	69.6360	27.576	6.1494	0.2118	0.6660	0.26	0.0588
	Udupi	-1.000	-1.000	-1.000	-1.000	-1.0000	-1.0000	-1.0000	-1.0000	0.0162	0.0614	0.02	0.0054
	Uttar Kannada	-1.000	-1.000	-1.000	-1.000	4.5320	21.1474	8.374	1.8675	0.2210	0.8268	0.33	0.0730
	Vijayapura	54.643	76.734	6.077	1.6773	60.7772	238.3046	94.369	21.0442	10.7538	40.2394	15.93	3.5535
	Yadgir	1.244	1.578	0.125	0.0345	0.3332	0.9914	0.393	0.0876	0.1508	0.5575	0.22	0.0492
	Alappuzha	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00			
	Ernakulam	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00			
	Idukki	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00			
	Kannur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00			
	Kasargod	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00			
	Kollam	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00			
	Kottayam	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00			
	Kozikod	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00			
Malappuram	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00				
Palakkad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00				
Pattanamittia	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00				
Thiruvananthapuram	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00				
Thrissur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00				
Wayanad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00				





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	Jhabua	37.610	147.357	29.178	8.0531	70.1358	141.7318	14.031	3.1289	-1.00	-1.00	-1.00	-1.00
	Katni	86.781	278.613	55.167	15.2262	4.5654	11.1458	1.103	0.2461	-1.00	-1.00	-1.00	-1.00
	Mandla	37.269	89.758	17.773	4.9053	17.9974	30.7502	3.044	0.6789	-1.00	-1.00	-1.00	-1.00
	Mandsaur	88.637	496.895	98.389	27.1553	32.2860	66.9629	6.629	1.4783	-1.00	-1.00	-1.00	-1.00
	Morena	105.637	514.270	101.829	28.1049	0.0353	0.0471	0.005	0.0010	-1.00	-1.00	-1.00	-1.00
	Narsinghpur	83.065	343.218	67.960	18.7569	2.4088	5.4466	0.539	0.1202	-1.00	-1.00	-1.00	-1.00
	Nimach	46.638	244.264	48.366	13.3490	28.7924	77.6690	7.689	1.7146	-1.00	-1.00	-1.00	-1.00
	Panna	72.907	198.652	39.335	10.8564	4.0200	6.2422	0.618	0.1378	-1.00	-1.00	-1.00	-1.00
	Raisen	229.785	946.939	187.501	51.7503	6.1658	10.3735	1.027	0.2290	-1.00	-1.00	-1.00	-1.00
	Rajgarh	150.281	564.433	111.762	30.8463	45.6082	78.7030	7.791	1.7375	-1.00	-1.00	-1.00	-1.00
	Ratlam	96.210	406.281	80.447	22.2033	46.5596	141.7210	14.030	3.1287	-1.00	-1.00	-1.00	-1.00
	Rewa	159.256	536.763	106.283	29.3341	2.2378	3.6730	0.364	0.0811	-1.00	-1.00	-1.00	-1.00
	Sagar	199.067	540.569	107.037	29.5421	4.1400	7.3474	0.727	0.1622	-1.00	-1.00	-1.00	-1.00
	Satna	146.570	587.077	116.246	32.0838	3.9990	6.4404	0.638	0.1422	-1.00	-1.00	-1.00	-1.00
	Sehore	230.192	858.815	170.052	46.9343	10.4146	20.2459	2.004	0.4470	-1.00	-1.00	-1.00	-1.00
	Seoni	123.353	404.266	80.048	22.0931	17.5274	45.7183	4.526	1.0093	-1.00	-1.00	-1.00	-1.00
	Shahdol	36.399	109.493	21.681	5.9838	12.8302	19.3032	1.911	0.4261	-1.00	-1.00	-1.00	-1.00
	Shajapur	106.351	394.912	78.195	21.5820	27.4950	47.6210	4.714	1.0513	-1.00	-1.00	-1.00	-1.00
	Sheepur	80.010	468.847	92.835	25.6225	2.3312	5.6842	0.563	0.1255	-1.00	-1.00	-1.00	-1.00
	Shivpuri	176.889	741.566	146.836	40.5266	20.5288	36.7214	3.635	0.8107	-1.00	-1.00	-1.00	-1.00
	Sidhi	61.320	176.510	35.013	9.6636	9.7844	13.3728	1.330	0.2966	-1.00	-1.00	-1.00	-1.00
	Singrauli	37.640	102.519	20.299	5.6027	25.7288	51.3206	5.081	1.1330	-1.00	-1.00	-1.00	-1.00
	Tikamgarh	127.639	435.575	129.369	35.7059	3.9240	4.8773	0.483	0.1077	-1.00	-1.00	-1.00	-1.00
	Ujjain	191.328	789.936	156.413	43.1700	9.6558	17.9393	1.776	0.3960	-1.00	-1.00	-1.00	-1.00
	Umaria	27.803	70.641	13.988	3.8606	10.8288	16.3039	1.614	0.3599	-1.00	-1.00	-1.00	-1.00
	Vidisha	249.881	771.318	152.727	42.1526	9.0228	16.4479	1.628	0.3631	-1.00	-1.00	-1.00	-1.00
	West Nimar	105.699	457.420	90.572	24.9980	33.0144	73.4664	7.273	1.6219	-1.00	-1.00	-1.00	-1.00

Maha-rashtra	Ahmadnagar	65.960	170.364	50.598	13.9651	53.1400	199.1760	55.212	12.3122	17.4800	45.7440	12.68	2.8277
	Akola	22.520	63.251	18.786	5.1848	0.5800	1.7760	0.492	0.1098	0.3000	0.7800	0.22	0.0482
	Amaravati	46.340	116.090	34.479	9.5161	1.1600	3.4560	0.958	0.2136	1.8000	0.3600	0.10	0.0223
	Aurangabad	42.060	102.386	30.409	8.3928	157.2800	529.0080	146.641	32.7009	5.5800	14.3040	3.97	0.8842
	Bhandara	11.640	20.166	5.989	1.6531	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bid	49.600	77.612	23.051	6.3621	5.2000	7.0320	1.949	0.4347	5.7200	6.7680	1.88	0.4184
	Buldhana	52.700	114.773	34.088	9.4082	36.8000	109.3440	30.310	6.7592	11.4000	20.9760	5.81	1.2966
	Chandrapur	25.720	40.990	12.174	3.3601	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.00	0.0000
	Dhule	37.060	110.554	32.835	9.0624	66.4400	213.0960	59.070	13.1727	4.0800	15.7920	4.38	0.9762
	Gadchiroli	0.800	1.287	0.382	0.1055	1.8400	4.3200	1.198	0.2670	0.9200	2.6400	0.73	0.1632
	Gondiya	2.160	2.394	0.711	0.1962	0.1250	0.2100	0.058	0.0130	0.2500	0.1800	0.05	0.0111
	Hingoli	46.940	84.045	24.961	6.8894	0.7000	0.6720	0.186	0.0415	0.4400	0.8880	0.25	0.0549
	Jalgaon	38.420	126.771	37.651	10.3917	75.1800	282.7920	78.390	17.4810	19.4600	75.6480	20.97	4.6762
	Jalna	13.960	29.531	8.771	2.4207	62.7000	160.3680	44.454	9.9132	3.5500	9.9300	2.75	0.6138
	Kolhapur	9.920	36.113	10.726	2.9603	2.4400	7.2960	2.022	0.4510	5.7000	18.5040	5.13	1.1438
	Latur	35.200	57.536	17.088	4.7164	6.3800	12.1680	3.373	0.7522	2.2200	5.0640	1.40	0.3130
	Mumbai City	-1.000	-1.000	-1.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nagpur	81.820	164.740	48.928	13.5040	0.2600	0.5760	0.160	0.0356	-1.00	-1.00	-1.00	-1.00
	Nanded	37.780	75.787	22.509	6.2124	0.5600	0.6000	0.166	0.0371	0.2800	0.6480	0.18	0.0401
	Nandurbar	21.620	71.269	21.167	5.8421	29.2600	80.7600	22.387	4.9922	1.8200	6.3600	1.76	0.3931
	Nasik	59.680	156.362	46.439	12.8173	153.4200	588.3360	163.087	36.3683	2.1800	8.3520	2.32	0.5163
	Osmanabad	29.420	42.008	12.476	3.4435	18.5200	17.5440	4.863	1.0845	2.2800	4.5600	1.26	0.2819
	Palghar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Parbhani	28.560	61.486	18.261	5.0401	1.7200	2.0400	0.565	0.1261	0.4500	1.0800	0.30	0.0668
	Pune	60.880	165.607	49.185	13.5752	11.1200	40.0080	11.090	2.4731	17.0600	66.3120	18.38	4.0991
	Raigarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.2000	0.7200	0.20	0.0445
	Ratnagiri	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.1000	0.3600	0.10	0.0223
	Sangli	27.620	79.527	23.620	6.5190	28.1200	93.9360	26.039	5.8067	18.6000	62.3040	17.27	3.8514

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Wheat_ rb_Area_000ha	Wheat_ rb_DB_ Kt	Wheat_ rb_SB_ Kt	Wheat_ rb_BE_ million L	Maize_ Kh_Area_000ha	Maize_ Kh_DB_ Kt	Maize_ Kh_SB_ Kt	Maize_ Kh_BE_ million l	Maize_ rb_Area_000ha	Maize_ DB_ Kt	Maize_ rb_SB_ Kt	Maize_ rb_BE_ million L
Maha- nipur	Satara	37.480	100.651	29.893	8.2506	12.9200	27.1920	7.538	1.6809	8.5800	27.2400	7.55	1.6839
	Sindhudurg	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.2000	0.6600	0.18	0.0408
	Solapur	44.760	80.784	23.993	6.6220	14.1200	30.4080	8.429	1.8797	29.1400	83.8800	23.25	5.1851
	Suburban Mumbai	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.0	-1.0	-1.0	-1.0
	Thane	0.100	0.224	0.067	0.0184	-1.00	-1.00	-1.00	-1.00	0.1000	0.3600	0.10	0.0223
	Wardha	23.140	51.762	15.373	4.2430	0.1000	0.1200	0.033	0.0074	-1.00	-1.00	-1.00	-1.00
	Washim	24.140	53.228	15.809	4.3632	0.3000	0.8640	0.240	0.0534	0.3000	0.8280	0.23	0.0512
	Yavatmal	35.100	72.406	21.505	5.9353	0.4667	1.4000	0.388	0.0865	1.3000	0.2400	0.07	0.0148
	Bishnupur	0.295	1.107	0.055	0.0151	0.7950	1.7100	1.185	0.2643	0.5225	1.4910	1.03	0.2304
	Chandel	-1.000	-1.000	-1.000	-1.000	2.7475	6.5220	4.520	1.0079	0.6325	1.7820	1.23	0.2754
	Churachandpur	0.455	1.728	0.086	0.0236	4.6825	11.0370	7.649	1.7056	0.7325	2.1450	1.49	0.3315
	Imphal East	0.265	0.972	0.048	0.0133	0.5300	1.1430	0.792	0.1766	0.5250	1.5330	1.06	0.2369
	Imphal West	0.273	0.999	0.049	0.0136	0.5275	1.1550	0.800	0.1785	0.5175	1.5330	1.06	0.2369
	Senapati	0.535	2.042	0.101	0.0279	3.5275	8.5050	5.894	1.3144	0.7650	2.2200	1.54	0.3431
Tamenglong	-1.000	-1.000	-1.000	-1.000	1.7325	4.0050	2.775	0.6189	0.7575	2.2110	1.53	0.3417	
Thoubal	0.403	1.470	0.073	0.0201	1.3775	3.0510	2.114	0.4715	0.4875	1.4220	0.99	0.2198	
Ukhrul	-1.000	-1.000	-1.000	-1.000	1.7675	4.0410	2.800	0.6245	0.5600	1.6710	1.16	0.2582	
Megha- laya	East Garo Hills	0.030	0.051	0.003	0.0007	0.9643	1.6680	1.156	0.2578	-1.00	-1.00	-1.00	-1.00
	East Khasi Hills	-1.000	-1.000	-1.000	-1.000	0.6999	4.4020	3.051	0.6803	-1.00	-1.00	-1.00	-1.00
	Jaintia Hills	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ri Bhoi	0.001	0.001	0.000	0.0000	1.5417	4.7712	3.306	0.7373	-1.00	-1.00	-1.00	-1.00
	South Garo Hills	-1.000	-1.000	-1.000	-1.000	0.9713	1.5172	1.051	0.2345	-1.00	-1.00	-1.00	-1.00

	West Garo Hills	0.267	0.775	0.038	0.0106	4.0017	8.4876	5.882	1.3117	-1.00	-1.00	-1.00	-1.00
	West Khasi Hills	0.003	0.006	0.000	0.0001	3.8660	6.9000	4.782	1.0663	-1.00	-1.00	-1.00	-1.00
Mizoram	Aizawl	-1.000	-1.000	-1.000	-1.000	0.4810	0.8658	0.6000	0.1338				
	Champhai	-1.000	-1.000	-1.000	-1.000	0.7700	1.3860	0.9605	0.2142				
	Kolasib	-1.000	-1.000	-1.000	-1.000	0.9290	1.6722	1.1588	0.2584				
	Lawngtlai	-1.000	-1.000	-1.000	-1.000	0.5200	0.9360	0.6486	0.1446				
	Lunglei	-1.000	-1.000	-1.000	-1.000	0.4850	0.8730	0.6050	0.1349				
	Mamit	-1.000	-1.000	-1.000	-1.000	0.7400	1.3320	0.9231	0.2058				
	Saiha	-1.000	-1.000	-1.000	-1.000	0.1840	0.3312	0.2295	0.0512				
	Serchhip	-1.000	-1.000	-1.000	-1.000	1.5860	2.8548	1.9784	0.4412				
	Dimapur	0.402	1.080	0.000	0.0000	5.3500	12.6400	1.251	0.2791	1.3650	3.2260	0.32	0.0712
	Kiphire	-1.000	-1.000	-1.000	-1.000	7.2533	17.1100	1.694	0.3777	0.2867	0.6720	0.07	0.0148
Nagaland	Kohima	0.352	0.945	0.000	0.0000	4.6083	10.8800	1.077	0.2402	-1.00	-1.00	-1.00	-1.00
	Longleng	-1.000	-1.000	-1.000	-1.000	3.0300	7.1040	0.703	0.1568	-1.00	-1.00	-1.00	-1.00
	Mokokchung	0.370	0.987	0.000	0.0000	3.1000	7.3040	0.723	0.1613	0.8200	1.9280	0.19	0.0426
	Mon	0.417	1.100	0.000	0.0000	4.5600	10.7700	1.066	0.2378	1.0300	2.4320	0.24	0.0537
	Peren	0.318	0.858	0.000	0.0000	3.1000	7.3000	0.723	0.1612	-1.00	-1.00	0.00	0.0000
	Phek	0.328	0.890	0.000	0.0000	8.1000	19.1020	1.891	0.4217	0.6883	1.6340	0.16	0.0361
	Tuensang	0.327	0.868	0.000	0.0000	10.1133	23.9480	2.371	0.5287	-1.00	-1.00	-1.00	-1.00
	Wokha	0.328	0.880	0.000	0.0000	4.2600	10.0440	0.994	0.2217	0.9533	2.2560	0.22	0.0498
	Zunheboto	0.302	0.780	0.000	0.0000	10.0700	23.7880	2.355	0.5252	-1.00	-1.00	-1.00	-1.00
	Odisha	Angul					2.2426	3.6660	0.726	0.1619			
Balangir						2.4774	6.7153	1.330	0.2965				
Baleswar						32.0001	0.8523	0.169	0.0376				
Baragarh						0.4308	0.6737	0.133	0.0297				
Bhadrak						0.0200	0.0241	0.005	0.0011				
Boudh						0.5352	0.9125	0.181	0.0403				
Cuttack						0.7253	2.1608	0.428	0.0954				
Deogarh						0.5856	1.2795	0.253	0.0565				



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	Dhenkanal					1.1712	2.1265	0.421	0.0939				
	Gajapathi					5.5116	12.6849	2.512	0.5601				
	Ganjam					5.3858	11.6499	2.307	0.5144				
	Jagatsinghpur					0.0650	0.0900	0.018	0.0040				
	Jajpur					1.4815	2.1153	0.419	0.0934				
	Jharsuguda					0.9509	2.7326	0.541	0.1207				
	Kalahandi					7.9898	36.5311	7.233	1.6130				
	Kandhamal					8.5935	16.5097	3.269	0.7290				
	Kendrapara					0.0350	0.0541	0.011	0.0024				
	Kendujhar					12.1350	20.6104	4.081	0.9100				
	Khordha					0.4304	1.0750	0.213	0.0475				
	Koraput					10.2634	28.1836	5.580	1.2444				
	Malkangiri					4.4444	14.5044	2.872	0.6404				
	Mayurbhanj					7.3284	11.8100	2.338	0.5215				
	Nabarangapur					30.1011	97.2743	19.260	4.2950				
	Nayagarh					2.5326	5.6526	1.119	0.2496				
	Nuapada					2.7138	6.1238	1.213	0.2704				
	Puri					0.1101	0.0901	0.018	0.0040				
	Rayagada					7.3226	35.3679	7.003	1.5616				
	Samalpur					2.4527	5.6717	1.123	0.2504				
	Subarnapur					0.6202	1.0924	0.216	0.0482				



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Rajasthan	Ajmer	59.068	268.887	0.000	0.0000	31.1550	45.1599	0.000	0.0000				
	Alwar	202.279	1186.074	0.000	0.0000	5.7395	12.2064	0.000	0.0000				
	Banswara	87.801	288.604	0.000	0.0000	139.6045	233.5869	0.000	0.0000				
	Baran	158.945	899.769	0.000	0.0000	10.8243	26.3964	0.000	0.0000				
	Barmer	13.710	27.079	0.000	0.0000	0.0110	0.0219	0.000	0.0000				
	Bharatpur	153.633	967.651	0.000	0.0000	0.0050	0.0099	0.000	0.0000				
	Bhilwara	122.367	529.686	0.000	0.0000	169.8773	369.5160	0.000	0.0000				
	Bikaner	98.948	360.047	0.000	0.0000	0.0053	0.0108	0.000	0.0000				
	Bundi	158.692	877.469	0.000	0.0000	38.3900	114.9528	0.000	0.0000				
	Chittaurgarh	118.961	661.752	0.000	0.0000	140.8020	402.9384	0.000	0.0000				
	Churu	29.416	82.242	0.000	0.0000	-1.00	-1.00	-1.00	-1.0000				
	Dausa	94.602	518.786	0.000	0.0000	0.6343	1.2732	0.000	0.0000				
	Dholpur	61.317	350.460	0.000	0.0000	0.0053	0.0108	0.000	0.0000				
	Dungarpur	44.370	121.077	0.000	0.0000	79.5353	98.8233	0.000	0.0000				
	Ganganagar	250.271	1502.106	0.000	0.0000	0.0428	0.0870	0.000	0.0000				
	Hanumanagar	242.404	1322.865	0.000	0.0000	0.0083	0.0160	0.000	0.0000				
	Jaipur	153.848	759.772	0.000	0.0000	2.8725	4.8381	0.000	0.0000				
	Jaisalmer	13.331	34.694	0.000	0.0000	-1.00	-1.00	-1.00	-1.0000				
Jalor	34.199	97.106	0.000	0.0000	0.0465	0.0930	0.000	0.0000					
Jhalawar	92.699	453.227	0.000	0.0000	33.0575	70.8741	0.000	0.0000					
Jhunjhunun	82.651	457.809	0.000	0.0000	0.0005	0.0012	0.001	0.0003					
Jodhpur	61.215	209.987	0.000	0.0000	0.0035	0.0066	0.000	0.0000					
Karauli	81.679	476.171	0.000	0.0000	0.0913	0.1821	0.000	0.0000					
Kota	125.763	674.140	0.000	0.0000	6.7845	13.1412	0.000	0.0000					
Nagaur	73.024	269.555	0.000	0.0000	0.0365	0.0735	0.000	0.0000					
Pali	56.590	187.448	0.000	0.0000	17.0748	27.4983	0.000	0.0000					



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Tamil Nadu	Nilgiri					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Perambalur					40.7720	227.9658	56.422	12.5820	1.6260	10.9224	2.70	0.6028
	Pudukkottai					3.8405	32.2584	7.984	1.7804	2.4835	16.5468	4.10	0.9133
	Ramathapuram					0.2160	1.4136	0.350	0.0780	0.6380	4.2162	1.04	0.2327
	Salem					25.0725	177.8328	44.014	9.8150	11.8555	98.5440	24.39	5.4389
	Sivaganga					0.0965	0.6903	0.171	0.0381	0.0760	0.4602	0.11	0.0254
	Teni					7.7600	63.7338	15.774	3.5176	4.8380	42.6042	10.54	2.3514
	Thanjavur					0.8963	5.6319	1.394	0.3108	0.6150	4.0920	1.01	0.2258
	Thiruvavur					-1.00	-1.00	-1.00	-1.00	0.0020	0.0150	0.00	0.0008
	Tiruchirappalli					6.8010	32.8356	8.127	1.8123	0.4780	3.3090	0.82	0.1826
	Tirunelveli					4.8320	19.4010	4.802	1.0708	10.6235	71.6994	17.75	3.9573
	Tiruppur					18.0378	140.2362	34.708	7.7400	9.9720	101.3496	25.08	5.5937
	Tiruvallur					0.0107	0.0768	0.019	0.0042	0.0550	0.3300	0.08	0.0182
	Tiruvannamalai					0.5900	3.7326	0.924	0.2060	0.5940	4.0512	1.00	0.2236
	Tuticorin					11.7030	36.8992	9.133	2.0366	28.0990	112.5024	27.84	6.2093
	Vellore					0.8928	5.5731	1.379	0.3076	2.1405	13.1802	3.26	0.7274
	Villupuram					8.2683	60.8100	15.050	3.3563	6.8850	41.6976	10.32	2.3014
	Virudhunagar					11.5213	53.6943	13.289	2.9635	15.4680	94.8384	23.47	5.2344
Tamil Nadu	Adilabad	3.243	8.080	0.000	0.000	11.5296	43.1830	4.275	0.9534	9.6750	43.3270	2.32	0.5165
	Hyderabad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Karimnagar	0.012	0.022	0.000	0.000	54.4546	285.3595	28.251	6.2999	44.7122	277.3538	14.83	3.3065



	Khammam	-1.000	-1.000	-1.000	-1.000	14.2392	67.9937	6.731	1.5011	16.3858	128.6988	6.88	1.5343	
	Mahabubnagar	0.015	0.027	0.000	0.000	144.6868	417.6456	41.347	9.2204	4.3960	26.4818	1.42	0.3157	
	Medak	1.974	3.156	0.000	0.000	107.5260	353.3136	34.978	7.8001	13.3228	58.3697	3.12	0.6959	
	Nalgonda	-1.000	-1.000	-1.000	-1.000	2.6228	3.9835	0.394	0.0879	0.4914	3.0677	0.16	0.0366	
	Nizamabad	1.254	2.879	0.000	0.000	48.4220	286.5329	28.367	6.3258	22.7646	137.2682	7.34	1.6365	
	Ranga Reddy	0.526	1.054	0.000	0.000	40.0848	138.9422	13.755	3.0674	2.2458	13.4275	0.72	0.1601	
	Warangal	0.020	0.039	0.000	0.000	50.2170	239.4974	23.710	5.2874	35.3954	243.1507	13.00	2.8987	
Tripura	Dhalai	0.083	0.265	0.008	0.0022	0.8364	1.2542	0.062	0.0138					
	Gomati	0.017	0.064	0.002	0.0005	0.3793	0.5736	0.028	0.0063					
	Khowai	0.011	0.037	0.001	0.0003	0.4393	0.7696	0.038	0.0085					
	North Tripura	0.055	0.174	0.005	0.0014	0.8498	1.3507	0.067	0.0149					
	Sepahijala	0.020	0.066	0.002	0.0005	0.3740	0.5396	0.027	0.0060					
	South Tripura	0.025	0.076	0.002	0.0006	0.7698	1.1254	0.056	0.0124					
	Unokoti	0.041	0.156	0.005	0.0013	0.2643	0.4164	0.021	0.0046					
	West Tripura	0.025	0.071	0.002	0.0006	0.6418	1.1558	0.057	0.0128					
	Uttar Pradesh	Agra	132.848	688.707	68.182	18.8182	0.0590	0.1836	0.073	0.0162	-1.00	-1.00	-1.00	-1.00
		Aligarh	220.522	1104.805	109.376	30.1877	16.2452	45.4188	17.986	4.0108	0.0300	0.0930	0.04	0.0082
Allahabad		218.275	723.581	71.634	19.7711	0.2017	0.2904	0.115	0.0256	0.0355	0.1182	0.05	0.0104	
Ambedkarnagar		117.903	557.137	55.157	15.2232	0.4297	0.4174	0.165	0.0369	0.0208	0.0656	0.03	0.0058	
Amethi		108.573	418.632	41.445	11.4387	0.4923	0.4890	0.194	0.0432	0.0240	0.0783	0.03	0.0069	
Amroha		91.630	409.147	40.506	11.1795	1.8740	2.9644	1.174	0.2618	0.0170	0.0464	0.02	0.0041	
Auraiya		103.827	526.869	52.160	14.3962	7.9782	22.5788	8.941	1.9939	0.0830	0.2388	0.09	0.0211	
Azamgarh		234.399	966.767	210.562	58.1151	6.4243	13.5292	0.402	0.0896	0.0912	0.2278	0.01	0.0015	
Badaun		263.746	1238.707	36.790	10.1539	9.4877	23.0786	9.139	2.0380	0.0050	0.0138	0.01	0.0012	
Baghpat		54.033	335.144	33.179	9.1575	0.0165	0.0468	0.019	0.0041	-1.00	-1.00	-1.00	-1.00	
Bahraich	164.929	701.278	69.427	19.1617	70.2908	105.5674	41.805	9.3224	0.5242	1.4180	0.56	0.1252		

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	Ballia	138.815	601.666	119.130	32.8798	27.9657	49.2730	19.512	4.3512	3.0402	9.0178	3.57	0.7963
	Balrampur	85.978	335.420	33.207	9.1650	5.7888	7.3432	2.908	0.6485	0.1398	0.3960	0.16	0.0350
	Banda	131.530	348.997	34.551	9.5360	0.0108	0.0198	0.008	0.0017	0.1090	0.4644	0.18	0.0410
	Barabanki	165.065	796.382	78.842	21.7603	3.4625	3.2434	1.284	0.2864	0.0276	0.0830	0.03	0.0073
	Bareilly	204.503	872.852	250.596	69.1644	0.2373	0.5448	0.216	0.0481	0.0170	0.0456	0.02	0.0040
	Basti	117.101	489.966	48.507	13.3878	2.5427	5.0464	1.998	0.4456	0.0165	0.0576	0.02	0.0051
	Bhadohi	47.583	181.722	17.990	4.9654	0.6098	0.7032	0.278	0.0621	0.0103	0.0309	0.01	0.0027
	Bijnor	114.807	532.142	52.682	14.5402	0.0095	0.0183	0.007	0.0016	0.0073	0.0280	0.01	0.0025
	Bulandshahar	194.786	1112.489	110.136	30.3977	42.8742	118.1200	46.776	10.4309	0.0340	0.0972	0.04	0.0086
	Chandauli	97.556	343.743	170.153	46.9622	0.0495	0.0916	0.024	0.0055	0.0220	0.0750	0.02	0.0045
	Chitrakoot	53.004	142.931	14.150	3.9054	0.0438	0.0938	0.037	0.0083	-1.00	-1.00	-1.00	-1.00
	Deoria	153.462	634.394	62.805	17.3342	5.4722	12.9088	5.112	1.1400	1.1277	4.5120	1.79	0.3984
	Etah	135.101	628.146	62.186	17.1635	22.7305	73.4302	29.078	6.4845	0.0060	0.0168	0.01	0.0015
	Etawah	95.632	477.269	47.250	13.0409	4.6173	13.5152	5.352	1.1935	0.0218	0.0627	0.02	0.0055
	Faizabad	109.099	435.162	43.081	11.8904	1.5433	1.4786	0.586	0.1306	0.0884	0.2789	0.11	0.0246
	Farrukhabad	74.791	372.223	36.850	10.1706	31.9448	84.9582	33.643	7.5025	0.1390	0.3762	0.15	0.0332
	Fatehpur	172.940	760.069	75.247	20.7681	0.3017	0.4252	0.168	0.0375	0.0148	0.0466	0.02	0.0041
	Firozabad	99.691	492.701	48.777	13.4626	7.6665	25.3828	10.052	2.2415	0.0150	0.0528	0.02	0.0047
	Gautambudhnaagar	47.887	255.284	25.273	6.9754	0.6128	1.6084	0.637	0.1420	-1.00	-1.00	-1.00	-1.00
	Gazipur	176.866	667.576	66.090	18.2409	0.6858	1.2014	0.476	0.1061	0.0874	0.3132	0.12	0.0277
	Ghaziabad	43.655	267.023	26.435	7.2961	0.6018	1.7282	0.684	0.1526	-1.00	-1.00	-1.00	-1.00
	Gonda	157.138	673.678	66.694	18.4076	43.5697	57.0824	22.605	5.0408	0.5410	1.7118	0.68	0.1512
	Gorakhpur	190.197	773.762	76.602	21.1423	2.6860	3.5418	1.403	0.3128	0.0303	0.1122	0.04	0.0099
	Hamirpur	103.711	370.227	36.652	10.1161	0.0038	0.0069	0.003	0.0006	0.0995	0.3876	0.15	0.0342
	Hapur	43.127	262.679	26.005	7.1774	1.0030	2.4927	0.987	0.2201	-1.00	-1.00	-1.00	-1.00
	Hardoi	328.087	1542.894	152.747	42.1580	38.7892	77.5272	30.701	6.8463	0.0848	0.2907	0.12	0.0257

Hathras	80.144	392.872	38.894	10.7348	3.0093	7.6898	3.045	0.6791	-1.00	-1.00	-1.00
Jalaun	147.641	580.009	57.421	15.8482	0.0183	0.0306	0.012	0.0027	0.0575	0.2418	0.0214
Jaunpur	210.585	871.475	560.794	154.7793	45.0920	83.6624	0.000	0.0000	0.2565	0.7098	0.0000
Jhansi	157.511	532.111	52.679	14.5394	1.5075	1.5420	0.611	0.1362	0.1653	0.6656	0.0588
Kannauj	73.763	359.781	35.618	9.8307	38.6995	96.4628	38.199	8.5184	0.0398	0.1200	0.0106
Kanpur	103.085	462.872	45.824	12.6475	19.3968	38.2888	15.162	3.3812	0.3026	0.8952	0.0791
Kanpur Dehat	121.421	596.608	59.064	16.3017	12.2775	25.6022	10.138	2.2609	0.2138	0.5702	0.0504
Kasganj	96.012	462.862	45.823	12.6472	30.7198	100.9302	39.968	8.9129	0.0220	0.0636	0.0056
Kaushambi	71.911	262.750	26.012	7.1794	0.1225	0.1696	0.067	0.0150	0.1942	0.6017	0.0531
Kheri	188.374	939.283	743.912	205.3197	7.4158	10.1222	4.008	0.8939	0.0808	0.2309	0.0204
Kushinagar	116.026	458.554	45.397	12.5295	2.7248	7.2608	2.875	0.6412	1.6423	6.5584	0.5792
Lalitpur	157.533	534.680	52.933	14.6096	26.6033	35.8924	14.213	3.1696	0.0010	0.0024	0.0002
Lucknow	81.434	314.448	31.130	8.5920	1.3238	1.8934	0.750	0.1672	0.0170	0.0580	0.0051
Maharajanjanj	151.490	698.552	69.157	19.0872	0.0682	0.1458	0.058	0.0129	0.0175	0.0720	0.0064
Mahoba	60.753	137.034	13.566	3.7443	0.0215	0.0404	0.016	0.0036	0.6985	2.9748	0.2627
Mainpuri	156.626	793.412	78.548	21.6792	42.7303	133.1678	52.734	11.7598	0.0125	0.0474	0.0042
Mathura	191.679	965.713	95.606	26.3871	0.1690	0.5250	0.208	0.0464	0.0060	0.0156	0.0014
Mau	94.080	393.763	38.983	10.7592	0.2740	0.5050	0.200	0.0446	0.0163	0.0620	0.0055
Meerut	77.664	465.476	46.082	12.7187	0.3765	1.0456	0.414	0.0923	0.0085	0.0246	0.0022
Mirzapur	96.467	325.193	80.485	22.2140	1.3022	1.4684	0.145	0.0324	0.0727	0.2328	0.0051
Moradabad	145.675	637.877	63.150	17.4294	0.6342	0.9984	0.395	0.0882	0.0235	0.0672	0.0059
Muzafarnagar	95.706	506.399	50.133	13.8368	0.1320	0.2284	0.090	0.0202	-1.00	-1.00	-1.00
Pilibhit	146.612	780.976	231.950	64.0182	0.4043	0.8908	0.353	0.0787	0.0010	0.0024	0.0002
Pratapgarh	149.894	559.522	55.393	15.2884	0.6322	0.9394	0.372	0.0830	0.0280	0.0762	0.0067
Rae Bareli	150.050	549.288	54.379	15.0087	0.0422	0.0690	0.027	0.0061	0.0385	0.1113	0.0098
Rampur	142.994	676.546	66.978	18.4859	0.0885	0.1462	0.058	0.0129	0.1037	0.4368	0.0386
Saharanpur	111.748	520.215	51.501	14.2143	7.5043	12.5140	4.956	1.1051	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Wheat_ rb_Area_000ha	Wheat_ rb_DB_ Kt	Wheat_ rb_SB_ Kt	Wheat_ rb_BE_ million L	Maize_ Kh_Area_000ha	Maize_ Kh_DB_ Kt	Maize_ Kh_SB_ Kt	Maize_ Kh_BE_ million l	Maize_ rb_Area_000ha	Maize_ DB_ Kt	Maize_ rb_SB_ Kt	Maize_ rb_BE_ million L
	Sambhal	139.954	614.973	60.882	16.8035	4.0738	8.3772	3.317	0.7398	0.2220	0.6372	0.25	0.0563
	Santkabir-nagar	91.316	386.908	38.304	10.5719	1.5793	3.2484	1.286	0.2869	0.0500	0.1935	0.08	0.0171
	Shahjahanpur	255.015	1281.340	126.853	35.0113	1.6842	2.5315	1.002	0.2236	0.0857	0.2288	0.09	0.0202
	Shamali	49.769	272.420	26.970	7.4436	0.0635	0.1062	0.042	0.0094	-1.00	-1.00	-1.00	-1.00
	Shrawasti	67.078	280.297	27.749	7.6588	13.9292	12.8520	5.089	1.1349	0.0316	0.0847	0.03	0.0075
	Siddharthnagar	157.845	776.322	76.856	21.2122	0.6493	1.3346	0.529	0.1179	0.0170	0.0645	0.03	0.0057
	Sitapur	213.196	892.485	88.356	24.3863	11.8903	12.2572	4.854	1.0824	0.0240	0.0714	0.03	0.0063
	Sonbhadra	56.445	165.083	42.492	11.7279	14.7048	17.1016	6.772	1.5102	0.0310	0.1164	0.05	0.0103
	Sultanpur	106.133	451.270	44.676	12.3305	4.4342	4.5602	1.806	0.4027	0.0678	0.2405	0.10	0.0212
	Unnao	240.422	963.965	95.433	26.3394	27.2688	40.2886	15.954	3.5578	0.0580	0.2232	0.09	0.0197
	Varanasi	69.413	275.260	29.976	8.2733	2.9432	5.5948	0.997	0.2223	0.0222	0.0641	0.01	0.0025
Uttarakhand	Almora	36.745	60.297	5.969	1.6475	1.7470	2.8056	1.111	0.2478	-1.00	-1.00	-1.00	-1.00
	Bageshwar	14.758	29.583	2.929	0.8083	0.3687	0.5272	0.209	0.0466	-1.00	-1.00	-1.00	-1.00
	Chamoli	14.132	28.360	2.808	0.7749	0.1975	0.2830	0.112	0.0250	-1.00	-1.00	-1.00	-1.00
	Champawat	7.698	15.314	1.516	0.4184	0.6208	0.7230	0.286	0.0638	0.0100	0.0192	0.01	0.0017
	Dehradun	19.641	63.834	6.320	1.7442	8.6298	18.5328	7.339	1.6366	-1.00	-1.00	-1.00	-1.00
	Haridwar	44.412	176.530	17.476	4.8235	0.6575	1.2974	0.514	0.1146	0.0160	0.0360	0.01	0.0032
	Nanital	23.624	99.857	9.886	2.7285	4.2518	9.8976	3.919	0.8740	-1.00	-1.00	-1.00	-1.00
	Pauri Garhwal	22.721	42.526	4.210	1.1620	2.2130	3.3012	1.307	0.2915	-1.00	-1.00	-1.00	-1.00
	Pithoragarh	23.274	48.777	4.829	1.3328	3.1508	5.6030	2.219	0.4948	-1.00	-1.00	-1.00	-1.00
	Rudrapur	10.066	21.346	2.113	0.5833	0.1877	0.2908	0.115	0.0257	-1.00	-1.00	-1.00	-1.00
	Tehri Garhwal	23.787	48.750	4.826	1.3320	1.9092	3.3534	1.328	0.2961	-1.00	-1.00	-1.00	-1.00

	Udham Singh Nagar	99.280	560.117	55.452	15.3046	0.0307	0.0824	0.033	0.0073	0.0380	0.1008	0.04	0.0089
	Uttarkashi	10.963	26.955	2.669	0.7365	0.5647	0.9948	0.394	0.0878	-1.00	-1.00	-1.00	-1.00
West Bengal	Alipurduar	7.800	27.033	1.338	0.3693	5.72	19.24	1.904	0.4247	-1.00	-1.00	-1.00	-1.00
	Bankura	3.090	10.728	0.531	0.1466	0.2042	0.6262	0.062	0.0138	-1.00	-1.00	-1.00	-1.00
	Bardhaman	2.062	8.169	0.404	0.1116	0.2446	0.5671	0.056	0.0125	0.0716	0.2275	0.02	0.0050
	Birbhum	33.276	137.948	6.828	1.8846	0.2436	0.5281	0.052	0.0117	0.2674	0.7238	0.07	0.0160
	Dakshindinajpur	12.591	59.334	2.937	0.8106	1.1064	5.7053	0.565	0.1260	-1.00	-1.00	-1.00	-1.00
	Darjeeling	2.002	4.709	0.233	0.0643	16.5274	47.5990	4.712	1.0508	15.1600	107.2440	10.62	2.3676
	Eastmedinipur	0.520	2.016	0.100	0.0275	0.1063	0.2040	0.020	0.0045	-1.00	-1.00	-1.00	-1.00
	Haora	0.125	0.409	0.020	0.0056	0.0872	0.1306	0.013	0.0029	-1.00	-1.00	-1.00	-1.00
	Hugli	0.177	0.666	0.033	0.0091	0.2370	0.5736	0.057	0.0127	-1.00	-1.00	-1.00	-1.00
	Jalpaiguri	9.533	33.041	1.636	0.4514	6.9960	23.5100	2.328	0.5190	-1.00	-1.00	-1.00	-1.00
	Kochbihar	10.891	36.101	1.787	0.4932	6.0650	37.3913	3.702	0.8255	0.4830	2.8644	0.28	0.0632
	Kolkata	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	0.0000	-1.00	-1.00	-1.00	-1.00
	Malda	45.034	197.050	9.754	2.6921	9.5796	24.4207	2.418	0.5391	-1.00	-1.00	-1.00	-1.00
	Mursidabad	100.400	429.722	21.271	5.8709	2.0530	11.6424	1.153	0.2570	5.4654	16.3313	1.62	0.3605
	Nadia	41.709	196.892	9.746	2.6899	2.3090	7.7628	0.769	0.1714	3.1104	16.6750	1.65	0.3681
	North 24 Pargana	7.523	31.656	1.567	0.4325	0.1386	0.4759	0.047	0.0105	0.9540	2.8826	0.29	0.0636
	Pashchim Medinipur	5.147	16.425	0.813	0.2244	0.8232	3.0101	0.298	0.0665	0.0496	0.1814	0.02	0.0040
	Puruliya	1.670	5.687	0.281	0.0777	6.0758	13.9078	1.377	0.3070	-1.00	-1.00	-1.00	-1.00
	South 24 Parganas	3.151	13.533	0.670	0.1849	0.2508	0.6290	0.062	0.0139	-1.00	-1.00	-1.00	-1.00
	Uttar_Dinajpur	37.331	138.371	6.849	1.8904	28.0260	178.5113	17.673	3.9410	-1.00	-1.00	-1.00	-1.00
	<b>All India Total</b>	<b>28637</b>	<b>30838</b>	<b>145449</b>	<b>25070</b>	<b>6919</b>	<b>7590.87</b>	<b>21491.16</b>	<b>4978.95</b>	<b>1110.31</b>	<b>1189.98</b>	<b>6389.02</b>	<b>1057.28</b>



Table 39: Districtwise area, dry biomass generation, surplus available and its bioethanol potential of pulse crops in different growing seasons

State	District	Gram_rbr_Area_000ha	Gram_rbr_DB_Kt	Gram_rbr_SB_Kt	Gram_rbr_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_Rb_DB_Kt	Tur_rbr_SB_Kt	Tur_rbr_BE_million l
Andaman & Nicobar	Nicobar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North & Middle Andaman	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.10	0.0969	0.0048	0.0012
Andhra Pradesh	South Andaman	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.01	0.0109	0.0005	0.0001
	Ananthapur	81.2518	206.1552	56.738	14.1278	52.3642	23.4724	6.4601	1.6409	0.0170	0.0031	0.0009	0.0002
	Chittoor	0.0085	0.0270	0.007	0.0018	8.1994	4.5209	1.2442	0.3160	0.0113	0.0062	0.0017	0.0004
	Cuddapah	87.4586	240.2982	66.135	16.4676	9.9190	7.3907	2.0341	0.5167	0.0328	0.0256	0.0070	0.0018
	East Godavari	0.1526	0.9292	0.256	0.0637	0.7868	1.8795	0.5173	0.1314	0.0463	0.1061	0.0292	0.0074
	Guntur	11.8296	82.4412	22.689	5.6497	15.3514	58.4513	16.0870	4.0861	0.5766	2.2551	0.6207	0.1576
	Krishna	1.1688	7.1758	1.975	0.4918	2.0472	3.5150	0.9674	0.2457	0.0557	0.0801	0.0220	0.0056
	Kurnool	196.3908	778.3521	214.218	53.3403	50.4568	63.9001	17.5866	4.4670	0.9114	1.1594	0.3191	0.0810
	Nellore	8.8234	41.6688	11.468	2.8556	1.2710	2.6196	0.7210	0.1831	0.2050	0.4474	0.1231	0.0313
	Prakasam	80.0714	489.2803	134.660	33.5303	55.8914	99.9660	27.5127	6.9882	0.0250	0.0634	0.0175	0.0044
Arunachal Pradesh	Srikakulam	0.0065	0.0383	0.011	0.0026	0.9956	2.0623	0.5676	0.1442	0.0177	0.0395	0.0109	0.0028
	Vishakhapatnam	0.0712	0.4406	0.121	0.0302	2.4308	2.5684	0.7069	0.1795	0.0226	0.0256	0.0070	0.0018
	Vizianagaram	0.2920	1.8305	0.504	0.1254	1.7186	3.8027	1.0466	0.2658	0.0280	0.0718	0.0197	0.0050
	West Godavari	0.0440	0.2958	0.081	0.0203	0.1730	0.3600	0.0991	0.0252	0.2226	0.5167	0.1422	0.0361
	Anjaw	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Changlang	Changlang	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dibang Valley	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East Kameng	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
Bihar	Jorhat	0.0070	0.0148	0.007	0.0017	0.0358	0.0836	0.0389	0.0099	-1.00	-1.00	-1.00	-1.00
	Kamrup Metro	0.0038	0.0056	0.003	0.0006	0.0408	0.1136	0.0528	0.0134	-1.00	-1.00	-1.00	-1.00
	Kamrup Rural	0.0768	0.1281	0.060	0.0148	0.1742	0.4973	0.2314	0.0588	-1.00	-1.00	-1.00	-1.00
	Karbi Anglong	0.4688	0.9354	0.435	0.1084	1.1560	2.8436	1.3231	0.3361	-1.00	-1.00	-1.00	-1.00
	Karimganj	0.0062	0.0111	0.005	0.0013	0.0802	0.1941	0.0903	0.0229	-1.00	-1.00	-1.00	-1.00
	Kokrajhar	0.0658	0.1288	0.060	0.0149	0.4628	1.1881	0.5528	0.1404	-1.00	-1.00	-1.00	-1.00
	Lakhimpur	0.0192	0.0299	0.014	0.0035	0.0902	0.2190	0.1019	0.0259	-1.00	-1.00	-1.00	-1.00
	Marigaon	0.0618	0.0884	0.041	0.0102	0.1074	0.2783	0.1295	0.0329	-1.00	-1.00	-1.00	-1.00
	Nagaon	0.0994	0.1684	0.078	0.0195	0.6180	1.4808	0.6890	0.1750	-1.00	-1.00	-1.00	-1.00
	Nalbari	0.0170	0.0306	0.014	0.0035	0.0960	0.2003	0.0932	0.0237	-1.00	-1.00	-1.00	-1.00
	North Cachar Hills	0.0073	0.0081	0.004	0.0009	0.3592	0.9198	0.4280	0.1087	-1.00	-1.00	-1.00	-1.00
	Sibsagar	0.0048	0.0118	0.006	0.0014	0.0408	0.0811	0.0377	0.0096	-1.00	-1.00	-1.00	-1.00
	Sonitpur	0.1948	0.5770	0.268	0.0668	0.5422	1.5488	0.7206	0.1830	-1.00	-1.00	-1.00	-1.00
	Tinsukia	0.0064	0.0146	0.007	0.0017	0.0966	0.2552	0.1188	0.0302	-1.00	-1.00	-1.00	-1.00
	Udalguri	0.0092	0.0216	0.010	0.0025	0.2560	0.5554	0.2584	0.0656	-1.00	-1.00	-1.00	-1.00
	Arariya	0.1308	0.5243	0.119	0.0297	0.1284	0.5510	0.1364	0.0346	-1.00	-1.00	-1.00	-1.00
	Arwal	0.8290	3.0827	0.702	0.1748	0.3178	1.2652	0.3131	0.0795	-1.00	-1.00	-1.00	-1.00
	Aurangabad	7.0097	22.7354	5.177	1.2890	1.0877	6.0861	1.5063	0.3826	-1.00	-1.00	-1.00	-1.00
	Banka	2.2345	7.3614	1.676	0.4174	0.7448	2.7050	0.6695	0.1701	-1.00	-1.00	-1.00	-1.00
	Begusarai	0.0163	0.0609	0.014	0.0035	0.6625	4.0326	0.9981	0.2535	-1.00	-1.00	-1.00	-1.00
Bhabua	5.1985	15.6026	3.553	0.8846	1.7635	8.5535	2.1170	0.5377	-1.00	-1.00	-1.00	-1.00	
Bhagalpur	3.5860	12.1713	2.771	0.6901	0.7047	2.4892	0.6161	0.1565	-1.00	-1.00	-1.00	-1.00	
Bhojpur	5.2047	23.6153	5.377	1.3389	1.3760	10.8586	3.5475	0.9011	-1.00	-1.00	-1.00	-1.00	
Buxar	2.3357	9.3635	2.132	0.5309	0.3567	2.0935	0.5181	0.1316	-1.00	-1.00	-1.00	-1.00	

Darbhanga	0.0678	0.2697	0.061	0.0153	0.2695	1.2490	0.3091	0.0785	-1.00	-1.00	-1.00	-1.00
Gaya	4.3377	18.4608	4.204	1.0467	1.3278	5.4106	1.3391	0.3401	-1.00	-1.00	-1.00	-1.00
Gopalganj	-1.00	-1.00	-1.00	-1.00	0.6117	2.5496	0.6310	0.1603	-1.00	-1.00	-1.00	-1.00
Jahanabad	1.9955	8.0394	1.831	0.4558	0.1530	0.6672	0.1651	0.0419	-1.00	-1.00	-1.00	-1.00
Jamui	1.4760	4.3309	0.986	0.2455	0.8648	4.3274	1.0710	0.2720	-1.00	-1.00	-1.00	-1.00
Katihar	0.1153	0.5133	0.117	0.0291	0.0477	0.2075	0.0514	0.0130	-1.00	-1.00	-1.00	-1.00
Khagaria	0.2925	1.0423	0.237	0.0591	0.1788	1.0951	0.2710	0.0688	-1.00	-1.00	-1.00	-1.00
Kishanganj	0.1752	0.8039	0.183	0.0456	0.0400	0.1680	0.0416	0.0106	-1.00	-1.00	-1.00	-1.00
Lakhisarai	4.9463	19.5379	4.449	1.1077	0.2900	2.0998	0.5197	0.1320	-1.00	-1.00	-1.00	-1.00
Madhepura	-1.00	-1.00	-1.00	-1.00	0.0177	0.0926	0.0229	0.0058	-1.00	-1.00	-1.00	-1.00
Madhubani	0.0212	0.0858	0.020	0.0049	0.0480	0.1929	0.0477	0.0121	-1.00	-1.00	-1.00	-1.00
Munger	0.9760	3.6592	0.833	0.2075	0.1055	0.6505	0.1610	0.0409	-1.00	-1.00	-1.00	-1.00
Muzaffarpur	0.1120	0.3995	0.091	0.0227	1.3418	5.9327	1.4683	0.3730	-1.00	-1.00	-1.00	-1.00
Nalanda	4.5573	18.0629	4.113	1.0241	0.3387	1.9120	0.4732	0.1202	-1.00	-1.00	-1.00	-1.00
Nawada	2.2065	8.0324	1.829	0.4554	1.0125	3.6384	0.9005	0.2287	-1.00	-1.00	-1.00	-1.00
Pashchim Champaran	0.0327	0.1288	0.029	0.0073	1.2170	5.4298	1.3439	0.3413	-1.00	-1.00	-1.00	-1.00
Patna	6.2207	31.9435	7.274	1.8111	0.7118	5.4090	1.3387	0.3400	-1.00	-1.00	-1.00	-1.00
Purbi Champaran	0.0185	0.0679	0.015	0.0038	1.5012	12.0775	2.9892	0.7593	-1.00	-1.00	-1.00	-1.00
Purnia	0.1632	0.8651	0.197	0.0491	0.1233	0.5143	0.1273	0.0323	-1.00	-1.00	-1.00	-1.00
Rohtas	3.6880	18.3164	4.171	1.0385	0.9080	5.7252	1.4170	0.3599	-1.00	-1.00	-1.00	-1.00
Saharsa	-1.00	-1.00	-1.00	-1.00	0.0655	0.3526	0.0873	0.0222	-1.00	-1.00	-1.00	-1.00
Samastipur	0.0520	0.1960	0.045	0.0111	1.1193	5.2286	1.2941	0.3287	-1.00	-1.00	-1.00	-1.00
Saran	0.0225	0.0766	0.017	0.0043	0.7957	3.4627	0.8570	0.2177	-1.00	-1.00	-1.00	-1.00
Sheikhpura	0.9875	4.3680	0.995	0.2477	0.1828	1.1159	0.2762	0.0702	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l	
Chhattisgarh	Sheohar	1.8360	8.9349	2.034	0.5066	0.1343	0.7374	0.1825	0.0464	-1.00	-1.00	-1.00	-1.00	
	Sitamathi	0.0170	0.0766	0.017	0.0043	0.1275	0.6578	0.1628	0.0414	-1.00	-1.00	-1.00	-1.00	
	Siwan	0.1390	0.5121	0.117	0.0290	1.1822	6.2254	1.5408	0.3914	-1.00	-1.00	-1.00	-1.00	
	Supaul	0.0030	0.0104	0.002	0.0006	0.0382	0.1903	0.0471	0.0120	-1.00	-1.00	-1.00	-1.00	
	Vaishali	0.0328	0.1385	0.032	0.0079	0.6687	4.3633	1.0799	0.2743	-1.00	-1.00	-1.00	-1.00	
	Chandigarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Balod	7.7436	27.7948	8.255	2.0555	0.5466	0.8424	0.5004	0.1271	-1.00	-1.00	-1.00	-1.00	
	Baloda Bazar	2.8100	11.1123	3.300	0.8218	1.3734	1.6187	0.9615	0.2442	-1.00	-1.00	-1.00	-1.00	
	Balrampur	1.0292	3.1842	0.946	0.2355	8.3548	15.0484	8.9387	2.2704	-1.00	-1.00	-1.00	-1.00	
	Bastar	0.3920	1.4384	0.427	0.1064	0.5442	1.0504	0.6239	0.1585	-1.00	-1.00	-1.00	-1.00	
Chandigarh	Bemetara	90.1190	310.3896	92.186	22.9542	3.6980	5.6753	3.3711	0.8563	-1.00	-1.00	-1.00	-1.00	
	Bijapur	2.8020	9.8101	2.914	0.7255	0.0078	0.0156	0.0093	0.0024	-1.00	-1.00	-1.00	-1.00	
	Bilaspur	5.8146	20.5097	6.091	1.5168	2.5923	4.5219	2.6860	0.6822	-1.00	-1.00	-1.00	-1.00	
	Dante-wara	0.0132	0.0406	0.012	0.0030	0.4513	0.8351	0.4961	0.1260	-1.00	-1.00	-1.00	-1.00	
	DhamTari	6.5908	25.7085	7.635	1.9012	0.1613	0.1903	0.1131	0.0287	-1.00	-1.00	-1.00	-1.00	
	Durg	30.6338	103.9076	30.861	7.6843	2.0863	3.2479	1.9293	0.4900	-1.00	-1.00	-1.00	-1.00	
	Gariyaband	0.5564	2.0504	0.609	0.1516	0.5220	0.5429	0.3225	0.0819	-1.00	-1.00	-1.00	-1.00	
	Janjir_Champa	0.2088	0.6896	0.205	0.0510	1.0828	1.9131	1.1364	0.2886	-1.00	-1.00	-1.00	-1.00	
	Jashpur	1.1268	3.8553	1.145	0.2851	4.5298	7.9466	4.7203	1.1990	-1.00	-1.00	-1.00	-1.00	
	Kabirdham	67.7225	208.2067	61.837	15.3975	4.9780	7.6123	4.5217	1.1485	-1.00	-1.00	-1.00	-1.00	
Korea	Kanker	0.8080	2.8901	0.858	0.2137	0.5937	0.9823	0.5835	0.1482	-1.00	-1.00	-1.00	-1.00	
	Konda-gaon	0.4346	1.6662	0.495	0.1232	0.1748	0.3089	0.1835	0.0466	-1.00	-1.00	-1.00	-1.00	
	Korba	0.3238	0.8804	0.261	0.0651	1.3635	2.1668	1.2871	0.3269	-1.00	-1.00	-1.00	-1.00	
	Korea	0.4670	1.2279	0.365	0.0908	3.6740	5.7944	3.4418	0.8742	-1.00	-1.00	-1.00	-1.00	



	Mahasamund	0.1952	0.6554	0.195	0.0485	0.7218	0.7842	0.4658	0.1183	-1.00	-1.00	-1.00
	Mungeli	16.1540	56.2208	16.698	4.1577	1.7692	3.2242	1.9152	0.4865	-1.00	-1.00	-1.00
	Narainpur	0.0496	0.1824	0.054	0.0135	0.1097	0.1711	0.1016	0.0258	-1.00	-1.00	-1.00
	Raigarh	0.5340	1.9900	0.591	0.1472	2.4297	4.4325	2.6329	0.6688	-1.00	-1.00	-1.00
	Raipur	5.3762	19.8534	5.896	1.4682	0.9270	1.0176	0.6045	0.1535	-1.00	-1.00	-1.00
	Raj Nandgaon	52.4843	161.4958	47.964	11.9431	5.4518	8.1364	4.8330	1.2276	-1.00	-1.00	-1.00
	Sukma	0.0010	0.0035	0.001	0.0003	0.4012	0.7057	0.4192	0.1065	-1.00	-1.00	-1.00
	Surajpur	0.8960	2.5258	0.750	0.1868	4.0940	6.8135	4.0472	1.0280	-1.00	-1.00	-1.00
	Surguja	1.7285	5.3952	1.602	0.3990	6.2503	10.5222	6.2502	1.5875	-1.00	-1.00	-1.00
	Dadar & Nagar Haveli	0.0800	0.2784	0.000	0.0000	1.4680	3.6639	0.3627	0.0921	-1.00	-1.00	-1.00
	Daman	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Diu	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Central Delhi									-1.00	-1.00	-1.00
	East Delhi									-1.00	-1.00	-1.00
	New Delhi									-1.00	-1.00	-1.00
	North Delhi									-1.00	-1.00	-1.00
	North East Delhi									-1.00	-1.00	-1.00
	North West Delhi									-1.00	-1.00	-1.00
	Shahadra									-1.00	-1.00	-1.00
	South Delhi									-1.00	-1.00	-1.00
	South East Delhi									-1.00	-1.00	-1.00
	South West Delhi									-1.00	-1.00	-1.00
	West Delhi									-1.00	-1.00	-1.00
	North Goa	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South Goa	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
Gujarat	Ahmada- bad	16.600	41.064	32.523	8.0981	1.067	3.328	0.659	0.1674	-1.00	-1.00	-1.00	-1.00
	Amreli	2.433	10.788	8.544	2.1275	0.800	2.496	0.494	0.1255	-1.00	-1.00	-1.00	-1.00
	Anand	2.800	6.496	5.145	1.2811	1.000	3.120	0.618	0.1569	-1.00	-1.00	-1.00	-1.00
	Aravalli	1.273	4.589	3.634	0.9050	6.348	17.605	3.486	0.8854	-1.00	-1.00	-1.00	-1.00
	Banas Kantha	0.467	2.088	1.654	0.4118	2.433	7.280	1.441	0.3661	-1.00	-1.00	-1.00	-1.00
	Bharuch	1.433	5.800	4.594	1.1438	55.500	156.936	31.073	7.8926	-1.00	-1.00	-1.00	-1.00
	Bhavnagar	0.903	4.019	3.183	0.7927	0.378	1.179	0.234	0.0593	-1.00	-1.00	-1.00	-1.00
	Botad	0.530	2.361	1.870	0.4655	0.222	0.693	0.137	0.0348	-1.00	-1.00	-1.00	-1.00
	Chhota Udepur	1.451	5.837	4.623	1.1511	49.345	178.497	35.342	8.9770	-1.00	-1.00	-1.00	-1.00
	Dahod	50.000	161.356	127.794	31.8207	13.400	58.136	11.511	2.9238	-1.00	-1.00	-1.00	-1.00
	Dangs	5.300	21.228	16.813	4.1863	2.567	6.344	1.256	0.3191	-1.00	-1.00	-1.00	-1.00
	Devbhumi Dwarka	5.430	26.796	21.222	5.2844	0.110	0.343	0.068	0.0173	-1.00	-1.00	-1.00	-1.00
	Gandhina- gar	0.100	0.348	0.276	0.0686	0.400	1.352	0.268	0.0680	-1.00	-1.00	-1.00	-1.00
	Gir Som- nath	3.698	24.279	19.229	4.7880	0.338	1.092	0.216	0.0549	-1.00	-1.00	-1.00	-1.00
	Jamnagar	12.670	62.524	49.519	12.3302	0.257	0.801	0.159	0.0403	-1.00	-1.00	-1.00	-1.00
	Junagadh	6.868	45.089	35.711	8.8920	0.628	2.028	0.402	0.1020	-1.00	-1.00	-1.00	-1.00
	Kachchh	0.467	1.740	1.378	0.3431	0.100	0.312	0.062	0.0157	-1.00	-1.00	-1.00	-1.00
	Kheda	0.833	3.596	2.848	0.7092	2.600	8.112	1.606	0.4080	-1.00	-1.00	-1.00	-1.00
	Mahesana	0.300	1.392	1.102	0.2745	0.133	0.416	0.082	0.0209	-1.00	-1.00	-1.00	-1.00
	Mahisagar	5.097	19.331	15.310	3.8123	11.605	58.001	11.484	2.9170	-1.00	-1.00	-1.00	-1.00
Morbi	2.880	14.152	11.208	2.7909	0.360	1.165	0.231	0.0586	-1.00	-1.00	-1.00	-1.00	
Narmada	2.100	8.120	6.431	1.6013	21.133	61.048	12.088	3.0702	-1.00	-1.00	-1.00	-1.00	
Navsari	1.767	7.192	5.696	1.4183	3.667	8.944	1.771	0.4498	-1.00	-1.00	-1.00	-1.00	
Panch Mahals	4.170	15.817	12.527	3.1192	9.495	47.455	9.396	2.3866	-1.00	-1.00	-1.00	-1.00	

	Patan	13.633	29.812	23.611	5.8792	0.533	1.664	0.329	0.0837	-1.00	-1.00	-1.00	-1.00
	Porbandar	10.600	47.560	37.668	9.3792	0.100	0.312	0.062	0.0157	-1.00	-1.00	-1.00	-1.00
	Rajkot	4.320	21.228	16.813	4.1863	0.540	1.747	0.346	0.0879	-1.00	-1.00	-1.00	-1.00
	Sabar Kantha	1.494	5.387	4.267	1.0624	7.452	20.667	4.092	1.0394	-1.00	-1.00	-1.00	-1.00
	Surat	0.800	3.364	2.664	0.6634	12.533	47.424	9.390	2.3850	-1.00	-1.00	-1.00	-1.00
	Suren-dranagar	18.500	77.488	61.370	15.2813	0.200	0.624	0.124	0.0314	-1.00	-1.00	-1.00	-1.00
	Tapi	2.933	14.500	11.484	2.8595	15.367	37.232	7.372	1.8725	-1.00	-1.00	-1.00	-1.00
	Vadodara	0.683	2.747	2.176	0.5417	23.221	83.999	16.632	4.2245	-1.00	-1.00	-1.00	-1.00
	Valsad	1.367	5.336	4.226	1.0523	6.100	12.896	2.553	0.6486	-1.00	-1.00	-1.00	-1.00
	Ambala	0.0573	0.2239	0.078	0.0193	0.0030	0.0094	0.0014	0.0004	-1.00	-1.00	-1.00	-1.00
	Bhiwani	46.7963	158.9200	55.066	13.7114	2.0290	6.6706	0.9906	0.2516	-1.00	-1.00	-1.00	-1.00
	Faridabad	0.0080	0.0272	0.009	0.0023	0.2035	0.6256	0.0929	0.0236	-1.00	-1.00	-1.00	-1.00
	Fatehabad	0.5807	3.4800	1.206	0.3002	0.0663	0.3323	0.0493	0.0125	-1.00	-1.00	-1.00	-1.00
	Gurugram	0.0030	0.0102	0.004	0.0009	0.6280	1.9386	0.2879	0.0731	-1.00	-1.00	-1.00	-1.00
	Hisar	12.9640	39.4400	13.666	3.4028	0.1457	0.5283	0.0785	0.0199	-1.00	-1.00	-1.00	-1.00
	Jhajjar	0.5243	3.4800	1.206	0.3002	4.5897	16.1325	2.3957	0.6085	-1.00	-1.00	-1.00	-1.00
	Jind	0.0977	0.3317	0.115	0.0286	0.4880	1.6614	0.2467	0.0627	-1.00	-1.00	-1.00	-1.00
	Kaithal	0.1333	0.4528	0.157	0.0391	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Karnal	0.1080	0.3668	0.127	0.0316	0.1443	0.3453	0.0513	0.0130	-1.00	-1.00	-1.00	-1.00
	Kurukshetra	0.0650	0.2207	0.076	0.0190	0.0053	0.0125	0.0019	0.0005	-1.00	-1.00	-1.00	-1.00
	Mahendragarh	8.7147	34.8000	12.058	3.0025	0.1417	0.4732	0.0703	0.0178	-1.00	-1.00	-1.00	-1.00
	Mewat	0.3727	3.4800	1.206	0.3002	0.5965	1.8767	0.2787	0.0708	-1.00	-1.00	-1.00	-1.00
	Palwal	0.0020	0.0068	0.002	0.0006	0.9460	3.0763	0.4568	0.1160	-1.00	-1.00	-1.00	-1.00
	Panchkula	0.1960	0.6656	0.231	0.0574	0.0170	0.0624	0.0093	0.0024	-1.00	-1.00	-1.00	-1.00
	Panipat	0.0127	0.0430	0.015	0.0037	0.2383	0.7374	0.1095	0.0278	-1.00	-1.00	-1.00	-1.00
	Rewari	0.0463	0.1573	0.055	0.0136	0.3413	1.0171	0.1510	0.0384	-1.00	-1.00	-1.00	-1.00
	Rohatak	0.8055	3.4800	1.206	0.3002	4.9583	17.4314	2.5886	0.6575	-1.00	-1.00	-1.00	-1.00
	Sirsa	7.5057	29.0000	10.049	2.5021	0.0183	0.1607	0.0239	0.0061	-1.00	-1.00	-1.00	-1.00
	Sonipat	0.0245	0.0947	0.033	0.0082	1.9597	6.5125	0.9671	0.2456	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
	Yamu-nanagar	0.1220	0.4714	0.163	0.0407	0.0047	0.0031	0.0005	0.0001	-1.00	-1.00	-1.00	-1.00
Hi-machal Pradesh	Bilaspur	0.0533	0.1902	0.066	0.0164					-1.00	-1.00	-1.00	-1.00
	Chamba	-1.00	-1.00	-1.00	-1.00					-1.00	-1.00	-1.00	-1.00
	Hamirpur	0.0037	0.0046	0.002	0.0004					-1.00	-1.00	-1.00	-1.00
	Kangra	0.1833	0.4710	0.163	0.0406					-1.00	-1.00	-1.00	-1.00
	Kinnaur	-1.00	-1.00	-1.00	-1.00					-1.00	-1.00	-1.00	-1.00
	Kullu	0.0720	0.2227	0.077	0.0192					-1.00	-1.00	-1.00	-1.00
	Lahul & Spiti	-1.00	-1.00	0.000	0.0000					-1.00	-1.00	-1.00	-1.00
	Mandi	0.0163	0.0545	0.019	0.0047					-1.00	-1.00	-1.00	-1.00
	Shimla	0.0050	0.0220	0.008	0.0019					-1.00	-1.00	-1.00	-1.00
	Sirmaur	0.1130	0.4304	0.149	0.0371					-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	Solan	0.0497	0.2192	0.076	0.0189					-1.00	-1.00	-1.00	-1.00
	Una	0.0155	0.0731	0.025	0.0063					-1.00	-1.00	-1.00	-1.00
	Anantnag	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Baramula	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chilas	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gilgit	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gilgit Wazarat	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jammu	0.1010	0.1935	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kathua	0.0650	0.1246	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Leh And Ladakh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Mirpur Muzaf-farabad Punch Riasi	Mirpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Muzaf-farabad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Punch	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Riasi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

Tribal Territory	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Jharkhand																	
Udhampur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Bokaro	0.5275	1.3241	1.036	0.2579	1.7517	4.1273	0.4086	0.1038	0.2620	1.4071	0.1393	0.0354					
Chatra	7.0240	26.9126	21.048	5.2410	8.2750	32.1362	3.1815	0.8081	1.0090	3.6910	0.3654	0.0928					
Deygarh	3.6086	9.3917	7.345	1.8290	2.7117	6.2603	0.6198	0.1574	0.0210	0.0842	0.0083	0.0021					
Dhanbad	2.3075	5.7691	4.512	1.1235	2.2310	3.3270	0.3294	0.0837	0.0010	0.0019	0.0002	0.0000					
Dumka	6.2244	21.0436	16.458	4.0981	7.7493	22.1601	2.1939	0.5572	1.7900	5.5505	0.5495	0.1396					
Garhwa	9.1560	31.4331	24.584	6.1214	21.2487	46.9966	4.6527	1.1818	4.0370	12.8482	1.2720	0.3231					
Giridih	5.1317	12.4297	9.721	2.4206	5.5843	16.9395	1.6770	0.4260	0.2640	1.1731	0.1161	0.0295					
Godda	6.6105	23.5692	18.433	4.5899	7.5417	24.0019	2.3762	0.6036	0.6000	3.4850	0.3450	0.0876					
Gumla	5.3863	16.5639	12.955	3.2257	7.9650	24.1180	2.3877	0.6065	0.7200	1.8658	0.1847	0.0469					
Hazaribagh	5.3233	16.6066	12.988	3.2340	6.2970	18.4990	1.8314	0.4652	0.3030	1.5850	0.1569	0.0399					
JaMTara	2.9393	6.1335	4.797	1.1945	1.1667	2.9266	0.2897	0.0736	0.1400	0.5522	0.0547	0.0139					
Khunti	4.5153	22.6670	17.729	4.4144	5.4487	20.5630	2.0350	0.5171	0.4430	1.7410	0.1724	0.0438					
Kodarma	5.7693	20.9261	16.366	4.0752	6.1590	17.3160	1.7143	0.4354	0.0640	0.3089	0.0306	0.0078					
Latehar	6.8793	25.4240	19.884	4.9511	18.9100	88.4384	8.7554	2.2239	0.9600	3.5381	0.3503	0.0890					
Lohardaga	4.5270	18.4109	14.399	3.5854	4.1017	13.8216	1.3683	0.3476	0.4090	1.9406	0.1921	0.0488					
Pakur	5.7284	15.8879	12.426	3.0941	6.4600	17.0758	1.6905	0.4294	0.3750	1.5226	0.1507	0.0383					
Palamu	6.8672	19.5245	15.270	3.8023	17.6030	41.1855	4.0774	1.0357	4.8260	21.3346	2.1121	0.5365					
Pashchimi Singhbhum	3.2997	11.9964	9.382	2.3362	4.8883	14.4401	1.4296	0.3631	0.1980	0.8174	0.0809	0.0206					
Purbi Singhbhum	4.1290	10.2860	8.045	2.0031	6.8680	15.4802	1.5325	0.3893	0.0780	0.3214	0.0318	0.0081					
Ramgarh	2.6481	6.0596	4.739	1.1801	2.8527	7.9439	0.7864	0.1998	0.1270	0.7519	0.0744	0.0189					
Ranchi	4.4466	19.1191	14.953	3.7233	9.2987	31.0073	3.0697	0.7797	0.8950	3.2448	0.3212	0.0816					
Sahibganj	3.5800	10.9724	8.582	2.1368	4.7773	10.1869	1.0085	0.2562	0.2650	1.3946	0.1381	0.0351					
Saraikela Kharasawan	5.8110	43.5122	34.031	8.4737	9.4887	43.8381	4.3400	1.1024	0.0760	0.3151	0.0312	0.0079					
Simdega	8.5868	33.6003	26.279	6.5434	7.7523	36.7682	3.6400	0.9246	0.3620	1.3010	0.1288	0.0327					



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l	
Karnataka	Bagalkot	78.7038	165.0105	130.035	32.3787	5.9670	7.8836	0.7805	0.1982	-1.00	-1.00	-1.00	-1.00	
	Ballari	62.3362	156.6383	123.437	30.7359	6.2978	7.5448	0.7469	0.1897	-1.00	-1.00	-1.00	-1.00	
	Belagavi	60.9726	117.8655	96.095	23.9277	3.7600	5.4475	0.5393	0.1370	-1.00	-1.00	-1.00	-1.00	
	Bengaluru Rural	0.2316	0.4928	0.388	0.0967	1.4630	3.8064	0.3768	0.0957	-1.00	-1.00	-1.00	-1.00	
	Bengaluru Urban	0.0105	0.0270	0.021	0.0053	1.0984	2.2707	0.2248	0.0571	-1.00	-1.00	-1.00	-1.00	
	Bidar	40.9706	96.5790	76.108	18.9509	71.3196	185.0934	18.3242	4.6544	-1.00	-1.00	-1.00	-1.00	
	Chamara-janagar	4.3988	6.7839	5.346	1.3312	1.1516	1.8695	0.1851	0.0470	-1.00	-1.00	-1.00	-1.00	
	Chikbal-lapur	0.0926	0.2081	0.164	0.0408	6.4902	13.9077	1.3769	0.3497	-1.00	-1.00	-1.00	-1.00	
	Chik-kamag-aluru	8.1196	20.9371	16.499	4.1083	0.5684	1.1488	0.1137	0.0289	-1.00	-1.00	-1.00	-1.00	
	Chitra-durga	25.2952	46.8492	36.919	9.1928	9.5746	21.6778	2.1461	0.5451	-1.00	-1.00	-1.00	-1.00	
	Dakshin Kannada	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Davangere	2.3684	3.9240	3.092	0.7700	7.0146	19.0395	1.8849	0.4788	-1.00	-1.00	-1.00	-1.00	
	Dharwad	59.8380	117.8906	92.902	23.1327	2.4220	4.9677	0.4918	0.1249	-1.00	-1.00	-1.00	-1.00	
	Gadag	80.0456	130.4937	102.834	25.6057	2.1234	2.3606	0.2337	0.0594	-1.00	-1.00	-1.00	-1.00	
	Hassan	1.9260	4.6890	3.695	0.9201	2.2582	5.0288	0.4979	0.1265	-1.00	-1.00	-1.00	-1.00	
	Haveri	1.1750	1.6147	1.272	0.3168	2.1444	4.1540	0.4112	0.1045	-1.00	-1.00	-1.00	-1.00	
	Kalabur-agi	178.2958	490.8199	386.786	96.3096	354.6594	772.5413	76.4816	19.4263	-1.00	-1.00	-1.00	-1.00	
	Kodagu	-1.00	-1.00	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kolar	0.0182	0.0376	0.030	0.0074	3.6958	14.9479	1.4798	0.3759	-1.00	-1.00	-1.00	-1.00	
Koppal	49.1196	92.3042	72.739	18.1121	11.1776	15.9370	1.5778	0.4008	-1.00	-1.00	-1.00	-1.00		
Mandhya	0.1188	0.3019	0.238	0.0592	1.3936	1.6293	0.1613	0.0410	-1.00	-1.00	-1.00	-1.00		
Mysuru	1.0582	2.6190	2.064	0.5139	4.0258	8.2131	0.8131	0.2065	-1.00	-1.00	-1.00	-1.00		

	Raichur	93.5348	250.0624	197.059	49.0677	42.3796	54.1576	5.3616	1.3618	-1.00	-1.00	-1.00	-1.00
	Ramnagar	0.0360	0.0870	0.069	0.0171	3.5260	7.6134	0.7537	0.1914	-1.00	-1.00	-1.00	-1.00
	Shivamogga	0.0532	0.1121	0.088	0.0220	0.3832	0.7756	0.0768	0.0195	-1.00	-1.00	-1.00	-1.00
	Tumakuru	0.8394	1.8521	1.459	0.3634	13.1242	12.5730	1.2447	0.3162	-1.00	-1.00	-1.00	-1.00
	Udupi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Uttar Kannada	0.0098	0.0237	0.019	0.0046	0.0230	0.0437	0.0043	0.0011	-1.00	-1.00	-1.00	-1.00
	Vijayapura	156.5640	328.9192	259.201	64.5412	149.1836	300.6756	29.7669	7.5608	-1.00	-1.00	-1.00	-1.00
	Yadgir	17.0472	36.7718	28.978	7.2154	66.8718	129.5330	12.8238	3.2572	-1.00	-1.00	-1.00	-1.00
Kerala	Alappuzha	-1.00	-1.00	-1.00	-1.00								
	Ernakulam	-1.00	-1.00	-1.00	-1.00								
	Idukki	-1.00	-1.00	-1.00	-1.00								
	Kannur	-1.00	-1.00	-1.00	-1.00								
	Kasargod	-1.00	-1.00	-1.00	-1.00								
	Kollam	-1.00	-1.00	-1.00	-1.00								
	Kottayam	-1.00	-1.00	-1.00	-1.00								
	Kozikod	-1.00	-1.00	-1.00	-1.00								
	Malappuram	-1.00	-1.00	-1.00	-1.00								
	Palakkad	-1.00	-1.00	-1.00	-1.00								
	Pattanamittia	-1.00	-1.00	-1.00	-1.00								
	Thiruvananthapuram	-1.00	-1.00	-1.00	-1.00								
	Thrissur	-1.00	-1.00	-1.00	-1.00								
	Wayanad	-1.00	-1.00	-1.00	-1.00								
Lakshadweep													

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State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
Madhya Pradesh	Agar Malwa	52.9580	215.8052	10.682	2.6599	3.9170	7.3928	3.6595	0.9295	-1.00	-1.00	-1.00	-1.00
	Alirajpur	9.2178	23.2916	1.153	0.2871	3.5038	5.0731	2.5112	0.6378	-1.00	-1.00	-1.00	-1.00
	Anuppur	4.2678	8.3722	0.414	0.1032	7.0540	10.1150	5.0069	1.2718	-1.00	-1.00	-1.00	-1.00
	Ashoknagar	116.1738	438.4048	21.701	5.4036	1.5258	4.0242	1.9920	0.5060	-1.00	-1.00	-1.00	-1.00
	Balaghat	9.3342	25.6295	1.269	0.3159	4.7444	14.4805	7.1679	1.8206	-1.00	-1.00	-1.00	-1.00
	Barwani	8.4934	37.6814	1.865	0.4644	4.9990	8.2824	4.0998	1.0413	-1.00	-1.00	-1.00	-1.00
	Betul	41.0832	123.1649	6.097	1.5181	25.2022	49.1506	24.3296	6.1797	-1.00	-1.00	-1.00	-1.00
	Bhind	19.9560	79.8744	3.954	0.9845	4.0274	8.6717	4.2925	1.0903	-1.00	-1.00	-1.00	-1.00
	Bhopal	38.7162	143.7303	7.115	1.7715	2.8906	6.3143	3.1256	0.7939	-1.00	-1.00	-1.00	-1.00
	Burhanpur	9.4756	50.4238	2.496	0.6215	3.8972	10.6049	5.2494	1.3334	-1.00	-1.00	-1.00	-1.00
	Chhatarpur	83.0518	274.9764	13.611	3.3892	11.2126	15.0690	7.4591	1.8946	-1.00	-1.00	-1.00	-1.00
	Chhindwara	44.8292	302.5860	14.978	3.7295	24.3838	102.1862	50.5822	12.8479	-1.00	-1.00	-1.00	-1.00
	Damoh	121.3896	295.0762	14.606	3.6370	26.8494	48.3937	23.9549	6.0845	-1.00	-1.00	-1.00	-1.00
	Datia	21.0006	87.7364	4.343	1.0814	2.9298	5.0107	2.4803	0.6300	-1.00	-1.00	-1.00	-1.00
	Dewas	129.2832	556.2627	27.535	6.8562	5.7870	11.7886	5.8354	1.4822	-1.00	-1.00	-1.00	-1.00
	Dhar	96.1852	366.0953	18.122	4.5123	3.6508	6.6369	3.2852	0.8345	-1.00	-1.00	-1.00	-1.00
	Dindori	14.7542	26.6317	1.318	0.3282	6.9636	12.6329	6.2533	1.5883	-1.00	-1.00	-1.00	-1.00
	East Nimar	17.0538	65.1567	3.225	0.8031	8.2440	17.1469	8.4877	2.1559	-1.00	-1.00	-1.00	-1.00
	Guna	76.2664	330.6508	16.367	4.0754	2.3230	4.7355	2.3441	0.5954	-1.00	-1.00	-1.00	-1.00
Gwalior	17.1958	88.5674	4.384	1.0916	1.4852	2.6071	1.2905	0.3278	-1.00	-1.00	-1.00	-1.00	
Harda	25.8330	109.0639	5.399	1.3443	0.5810	1.7854	0.8838	0.2245	-1.00	-1.00	-1.00	-1.00	
Hoshangabad	29.8580	123.2254	6.100	1.5188	7.2018	19.5930	9.6985	2.4634	-1.00	-1.00	-1.00	-1.00	
Indore	66.1946	249.5689	12.354	3.0761	1.2422	2.5921	1.2831	0.3259	-1.00	-1.00	-1.00	-1.00	
Jabalpur	58.4682	194.0587	9.606	2.3919	13.0704	30.8755	15.2834	3.8820	-1.00	-1.00	-1.00	-1.00	

Jhabua	17.5268	56.1171	2.778	0.6917	2.9606	6.1963	3.0672	0.7791	-1.00	-1.00	-1.00	-1.00
Katni	34.2224	97.0857	4.806	1.1966	9.1360	17.7896	8.8059	2.2367	-1.00	-1.00	-1.00	-1.00
Mandla	11.4206	23.3473	1.156	0.2878	6.7570	15.3835	7.6148	1.9342	-1.00	-1.00	-1.00	-1.00
Mandsaur	38.5320	126.4326	6.258	1.5583	1.3586	2.5952	1.2846	0.3263	-1.00	-1.00	-1.00	-1.00
Morena	9.8802	37.8227	1.872	0.4662	12.9046	29.7804	14.7413	3.7443	-1.00	-1.00	-1.00	-1.00
Narsinghpur	94.5620	341.6922	16.914	4.2115	46.2378	144.4154	71.4856	18.1574	-1.00	-1.00	-1.00	-1.00
Nimach	17.0686	62.6790	3.103	0.7725	0.6125	0.6708	0.3320	0.0843	-1.00	-1.00	-1.00	-1.00
Panna	80.5688	227.2948	11.251	2.8015	14.5064	25.9634	12.8519	3.2644	-1.00	-1.00	-1.00	-1.00
Raisen	126.3406	462.8866	22.913	5.7053	31.9686	43.1496	21.3591	5.4252	-1.00	-1.00	-1.00	-1.00
Rajgarh	110.3590	417.8728	20.685	5.1505	3.0438	5.7202	2.8315	0.7192	-1.00	-1.00	-1.00	-1.00
Ratlam	72.8352	190.3365	9.422	2.3460	1.4448	4.3075	2.1322	0.5416	-1.00	-1.00	-1.00	-1.00
Rewa	52.3330	171.4652	8.488	2.1134	38.7570	49.0065	24.2582	6.1616	-1.00	-1.00	-1.00	-1.00
Sagar	156.3634	438.6916	21.715	5.4071	11.2852	19.8981	9.8496	2.5018	-1.00	-1.00	-1.00	-1.00
Satna	77.2400	151.7120	7.510	1.8699	31.4540	35.0264	17.3381	4.4039	-1.00	-1.00	-1.00	-1.00
Sehore	102.9494	344.2687	17.041	4.2433	10.2906	13.6837	6.7734	1.7205	-1.00	-1.00	-1.00	-1.00
Seoni	46.2182	119.0167	5.891	1.4669	15.3222	45.1470	22.3478	5.6763	-1.00	-1.00	-1.00	-1.00
Shahdol	7.5030	19.8089	0.981	0.2442	13.2698	20.5533	10.1739	2.5842	-1.00	-1.00	-1.00	-1.00
Shajapur	113.9224	309.7492	15.333	3.8178	3.5212	5.0170	2.4834	0.6308	-1.00	-1.00	-1.00	-1.00
Sheopur	15.6544	68.9228	3.412	0.8495	2.6980	6.7011	3.3171	0.8425	-1.00	-1.00	-1.00	-1.00
Shivpuri	68.5796	282.4549	13.982	3.4814	1.8382	3.5356	1.7501	0.4445	-1.00	-1.00	-1.00	-1.00
Sidhi	21.2262	43.0768	2.132	0.5309	20.7508	23.9990	14.2454	3.6183	-1.00	-1.00	-1.00	-1.00
Singrauli	15.0038	63.2093	3.129	0.7791	18.9384	60.8462	30.1189	7.6502	-1.00	-1.00	-1.00	-1.00
Tikamgarh	22.5682	48.1082	2.381	0.5930	0.1395	0.0733	0.0363	0.0092	-1.00	-1.00	-1.00	-1.00
Ujjain	166.8318	507.2434	25.109	6.2520	2.0988	4.1371	2.0479	0.5202	-1.00	-1.00	-1.00	-1.00
Umaria	7.0114	14.6111	0.723	0.1801	10.9804	11.1353	5.5120	1.4000	-1.00	-1.00	-1.00	-1.00
Vidisha	179.1370	615.0218	30.444	7.5805	5.5482	9.4037	4.6548	1.1823	-1.00	-1.00	-1.00	-1.00
West Nimar	13.3798	42.5708	2.107	0.5247	15.2444	19.8600	9.8307	2.4970	-1.00	-1.00	-1.00	-1.00
Ahmadnagar	91.1600	224.0424	177.442	44.1830	12.0000	19.2816	1.9089	0.4849	-1.00	-1.00	-1.00	-1.00
Akola	79.9000	249.1680	197.341	49.1379	60.5600	168.8544	16.7166	4.2460	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
	Amaravati	92.9800	327.8160	259.630	64.6479	114.1800	296.7744	29.3807	7.4627	-1.00	-1.00	-1.00	-1.00
	Aurangabad	43.1400	99.3192	78.661	19.5865	38.9000	80.9328	8.0123	2.0351	-1.00	-1.00	-1.00	-1.00
	Bhandara	10.5400	20.6016	16.316	4.0628	9.9600	23.0256	2.2795	0.5790	-1.00	-1.00	-1.00	-1.00
	Bid	53.0200	108.5482	85.970	21.4066	55.9600	81.8064	8.0988	2.0571	-1.00	-1.00	-1.00	-1.00
	Buldhana	60.5600	175.1832	138.745	34.5475	66.2200	102.2112	10.1189	2.5702	-1.00	-1.00	-1.00	-1.00
	Chandrapur	31.0400	63.2664	50.107	12.4766	35.9600	97.8432	9.6865	2.4604	-1.00	-1.00	-1.00	-1.00
	Dhule	29.9000	101.7970	80.623	20.0752	9.1000	18.2832	1.8100	0.4597	-1.00	-1.00	-1.00	-1.00
	Gadchiroli	3.0800	5.9160	4.685	1.1667	5.6000	14.1024	1.3961	0.3546	-1.00	-1.00	-1.00	-1.00
	Gondiya	5.0000	9.8136	7.772	1.9353	6.0600	14.4144	1.4270	0.3625	-1.00	-1.00	-1.00	-1.00
	Hingoli	61.6200	297.0528	235.266	58.5812	36.3000	94.5360	9.3591	2.3772	-1.00	-1.00	-1.00	-1.00
	Jalgaon	45.4400	172.8864	136.926	34.0946	17.0400	42.2448	4.1822	1.0623	-1.00	-1.00	-1.00	-1.00
	Jalna	24.4400	46.7712	37.043	9.2237	48.7200	94.7856	9.3838	2.3835	-1.00	-1.00	-1.00	-1.00
	Kolhapur	9.0000	33.8256	26.790	6.6707	1.5400	1.3728	0.1359	0.0345	-1.00	-1.00	-1.00	-1.00
	Latur	74.3600	236.7096	187.474	46.6810	105.3600	326.9136	32.3644	8.2206	-1.00	-1.00	-1.00	-1.00
	Mumbai City	-1.00	-1.00	-1.00	-1.00	-1.0000	-1.0000	-1.0000	-1.0000	-1.00	-1.00	-1.00	-1.00
	Nagpur	72.9000	200.1000	158.479	39.4613	58.7200	115.3152	11.4162	2.8997	-1.00	-1.00	-1.00	-1.00
	Nanded	55.7200	172.3992	136.540	33.9985	68.5000	112.8192	11.1691	2.8370	-1.00	-1.00	-1.00	-1.00
	Nandurbar	20.9800	67.0248	53.084	13.2178	16.8200	24.3360	2.4093	0.6120	-1.00	-1.00	-1.00	-1.00
	Nasik	37.0000	90.8419	71.947	17.9148	9.2600	18.1584	1.7977	0.4566	-1.00	-1.00	-1.00	-1.00
	Osmanabad	76.5000	169.5456	134.280	33.4357	97.4600	199.0560	19.7065	5.0055	-1.00	-1.00	-1.00	-1.00
	Palghar	1.2000	3.1320	2.481	0.6177	2.3000	2.8080	0.2780	0.0706	-1.00	-1.00	-1.00	-1.00
	Parbhani	55.8600	127.2984	100.820	25.1043	68.4000	118.3104	11.7127	2.9750	-1.00	-1.00	-1.00	-1.00
	Pune	48.3600	144.9072	114.767	28.5769	3.2800	4.3680	0.4324	0.1098	-1.00	-1.00	-1.00	-1.00
	Raigarh	1.8000	5.5680	4.410	1.0981	1.1800	1.4976	0.1483	0.0377	-1.00	-1.00	-1.00	-1.00
	Ratnagiri	-1.00	-1.00	-1.00	-1.00	0.5200	0.6864	0.0680	0.0173	-1.00	-1.00	-1.00	-1.00
	Sangli	27.6600	78.7176	62.344	15.5237	7.0800	7.1760	0.7104	0.1804	-1.00	-1.00	-1.00	-1.00



	Satara	28.4800	71.6184	56.722	14.1237	2.4000	2.3712	0.2347	0.0596	-1.00	-1.00	-1.00	-1.00
	Sindhudurg	-1.00	-1.00	-1.00	-1.00	0.1000	0.1310	0.0130	0.0033	-1.00	-1.00	-1.00	-1.00
	Solapur	36.4400	79.4136	62.896	15.6610	23.9600	30.0768	2.9776	0.7563	-1.00	-1.00	-1.00	-1.00
	Suburban Mumbai	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Thane	3.5400	11.0664	8.765	2.1824	2.5400	3.6192	0.3583	0.0910	-1.00	-1.00	-1.00	-1.00
	Wardha	30.6000	84.0768	66.589	16.5806	70.0600	181.1472	17.9336	4.5551	-1.00	-1.00	-1.00	-1.00
	Washim	67.0600	211.9320	167.850	41.7947	53.7600	92.9136	9.1984	2.3364	-1.00	-1.00	-1.00	-1.00
	Yavatmal	33.0400	116.7192	92.442	23.0180	112.1400	255.9648	25.3405	6.4365	-1.00	-1.00	-1.00	-1.00
Ma-nipur	Bishnupur					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chandel					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Churachandpur					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Imphal East					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Imphal West					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Senapati					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Tamenglong					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Thoubal					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ukhrul					-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
		East Garo Hills	0.3495	1.0539	0.939	0.2338	0.0817	0.2361	0.1169	0.0297	-1.00	-1.00	-1.00
Meghalaya	East Khasi Hills	-1.00	-1.00	-1.00	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jaintia Hills	-1.00	-1.00	-1.00	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ri Bhoi	-1.00	-1.00	-1.00	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South Garo Hills	0.0535	0.1798	0.160	0.0399	0.1215	0.2860	0.1416	0.0360	-1.00	-1.00	-1.00	-1.00
	West Garo Hills	0.6478	2.1617	1.926	0.4796	0.6390	2.5116	1.2432	0.3158	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
Mizoram	West Khasi Hills	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Aizawl	-1.00	-1.00	-1.00	-1.00	0.007	0.016	0	0	-1.00	-1.00	-1.00	-1.00
	Champhai	-1.00	-1.00	-1.00	-1.00	0.013	0.030	0	0	-1.00	-1.00	-1.00	-1.00
	Kolasib	-1.00	-1.00	-1.00	-1.00	0.035	0.082	0	0	-1.00	-1.00	-1.00	-1.00
	Lawngtlai	-1.00	-1.00	-1.00	-1.00	0.028	0.066	0	0	-1.00	-1.00	-1.00	-1.00
	Lunglei	-1.00	-1.00	-1.00	-1.00	0.022	0.051	0	0	-1.00	-1.00	-1.00	-1.00
	Mamit	-1.00	-1.00	-1.00	-1.00	0.008	0.019	0	0	-1.00	-1.00	-1.00	-1.00
	Saiha	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Serchhip	-1.00	-1.00	-1.00	-1.00	0.144	0.337	0	0.0000	-1.00	-1.00	-1.00	-1.00
	Dimapur	0.1000	0.3202	0.285	0.0710	0.4567	1.3052	0.4523	0.1149	-1.00	-1.00	-1.00	-1.00
	Kiphire	0.0300	0.0696	0.062	0.0154	0.0950	0.2236	0.0775	0.0197	-1.00	-1.00	-1.00	-1.00
	Kohima	0.0720	0.1810	0.161	0.0401	0.2767	0.7696	0.2667	0.0677	-1.00	-1.00	-1.00	-1.00
	Longleng	0.0400	0.1044	0.093	0.0232	0.0800	0.2080	0.0721	0.0183	-1.00	-1.00	-1.00	-1.00
Mokokchung	0.0660	0.1601	0.143	0.0355	0.2783	0.7644	0.2649	0.0673	-1.00	-1.00	-1.00	-1.00	
Mon	0.0700	0.1949	0.174	0.0432	0.3000	0.8320	0.2883	0.0732	-1.00	-1.00	-1.00	-1.00	
Peren	0.0720	0.1879	0.167	0.0417	0.1850	0.5044	0.1748	0.0444	-1.00	-1.00	-1.00	-1.00	
Phek	0.0800	0.2158	0.192	0.0479	0.4100	1.1440	0.3964	0.1007	-1.00	-1.00	-1.00	-1.00	
Tuensang	0.0700	0.2088	0.186	0.0463	0.2967	0.8216	0.2847	0.0723	-1.00	-1.00	-1.00	-1.00	
Wokha	0.0880	0.2575	0.229	0.0571	0.1800	0.4992	0.1730	0.0439	-1.00	-1.00	-1.00	-1.00	
Zunheboto	0.0600	0.1601	0.143	0.0355	0.2633	0.7228	0.2505	0.0636	-1.00	-1.00	-1.00	-1.00	
Odisha	Angul	1.9700	5.0182	0.497	0.1237	9.6200	19.6778	5.8443	1.4845	-1.00	-1.00	-1.00	-1.00
	Balangir	1.1620	3.6679	0.363	0.0904	9.0425	19.5562	5.8082	1.4753	-1.00	-1.00	-1.00	-1.00
	Baleswar	0.0360	0.1044	0.010	0.0026	0.0250	0.5834	0.1733	0.0440	-1.00	-1.00	-1.00	-1.00
	Baragarh	0.3340	0.7099	0.070	0.0175	2.5875	6.0372	1.7930	0.4554	-1.00	-1.00	-1.00	-1.00
	Bhadrak	0.0600	0.1322	0.013	0.0033	0.0200	0.5624	0.1670	0.0424	-1.00	-1.00	-1.00	-1.00
	Boudh	0.5280	1.1902	0.118	0.0293	4.5900	8.3538	2.4811	0.6302	-1.00	-1.00	-1.00	-1.00
	Cuttack	0.4240	0.8630	0.085	0.0213	0.8000	2.1278	0.6320	0.1605	-1.00	-1.00	-1.00	-1.00

Deogarh	0.5180	1.0301	0.102	0.0254	1.1300	2.2932	0.6811	0.1730	-1.00	-1.00	-1.00	-1.00
Dhenkanal	0.5320	1.2667	0.125	0.0312	3.5325	7.6401	2.2691	0.5764	-1.00	-1.00	-1.00	-1.00
Gajapathi	0.0260	0.1044	0.010	0.0026	3.8650	7.9287	2.3548	0.5981	-1.00	-1.00	-1.00	-1.00
Ganjam	0.3440	0.9466	0.094	0.0233	12.6925	29.7882	8.8471	2.2472	-1.00	-1.00	-1.00	-1.00
Jagatsinghpur	0.0780	0.2158	0.021	0.0053	0.0550	0.6778	0.2013	0.0511	-1.00	-1.00	-1.00	-1.00
Jajpur	0.1420	0.3341	0.033	0.0082	2.5025	5.2884	1.5707	0.3989	-1.00	-1.00	-1.00	-1.00
Jharsuguda	0.1860	0.3898	0.039	0.0096	1.0025	3.7596	1.1166	0.2836	-1.00	-1.00	-1.00	-1.00
Kalahandi	12.5960	39.2057	3.881	0.9665	16.4775	41.1996	12.2363	3.1080	-1.00	-1.00	-1.00	-1.00
Kandhamal	0.1540	0.3550	0.035	0.0088	4.8575	11.1821	3.3211	0.8436	-1.00	-1.00	-1.00	-1.00
Kendrapara	0.0820	0.2158	0.021	0.0053	0.0350	0.8237	0.2446	0.0621	-1.00	-1.00	-1.00	-1.00
Kendujhar	4.1540	14.4490	1.430	0.3562	5.9600	12.8965	3.8303	0.9729	-1.00	-1.00	-1.00	-1.00
Khordha	0.3080	0.6960	0.069	0.0172	0.7025	1.9484	0.5787	0.1470	-1.00	-1.00	-1.00	-1.00
Koraput	1.9160	3.4870	0.345	0.0860	5.5900	9.0067	2.6750	0.6794	-1.00	-1.00	-1.00	-1.00
Malkangiri	0.1140	0.2784	0.028	0.0069	0.9950	2.1294	0.6324	0.1606	-1.00	-1.00	-1.00	-1.00
Mayurbhanj	5.8020	15.4234	1.527	0.3802	8.4325	17.8893	5.3131	1.3495	-1.00	-1.00	-1.00	-1.00
Nabarangapur	3.3060	6.8556	0.679	0.1690	2.0375	4.3930	1.3047	0.3314	-1.00	-1.00	-1.00	-1.00
Nayagarh	0.5300	1.3781	0.136	0.0340	0.3175	1.0070	0.2991	0.0760	-1.00	-1.00	-1.00	-1.00
Nuapada	2.9000	7.9414	0.786	0.1958	4.6850	6.5754	1.9529	0.4960	-1.00	-1.00	-1.00	-1.00
Puri	0.0560	0.1462	0.014	0.0036	0.0150	0.0208	0.0062	0.0016	-1.00	-1.00	-1.00	-1.00
Rayagada	0.3180	0.5638	0.056	0.0139	24.2750	52.1516	15.4890	3.9342	-1.00	-1.00	-1.00	-1.00
Samalpur	0.3200	0.5986	0.059	0.0148	2.5050	6.2205	1.8475	0.4693	-1.00	-1.00	-1.00	-1.00
Subarnapur	0.6460	1.1832	0.117	0.0292	4.5475	9.3007	2.7623	0.7016	-1.00	-1.00	-1.00	-1.00
Sundergarh	3.1620	7.4820	0.741	0.1844	6.4375	15.1429	4.4974	1.1424	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
Puducherry	Karaikal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mahe	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Puducherry	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Punjab	Yanam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Amritsar	0.5500	2.2620	2.004	0.4991	1.0400	3.1200	0.9236	0.2346	-1.00	-1.00	-1.00	-1.00
	Barnala	0.7750	2.8710	2.544	0.6334	0.6400	1.9344	0.5726	0.1454	-1.00	-1.00	-1.00	-1.00
	Bathinda	1.3000	4.8720	4.317	1.0749	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Faridkot	-1.00	-1.00	-1.00	-1.00	0.1000	0.3120	0.0924	0.0235	-1.00	-1.00	-1.00	-1.00
	Fatehgarh Sahib	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Fazilka	7.1000	29.5800	26.209	6.5261	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Firozpur	5.5500	25.2300	22.355	5.5664	0.1000	0.3120	0.0924	0.0235	-1.00	-1.00	-1.00	-1.00
	Gurdaspur	0.1000	0.3480	0.308	0.0768	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hoshiarpur	0.4000	1.3920	1.233	0.3071	0.5500	1.7160	0.5080	0.1290	-1.00	-1.00	-1.00	-1.00
	Jalandhar	-1.00	-1.00	-1.00	-1.00	3.0400	9.1728	2.7152	0.6897	-1.00	-1.00	-1.00	-1.00
	Kapurthala	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ludhiana	-1.00	-1.00	-1.00	-1.00	5.0400	15.2256	4.5069	1.1448	-1.00	-1.00	-1.00	-1.00
	Mansa	0.5500	3.0450	2.698	0.6718	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Moga	0.7000	2.7840	2.467	0.6142	1.3600	3.6192	1.0713	0.2721	-1.00	-1.00	-1.00	-1.00
Muktsar	0.6400	2.5752	2.282	0.5682	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Nawashahr	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Pathankot	0.1000	0.3480	0.308	0.0768	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Patiala	1.0000	3.8280	3.392	0.8446	0.1000	0.3120	0.0924	0.0235	-1.00	-1.00	-1.00	-1.00	
Rupnagar	0.4333	2.0880	1.850	0.4607	0.8667	2.4960	0.7388	0.1877	-1.00	-1.00	-1.00	-1.00	
Sangrur	1.0333	4.1760	3.700	0.9213	2.3600	6.4272	1.9025	0.4832	-1.00	-1.00	-1.00	-1.00	
Sas Nagar	1.0000	3.6540	3.238	0.8062	1.6800	5.1168	1.5146	0.3847	-1.00	-1.00	-1.00	-1.00	

	Tarn Taran	0.1000	0.3480	0.308	0.0768	2.5600	5.2416	1.5516	0.3941	-1.00	-1.00	-1.00	-1.00
Rajasthan	Ajmer	107.7302	335.6773	83.080	20.6870	0.0183	0.0187	0.0043	0.0011	-1.00	-1.00	-1.00	-1.00
	Alwar	12.8448	58.1953	14.403	3.5864	3.1230	10.3004	2.3454	0.5957	-1.00	-1.00	-1.00	-1.00
	Banswara	14.1364	46.9772	11.627	2.8951	5.2814	8.5968	1.9575	0.4972	-1.00	-1.00	-1.00	-1.00
	Baran	7.4288	32.6758	8.087	2.0137	0.0295	0.1113	0.0253	0.0064	-1.00	-1.00	-1.00	-1.00
	Barmer	0.6284	1.8096	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bharatpur	4.7550	24.9314	6.171	1.5365	0.1656	0.5092	0.1159	0.0294	-1.00	-1.00	-1.00	-1.00
	Bhilwara	36.2050	124.4003	30.789	7.6665	0.1867	0.3068	0.0699	0.0177	-1.00	-1.00	-1.00	-1.00
	Bikaner	194.7744	536.0362	132.669	33.0346	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bundi	4.7432	19.1504	4.740	1.1802	0.0232	0.0618	0.0141	0.0036	-1.00	-1.00	-1.00	-1.00
	Chittaurgarh	6.5640	25.0191	6.192	1.5419	0.0160	0.0694	0.0158	0.0040	-1.00	-1.00	-1.00	-1.00
	Churu	282.5348	361.3124	89.425	22.2668	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dausa	14.3934	66.2703	16.402	4.0841	0.0286	0.1204	0.0274	0.0070	-1.00	-1.00	-1.00	-1.00
	Dholpur	1.6712	6.6726	1.651	0.4112	0.7694	2.3899	0.5442	0.1382	-1.00	-1.00	-1.00	-1.00
	Dungarpur	14.8444	56.7630	14.049	3.4982	1.7912	2.3612	0.5376	0.1366	-1.00	-1.00	-1.00	-1.00
	Gangana-gar	86.7772	298.2659	73.821	18.3814	0.1263	0.0312	0.0071	0.0018	-1.00	-1.00	-1.00	-1.00
	Hanuman-garh	120.0768	263.9824	65.336	16.2686	0.0300	0.1165	0.0265	0.0067	-1.00	-1.00	-1.00	-1.00
	Jaipur	114.8858	493.0220	122.023	30.3837	0.4686	1.1594	0.2640	0.0671	-1.00	-1.00	-1.00	-1.00
	Jaisalmer	111.1048	270.9848	67.069	16.7001	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Jalor	5.6500	12.7131	3.147	0.7835	0.1020	0.5054	0.1151	0.0292	-1.00	-1.00	-1.00	-1.00	
Jhalawar	20.7136	66.2933	16.408	4.0855	0.2410	0.7195	0.1638	0.0416	-1.00	-1.00	-1.00	-1.00	
Jhunjhunnun	89.5180	361.7105	89.523	22.2913	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Jodhpur	4.5182	13.6632	3.382	0.8420	0.0560	0.0686	0.0156	0.0040	-1.00	-1.00	-1.00	-1.00	
Karauli	15.8860	65.7901	16.283	4.0545	0.3400	1.3029	0.2967	0.0754	-1.00	-1.00	-1.00	-1.00	
Kota	5.0406	20.9955	5.196	1.2939	0.0224	0.0686	0.0156	0.0040	-1.00	-1.00	-1.00	-1.00	
Nagaur	48.9508	168.6951	41.752	10.3963	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Pali	37.3320	115.8701	28.678	7.1408	0.1616	0.4204	0.0957	0.0243	-1.00	-1.00	-1.00	-1.00	



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l	
Sikkim	Pratapgarh	19.7298	67.3088	16.659	4.1481	0.7102	1.8352	0.4179	0.1061	-1.00	-1.00	-1.00	-1.00	
	Rajsa- mand	1.0748	3.5127	0.869	0.2165	0.0065	0.0078	0.0018	0.0005	-1.00	-1.00	-1.00	-1.00	
	Sawai Madhopur	14.5646	70.1972	17.374	4.3261	0.1328	0.3251	0.0740	0.0188	-1.00	-1.00	-1.00	-1.00	
	Sikar	56.7864	227.5830	56.327	14.0254	0.0040	0.0104	0.0024	0.0006	-1.00	-1.00	-1.00	-1.00	
	Sirohi	4.4466	13.1377	3.252	0.8096	0.2046	0.5990	0.1364	0.0346	-1.00	-1.00	-1.00	-1.00	
	Tonk	59.5042	198.3294	49.087	12.2225	0.0148	0.0510	0.0116	0.0029	-1.00	-1.00	-1.00	-1.00	
	Udaipur	10.1792	40.2504	9.962	2.4805	3.1836	7.9860	1.8184	0.4619	-1.00	-1.00	-1.00	-1.00	
	East	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	West	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Ariyalur	-1.00	-1.00	-1.00	-1.00	0.1540	0.3370	0.1001	0.0254	0.2140	0.6162	0.1830	0.0465	
	Chennai	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.0000	0.0000	0.0000	
	Coim- batore	1.4095	3.3982	1.009	0.2513	0.2640	0.4711	0.1399	0.0355	0.4265	1.2402	0.3683	0.0936	
	Cuddalore	-1.00	-1.00	-1.00	-1.00	0.0715	0.1529	0.0454	0.0115	0.1690	0.5070	0.1506	0.0382	
	Dharam- puri	2.4333	4.9503	1.470	0.3661	3.1235	8.1713	2.4269	0.6164	7.2185	23.0490	6.8456	1.7388	
	Dindigul	0.4178	0.8282	0.246	0.0613	1.2155	1.8923	0.5620	0.1427	1.2610	3.6738	1.0911	0.2771	
	Erode	-1.00	-1.00	-1.00	-1.00	1.0780	2.1575	0.6408	0.1628	1.3580	2.9749	0.8836	0.2244	
	Kanchi- puram	0.0140	0.0522	0.016	0.0039	0.0280	0.0640	0.0190	0.0048	0.0860	0.2543	0.0755	0.0192	
	Kanyakumar	-1.00	-1.00	-1.00	-1.00	0.0020	0.0047	0.0014	0.0004	0.0090	0.0281	0.0083	0.0021	
Madurai	Karur	0.0560	0.0313	0.009	0.0023	2.2590	4.4507	1.3219	0.3358	2.7365	10.4317	3.0982	0.7869	
	Krishnag- iri	0.0087	0.0162	0.005	0.0012	8.8230	24.9850	7.4205	1.8848	7.1750	20.9945	6.2354	1.5838	
	Madurai	0.0305	0.0653	0.019	0.0048	1.5650	3.6270	1.0772	0.2736	1.8560	5.5286	1.6420	0.4171	

Nagapat- tinam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Namakkal	0.0973	0.2018	0.060	0.0149	1.2345	2.2558	0.6700	0.1702	2.0195	5.5926	1.6610	0.4219						
Nilgiri	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.000	0.0000	0.0000	0.0000						
Peram- balur	0.0135	0.0429	0.013	0.0032	0.3810	0.3791	0.1126	0.0286	0.7055	1.8034	0.5356	0.1360						
Pudukkot- tai	0.0040	0.0035	0.001	0.0003	0.3455	0.4914	0.1459	0.0371	0.3705	0.5444	0.1617	0.0411						
Ramana- thapuram	0.0040	0.0104	0.003	0.0008	0.0035	0.0078	0.0023	0.0006	0.0550	0.1638	0.0486	0.0124						
Salem	0.0455	0.0809	0.024	0.0060	1.7785	4.7564	1.4127	0.3588	2.2070	5.6737	1.6851	0.4280						
Sivaganga	0.0110	0.0139	0.004	0.0010	0.1490	0.3432	0.1019	0.0259	0.2360	0.6755	0.2006	0.0510						
Teni	0.0315	0.0365	0.011	0.0027	1.3720	5.6222	1.6698	0.4241	1.8615	8.3756	2.4876	0.6318						
Thanjavur	0.0060	0.0070	0.002	0.0005	0.0185	0.0406	0.0120	0.0031	0.0250	0.0702	0.0208	0.0053						
Thiru- varur	-1.00	-1.00	-1.00	-1.00	0.0100	0.0250	0.0074	0.0019	0.0020	0.0062	0.0019	0.0005						
Tiruchi- rappalli	0.0255	0.0513	0.015	0.0038	1.0030	1.3978	0.4151	0.1054	1.4315	3.1918	0.9480	0.2408						
Tirune- lveli	0.0100	0.0313	0.009	0.0023	0.0365	0.0811	0.0241	0.0061	0.3220	0.9672	0.2873	0.0730						
Tiruppur	3.2408	8.1258	2.413	0.6009	0.1615	0.3728	0.1107	0.0281	0.4180	1.2464	0.3702	0.0940						
Tiruvallur	0.0050	0.0128	0.004	0.0009	0.5400	0.7784	0.2312	0.0587	0.5470	1.2761	0.3790	0.0963						
Tiruvan- namalai	0.0027	0.0070	0.002	0.0005	1.0165	0.9532	0.2831	0.0719	1.6980	5.3274	1.5822	0.4019						
Tuticorin	0.0175	0.0331	0.010	0.0024	0.1040	0.2480	0.0737	0.0187	0.0675	0.2044	0.0607	0.0154						
Vellore	0.2055	0.2854	0.085	0.0211	11.7250	23.5030	6.9804	1.7730	11.4670	28.6853	8.5195	2.1640						
Villu- puram	0.0147	0.0116	0.003	0.0009	0.1115	0.2496	0.0741	0.0188	1.2945	3.8938	1.1564	0.2937						
Virudhu- nagar	0.0443	0.0853	0.025	0.0063	0.3390	0.7613	0.2261	0.0574	0.5740	1.7956	0.5333	0.1355						
Adilabad	17.0323	75.9858	20.913	5.2073	39.6288	88.7166	24.4166	6.2018	1.1195	1.9578	0.5388	0.1369						
Hydera- bad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00						
Karimna- gar	1.4484	5.6599	1.558	0.3879	5.9984	9.0012	2.4773	0.6292	0.0340	0.0406	0.0112	0.0028						

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Tripura	Khammam	0.1318	0.5547	0.153	0.0380	5.1396	6.7517	1.8582	0.4720	0.8575	1.0000	0.2752	0.0699
	Mahabubnagar	24.3422	93.6280	25.768	6.4163	115.5594	125.4552	34.5278	8.7701	0.2080	0.2652	0.0730	0.0185
	Medak	20.7712	87.2053	24.001	5.9762	26.7940	39.8511	10.9678	2.7858	0.0140	0.0250	0.0069	0.0017
	Nalgonda	0.3408	1.5347	0.422	0.1052	28.8178	37.3308	10.2742	2.6096	0.0180	0.0250	0.0069	0.0017
	Nizamabad	20.3686	107.5515	29.600	7.3705	4.3430	9.3325	2.5685	0.6524	0.0040	0.0125	0.0034	0.0009
	Ranga Reddy	5.1126	19.3704	5.331	1.3274	35.7202	36.6725	10.0930	2.5636	0.0270	0.0218	0.0060	0.0015
	Warangal	0.9196	3.5621	0.980	0.2441	10.6628	15.2556	4.1986	1.0665	0.6155	0.5803	0.1597	0.0406
	Dhalai	0.0168	0.0501	0.000	0.0000	0.5698	1.3135	0.3251	0.0826	-1.00	-1.00	-1.00	-1.00
	Gomati	0.0130	0.0400	0.000	0.0000	0.1363	0.3047	0.0754	0.0192	-1.00	-1.00	-1.00	-1.00
	Khowai	0.0535	0.1549	0.000	0.0000	0.3237	0.7030	0.1740	0.0442	-1.00	-1.00	-1.00	-1.00
	North Tripura	0.0444	0.1162	0.000	0.0000	0.4510	1.0221	0.2530	0.0643	-1.00	-1.00	-1.00	-1.00
	Sepahijala	-1.00	-1.00	-1.00	-1.00	0.2090	0.5387	0.1333	0.0339	-1.00	-1.00	-1.00	-1.00
	South Tripura	0.0336	0.0849	0.000	0.0000	0.3828	0.8430	0.2086	0.0530	-1.00	-1.00	-1.00	-1.00
	Uttar Pradesh	Unokoti	0.0190	0.0470	0.000	0.0000	0.1047	0.2642	0.0654	0.0166	-1.00	-1.00	-1.00
West Tripura		0.0203	0.0568	0.000	0.0000	0.2728	0.6252	0.1547	0.0393	-1.00	-1.00	-1.00	-1.00
Agra		1.0230	5.9972	1.781	0.4435	0.7860	2.4045	0.2380	0.0605	-1.00	-1.00	-1.00	-1.00
Aligarh		0.0208	0.0619	0.018	0.0046	9.3172	26.0676	2.5807	0.6555	-1.00	-1.00	-1.00	-1.00
Allahabad		15.1498	38.3467	11.389	2.8359	15.3940	40.8408	4.0432	1.0270	-1.00	-1.00	-1.00	-1.00
Ambedkarnagar		1.3117	3.5827	1.064	0.2649	2.5888	7.8837	0.7805	0.1982	-1.00	-1.00	-1.00	-1.00
Amethi		2.7132	7.7471	2.301	0.5729	3.9282	9.9104	0.9811	0.2492	-1.00	-1.00	-1.00	-1.00
Amroha		0.0020	0.0035	0.001	0.0003	0.3425	0.8460	0.0838	0.0213	-1.00	-1.00	-1.00	-1.00
Auraiya		4.9138	20.8174	6.183	1.5395	3.1522	9.1681	0.9076	0.2305	-1.00	-1.00	-1.00	-1.00
Azamgarh		2.7938	12.3105	3.656	0.9104	8.8517	27.7430	2.7466	0.6976	-1.00	-1.00	-1.00	-1.00

Badaun	0.0295	0.0632	0.019	0.0047	0.6407	1.6848	0.1668	0.0424	-1.00	-1.00	-1.00	-1.00
Baghpat	0.0068	0.0336	0.010	0.0025	0.6858	1.6006	0.1585	0.0402	-1.00	-1.00	-1.00	-1.00
Bahraich	0.2085	0.6351	0.189	0.0470	3.6857	5.8282	0.5770	0.1466	-1.00	-1.00	-1.00	-1.00
Ballia	2.6032	11.1058	3.298	0.8213	5.3925	16.7674	1.6600	0.4216	-1.00	-1.00	-1.00	-1.00
Balrampur	0.5450	1.5828	0.470	0.1171	8.2810	13.6214	1.3485	0.3425	-1.00	-1.00	-1.00	-1.00
Banda	78.0522	171.2926	50.874	12.6676	18.6550	47.5836	4.7108	1.1965	-1.00	-1.00	-1.00	-1.00
Barabanki	0.7140	2.0584	0.611	0.1522	1.7333	4.6966	0.4650	0.1181	-1.00	-1.00	-1.00	-1.00
Bareilly	0.0102	0.0278	0.008	0.0021	0.0423	0.1128	0.0112	0.0028	-1.00	-1.00	-1.00	-1.00
Basti	0.9322	2.4464	0.727	0.1809	3.1078	7.1391	0.7068	0.1795	-1.00	-1.00	-1.00	-1.00
Bhadohi	0.7210	2.3699	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Bijnor	0.0390	0.1247	0.037	0.0092	0.0117	0.0276	0.0027	0.0007	-1.00	-1.00	-1.00	-1.00
Bulandshahar	0.0466	0.1462	0.043	0.0108	8.9135	21.3278	2.1115	0.5363	-1.00	-1.00	-1.00	-1.00
Chandauli	1.3418	4.7200	2.523	0.6283	3.2128	9.7458	8.6835	2.2056	-1.00	-1.00	-1.00	-1.00
Chitrakoot	41.2833	90.7642	26.957	6.7123	13.8528	29.1455	2.8854	0.7329	-1.00	-1.00	-1.00	-1.00
Deoria	0.1727	0.4466	0.133	0.0330	4.7227	10.8332	1.0725	0.2724	-1.00	-1.00	-1.00	-1.00
Etah	0.3162	1.0214	0.303	0.0755	2.2965	9.0189	0.8929	0.2268	-1.00	-1.00	-1.00	-1.00
Etawah	1.7370	6.7947	2.018	0.5025	2.0310	7.9170	0.7838	0.1991	-1.00	-1.00	-1.00	-1.00
Faizabad	1.7155	4.3164	1.282	0.3192	2.0287	6.4740	0.6409	0.1628	-1.00	-1.00	-1.00	-1.00
Farrukhabad	0.6692	2.4743	0.735	0.1830	1.3958	3.5989	0.3563	0.0905	-1.00	-1.00	-1.00	-1.00
Fatehpur	41.5007	121.0767	35.960	8.9540	17.8075	44.2260	4.3784	1.1121	-1.00	-1.00	-1.00	-1.00
Firozabad	0.5228	2.8269	0.840	0.2091	1.2652	3.7258	0.3689	0.0937	-1.00	-1.00	-1.00	-1.00
Gautambudhna-gar	0.0010	0.0035	0.001	0.0003	1.5055	4.3087	0.4266	0.1083	-1.00	-1.00	-1.00	-1.00
Gazipur	3.9135	15.8062	4.694	1.1689	5.7480	16.9062	1.6737	0.4251	-1.00	-1.00	-1.00	-1.00
Ghaziabad	0.0020	0.0070	0.002	0.0005	1.0090	2.2095	0.2187	0.0556	-1.00	-1.00	-1.00	-1.00
Gonda	0.6437	1.9175	0.569	0.1418	5.3020	8.9768	0.8887	0.2257	-1.00	-1.00	-1.00	-1.00
Gorakhpur	0.6187	1.5550	0.462	0.1150	3.7957	8.0553	0.7975	0.2026	-1.00	-1.00	-1.00	-1.00
Hamirpur	66.3063	150.2896	44.636	11.1144	16.5443	41.9416	4.1522	1.0547	-1.00	-1.00	-1.00	-1.00
Hapur	-1.00	-1.00	-1.00	-1.00	0.8708	2.1614	0.2140	0.0544	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
	Hardoi	0.6545	1.7336	0.515	0.1282	1.6080	3.8220	0.3784	0.0961	-1.00	-1.00	-1.00	-1.00
	Hathras	0.0130	0.0342	0.010	0.0025	3.9922	10.9158	1.0807	0.2745	-1.00	-1.00	-1.00	-1.00
	Jalaun	38.6047	120.2433	35.712	8.8924	5.9325	15.6796	1.5523	0.3943	-1.00	-1.00	-1.00	-1.00
	Jaunpur	4.3618	15.7574	0.000	0.0000	11.2673	33.0304	29.4301	7.4752	-1.00	-1.00	-1.00	-1.00
	Jhansi	48.2908	132.4975	39.352	9.7986	2.3470	3.9874	0.3947	0.1003	-1.00	-1.00	-1.00	-1.00
	Kannauj	0.9267	3.5038	1.041	0.2591	1.4067	4.2687	0.4226	0.1073	-1.00	-1.00	-1.00	-1.00
	Kanpur	15.9852	57.0181	16.934	4.2167	5.4992	31.1054	3.0794	0.7822	-1.00	-1.00	-1.00	-1.00
	Kanpur Dehat	20.4980	80.4234	23.886	5.9476	7.7320	29.4169	2.9123	0.7397	-1.00	-1.00	-1.00	-1.00
	Kasganj	0.0408	0.0792	0.024	0.0059	1.5143	4.8963	0.4847	0.1231	-1.00	-1.00	-1.00	-1.00
	Kaushambi	10.3428	32.3727	9.615	2.3941	8.8108	23.9496	2.3710	0.6022	-1.00	-1.00	-1.00	-1.00
	Kheri	0.1282	0.3260	0.097	0.0241	0.8997	2.1081	0.2087	0.0530	-1.00	-1.00	-1.00	-1.00
	Kushinagar	0.0118	0.0226	0.007	0.0017	0.7570	1.6988	0.1682	0.0427	-1.00	-1.00	-1.00	-1.00
	Lalitpur	16.5203	58.5603	17.392	4.3307	0.0612	0.1254	0.0124	0.0032	-1.00	-1.00	-1.00	-1.00
	Lucknow	0.9457	2.5677	0.763	0.1899	0.7402	1.7846	0.1767	0.0449	-1.00	-1.00	-1.00	-1.00
	Maharajganj	0.0525	0.1322	0.039	0.0098	0.4100	0.9329	0.0924	0.0235	-1.00	-1.00	-1.00	-1.00
	Mahoba	52.5590	116.5725	34.622	8.6209	3.9327	8.8993	0.8810	0.2238	-1.00	-1.00	-1.00	-1.00
	Mainpuri	0.9055	4.7647	1.415	0.3524	0.8438	2.6078	0.2582	0.0656	-1.00	-1.00	-1.00	-1.00
	Mathura	0.0188	0.1015	0.030	0.0075	2.1445	6.4891	0.6424	0.1632	-1.00	-1.00	-1.00	-1.00
	Mau	1.2962	5.4503	1.619	0.4031	2.4178	7.5130	0.7438	0.1889	-1.00	-1.00	-1.00	-1.00
	Meerut	0.0530	0.1636	0.049	0.0121	1.0543	2.4986	0.2474	0.0628	-1.00	-1.00	-1.00	-1.00
	Mirzapur	12.5537	45.1252	4.914	1.2236	11.9818	34.0122	9.4282	2.3948	-1.00	-1.00	-1.00	-1.00
	Moradabad	0.0530	0.0951	0.028	0.0070	0.2763	0.6276	0.0621	0.0158	-1.00	-1.00	-1.00	-1.00
	Muzafarnagar	0.0395	0.1467	0.044	0.0109	0.0600	0.1477	0.0146	0.0037	-1.00	-1.00	-1.00	-1.00
	Pilibhit	0.0024	0.0078	0.002	0.0006	0.0420	0.1240	0.0123	0.0031	-1.00	-1.00	-1.00	-1.00



	Pratapgarh	3.3922	10.0508	2.985	0.7433	6.4702	22.0901	2.1869	0.5555	-1.00	-1.00	-1.00
	Rae Bareilly	4.8632	10.4992	3.118	0.7764	5.1808	9.8623	0.9764	0.2480	-1.00	-1.00	-1.00
	Rampur	0.0130	0.0522	0.016	0.0039	0.0287	0.0702	0.0069	0.0018	-1.00	-1.00	-1.00
	Saharanpur	0.0130	0.0371	0.011	0.0027	0.0017	0.0042	0.0004	0.0001	-1.00	-1.00	-1.00
	Sambhal	0.0053	0.0139	0.004	0.0010	0.3290	0.8167	0.0808	0.0205	-1.00	-1.00	-1.00
	Santkabir-nagar	0.3798	0.9825	0.292	0.0727	3.1763	7.2285	0.7156	0.1818	-1.00	-1.00	-1.00
	Shahjahanpur	0.0738	0.1740	0.052	0.0129	0.3912	1.0431	0.1033	0.0262	-1.00	-1.00	-1.00
	Shamali	0.0025	0.0104	0.003	0.0008	0.0045	0.0125	0.0012	0.0003	-1.00	-1.00	-1.00
	Shrawasti	0.1178	0.3625	0.108	0.0268	2.0992	3.1023	0.3071	0.0780	-1.00	-1.00	-1.00
	Siddharthnagar	0.0138	0.0444	0.013	0.0033	1.9543	4.4694	0.4425	0.1124	-1.00	-1.00	-1.00
	Sitapur	0.5230	1.3236	0.393	0.0979	3.3035	11.2658	1.1153	0.2833	-1.00	-1.00	-1.00
	Sonbhadra	10.8645	38.6483	0.000	0.0000	10.4608	27.8190	2.7541	0.6995	-1.00	-1.00	-1.00
	Sultanpur	2.9272	7.2552	2.155	0.5365	6.3728	23.8551	2.3620	0.5999	-1.00	-1.00	-1.00
	Unnao	2.9428	8.6878	2.580	0.6425	2.5278	6.4823	0.6417	0.1630	-1.00	-1.00	-1.00
	Varanasi	2.1473	7.4948	0.093	0.0231	4.2222	11.9501	0.7098	0.1803	-1.00	-1.00	-1.00
	Almora	0.0448	0.0893	0.015	0.0037	0.0280	0.0671	0.0111	0.0028	-1.00	-1.00	-1.00
	Bageshwar	0.0055	0.0110	0.002	0.0005	0.0090	0.0140	0.0023	0.0006	-1.00	-1.00	-1.00
	Chamoli	0.0030	0.0070	0.001	0.0003	0.1447	0.2257	0.0373	0.0095	-1.00	-1.00	-1.00
	Champanawat	0.0188	0.0412	0.007	0.0017	0.0780	0.0660	0.0109	0.0028	-1.00	-1.00	-1.00
	Dehradun	0.0192	0.0539	0.009	0.0022	0.3242	0.8674	0.1434	0.0364	-1.00	-1.00	-1.00
	Haridwar	0.0030	0.0070	0.001	0.0003	0.0010	0.0031	0.0005	0.0001	-1.00	-1.00	-1.00
	Nanital	0.4665	1.4349	0.237	0.0591	0.0135	0.0234	0.0039	0.0010	-1.00	-1.00	-1.00
	Pauri Garhwal	0.0475	0.1212	0.020	0.0050	0.3528	0.7706	0.1274	0.0324	-1.00	-1.00	-1.00
	Pithoragarh	0.0143	0.0325	0.005	0.0013	0.0485	0.0655	0.0108	0.0028	-1.00	-1.00	-1.00
Uttarakhand												

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Gram_r_b_Area_000ha	Gram_r_b_DB_Kt	Gram_r_b_SB_Kt	Gram_r_b_BE_million L	Tur_Kh_Area_000ha	Tur_Kh_DB_Kt	Tur_Kh_SB_Kt	Tur_Kh_BE_million l	Tur_Rb_Area_000ha	Tur_r_b_DB_Kt	Tur_r_b_SB_Kt	Tur_r_b_BE_million l
West Bengal	Rudraprayag	-1.00	-1.00	-1.00	-1.00	0.0850	0.2382	0.0394	0.0100	-1.00	-1.00	-1.00	-1.00
	Tehri Garwal	0.0130	0.0278	0.005	0.0011	1.2160	3.3301	0.5506	0.1398	-1.00	-1.00	-1.00	-1.00
	Udham Singh Nagar	0.0098	0.0226	0.004	0.0009	0.0020	0.0055	0.0009	0.0002	-1.00	-1.00	-1.00	-1.00
	Uttarkashi	0.0027	0.0093	0.002	0.0004	0.3482	0.8429	0.1394	0.0354	-1.00	-1.00	-1.00	-1.00
	Alipurduar	0.0310	0.119	0.041	0.0102	-1.00	-1.00	-1.00	-1.00	0.006	0.02	0.0023	0.0006
	Bankura	0.0156	0.0564	0.020	0.0049	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bardhaman	0.1176	0.5491	0.190	0.0474	-1.00	-1.00	-1.00	-1.00	0.0634	0.2028	0.0201	0.0051
	Birbhum	7.2754	32.2777	11.184	2.7849	-1.00	-1.00	-1.00	-1.00	0.0065	0.0109	0.0011	0.0003
	Dakshindinajpur	0.0150	0.0574	0.020	0.0050	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Darjeeling	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.0140	0.0487	0.0048	0.0012
	Eastmednipur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.0090	0.0374	0.0037	0.0009
	Haora	0.0040	0.0139	0.005	0.0012	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hugli	0.0275	0.1253	0.043	0.0108	-1.00	-1.00	-1.00	-1.00	0.1010	0.3838	0.0380	0.0097
	Jalpaiguri	0.0688	0.2631	0.050	0.0125	-1.00	-1.00	-1.00	-1.00	0.0078	0.0288	0.0029	0.0007
	Kochbihar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kolkata	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Malda	2.8902	11.6448	4.035	1.0047	-1.00	-1.00	-1.00	-1.00	0.0388	0.1379	0.0137	0.0035	
Mursidabad	5.3140	20.4993	7.103	1.7686	-1.00	-1.00	-1.00	-1.00	0.0758	0.3451	0.0342	0.0087	
Nadia	7.2634	25.4430	8.816	2.1952	-1.00	-1.00	-1.00	-1.00	0.4060	1.6736	0.1657	0.0421	
North 24 Pargana	0.5108	1.9265	0.668	0.1662	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	

Pashchim Medi- nipur	0.0033	0.0139	0.005	0.0012	-1.00	-1.00	-1.00	-1.00	-1.00	0.1644	0.5728	0.0567	0.0144
Puruliya	0.1374	0.5554	0.192	0.0479	-1.00	-1.00	-1.00	-1.00	-1.00	0.2562	0.9416	0.0932	0.0237
South 24 Parganas	0.5950	2.2035	0.764	0.1901	-1.00	-1.00	-1.00	-1.00	-1.00	0.4712	2.0093	0.1989	0.0505
Uttar_Di- najpur	0.1465	0.4637	0.161	0.0400	-1.00	-1.00	-1.00	-1.00	-1.00	0.0083	0.0187	0.0019	0.0005
<b>All India Total</b>	<b>28637</b>	<b>8484</b>	<b>26515</b>	<b>8724</b>	<b>2172</b>	<b>4040</b>	<b>8942</b>	<b>1704</b>	<b>433</b>	<b>73</b>	<b>225</b>	<b>51</b>	

Personal use only

Table 40: Districtwise area, dry biomass generation, surplus available and its bioethanol potential of sugarcane, soybean and mustard crops

State	District	Sug- cane_ Kh_ Area_ 000ha	Sug- Cane_ kh_DB_ Kt	Sug- Cane_ kh_SB_ Kt	Sug- Cane_ kh_BE_ million L	Soy- bean_ Area_ 000ha	Soy- bean_ Kh_DB_ Kt	Soy- bean_ Kh_SB_ Kt	Soy- bean_ Kh_BE_ million l	RM_Rb_ Area_ 000ha	RM_rb_ DB_Kt	RM_rb_ SB_Kt	RM_rb_ BE_mil- lion L
Andaman & Nicobar	Nicobar	0.011	0.038	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	North & Middle Andaman	0.124	0.802	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	0.012	0.010	0.00000	0.0000
Andhra Pradesh	South Andaman	0.061	0.439	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	0.001	0.001	0.00000	0.0000
	Ananthapur	0.206	6.380	5.053	1.7786	1.3404	5.1122	1.5689	0.4628	-1.000	-1.000	-1.00000	-1.00000
	Chittoor	27.706	797.437	631.570	222.3126	0.0110	0.0436	0.0134	0.0040	0.016	0.094	0.02873	0.0083
	Cuddapah	0.656	17.319	13.717	4.8283	0.1858	0.7137	0.2190	0.0646	0.010	0.012	0.00368	0.0011
	East Godavari	13.168	364.474	288.663	101.6095	0.0305	0.1217	0.0374	0.0110	-1.000	-1.000	-1.00000	-1.00
	Guntur	0.668	21.321	16.886	5.9439	0.2102	1.0561	0.3241	0.0956	0.490	1.821	0.55890	0.1621
	Krishna	16.119	489.514	387.695	136.4687	-1.00	-1.00	-1.00	-1.00	1.215	4.116	1.26335	0.3664
	Kurnool	1.131	37.948	30.055	10.5792	0.1100	0.3790	0.1163	0.0343	3.308	12.350	3.79034	1.0992
	Nellore	7.593	253.600	200.851	70.6995	-1.00	-1.00	-1.00	-1.00	0.004	0.005	0.00147	0.0004
	Prakasam	0.598	15.284	12.105	4.2608	0.0226	0.0951	0.0292	0.0086	0.057	0.315	0.09673	0.0281
Srikakulam	Srikakulam	5.867	136.318	107.964	38.0033	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Vishakhapatnam	37.828	688.158	545.021	191.8473	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Vizianagaram	15.754	329.573	261.022	91.8796	-1.00	-1.00	-1.00	-1.00	0.005	0.029	0.00884	0.0026
	West Godavari	24.229	742.009	587.671	206.8603	-1.00	-1.00	-1.00	-1.00	0.039	0.228	0.06997	0.0203
Andhra Pradesh	Anjaw	-1.000	-1.000	-1.000	-1.000								
	Changlang	0.590	2.573	0.841	0.2959								
	Dibang Valley	0.025	0.054	0.018	0.0062								





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_r_b_DB_Kt	RM_r_b_SB_Kt	RM_r_b_BE_million L
Bihar	Hailakandi	0.193	2.337	0.926	0.3258	-1.00	-1.00	-1.00	-1.00	0.469	0.393	0.15568	0.0451
	Jorhat	0.692	6.657	2.636	0.9279	-1.00	-1.00	-1.00	-1.00	10.475	16.470	6.52222	1.8914
	Kamrup Metro	0.099	1.198	0.475	0.1670	-1.00	-1.00	-1.00	-1.00	1.235	1.623	0.64285	0.1864
	Kamrup Rural	0.939	12.384	4.904	1.7262	-1.00	-1.00	-1.00	-1.00	9.798	15.198	6.01850	1.7454
	Karbi Anglong	7.396	92.702	36.710	12.9219	-1.00	-1.00	-1.00	-1.00	19.258	25.859	10.24018	2.9697
	Karimganj	0.257	2.812	1.114	0.3920	-1.00	-1.00	-1.00	-1.00	0.307	0.377	0.14940	0.0433
	Kokrajhar	0.213	2.591	1.026	0.3611	-1.00	-1.00	-1.00	-1.00	26.104	41.760	16.53696	4.7957
	Lakhimpur	0.324	5.400	2.138	0.7528	-1.00	-1.00	-1.00	-1.00	27.040	47.182	18.68391	5.4183
	Marigaon	0.863	10.466	4.144	1.4588	-1.00	-1.00	-1.00	-1.00	6.758	8.092	3.20437	0.9293
	Nagaon	6.429	74.867	29.647	10.4358	-1.00	-1.00	-1.00	-1.00	13.915	21.833	8.64579	2.5073
	Nalbari	0.177	2.015	0.798	0.2809	-1.00	-1.00	-1.00	-1.00	7.367	12.826	5.07913	1.4729
	North Cachar Hills	3.284	37.939	15.024	5.2884	-1.00	-1.00	-1.00	-1.00	3.260	2.397	0.94907	0.2752
	Sibsagar	0.087	1.057	0.419	0.1474	-1.00	-1.00	-1.00	-1.00	1.701	2.211	0.87570	0.2540
	Sonitpur	2.715	35.374	14.008	4.9308	-1.00	-1.00	-1.00	-1.00	17.902	26.393	10.45155	3.0309
	Tinsukia	0.196	2.382	0.943	0.3320	-1.00	-1.00	-1.00	-1.00	6.841	11.140	4.41138	1.2793
	Udalguri	0.788	10.817	4.284	1.5079	-1.00	-1.00	-1.00	-1.00	5.372	6.186	2.44956	0.7104
Arariya	0.147	2.449	0.606	0.2134	-1.00	-1.00	-1.00	-1.00	1.784	4.063	1.40790	0.4083	
Arwal	0.038	0.849	0.210	0.0740	-1.00	-1.00	-1.00	-1.00	0.330	0.956	0.33112	0.0960	
Aurangabad	0.278	6.282	1.555	0.5473	-1.00	-1.00	-1.00	-1.00	1.886	3.712	1.28607	0.3730	
Banka	2.722	59.611	14.754	5.1933	-1.00	-1.00	-1.00	-1.00	0.341	0.643	0.22273	0.0646	
Begusarai	4.195	110.109	27.252	9.5927	-1.00	-1.00	-1.00	-1.00	8.150	35.897	12.43824	3.6071	
Bhabua	0.246	3.410	0.844	0.2971	-1.00	-1.00	-1.00	-1.00	1.562	3.715	1.28732	0.3733	

Bhagalpur	5.911	143.860	35.605	12.5331	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.144	5.995	2.07734	0.6024
Bhojpur	0.327	5.712	1.414	0.4976	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.455	4.574	1.53974	0.4465
Buxar	0.559	8.672	2.146	0.7555	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.487	3.867	1.33998	0.3886
Darbhanga	2.162	33.303	8.242	2.9013	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.756	4.653	1.61233	0.4676
Gaya	0.358	7.020	1.738	0.6116	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.867	5.066	1.75523	0.5090
Gopalganj	25.837	439.050	108.665	38.2501	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.513	7.762	2.68953	0.7800
Jahanabad	0.129	2.559	0.633	0.2229	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.192	0.592	0.20513	0.0595
Jamui	1.090	22.607	5.595	1.9696	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.760	2.190	0.75870	0.2200
Katihar	0.212	3.758	0.930	0.3274	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	3.686	9.322	3.22993	0.9367
Khagaria	0.090	2.383	0.590	0.2076	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.796	9.347	3.23867	0.9392
Kishanganj	0.077	1.442	0.357	0.1257	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.394	2.037	0.70575	0.2047
Lakhisarai	0.060	1.678	0.415	0.1462	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.710	9.601	3.32690	0.9648
Madhepura	2.042	38.966	9.644	3.3947	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.755	4.656	1.61344	0.4679
Madhubani	0.100	1.615	0.400	0.1407	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.180	1.950	0.67554	0.1959
Munger	0.178	3.679	0.911	0.3205	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.568	1.928	0.66805	0.1937
Muzaffarpur	4.102	73.460	18.181	6.3998	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	6.050	21.093	7.30879	2.1196
Nalanda	0.199	3.056	0.756	0.2662	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.295	10.535	3.65045	1.0586
Nawada	0.176	3.204	0.793	0.2791	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.847	1.922	0.66597	0.1931
Pashchim Champaran	144.-133	2385.495	590.410	207.8243	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	8.774	22.142	7.67220	2.2249
Patna	0.467	6.278	1.554	0.5469	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.759	11.973	4.14871	1.2031
Purbi Champaran	21.372	282.025	69.801	24.5701	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.480	6.696	2.32030	0.6729
Purnia	0.127	1.925	0.476	0.1677	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.291	6.115	2.11892	0.6145
Rohtas	0.271	3.006	0.744	0.2618	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.401	6.008	2.08191	0.6038
Saharsa	0.129	2.320	0.574	0.2022	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.261	3.326	1.15260	0.3343
Samastipur	3.923	62.234	15.403	5.4218	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	6.960	25.679	8.89770	2.5803

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L
Chandigarh	Saran	1.094	16.526	4.090	1.4398	-1.00	-1.00	-1.00	-1.00	3.086	6.792	2.35357	0.6825
	Sheikh-pura	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.531	0.814	0.28191	0.0818
	Sheohar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.411	0.775	0.26861	0.0779
	Sitamardi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.865	2.841	0.98434	0.2855
	Siwan	3.256	54.549	13.501	4.7523	-1.00	-1.00	-1.00	-1.00	2.144	6.502	2.25308	0.6534
	Supaul	0.040	0.702	0.174	0.0611	-1.00	-1.00	-1.00	-1.00	1.254	2.738	0.94886	0.2752
	Vaishali	0.306	5.661	1.401	0.4932	-1.00	-1.00	-1.00	-1.00	2.965	11.236	3.89314	1.1290
	Chandigarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	0.0000
	Balod	0.275	0.274	0.109	0.0382	0.1172	0.2090	0.0621	0.0183	1.050	1.080	1.01619	0.2947
	Baloda Bazar	0.046	0.057	0.023	0.0080	0.2430	0.7198	0.2138	0.0631	0.489	0.615	0.57875	0.1678
Chattisgarh	Balrampur	0.390	0.557	0.221	0.0777	0.0456	0.0593	0.0176	0.0052	8.728	11.692	10.99663	3.1890
	Bastar	0.470	0.624	0.247	0.0869	7.1536	12.8483	3.8159	1.1257	1.734	2.892	2.72030	0.7889
	Bemetara	1.245	1.597	0.633	0.2227	31.2385	54.0161	16.0428	4.7326	0.143	0.147	0.13859	0.0402
	Bijapur	-1.000	-1.000	-1.000	0.0001	0.0010	0.0023	0.0007	0.0002	0.035	0.036	0.03386	0.0098
	Bilaspur	0.061	0.071	0.028	0.0099	0.8238	2.5158	0.7472	0.2204	1.750	1.903	1.78996	0.5191
	Dantewara	0.011	0.009	0.004	0.0013	0.0087	0.0226	0.0067	0.0020	1.311	1.428	1.34303	0.3895
	DhamTari	0.009	0.015	0.006	0.0021	-1.00	-1.00	-1.00	-1.00	1.669	1.978	1.86069	0.5396
	Durg	0.422	0.504	0.200	0.0703	12.0052	25.2939	7.5123	2.2161	1.050	1.106	1.04019	0.3017
	Gariyaband	0.076	0.089	0.035	0.0124	0.0020	0.0046	0.0014	0.0004	0.262	0.295	0.27718	0.0804
	JanjiraChampa	0.032	0.045	0.018	0.0063	0.0297	0.0846	0.0251	0.0074	1.284	1.405	1.32159	0.3833
Karnataka	Jashpur	0.059	0.071	0.028	0.0099	0.0400	0.1051	0.0312	0.0092	4.712	5.461	5.13626	1.4895
	Kabirdham	5.488	5.735	2.271	0.7993	34.6238	75.1720	22.3261	6.5862	1.902	2.009	1.88965	0.5480
	Kanker	0.003	0.004	0.002	0.0006	0.0010	0.0023	0.0007	0.0002	1.148	1.395	1.31181	0.3804

	Konda-gaon	0.010	0.017	0.007	0.0023	0.0025	0.0092	0.0027	0.0008	0.248	0.390	0.36702	0.1064
	Korba	0.004	0.004	0.001	0.0005	0.0025	0.0046	0.0014	0.0004	2.202	1.988	1.86971	0.5422
	Korea	0.001	0.001	0.000	0.0001	0.0028	0.0040	0.0012	0.0004	3.537	3.873	3.64237	1.0563
	Mahasamund	0.015	0.018	0.007	0.0025	0.0030	0.0086	0.0026	0.0008	0.160	0.200	0.18848	0.0547
	Mungeli	0.222	0.360	0.142	0.0501	5.4754	13.3168	3.9551	1.1668	0.038	0.042	0.03973	0.0115
	Narainpur	0.004	0.004	0.002	0.0006	-1.00	-1.00	-1.00	-1.00	0.381	0.558	0.52442	0.1521
	Raigarh	0.260	0.339	0.134	0.0473	0.0043	0.0100	0.0030	0.0009	1.535	1.896	1.78356	0.5172
	Raipur	0.078	0.122	0.048	0.0170	0.2302	0.7319	0.2174	0.0641	1.040	1.294	1.21738	0.3530
	Raj Nand-gaon	0.002	0.014	0.006	0.0020	24.8578	47.4419	14.0903	4.1566	0.624	0.682	0.64142	0.1860
	Sukma	0.164	0.335	0.133	0.0467	0.0010	0.0031	0.0009	0.0003	0.301	0.345	0.32459	0.0941
	Surajpur	1.398	2.101	0.832	0.2929	0.0146	0.0230	0.0068	0.0020	4.427	5.341	5.02317	1.4567
	Surguja	1.057	1.389	0.550	0.1936	0.0142	0.0211	0.0063	0.0018	8.664	10.867	10.22060	2.9640
Dadar & Nagar Haveli	Dadar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
Daman & Diu	Daman	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Diu	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
Delhi	Central	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	East	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	New Delhi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	North	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	North East	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	North West	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	West Delhi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	Shahadra	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	South	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	South East	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	South West	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
	Delhi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug- cane_ Kh_ Area_ 000ha	Sug- Cane_ kh_DB_ Kt	Sug- Cane_ kh_SB_ Kt	Sug- Cane_ kh_BE_ million L	Soy- bean_ Kh_ Area_ 000ha	Soy- bean_ Kh_DB_ Kt	Soy- bean_ Kh_SB_ Kt	Soy- bean_ Kh_BE_ million l	RM_Rb_ Area_ 000ha	RM_rb_ DB_Kt	RM_rb_ SB_Kt	RM_rb_ BE_mil- lion L
	West Delhi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00				
Goa	North Goa	0.143	1.943	0.731	0.2573	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	South Goa	0.753	13.744	5.170	1.8200	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
Gujarat	Ahmada- bad	0.100	2.324	0.920	0.3239	-1.00	-1.00	-1.00	-1.00	1.167	4.480	1.10880	0.3216
	Amreli	0.100	2.324	0.920	0.3239	-1.00	-1.00	-1.00	-1.00	0.200	0.720	0.17820	0.0517
	Anand	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	2.767	10.640	2.63340	0.7637
	Aravalli	-1.000	-1.000	-1.000	-1.000	1.72	3.170	0.784	0.2314	3.159	11.997	2.96921	0.8611
	Banas Kantha	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	115.900	453.120	112.14720	32.5227
	Bharuch	22.367	315.887	125.091	44.0321	8.10	15.389	3.809	1.1236	0.200	0.720	0.17820	0.0517
	Bhavnagar	0.126	2.001	0.792	0.2789	-1.00	-1.00	-1.00	-1.00	0.063	0.202	0.04990	0.0145
	Botad	0.074	1.175	0.465	0.1638	-1.00	-1.00	-1.00	-1.00	0.037	0.118	0.02930	0.0085
	Chhota Udepur	5.009	62.626	24.800	8.7295	4.87	9.319	2.306	0.6804	0.227	0.925	0.22889	0.0664
	Dahod	-1.000	-1.000	-1.000	-1.000	32.13	58.109	14.382	4.2427	0.100	0.400	0.09900	0.0287
	Dangs	0.100	1.660	0.657	0.2314	1.85	3.216	0.796	0.2348	-1.000	-1.000	-1.00000	-1.00
	Devbhumi Dwarka	0.150	3.586	1.420	0.4998	0.03	0.069	0.017	0.0050	0.280	1.056	0.26136	0.0758
	Gandhina- gar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	4.300	16.400	4.05900	1.1771
	Gir Som- nath	2.683	62.454	24.732	8.7055	0.04	0.080	0.020	0.0059	0.035	0.084	0.02079	0.0060
	Jamnagar	0.350	8.366	3.313	1.1662	0.07	0.161	0.040	0.0117	0.653	2.464	0.60984	0.1769
	Junagadh	4.983	115.985	45.930	16.1674	0.07	0.149	0.037	0.0109	0.065	0.156	0.03861	0.0112
	Kachchh	0.100	1.245	0.493	0.1735	-1.00	-1.00	-1.00	-1.00	15.833	66.960	16.57260	4.8061
	Kheda	0.300	0.730	0.289	0.1018	0.50	0.919	0.227	0.0671	2.633	10.320	2.55420	0.7407
	Mahesana	-1.000	-1.000	-1.000	-1.000	0.10	0.230	0.057	0.0168	31.933	117.600	29.10600	8.4407
	Mahisagar	0.055	1.278	0.506	0.1782	0.29	0.505	0.125	0.0369	0.128	0.528	0.13068	0.0379



Morbi	0.040	0.841	0.333	0.1172	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.147	0.512	0.12672	0.0367
Narmada	10.367	185.356	73.401	25.8371	6.40	11.943	2.956	0.8720	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00
Navsari	19.333	334.147	132.322	46.5774	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.167	0.640	0.15840	0.0459
Panch Mahals	0.045	1.046	0.414	0.1458	0.24	0.413	0.102	0.0302	0.105	0.432	0.105	0.432	0.10692	0.0310
Patan	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	29.567	111.360	27.56160	7.9929
Porbandar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
Rajkot	0.060	1.262	0.500	0.1759	-1.00	-1.00	-1.00	-1.00	-1.00	0.220	0.220	0.768	0.19008	0.0551
Sabar Kantha	-1.000	-1.000	-1.000	0.0000	2.02	3.721	0.921	0.2717	3.708	14.083	3.708	14.083	3.48559	1.0108
Surat	96.400	1656.049	655.795	230.8400	5.60	10.221	2.530	0.7462	0.150	0.480	0.150	0.480	0.11880	0.0345
Suren-dranagar	0.100	2.158	0.855	0.3008	-1.00	-1.00	-1.00	-1.00	0.900	3.360	0.900	3.360	0.83160	0.2412
Tapi	16.867	164.484	65.136	22.9277	3.90	7.350	1.819	0.5366	-1.000	-1.000	-1.000	-1.000	-1.00000	0.0000
Vadodara	2.357	29.471	11.671	4.1080	2.29	4.385	1.085	0.3202	0.107	0.435	0.107	0.435	0.10771	0.0312
Valsad	8.333	132.302	52.392	18.4418	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00
Ambala	9.785	103.584	41.019	14.4388	-1.00	-1.00	-1.00	-1.00	1.000	4.000	1.000	4.000	2.97000	0.8613
Bhiwani	1.991	16.932	6.705	2.3602	-1.00	-1.00	-1.00	-1.00	153.500	546.800	153.500	546.800	405.99900	117.7397
Faridabad	0.685	9.628	3.813	1.3421	-1.00	-1.00	-1.00	-1.00	0.833	3.200	0.833	3.200	2.37600	0.6890
Fatehabad	0.112	2.258	0.894	0.3147	-1.00	-1.00	-1.00	-1.00	11.500	46.400	11.500	46.400	34.45200	9.9911
Gurugram	0.038	0.166	0.066	0.0231	-1.00	-1.00	-1.00	-1.00	12.000	50.800	12.000	50.800	37.71900	10.9385
Hisar	1.116	8.189	3.243	1.1415	-1.00	-1.00	-1.00	-1.00	65.500	270.000	65.500	270.000	200.47500	58.1378
Jhajjar	2.564	25.011	9.904	3.4863	-1.00	-1.00	-1.00	-1.00	28.000	107.200	28.000	107.200	79.59600	23.0828
Jind	2.800	25.564	10.123	3.5634	-1.00	-1.00	-1.00	-1.00	4.167	16.400	4.167	16.400	12.17700	3.5313
Kaithal	2.703	42.053	14.571	5.1292	-1.00	-1.00	-1.00	-1.00	1.000	4.000	1.000	4.000	2.97000	0.8613
Karnal	10.976	115.204	22.810	8.0293	-1.00	-1.00	-1.00	-1.00	1.000	4.000	1.000	4.000	2.97000	0.8613
Kurukshetra	9.227	98.493	24.377	8.5807	-1.00	-1.00	-1.00	-1.00	1.667	6.000	1.667	6.000	4.45500	1.2920
Mahen-dragarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	90.500	330.800	90.500	330.800	245.61900	71.2295
Mewat	0.569	13.114	3.246	1.1425	-1.00	-1.00	-1.00	-1.00	25.000	97.600	25.000	97.600	72.46800	21.0157
Palwal	2.401	19.699	4.875	1.7161	-1.00	-1.00	-1.00	-1.00	2.833	11.600	2.833	11.600	8.61300	2.4978
Panchkula	0.444	7.388	1.808	0.6363	-1.00	-1.00	-1.00	-1.00	1.500	4.800	1.500	4.800	3.56400	1.0336
Panipat	6.571	83.111	20.570	7.2406	-1.00	-1.00	-1.00	-1.00	1.000	4.000	1.000	4.000	2.97000	0.8613

Haryana

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L
Himachal Pradesh	Rewari	0.035	0.166	0.066	0.0231	-1.00	-1.00	-1.00	-1.00	64.333	302.000	224.23500	65.0282
	Rohatak	7.636	70.273	27.828	9.7955	-1.00	-1.00	-1.00	-1.00	12.167	41.200	22.43340	6.5057
	Sirsa	0.093	0.382	0.151	0.0532	-1.00	-1.00	-1.00	-1.00	41.667	171.600	127.41300	36.9498
	Sonipat	7.564	81.672	32.342	11.3844	-1.00	-1.00	-1.00	-1.00	2.000	6.800	5.04900	1.4642
	Yamunanagar	26.152	259.071	102.592	36.1124	-1.00	-1.00	-1.00	-1.00	2.167	8.000	5.94000	1.7226
	Bilaspur	0.006	0.016	0.006	0.0021	0.0080	0.0299	0.0050	0.0015	0.320	0.798	0.13430	0.0389
	Chamba	-1.000	-1.000	-1.000	-1.000	0.0020	0.0069	0.0012	0.0003	2.984	2.567	0.43199	0.1253
	Hamirpur	0.020	0.096	0.036	0.0127	-1.00	-1.00	-1.00	-1.00	0.053	0.070	0.01171	0.0034
	Kangra	0.340	1.631	0.614	0.2160	0.0760	0.2940	0.0495	0.0146	1.711	1.996	0.33586	0.0974
	Kinnaur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Kullu	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.455	0.545	0.09169	0.0266
	Lahul & Spiti	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.027	0.096	0.01616	0.0047
	Mandi	-1.000	-1.000	-1.000	-1.000	0.4330	1.3390	0.2254	0.0665	0.296	0.164	0.02767	0.0080
	Shimla	-1.000	-1.000	-1.000	-1.000	0.0150	0.0574	0.0097	0.0029	0.307	0.221	0.03716	0.0108
Jammu & Kashmir	Sirmaur	1.026	9.491	3.570	1.2568	0.0350	0.1355	0.0228	0.0067	1.259	1.932	0.32516	0.0943
	Solan	0.026	0.125	0.047	0.0165	0.0150	0.0574	0.0097	0.0029	0.568	0.689	0.11593	0.0336
	Una	0.245	1.342	0.505	0.1777	-1.00	-1.00	-1.00	-1.00	1.089	2.582	0.43462	0.1260
	Anantnag	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	38.526	73.798	10.95894	3.1781
	Baramula	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	9.244	15.648	2.32369	0.6739
	Chilas	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Gilgit	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Gilgit Wazarat	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Jammu	0.023	0.011	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	0.614	1.252	0.18597	0.0539
	Kathua	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	2.820	3.967	0.58909	0.1708
Leh And Ladakh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.086	0.234	0.03468	0.0101	



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L	
Karnataka	Sahibganj	-1.000	-1.000	-1.000	0.0010	0.3443	0.5926	0.1936	0.0571	7.305	9.135	2.26098	0.6557	
	Saraikeela Khar-sawan	-1.000	-1.000	-1.000		0.0583	0.0536	0.0175	0.0052	7.193	18.439	4.56370	1.3235	
	Simdega	0.005	0.007	0.003	0.0010	0.1187	0.2205	0.0720	0.0213	8.455	12.604	3.11951	0.9047	
	Bagalkot	88.255	2867.427	578.264	203.5491	2.5046	5.5376	1.5844	0.4674	0.012	0.010	0.00275	0.0008	
	Ballari	4.048	117.340	23.664	8.3296	0.0230	0.0551	0.0158	0.0047	0.038	0.026	0.00755	0.0022	
	Belagavi	173.446	5237.233	1056.175	371.7737	71.4410	138.0942	39.5101	11.6555	0.523	0.391	0.11193	0.0325	
	Bengaluru Rural	0.004	0.123	0.025	0.0088	-1.00	-1.00	-1.00	-1.00	0.620	0.559	0.15999	0.0464	
	Bengaluru Urban	0.006	0.163	0.033	0.0116	-1.00	-1.00	-1.00	-1.00	0.333	0.298	0.08515	0.0247	
	Bidar	28.737	661.412	133.385	46.9514	87.0196	226.1636	64.7077	19.0888	0.043	0.031	0.00893	0.0026	
	Chamara-janagar	5.821	191.656	38.651	13.6050	-1.00	-1.00	-1.00	-1.00	0.006	0.005	0.00137	0.0004	
	Chikbal-lapur	0.185	5.586	1.127	0.3966	-1.00	-1.00	-1.00	-1.00	0.496	0.268	0.07656	0.0222	
	Chik-kamagaluru	1.236	29.173	5.883	2.0709	0.0050	0.0115	0.0033	0.0010	0.122	0.091	0.02609	0.0076	
	Chitra-durga	0.017	0.486	0.098	0.0345	-1.00	-1.00	-1.00	-1.00	0.089	0.068	0.01957	0.0057	
	Dakshin Kannada	0.017	0.513	0.103	0.0364	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00	
	Davangere	6.186	256.201	51.667	18.1869	-1.00	-1.00	-1.00	-1.00	-1.00	0.012	0.008	0.00240	0.0007
	Dharwad	4.978	109.782	22.139	7.7930	27.1866	55.4622	15.8683	4.6811	0.009	0.006	0.00172	0.0005	
Gadag	1.913	59.331	11.965	4.2117	-1.00	-1.00	-1.00	-1.00	-1.00	0.063	0.048	0.01373	0.0040	
Hassan	2.256	71.935	14.507	5.1064	-1.00	-1.00	-1.00	-1.00	-1.00	0.228	0.173	0.04944	0.0143	
Haveri	5.655	183.252	36.956	13.0084	5.7240	12.0995	3.4618	1.0212	0.018	0.013	0.00378	0.0011		

	Kalaburagi	22.774	449.883	90.726	31.9357	6.7022	11.6586	3.3356	0.9840	0.011	0.008	0.00240	0.0007
	Kodagu	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Kolar	0.155	4.802	0.969	0.3409	-1.00	-1.00	-1.00	-1.00	0.333	0.247	0.07073	0.0205
	Koppal	1.741	51.474	10.381	3.6540	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Mandhya	27.760	1169.928	235.936	83.0493	0.0075	0.0149	0.0043	0.0013	-1.000	-1.000	-1.000000	-1.00
	Mysuru	8.489	276.445	55.750	19.6239	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Raichur	0.289	8.518	1.718	0.6047	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Ramnagar	0.747	21.466	4.329	1.5238	-1.00	-1.00	-1.00	-1.00	0.602	0.504	0.14420	0.0418
	Shivamogga	4.579	159.816	32.230	11.3448	0.0460	0.0919	0.0263	0.0078	0.005	0.004	0.00103	0.0003
	Tumakuru	1.738	52.122	10.511	3.7000	0.0080	0.0161	0.0046	0.0014	0.478	0.236	0.06764	0.0196
	Udupi	0.057	1.723	0.348	0.1223	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Uttar Kannada	3.729	100.887	20.345	7.1616	0.0040	0.0080	0.0023	0.0007	-1.000	-1.000	-1.000000	-1.00
	Vijayapura	43.386	1117.728	225.409	79.3438	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
Kerala	Yadgir	0.731	21.429	4.322	1.5212	-1.00	-1.00	-1.00	-1.00	0.032	0.022	0.00618	0.0018
	Alappuzha	0.064	0.940	0.633	0.2227	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Ernakulam	0.003	0.040	0.027	0.0094	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Idukki	1.679	32.403	21.814	7.6785	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Kannur	0.002	0.038	0.026	0.0090	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Kasargod	0.001	0.005	0.003	0.0011	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Kollam	0.002	0.005	0.003	0.0012	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Kottayam	0.012	0.194	0.131	0.0460	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Kozikod	0.000	0.000	0.000	0.0001	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Malappuram	0.000	0.001	0.001	0.0002	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Palakkad	0.401	5.334	3.591	1.2640	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00
	Pattanamittia	0.016	0.160	0.108	0.0379	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000000	-1.00



Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug- cane_ Kh_ Area_ 000ha	Sug- Cane_ kh_DB_ Kt	Sug- Cane_ kh_SB_ Kt	Sug- Cane_ kh_BE_ million L	Soy- bean_ Kh_ Area_ 000ha	Soy- bean_ Kh_DB_ Kt	Soy- bean_ Kh_SB_ Kt	Soy- bean_ Kh_BE_ million l	RM_Rb_ Area_ 000ha	RM_rb_ DB_Kt	RM_rb_ SB_Kt	RM_rb_ BE_mil- lion L
Thiruvananthapuram	Thiruvananthapuram	0.000	0.000	0.000	0.0001	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Thirissur	0.000	0.001	0.001	0.0002	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
	Wayanad	0.002	0.006	0.004	0.0014	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00
Lakshadweep	Lakshadweep												
Madhya Pradesh	Agar Malwa	0.014	0.176	0.044	0.0153	-1.00	-1.00	-1.00	-1.00	4.603	9.394	0.92997	0.2697
	Alirajpur	0.338	2.282	0.565	0.1988	23.9142	68.0354	20.2065	5.9609	-1.000	-1.000	-1.00000	-1.00
	Anuppur	0.002	0.010	0.002	0.0009	5.9938	12.6641	3.7612	1.1096	8.310	8.399	0.83150	0.2411
	Ashoknagar	0.564	5.020	1.242	0.4373	124.0998	336.1206	99.8278	29.4492	3.520	9.420	0.93258	0.2704
	Balaghat	0.859	13.627	3.373	1.1872	0.0600	0.2021	0.0600	0.0177	3.681	8.948	0.88587	0.2569
	Barwani	1.214	15.257	3.776	1.3292	64.7820	173.8099	51.6215	15.2284	-1.000	-1.000	-1.00000	0.0000
	Betul	5.023	70.524	17.455	6.1441	220.3458	684.6361	203.3369	59.9844	0.347	0.946	0.09361	0.0271
	Bhind	0.024	0.185	0.046	0.0161	2.2292	5.8316	1.7320	0.5109	170.231	515.245	51.00930	14.7927
	Bhopal	0.366	2.725	0.674	0.2374	109.8440	275.2862	81.7600	24.1192	0.081	0.235	0.02323	0.0067
	Burhanpur	2.489	47.298	11.706	4.1206	18.6422	35.0161	10.3998	3.0679	0.003	0.006	0.00059	0.0002
	Chhatarpur	0.300	2.283	0.565	0.1989	69.9538	126.1233	37.4586	11.0503	18.061	16.972	1.68021	0.4873
	Chhindwara	5.209	114.100	28.240	9.9404	142.1922	550.8397	163.5994	48.2618	0.531	1.402	0.13876	0.0402
	Damoh	0.238	3.091	0.765	0.2693	88.3892	214.2092	63.6201	18.7679	0.841	2.364	0.23399	0.0679
Datia	3.095	44.747	11.075	3.8984	2.9206	7.7264	2.2948	0.6770	15.908	28.497	2.82117	0.8181	
Dewas	0.765	4.024	0.996	0.3506	329.2866	845.7199	251.1788	74.0977	0.751	2.118	0.20971	0.0608	
Dhar	0.809	6.441	1.594	0.5612	276.8916	842.6550	250.2685	73.8292	0.025	0.049	0.00481	0.0014	
Dindori	0.002	0.007	0.002	0.0006	7.8504	14.1887	4.2140	1.2431	15.769	22.968	2.27388	0.6594	

East Ni-mar	0.553	5.518	1.366	0.4807	144.6684	235.7146	70.0072	20.6521	0.018	0.025	0.00249	0.0007
Guna	0.688	4.859	1.203	0.4233	209.9348	563.2452	167.2838	49.3487	4.662	10.955	1.08450	0.3145
Gwalior	1.506	16.784	4.154	1.4622	4.9178	15.3973	4.5730	1.3490	53.071	136.065	13.47045	3.9064
Harda	0.645	6.738	1.668	0.5870	176.7998	457.7371	135.9479	40.1046	0.025	0.069	0.00681	0.0020
Hoshangabad	1.613	21.124	5.228	1.8403	212.6590	370.1220	109.9262	32.4282	0.138	0.294	0.02915	0.0085
Indore	0.021	0.176	0.044	0.0153	226.1768	605.1531	59.9102	17.6735	0.105	0.244	0.02418	0.0070
Jabalpur	0.628	6.153	1.523	0.5360	22.6410	44.0283	13.0764	3.8575	3.443	8.195	0.81131	0.2353
Jhabua	0.010	0.118	0.029	0.0103	53.2422	98.1253	29.1432	8.5972	0.011	0.014	0.00143	0.0004
Katni	0.032	0.275	0.068	0.0239	2.7464	6.1233	1.8186	0.5365	2.156	3.795	0.37574	0.1090
Mandla	1.120	10.957	2.712	0.9546	4.3218	9.0641	2.6920	0.7942	14.660	27.953	2.76733	0.8025
Mandsaur	0.005	0.052	0.013	0.0045	273.4216	805.3991	239.2035	70.5650	39.055	147.594	14.61183	4.2374
Morena	0.623	9.086	2.249	0.7915	2.4926	5.9455	1.7658	0.5209	140.604	481.071	47.62606	13.8116
Narsinghpur	23.972	405.860	100.450	35.3585	85.5214	274.9701	81.6661	24.0915	0.236	0.583	0.05774	0.0167
Nimach	0.003	0.035	0.009	0.0031	127.3828	297.3819	88.3224	26.0551	16.401	46.575	4.61091	1.3372
Panna	0.577	3.954	0.979	0.3445	19.6518	40.5693	12.0491	3.5545	4.534	5.640	0.55831	0.1619
Raisen	0.887	6.766	1.675	0.5895	165.7592	292.9385	87.0027	25.6658	0.364	0.850	0.08411	0.0244
Rajgarh	0.015	0.148	0.037	0.0129	319.1410	712.3149	211.5575	62.4095	4.405	9.583	0.94869	0.2751
Ratlam	0.010	0.229	0.057	0.0200	223.5100	615.6228	182.8400	53.9378	7.155	30.804	3.04955	0.8844
Rewa	0.027	0.236	0.058	0.0205	44.4380	82.1161	24.3885	7.1946	4.454	5.150	0.50984	0.1479
Sagar	0.467	5.053	1.251	0.4402	291.5180	626.7586	186.1473	54.9135	0.653	1.192	0.11804	0.0342
Satna	1.096	5.486	1.358	0.4779	61.1718	112.5979	33.4416	9.8653	2.723	2.352	0.23285	0.0675
Sehore	1.753	23.032	5.700	2.0066	277.5074	697.3443	207.1113	61.0978	0.075	0.170	0.01687	0.0049
Seoni	0.848	10.472	2.592	0.9123	109.5562	235.9236	70.0693	20.6704	1.136	2.488	0.24634	0.0714
Shahdol	0.016	0.176	0.044	0.0153	8.4946	21.6005	6.4153	1.8925	5.674	7.398	0.73243	0.2124
Shajapur	0.129	1.335	0.331	0.1163	313.3898	764.8895	227.1722	67.0158	4.735	12.303	1.21803	0.3532
Sheepur	0.210	1.516	0.375	0.1321	35.9832	100.5470	29.8625	8.8094	47.228	159.517	15.79218	4.5797
Shivpuri	0.956	6.641	1.644	0.5786	157.4176	367.7397	109.2187	32.2195	45.249	76.550	7.57844	2.1977
Sidhi	0.009	0.105	0.026	0.0092	2.5178	8.4031	2.4957	0.7362	3.876	5.106	0.50547	0.1466
Singrauli	0.009	0.102	0.025	0.0089	-1.00	-1.00	-1.00	-1.00	5.022	11.450	1.13359	0.3287

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L
Maharashtra	Tikamgarh	0.323	3.582	0.887	0.3121	52.2944	121.9541	36.2204	10.6850	20.416	21.032	2.08218	0.6038
	Ujjain	0.415	2.785	0.689	0.2427	452.9806	1192.5936	354.2003	104.4891	1.701	3.818	0.37802	0.1096
	Umaria	0.003	0.021	0.005	0.0018	5.9394	9.2451	2.7458	0.8100	7.363	8.218	0.81354	0.2359
	Vidisha	0.170	1.045	0.259	0.0910	270.8130	693.2712	205.9015	60.7410	0.538	1.183	0.11714	0.0340
	West Nimar	1.712	14.244	3.525	1.2409	45.7492	90.6758	26.9307	7.9446	0.018	0.028	0.00279	0.0008
	Ahmadnagar	120.760	3521.584	1150.501	404.9765	58.0400	161.6947	80.0389	23.6115	-1.000	-1.000	-1.00000	-1.00000
	Akola	0.200	4.366	1.426	0.5021	167.6800	440.0669	217.8331	64.2608	-1.000	-1.000	-1.00000	-1.00000
	Amaravati	0.340	6.899	2.254	0.7934	323.3000	813.2509	402.5592	118.7550	1.250	0.840	0.08316	0.0241
	Aurangabad	17.340	424.854	138.800	48.8575	10.7000	24.9432	12.3469	3.6423	-1.000	-1.000	-1.00000	-1.00000
	Bhandara	2.860	67.031	21.899	7.7084	7.2200	13.3214	6.5941	1.9453	0.333	0.240	0.02376	0.0069
	Bid	49.480	960.821	313.900	110.4929	86.0200	255.3123	126.3796	37.2820	0.367	0.240	0.02376	0.0069
	Buldhana	0.360	7.284	2.380	0.8377	287.9000	867.5932	429.4586	126.6903	2.800	1.920	0.19008	0.0551
	Chandrapur	0.100	2.988	0.976	0.3436	141.1000	264.6373	130.9955	38.6437	0.367	0.400	0.03960	0.0115
	Dhule	5.860	146.850	47.976	16.8875	14.2000	54.8016	27.1268	8.0024	1.050	0.960	0.09504	0.0276
	Gadchiroli	-1.000	-1.000	-1.000	-1.000	5.6400	12.4946	6.1848	1.8245	0.800	0.560	0.05544	0.0161
	Gondiya	0.560	12.091	3.950	1.3905	-1.00	-1.00	-1.00	-1.00	0.267	0.240	0.02376	0.0069
	Hingoli	8.880	193.297	63.150	22.2289	150.6400	437.6323	216.6280	63.9053	0.150	0.156	0.01544	0.0045
	Jalgaon	10.600	258.489	84.448	29.7258	16.7400	66.7450	33.0388	9.7464	0.100	0.240	0.02376	0.0069
	Jalna	17.080	350.692	114.571	40.3290	71.1800	173.4084	85.8372	25.3220	0.300	0.312	0.03089	0.0090
	Kolhapur	141.900	4501.196	1470.541	517.6304	51.6200	294.7851	145.9186	43.0460	-1.000	-1.000	-1.00000	0.0000
Latur	42.040	908.717	296.878	104.5010	274.1000	1090.8881	539.9896	159.2969	1.100	0.720	0.07128	0.0207	
Mumbai City		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000

Nagpur	1.080	23.559	7.697	2.7092	234.7800	396.1521	196.0953	57.8481	0.300	0.352	0.03485	0.0101
Nanded	16.280	382.550	124.979	43.9927	196.2600	516.5503	255.6924	75.4293	0.200	0.184	0.01822	0.0053
Nandurbar	9.620	250.833	81.947	28.8454	29.0600	101.1970	50.0925	14.7773	0.433	0.320	0.03168	0.0092
Nasik	22.540	589.964	192.741	67.8449	56.7400	191.7369	94.9097	27.9984	0.150	0.144	0.01426	0.0041
Osmanabad	51.720	918.923	300.212	105.6747	106.9400	315.1669	156.0076	46.0222	0.600	0.424	0.04198	0.0122
Palghar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
Parbhani	22.440	525.934	171.823	60.4816	133.3200	335.4247	166.0352	48.9804	0.533	0.420	0.00000	0.0000
Pune	130.- 160	4576.720	1495.- 214	526.3154	5.0000	27.8372	13.7794	4.0649	0.150	0.180	0.01782	0.0052
Raigarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.100	0.096	0.00950	0.0028
Ratnagiri	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.100	0.084	0.00832	0.0024
Sangli	68.920	2500.265	816.837	287.5265	58.7600	242.2665	119.9219	35.3770	0.267	0.344	0.03406	0.0099
Satara	66.840	2154.434	703.854	247.7565	45.0000	181.9341	90.0574	26.5669	0.400	0.424	0.04198	0.0122
Sindhudurg	1.100	32.104	10.489	3.6920	-1.0	-1.0	-1.0	-1.00	0.150	0.168	0.01663	0.0048
Solapur	161.- 760	4793.469	1566.- 026	551.2413	5.3400	21.2684	10.5278	3.1057	1.000	0.480	0.04752	0.0138
Suburban Mumbai	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
Thane	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	0.167	0.176	0.01742	0.0051
Wardha	2.820	63.120	20.621	7.2587	165.4600	312.2270	154.5524	45.5929	0.100	0.096	0.00950	0.0028
Washim	0.150	2.224	0.727	0.2558	240.2800	588.4861	291.3006	85.9337	-1.000	-1.000	-1.00000	-1.00000
Yavatmal	5.600	134.832	44.050	15.5054	249.6600	557.8927	276.1569	81.4663	-1.000	-1.000	-1.00000	-1.00000
Bishnupur	0.583	11.179	4.427	1.5583								
Chandel	0.845	16.018	6.343	2.2328								
Churachandpur	1.425	27.710	10.973	3.8626								
Imphal East	1.715	33.350	13.207	4.6488								
Imphal West	0.240	4.211	1.668	0.5870								
Senapati	0.223	3.939	1.560	0.5491								

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L
Meghalaya	Tamenglong	0.190	3.609	1.429	0.5030								
	Thoubal	0.208	3.767	1.492	0.5251								
	Ukhrul	0.148	2.896	1.147	0.4037								
	East Garo Hills	0.025	0.024	0.006	0.0021	0.1148	0.2634	0.1564	0.0461	0.532	1.002	0.00000	0.0000
	East Khasi Hills	-1.000	-1.000	-1.000	-1.000	0.3003	0.8219	0.4882	0.1440	0.087	0.171	0.00000	0.0000
	Jaintia Hills	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	Ri Bhoi	-1.000	-1.000	-1.000	-1.000	0.2078	0.5842	0.3470	0.1024	0.183	0.279	0.00000	0.0000
	South Garo Hills	0.008	0.010	0.002	0.0008	0.0143	0.0601	0.0357	0.0105	0.258	0.477	0.00000	0.0000
	West Garo Hills	0.028	0.032	0.008	0.0028	0.1478	1.4443	0.8579	0.2531	6.079	12.739	0.00000	0.0000
	West Khasi Hills	0.009	0.007	0.002	0.0006	0.0372	0.0930	0.0553	0.0163	0.032	0.066	0.00000	0.0000
Mizoram	Aizawl	0.402	1.378	0.546	0.1921	0.248	0.837	0.497	0.6890	-1.000	-1.000	-1.00000	-1.00000
	Champhai	0.141	0.483	0.191	0.0674	0.161	0.544	0.323	0.0000	0.008	0.019	0.00190	0.0006
	Kolasib	0.181	0.621	0.246	0.0865	0.138	0.466	0.277	0.0000	0.213	0.511	0.05061	0.0147
	Lawngtlai	0.059	0.202	0.080	0.0282	0.080	0.270	0.160	0.0000	0.003	0.007	0.00071	0.0002
	Lunglei	0.105	0.360	0.143	0.0502	0.078	0.263	0.156	0.0000	0.022	0.053	0.00523	0.0015
	Mamit	0.067	0.230	0.091	0.0320	0.040	0.135	0.080	0.0000	0.004	0.010	0.00095	0.0003
	Saiha	0.016	0.055	0.022	0.0076	0.012	0.041	0.024	0.0000	-1.000	-1.000	-1.00000	-1.00000
	Serchhip	0.433	1.485	0.588	0.2069	0.285	0.962	0.572	0.0000	0.060	0.144	0.01426	0.0041
	Dimapur	1.132	16.361	4.859	1.7104	2.0333	5.7765	0.9150	0.2699	4.187	10.176	0.00000	0.0000
	Kiphire	0.160	2.312	0.687	0.2417	1.0650	2.9667	0.4699	0.1386	1.192	2.884	0.00000	0.0000
Nagaland	Kohima	0.210	3.037	0.902	0.3175	2.0300	5.9334	0.9399	0.2773	2.012	4.872	0.00000	0.0000
	Longleng	0.120	1.734	0.515	0.1813	1.0550	2.9016	0.4596	0.1356	0.990	2.392	0.00000	0.0000



	Mokok- hung	0.332	4.778	1.419	0.4995	1.1000	3.0509	0.4833	0.1426	3.087	7.468	0.00000	0.0000
	Mon	0.510	7.379	2.192	0.7714	3.0383	8.7278	1.3825	0.4078	3.627	8.772	0.00000	0.0000
	Peren	0.502	7.242	2.151	0.7571	1.0583	2.9322	0.4645	0.1370	2.423	5.856	0.00000	0.0000
	Phek	0.250	3.615	1.074	0.3780	2.0883	6.1210	0.9696	0.2860	2.878	6.956	0.00000	0.0000
	Tuensang	0.358	5.172	1.536	0.5407	2.1150	6.0291	0.9550	0.2817	2.142	5.164	0.00000	0.0000
	Wokha	0.520	7.517	2.233	0.7859	1.5017	4.2108	0.6670	0.1968	2.582	6.236	0.00000	0.0000
	Zunhe- boto	0.220	3.181	0.945	0.3325	7.5650	22.2751	3.5284	1.0409	2.105	5.084	0.00000	0.0000
Odisha	Angul	0.173	3.859	0.764	0.2689					0.384	0.126	0.02501	0.0073
	Balangir	2.655	61.839	12.244	4.3099					1.373	0.657	0.13006	0.0377
	Baleswar	0.333	6.184	1.224	0.4310					1.108	1.017	0.20145	0.0584
	Baragarh	0.910	21.495	4.256	1.4981					0.598	0.450	0.08910	0.0258
	Bhadrak	0.540	12.916	2.557	0.9002					0.482	0.517	0.10242	0.0297
	Boudh	0.093	2.458	0.487	0.1713					0.172	0.044	0.00866	0.0025
	Cuttack	2.730	56.432	11.173	3.9331					0.040	0.028	0.00545	0.0016
	Deogarh	0.088	1.748	0.346	0.1218					0.212	0.113	0.02233	0.0065
	Dhenka- nal	0.900	20.879	4.134	1.4552					0.136	0.067	0.01319	0.0038
	Gajapathi	0.050	1.131	0.224	0.0788					0.057	0.010	0.00205	0.0006
	Ganjam	3.298	76.903	15.227	5.3598					0.035	0.014	0.00287	0.0008
	Jag- atsingh- pur	0.850	18.661	3.695	1.3006					0.044	0.019	0.00379	0.0011
	Jajpur	1.710	37.434	7.412	2.6090					0.180	0.048	0.00954	0.0028
	Jharsu- guda	0.208	5.273	1.044	0.3675					0.228	0.188	0.03729	0.0108
	Kalahandi	1.838	42.461	8.407	2.9594					0.722	0.290	0.05746	0.0167
	Kandha- mal	0.225	3.865	0.765	0.2694					1.616	0.495	0.09803	0.0284
	Kend- rapara	0.273	5.577	1.104	0.3887					0.126	0.061	0.01201	0.0035
	Kendujhar	0.735	16.082	3.184	1.1209					0.810	0.522	0.10336	0.0300
	Khordha	5.633	157.809	31.246	10.9986					0.069	0.026	0.00505	0.0015

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L
Puducherry	Koraput	5.178	126.934	25.133	8.8468					0.070	0.033	0.00657	0.0019
	Malkangiri	0.120	2.130	0.422	0.1484					0.019	0.004	0.00076	0.0002
	Mayurbhanj	2.108	39.183	7.758	2.7309					0.362	0.243	0.04802	0.0139
	Nabarangapur	3.650	80.891	16.016	5.6378					0.017	0.004	0.00086	0.0002
	Nayagarh	3.135	73.638	14.580	5.1323					0.259	0.082	0.01625	0.0047
	Nuapada	0.035	0.710	0.141	0.0495					0.078	0.014	0.00276	0.0008
	Puri	0.353	7.994	1.583	0.5571					0.046	0.017	0.00345	0.0010
	Rayagada	0.210	4.461	0.883	0.3109					1.220	0.545	0.10794	0.0313
	Sambalpur	0.050	1.010	0.200	0.0704					0.541	0.523	0.10360	0.0300
	Subarnapur	0.395	8.958	1.774	0.6244					0.111	0.051	0.01007	0.0029
	Sundergarh	0.050	1.184	0.234	0.0825					0.876	0.658	0.13027	0.0378
	Karaikal	0.001	0.024	0.005	0.0017					-1.000	-1.000	-1.00000	-1.00000
	Mahe	-1.000	-1.000	-1.000	-1.000					-1.000	-1.000	-1.00000	-1.00000
	Puducherry	1.918	94.338	18.679	6.5750					-1.000	-1.000	-1.00000	-1.00000
Yanam	-1.000	-1.000	-1.000	-1.000					-1.000	-1.000	-1.00000	-1.00000	
Punjab	Amritsar	3.600	89.574	35.471	12.4858					1.000	3.264	2.74666	0.7965
	Barnala	1.000	29.327	11.613	4.0879					1.000	2.640	2.22156	0.6443
	Bathinda	-1.000	-1.000	-1.000	-1.000					2.000	6.624	5.57410	1.6165
	Faridkot	-1.000	-1.000	-1.000	-1.000					-1.000	-1.000	-1.00000	-1.00000
	Fatehgarh Sahib	2.800	78.219	30.975	10.9031					1.000	3.520	2.96208	0.8590
	Fazilka	1.333	36.852	14.593	5.1369					5.667	19.120	16.08948	4.6659
	Firozpur	1.667	42.828	16.960	5.9699					3.667	14.320	12.05028	3.4946

	Gur-daspur	21.600	531.001	210.276	74.0173	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.400	6.768	5.69527	1.6516
	Hosharpur	20.800	480.205	190.161	66.9367	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	4.800	13.584	11.43094	3.3150
	Jalandhar	10.200	232.068	75.817	26.6874	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	3.024	2.54470	0.7380
	Kapurthala	4.000	99.534	39.415	13.8742	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	2.880	2.42352	0.7028
	Ludhiana	2.200	59.494	23.560	8.2930	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	3.840	3.23136	0.9371
	Mansa	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.000	6.672	5.61449	1.6282
	Moga	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	2.820	2.37303	0.6882
	Muktsar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	3.264	2.74666	0.7965
	Na-washahr	5.800	131.671	52.142	18.3539	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.800	5.184	4.36234	1.2651
	Pathankot	4.000	89.507	35.445	12.4766	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	2.720	2.28888	0.6638
	Patiala	2.600	78.153	30.949	10.8939	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	3.300	2.77695	0.8053
	Rupnagar	2.800	70.517	27.925	9.8295	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.000	4.944	4.16038	1.2065
	Sangrur	2.600	73.903	29.266	10.3015	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.600	4.752	3.99881	1.1597
	Sas Nagar	1.000	20.318	8.046	2.8322	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	2.400	2.01960	0.5857
	Tarn Taran	1.000	20.584	8.151	2.8692	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.000	3.120	2.62548	0.7614
Rajasthan	Ajmer	0.024	0.574	0.227	0.0800	0.0098	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	38.226	111.922	33.24072	9.6398
	Alwar	0.045	0.827	0.327	0.1153	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	246.404	872.428	0.00000	0.00000
	Banswara	0.119	2.018	0.799	0.2812	25.6558	56.2234	13.9153	4.1050	0.086	0.277	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Baran	0.037	0.873	0.346	0.1217	227.0142	721.9623	445.9373	131.5515	80.221	281.151	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	Barmer	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	16.820	45.557	38.33605	11.1175
	Bharatpur	0.119	4.118	1.631	0.5741	0.0077	0.0237	0.00000	0.00000	0.00000	0.00000	0.00000	209.920	803.292	357.86680	103.7814	
	Bhilwara	0.046	1.409	0.558	0.1965	7.2310	19.6565	6.8110	2.0092	41.151	117.415	63.93258	18.5404	45.12095	13.0851	16.5860	
	Bikaner	0.003	0.076	0.030	0.0106	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	57.159	165.059	57.19296	20.0717
	Bundi	1.102	19.998	7.919	2.7876	78.6962	221.4671	76.7384	22.6378	57.159	165.059	57.19296	16.5860	69.21274	20.0717	20.0717	
	Chittaurgarh	1.138	32.543	12.887	4.5362	72.3596	204.2944	70.7880	20.8825	48.266	155.360	69.21274	20.0717	50.86933	14.7521	14.7521	
	Churu	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	28.608	68.511	50.86933	14.7521
	Dausa	0.003	0.066	0.026	0.0092	0.0015	0.0046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	73.043	254.768	50.44410	14.6288

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L
	Dholpur	0.074	2.490	0.3471	0.0033	0.0080	0.0000	0.0000	66.581	225.401	145.04541	42.0632
	Dungarpur	0.057	1.605	0.2237	6.5138	16.2296	4.0168	1.1850	0.835	2.688	1.59667	0.4630
	Gangaganagar	2.088	48.445	6.7529	-1.00	-1.00	-1.00	-1.00	243.936	884.377	0.00000	0.0000
	Hanumanagar	0.020	0.477	0.0665	0.0060	0.0138	0.0000	0.0000	99.084	366.110	0.00000	0.0000
	Jaipur	0.038	1.007	0.1404	0.0050	0.0184	0.0000	0.0000	122.888	329.472	0.00000	0.0000
	Jaisalmer	0.001	0.023	0.0031	-1.00	-1.00	-1.00	-1.00	58.371	89.722	75.50113	21.8953
	Jalor	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	74.221	208.861	0.00000	0.0000
	Jhalawar	0.016	0.369	0.0514	260.6776	696.7710	172.4508	50.8730	49.195	158.628	133.48506	38.7107
	Jhunjhunun	-1.000	-1.000	-1.000	0.0010	0.0023	0.0000	0.0000	86.392	260.236	77.29004	22.4141
	Jodhpur	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	88.871	235.082	197.82184	57.3683
	Karauli	0.057	1.580	0.2202	0.0047	0.0100	0.0000	0.0000	80.777	297.586	250.41869	72.6214
	Kota	0.007	0.164	0.0229	161.7568	447.3560	0.0000	0.0000	60.118	217.724	0.00000	0.0000
	Nagaur	0.001	0.023	0.0032	-1.00	-1.00	-1.00	-1.00	57.136	158.220	0.00000	0.0000
	Pali	-1.000	-1.000	-1.000	0.0040	0.0138	0.0000	0.0000	58.557	128.043	95.07219	27.5709
	Pratapgarh	0.003	0.065	0.0090	111.9590	303.9875	105.3317	31.0728	7.898	30.654	22.76077	6.6006
	Rajsamand	0.264	5.766	0.8037	0.0015	0.0046	0.0000	0.0000	3.077	7.899	3.51895	1.0205
	Sawai Madhopur	0.049	1.087	0.430	4.6610	13.9306	0.0000	0.0000	174.687	516.043	434.24995	125.9325
	Sikar	0.018	0.410	0.0572	0.0010	0.0023	0.0000	0.0000	65.499	182.112	27.04356	7.8426
	Sirohi	0.001	0.024	0.0034	-1.00	-1.00	-1.00	-1.00	19.330	57.112	42.40590	12.2977
	Tonk	0.071	2.120	0.2955	0.3132	0.7299	0.0000	0.0000	253.515	804.332	159.25777	46.1848
	Udaipur	0.312	5.528	0.7706	3.3600	9.1987	2.2767	0.6716	14.192	38.601	21.01831	6.0953
Sikkim	East	-1.000	-1.000	-1.000	0.9983	2.2451	0.4890	0.1443	1.638	3.206	0.00000	0.0000
	North	-1.000	-1.000	-1.000	0.3337	0.6458	0.1407	0.0415	0.377	0.610	0.00000	0.0000

	South	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	1.4367	3.0930	0.6737	0.1987	1.371	2.850	0.00000	0.0000
	West	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	1.0893	2.2635	0.4930	0.1454	1.056	2.022	0.00000	0.0000
	Ariyalur	8.287	285.450	113.038	39.7894	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Chennai	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Coimbatore	1.391	52.844	20.926	7.3660	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.003	0.002	0.00012	0.0000
	Cuddalore	30.701	1078.659	427.149	150.3565	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Dharampuri	15.798	482.459	191.054	67.2509	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.002	0.002	0.00000	0.0000
	Dindigul	5.053	170.248	67.418	23.7312	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.006	0.002	0.00012	0.0000
	Erode	30.197	1083.694	429.143	151.0583	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.017	0.010	0.00048	0.0001
	Kanchipuram	1.593	57.307	22.693	7.9881	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Kanyakumari	0.004	0.145	0.057	0.0202	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Karur	5.979	225.211	89.183	31.3926	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Krishnagiri	1.629	50.383	19.952	7.0230	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.400	0.235	0.01164	0.0034
	Madurai	4.233	145.050	57.440	20.2188	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Nagapattinam	3.127	95.777	37.928	13.3505	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Namakkal	18.755	717.546	284.148	100.0202	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.007	0.004	0.00018	0.0001
	Nilgiri	0.004	0.117	0.046	0.0162	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Perambalur	5.947	201.536	79.808	28.0926	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Pudukkottai	8.263	277.089	109.727	38.6240	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Ramanathapuram	0.509	17.931	7.101	2.4994	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Salem	13.174	420.149	166.379	58.5654	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.024	0.014	0.00071	0.0002
	Sivaganga	5.713	175.574	69.527	24.4736	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Teni	6.486	259.503	102.763	36.1727	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Thanjavur	9.933	387.912	153.613	54.0718	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000
	Thiruvavur	0.623	21.860	8.657	3.0471	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.00000	-1.00000



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L
Telangana	Tiruchirappalli	4.746	155.453	61.559	21.6689	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	Tirunelveli	4.197	116.995	46.330	16.3082	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	Tiruppur	6.143	225.684	89.371	31.4585	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	Tiruvallur	7.275	247.332	97.944	34.4761	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	Tiruvannamalai	37.622	1230.254	487.181	171.4875	-1.00	-1.00	-1.00	-1.00	0.003	0.002	0.00012	0.0000
	Tuticorin	0.451	15.940	6.312	2.2220	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	Vellore	13.473	420.494	166.515	58.6134	-1.00	-1.00	-1.00	-1.00	0.004	0.002	0.00012	0.0000
	Vilupuram	76.508	2872.024	1137.321	400.3371	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	Virudhunagar	3.202	104.114	41.229	14.5127	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000
	Adilabad	0.006	0.142	0.112	0.0395	80.7973	202.2338	62.0656	18.3093	0.328	1.113	0.34152	0.0990
	Hyderabad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	0.0000	-1.000	-1.000	-1.00000	-1.00000
	Karimnagar	1.603	43.105	34.140	12.0171	7.5078	21.0502	6.4603	1.9058	0.527	1.974	0.60575	0.1757
	Khammam	5.380	154.764	122.573	43.1458	-1.000	-1.000	-1.000	-1.00	0.001	0.002	0.00074	0.0002
	Mahabubnagar	1.802	41.835	33.133	11.6629	0.0060	0.0207	0.0063	0.0019	-1.000	-1.000	-1.00000	-1.00000
Medak	20.424	560.512	443.925	156.2617	15.1528	33.3610	10.2385	3.0204	0.003	0.010	0.00295	0.0009	
Nalgonda	0.960	28.464	22.544	7.9353	-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	-1.00000	
Nizamabad	6.295	159.918	126.655	44.5827	81.4463	278.7425	85.5461	25.2361	0.319	0.924	0.28372	0.0823	
Ranga Reddy	0.975	20.961	16.601	5.8435	0.5123	1.2632	0.3877	0.1144	-1.000	-1.000	-1.00000	-1.00000	
Warangal	0.003	0.085	0.067	0.0236	0.2127	0.5260	0.1614	0.0476	-1.000	-1.000	-1.00000	-1.00000	
Dhalai	0.151	2.454	0.972	0.3421	-1.00	-1.00	-1.00	-1.00	0.388	0.770	0.00000	0.0000	

Gomati	0.057	0.937	0.371	0.1307	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.396	0.819	0.00000	0.0000
Khowai	0.044	0.792	0.314	0.1105	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.490	0.978	0.00000	0.0000
North Tripura	0.219	3.802	1.505	0.5299	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.604	1.158	0.00000	0.0000
Sepahijala	0.060	1.109	0.439	0.1546	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.288	0.581	0.00000	0.0000
South Tripura	0.308	4.989	1.976	0.6954	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.674	1.349	0.00000	0.0000
Unokoti	0.095	1.788	0.708	0.2493	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.409	0.736	0.00000	0.0000
West Tripura	0.067	1.120	0.443	0.1561	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.342	0.606	0.00000	0.0000
Agra	0.215	3.340	1.256	0.4422	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	49.905	189.546	27.95993	8.1084
Aligarh	7.942	159.711	60.083	21.1493	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	20.304	68.738	10.13960	2.9405
Allahabad	0.768	15.991	6.016	2.1176	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.225	2.273	0.33532	0.0972
Ambed-karnagar	11.190	221.594	83.364	29.3440	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	3.887	6.434	0.94908	0.2752
Amethi	1.586	32.225	12.123	4.2673	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.747	4.439	0.65483	0.1899
Amroha	76.167	1683.641	633.386	222.9518	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	3.043	8.788	1.29638	0.3759
Auraiya	0.761	14.696	5.529	1.9461	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	14.085	43.344	6.39361	1.8541
Azamgarh	19.986	365.321	0.000	0.0000	0.0020	0.0000	0.0020	0.0069	0.0016	0.0005	2.124	5.438	0.55990	0.1624
Badaun	28.593	571.524	45.265	15.9332	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	29.328	96.276	14.20167	4.1185
Baghpat	73.468	1769.232	665.585	234.2859	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.090	6.003	0.88553	0.2568
Bahraich	30.138	573.346	215.693	75.9238	0.0460	0.1099	0.0460	0.1099	0.0250	0.0074	7.639	13.024	1.92111	0.5571
Ballia	5.350	83.892	31.560	11.1091	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.852	2.192	0.71613	0.2077
Balrampur	48.179	808.868	304.296	107.1122	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	17.835	34.124	5.03363	1.4598
Banda	0.417	5.849	2.200	0.7745	0.1020	0.2029	0.1020	0.2029	0.0462	0.0136	2.435	2.028	0.29915	0.0868
Barabanki	9.507	184.755	69.505	24.4657	0.0010	0.0023	0.0010	0.0023	0.0000	0.0000	21.345	33.526	4.94542	1.4342
Bareilly	88.681	1786.496	707.452	249.0232	0.0233	0.0620	0.0233	0.0620	0.0141	0.0042	15.342	28.994	4.27685	1.2403
Basti	37.908	745.717	280.539	98.7497	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.567	6.558	0.96731	0.2805
Bhadohi	8.461	159.672	60.069	21.1442	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.157	0.200	0.01190	0.0035
Bijnor	215.-109	4345.638	1634.-829	575.4598	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	2.722	7.654	1.12898	0.3274
Bulandshar	51.035	1049.312	394.751	138.9524	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	8.649	25.543	3.76788	1.0927
Chandauli	0.649	11.334	4.264	1.5009	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	0.298	0.752	0.03724	0.0108

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_rb_DB_Kt	RM_rb_SB_Kt	RM_rb_BE_million L
	Chitrakoot	0.275	3.977	1.496	0.5266	0.0626	0.1498	0.0341	0.0101	3.219	3.266	0.48177	0.1397
	Deoria	9.144	169.603	63.805	22.4593	-1.00	-1.00	-1.00	-1.00	1.720	2.665	0.39314	0.1140
	Etah	0.283	5.554	2.089	0.7355	-1.00	-1.00	-1.00	-1.00	11.233	43.494	6.41574	1.8606
	Etawah	0.351	6.744	2.537	0.8931	-1.00	-1.00	-1.00	-1.00	14.683	47.862	7.06006	2.0474
	Faizabad	19.538	404.245	152.077	53.5311	-1.00	-1.00	-1.00	-1.00	3.800	6.295	0.92860	0.2693
	Farrukhabad	7.647	154.582	58.154	20.4701	-1.00	-1.00	-1.00	-1.00	6.969	19.776	2.91710	0.8460
	Fatehpur	6.923	145.008	54.552	19.2023	0.0020	0.0046	0.0010	0.0003	15.822	29.866	4.40553	1.2776
	Firozabad	0.120	1.861	0.700	0.2464	-1.00	-1.00	-1.00	-1.00	9.185	32.089	4.73348	1.3727
	Gautambudhnagar	1.782	40.176	15.114	5.3202	-1.00	-1.00	-1.00	-1.00	0.520	1.549	0.22852	0.0663
	Gazipur	7.099	109.770	41.295	14.5360	-1.00	-1.00	-1.00	-1.00	0.480	1.098	0.16197	0.0470
	Ghaziabad	32.002	660.812	248.597	87.5063	-1.00	-1.00	-1.00	-1.00	1.831	5.290	0.78039	0.2263
	Gonda	74.750	1401.838	527.371	185.6347	-1.00	-1.00	-1.00	-1.00	7.840	15.188	2.24044	0.6497
	Gorakhpur	2.823	54.948	20.671	7.2763	-1.00	-1.00	-1.00	-1.00	2.849	4.430	0.65347	0.1895
	Hamirpur	4.044	55.842	21.008	7.3948	0.0402	0.0670	0.0153	0.0045	13.107	18.501	2.72905	0.7914
	Hapur	37.012	815.199	306.678	107.9507	-1.00	-1.00	-1.00	-1.00	2.053	6.654	0.98153	0.2846
	Hardoi	35.159	687.120	258.495	90.9901	0.0020	0.0023	0.0000	0.0000	13.099	26.860	3.96218	1.1490
	Hathras	0.325	6.360	2.393	0.8423	-1.00	-1.00	-1.00	-1.00	8.987	28.442	4.19554	1.2167
	Jalaun	1.603	20.443	7.691	2.7071	0.0412	0.0731	0.0166	0.0049	11.482	16.054	2.36818	0.6868
	Jaunpur	9.632	179.234	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	2.858	6.393	0.00000	0.0000
	Jhansi	0.195	2.506	0.943	0.3318	2.0403	2.8756	0.6548	0.1932	9.905	12.809	1.88943	0.5479
	Kannauj	0.188	3.610	1.358	0.4780	-1.00	-1.00	-1.00	-1.00	7.573	22.103	3.26038	0.9455
	Kanpur	2.935	48.818	18.365	6.4645	0.0020	0.0092	0.0000	0.0000	14.343	39.440	5.81779	1.6872
	Kanpur Dehat	2.404	46.133	17.355	6.1090	0.0840	0.2148	0.0489	0.0144	22.862	62.226	9.17896	2.6619
	Kasganj	7.148	135.826	51.098	17.9864	-1.00	-1.00	-1.00	-1.00	8.765	35.280	5.20421	1.5092

Kaush- ambi	1.451	29.814	11.216	3.9480	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	1.814	3.547	0.52319	0.1517
Kheri	247.- 896	5138.484	1068.- 291	376.0384	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	30.386	59.392	8.76091	2.5407
Kushina- gar	75.440	1433.375	539.236	189.8109	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	9.391	16.590	2.44725	0.7097
Lalitpur	0.111	1.428	0.537	0.1891	22.4225	37.5152	8.5422	2.5199	5.686	7.574	1.11718	0.3240	0.2837	3.791	6.632	0.97823	0.2837
Lucknow	0.204	4.151	1.562	0.5497	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	3.311	5.084	0.74994	0.2175
Maharaj- ganj	17.617	349.030	131.305	46.2193	0.0060	0.0092	0.0021	0.0006	3.311	5.084	0.74994	0.2175					
Mahoba	2.632	36.974	13.910	4.8962	0.7446	1.6330	0.3718	0.1097	5.433	4.175	0.61582	0.1786					
Mainpuri	0.459	7.151	2.690	0.9470	-1.00	-1.00	-1.00	-1.00	7.445	28.879	4.25991	1.2354					
Mathura	2.089	33.455	12.586	4.4302	-1.00	-1.00	-1.00	-1.00	43.826	167.892	24.76569	7.1821					
Mau	6.704	107.766	40.541	14.2706	-1.00	-1.00	-1.00	-1.00	0.200	0.505	0.07446	0.0216					
Meerut	128.- 053	3010.899	1132.- 700	398.7105	-1.00	-1.00	-1.00	-1.00	4.855	13.918	2.05310	0.5954					
Mirzapur	1.652	32.899	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	2.486	3.640	0.18016	0.0522					
Morada- bad	56.416	1121.159	421.780	148.4665	-1.00	-1.00	-1.00	-1.00	4.769	12.595	1.85786	0.5388					
Muzafar- nagar	190.- 141	4387.913	1650.- 733	581.0580	-1.00	-1.00	-1.00	-1.00	4.545	10.551	1.55635	0.4513					
Pilibhit	67.340	1434.089	1121.- 601	394.8036	0.4013	0.6117	0.1393	0.0411	10.224	20.626	3.26716	0.9475					
Pratap- garh	0.960	19.905	7.488	2.6359	-1.00	-1.00	-1.00	-1.00	2.008	3.887	0.57334	0.1663					
Rae Bareli	2.144	36.526	13.741	4.8369	-1.00	-1.00	-1.00	-1.00	6.941	11.960	1.76428	0.5116					
Rampur	24.793	491.151	184.771	65.0394	0.0840	0.1690	0.0385	0.0114	3.719	9.204	1.35762	0.3937					
Saharan- pur	131.- 700	2719.846	1023.- 206	360.1685	0.0040	0.0023	0.0000	0.0000	1.136	2.669	0.39367	0.1142					
Sambhal	23.817	490.604	184.565	64.9670	-1.00	-1.00	-1.00	-1.00	11.923	36.593	5.39780	1.5654					
Santkabr- nagar	2.952	58.644	22.062	7.7657	-1.00	-1.00	-1.00	-1.00	2.358	6.039	0.89078	0.2583					
Shahjah- anpur	39.273	824.385	310.134	109.1671	0.0550	0.1502	0.0342	0.0101	13.691	26.612	3.92554	1.1384					
Shamali	63.433	1615.179	607.630	213.8858	-1.00	-1.00	-1.00	-1.00	1.083	2.347	0.34615	0.1004					

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Sug-cane_Kh_Area_000ha	Sug-Cane_kh_DB_Kt	Sug-Cane_kh_SB_Kt	Sug-Cane_kh_BE_million L	Soy-bean_Kh_Area_000ha	Soy-bean_Kh_DB_Kt	Soy-bean_Kh_SB_Kt	Soy-bean_Kh_BE_million l	RM_Rb_Area_000ha	RM_r_b_DB_Kt	RM_r_b_SB_Kt	RM_r_b_BE_million L	
Uttarakhand	Shrawasti	7.037	128.817	48.461	17.0582	-1.00	-1.00	-1.00	-1.00	2.681	3.823	0.56390	0.1635	
	Sid-dharthnagar	2.292	44.951	16.910	5.9525	-1.00	-1.00	-1.00	-1.00	3.084	7.922	1.16863	0.3389	
	Sitapur	135.246	2775.513	1044.148	367.5402	-1.00	-1.00	-1.00	-1.00	24.022	45.063	6.64727	1.9277	
	Sonbhadra	0.205	4.118	1.549	0.5453	-1.00	-1.00	-1.00	-1.00	3.592	4.098	0.00000	0.0000	
	Sultanpur	9.850	181.116	68.136	23.9838	-1.00	-1.00	-1.00	-1.00	2.775	4.605	0.67925	0.1970	
	Unnao	0.895	18.098	6.808	2.3966	-1.00	-1.00	-1.00	-1.00	14.539	29.126	4.29632	1.2459	
	Varanasi	3.967	72.827	7.787	2.7409	-1.00	-1.00	-1.00	-1.00	0.738	1.793	0.05326	0.0154	
	Almora	-1.000	-1.000	-1.000	-1.000	0.4142	0.0732	0.4142	0.6050	0.1785	0.562	0.812	0.12058	0.0350
	Bageshwar	-1.000	-1.000	-1.000	-1.000	0.0732	0.2052	0.1077	0.0318	0.0318	0.123	0.098	0.01449	0.0042
	Chamoli	-1.000	-1.000	-1.000	-1.000	0.4458	1.0293	0.5401	0.1593	0.1593	0.529	0.726	0.10781	0.0313
	Champawat	0.005	0.111	0.017	0.0058	0.3263	0.7350	0.3856	0.1138	0.1138	0.612	1.259	0.18699	0.0542
	Dehradun	4.322	89.493	13.290	4.6780	0.0160	0.0348	0.0183	0.0054	0.0054	0.273	0.427	0.06338	0.0184
	Haridwar	71.476	1400.068	207.910	73.1843	2.7220	11.6976	6.1377	1.8106	1.8106	0.899	1.697	0.25203	0.0731
	Nanital	3.841	79.187	11.759	4.1393	5.2708	22.7816	11.9535	3.5263	3.5263	0.424	1.246	0.18503	0.0537
	Pauri Garhwal	-1.000	-1.000	-1.000	-1.000	0.3682	0.4428	0.2323	0.0685	0.0685	1.266	1.610	0.23914	0.0694
Pithoragarh	-1.000	-1.000	-1.000	-1.000	0.7675	2.2937	1.2035	0.3550	0.3550	0.642	0.880	0.13062	0.0379	
Rudrapur	-1.000	-1.000	-1.000	-1.000	0.0625	0.1229	0.0645	0.0190	0.0190	0.339	0.412	0.06118	0.0177	
Tehri Garhwal	-1.000	-1.000	-1.000	-1.000	0.6400	1.3329	0.6994	0.2063	0.2063	0.896	1.114	0.16537	0.0480	
Udham Singh Nagar	22.584	464.888	69.036	24.3006	0.3457	0.8735	0.4584	0.1352	0.1352	5.315	13.542	2.01093	0.5832	



	Uttarkashi	-1.000	-1.000	-1.000	-1.000	0.2205	0.4999	0.2623	0.0774	0.902	1.320	0.19602	0.0568
West Bengal	Alipurduar					-1.00	-1.00	-1.00	-1.00	4.234	6.560	0.32469	0.0942
	Bankura					-1.00	-1.00	-1.00	-1.00	10.511	20.063	0.99312	0.2880
	Bardhaman					0.0102	0.0179	0.0000	0.0000	21.588	52.212	2.58447	0.7495
	Birbhum					0.0402	0.0501	0.0000	0.0000	32.791	72.615	3.59444	1.0424
	Dakshindinajpur					-1.00	-1.00	-1.00	-1.00	23.493	59.026	2.92179	0.8473
	Darjeeling					0.5090	0.8691	0.0000	0.0000	0.339	0.437	0.02165	0.0063
	Eastmedinipur					-1.00	-1.00	-1.00	-1.00	3.565	8.240	0.40786	0.1183
	Haora					-1.00	-1.00	-1.00	-1.00	1.427	2.686	0.13294	0.0386
	Hugli					-1.00	-1.00	-1.00	-1.00	12.807	27.460	1.35926	0.3942
	Jalpaiguri					-1.00	-1.00	-1.00	-1.00	5.175	8.017	0.39685	0.1151
	Kochbihar					-1.00	-1.00	-1.00	-1.00	10.757	13.192	0.65302	0.1894
	Kolkata					-1.00	-1.00	-1.00	-1.00	-1.000	-1.000	-1.00000	0.0000
	Malda					-1.00	-1.00	-1.00	-1.00	33.363	88.464	4.37899	1.2699
	Mursidabad					-1.00	-1.00	-1.00	-1.00	86.604	227.416	11.25711	3.2646
	Nadia					-1.00	-1.00	-1.00	-1.00	77.516	208.035	10.29775	2.9863
	North 24 Pargana					-1.00	-1.00	-1.00	-1.00	43.344	136.437	6.75361	1.9585
	Pashchim Medinipur					-1.00	-1.00	-1.00	-1.00	14.752	30.471	1.50831	0.4374
Puruliya					0.0165	0.0149	0.0000	0.0000	1.545	3.084	0.15268	0.0443	
South 24 Parganas					-1.00	-1.00	-1.00	-1.00	4.848	14.925	0.73877	0.2142	
Uttar_Dinajpur					-1.00	-1.00	-1.00	-1.00	46.215	92.528	4.58012	1.3282	
<b>All India Total</b>		<b>28637</b>	<b>5037</b>	<b>119169</b>	<b>41559</b>	<b>14628.9</b>	<b>10694</b>	<b>27779</b>	<b>9950</b>	<b>2935</b>	<b>5869</b>	<b>17086</b>	<b>5157</b>

Table 41 : Districtwise area, dry biomass generation, surplus available and its bioethanol potential of cotton crop in different growing seasons

State	District	Cot_Kh_Area_000ha	Cot_Kh_DB_Kt	Cot_Kh_SB_Kt	Cot_Kh_BE_mil_lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil_lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil_lion L
Andaman & Nicobar	Nicobar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North & Middle Andaman	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	South Andaman	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ananthapur	32.520	111.193	71.553	17.8166	0.3410	1.1760	0.7568	0.1884	-1.00	-1.00	-1.00	-1.00
	Chittoor	0.283	0.807	0.520	0.1294	0.3217	1.6392	1.0548	0.2627	-1.00	-1.00	-1.00	-1.00
	Cuddapah	28.973	122.703	78.960	19.6609	1.1263	4.3344	2.7892	0.6945	-1.00	-1.00	-1.00	-1.00
	East Godavari	17.264	70.187	45.165	11.2462	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Guntur	183.970	1577.144	1014.892	252.7082	0.0220	0.2760	0.1776	0.0442	-1.00	-1.00	-1.00	-1.00
	Krishna	58.239	448.904	288.870	71.9286	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kurnool	163.207	911.562	586.590	146.0610	0.0920	0.5688	0.3660	0.0911	-1.00	-1.00	-1.00	-1.00
	Nellore	8.354	45.788	29.465	7.3367	2.2930	15.3480	9.8764	2.4592	-1.00	-1.00	-1.00	-1.00
	Prakasam	65.415	470.329	302.657	75.3615	1.9470	14.9576	9.6252	2.3967	-1.00	-1.00	-1.00	-1.00
Arunachal Pradesh	Srikakulam	7.579	59.193	38.090	9.4845	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Vishakhapatnam	2.229	17.467	11.240	2.7988	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Vizianagaram	13.770	57.531	37.021	9.2183	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West Godavari	6.109	32.916	21.182	5.2743	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Anjaw	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Changlang	Changlang	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dibang Valley	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East Kameng	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_Kh_SB_Kt	Cot_kh_BE_mil-lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil-lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil-lion L	
Bihar	Jorhat	0.008	0.009	0.000	0.00001	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Kamrup Metro	0.003	0.003	0.000	0.00000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Kamrup Rural	0.002	0.003	0.000	0.00000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Karbi Anglong	0.817	0.972	0.048	0.0120	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Karimganj	0.029	0.030	0.001	0.0004	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Kokrajhar	0.025	0.025	0.001	0.0003	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Lakhimpur	0.012	0.012	0.001	0.0001	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Marigaon	0.005	0.006	0.000	0.0001	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Nagaon	0.019	0.018	0.001	0.0002	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Nalbari	0.001	0.002	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	North Cachar Hills	0.146	0.164	0.008	0.0020	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Sibsagar	0.004	0.007	0.000	0.0001	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Sonitpur	0.025	0.027	0.001	0.0003	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Tinsukia	0.001	0.002	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Udalguri	0.001	0.002	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Arariya	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Arwal	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Aurangabad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Banka	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Begusarai	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Bhabua	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Bhagalpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Bhojpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Buxar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_kh_SB_Kt	Cot_kh_BE_mil-lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil-lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil-lion L
	Sheohar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sitamathi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Siwan	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Supaul	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Vaishali	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Chandigarh	Chandigarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Chattisgarh	Balod	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Baloda Bazar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Balrampur	0.006	0.008	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bastar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bemetara	0.045	0.096	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bijapur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bilaspur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dantewara	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	DhamTari	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Durg	0.055	0.198	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gariyaband	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Janjgir Champa	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jashpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kabirdham	0.002	0.012	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kanker	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Kondagaon	0.002	0.002	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Korba	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Korea	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_kh_SB_Kt	Cot_kh_BE_mil_lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil_lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil_lion L
Gujarat	Ahmada- bad	202.633	1028.560	254.569	63.3876	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Amreli	315.867	1916.160	474.250	118.0882	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Anand	5.400	46.320	11.464	2.8546	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Aravalli	61.640	453.486	112.238	27.9472	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Banas Kantha	41.967	364.560	90.229	22.4669	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bharuch	120.800	604.480	149.609	37.2526	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhavnagar	193.137	1522.937	376.927	93.8548	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Botad	113.430	894.423	221.370	55.1211	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chhota Udepur	128.520	1167.043	288.843	71.9220	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dahod	0.633	1.040	0.257	0.0641	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dangs	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Devbhumi Dwarka	53.520	454.368	112.456	28.0016	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gandhina- gar	32.767	309.120	76.507	19.0503	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gir Som- nath	21.350	171.192	42.370	10.5501	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jamnagar	124.880	1060.192	262.398	65.3370	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Junagadh	39.650	317.928	78.687	19.5931	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kachchh	75.667	817.280	202.277	50.3669	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kheda	28.633	201.920	49.975	12.4438	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mahesana	60.267	604.800	149.688	37.2723	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mahisagar	5.720	28.072	6.948	1.7300	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Morbi	140.040	1270.368	314.416	78.2896	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Narmada	40.633	281.360	69.637	17.3395	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Navsari	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Panch Mahals	4.680	22.968	5.685	1.4155	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_Kh_SB_Kt	Cot_kh_BE_mil_lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil_lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil_lion L
Himachal Pradesh	Yamunanagar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bilaspur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chamba	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hamirpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kangra	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kinnaur	0.008	0.007	0.000	0.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kullu	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lahul & Spiti	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mandi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shimla	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sirmaur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Solan	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Una	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jammu & Kashmir	Anantnag	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Baramulla		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Chilas		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Gilgit		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Gilgit Wazarat		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Jammu		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kathua		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Leh And Ladakh		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Mirpur		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Muzaffarabad		-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Punch	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Riasi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_Kh_SB_Kt	Cot_kh_BE_mil-lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil-lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil-lion L
Karnataka	Bagalkot	1.285	7.914	3.134	0.7804	0.6246	2.0458	0.8101	0.2017	0.3500	1.5912	0.6301	0.1569
	Ballari	57.660	374.371	148.251	36.9145	3.6160	17.5843	6.9634	1.7339	1.0090	6.7320	2.6659	0.6638
	Belagavi	33.489	192.778	76.340	19.0086	0.6978	3.0516	1.2084	0.3009	0.1520	1.1672	0.4622	0.1151
	Bengaluru Rural	0.002	0.014	0.006	0.0014	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bengaluru Urban	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bidar	0.516	2.490	0.986	0.2455	0.2240	0.8568	0.3393	0.0845	-1.00	-1.00	-1.00	-1.00
	Chamarajanagar	8.333	32.067	12.698	3.1619	0.0525	0.2532	0.1003	0.0250	0.0550	0.3648	0.1445	0.0360
	Chikbalapur	0.115	0.765	0.303	0.0754	0.0970	0.4848	0.1920	0.0478	0.0350	0.2328	0.0922	0.0230
	Chikmagalur	1.241	4.119	1.631	0.4061	-1.00	-1.00	-1.00	-1.00	0.0000	0.0000	0.0000	0.0000
	Chitradurga	20.191	85.589	33.893	8.4394	0.8806	3.0571	1.2106	0.3014	0.0840	0.3816	0.1511	0.0376
	DakshinKannada	0.002	0.007	0.003	0.0007	-1.00	-1.00	-1.00	-1.00	-1.00	0.0000	0.0000	0.0000
	Davangere	20.185	91.404	36.196	9.0128	0.4014	1.6426	0.6505	0.1620	0.3460	2.5784	1.0210	0.2542
	Dharwad	51.604	224.294	88.820	22.1163	25.5756	70.3104	27.8429	6.9329	-1.00	-1.00	-1.00	-1.00
	Gadag	30.578	201.365	79.740	19.8554	33.9288	112.4837	44.5435	11.0913	-1.00	-1.00	-1.00	-1.00
	Hassan	0.188	1.191	0.472	0.1175	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Haveri	94.344	543.058	215.051	53.5477	1.6200	3.6182	1.4328	0.3568	0.5340	2.4288	0.9618	0.2395
	Kalaburagi	41.938	404.966	160.367	39.9313	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kodagu	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Kolar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Koppal	5.664	38.269	15.155	3.7735	9.6874	26.9539	10.6738	2.6578	-1.00	-1.00	-1.00	-1.00	
Mandhya	0.005	0.031	0.012	0.0031	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	

Mysuru	44.399	208.780	82.677	20.5865	0.1330	0.6912	0.2737	0.0682	0.0385	0.2664	0.1055	0.0263
Raichur	55.890	367.987	145.723	36.2850	0.2350	1.0704	0.4239	0.1055	-1.00	-1.00	-1.00	-1.00
Ramnagar	0.001	0.007	0.003	0.0007	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Shivamogga	1.120	6.724	2.663	0.6630	-1.00	-1.00	-1.00	-1.00	0.0010	0.0096	0.0038	0.0009
Tumakuru	1.234	7.706	3.052	0.7598	0.0313	0.1584	0.0627	0.0156	0.0070	0.0448	0.0177	0.0044
Udupi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Uttar Kannada	2.311	10.974	4.346	1.0821	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Vijayapura	11.232	66.007	26.139	6.5086	0.8885	3.3588	1.3301	0.3312	0.1123	0.7832	0.3101	0.0772
Yadgir	67.857	539.587	213.677	53.2055	0.0030	0.0144	0.0057	0.0014	-1.00	-1.00	-1.00	-1.00
Alappuzha	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Ernakulam	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Idukki	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kannur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kasargod	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kollam	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kottayam	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kozikod	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Malappuram	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Palakkad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Pattanamittia	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Thiruvananthapuram	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Thrissur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Wayanad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Lakshadweep	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kerala												

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_Kh_SB_Kt	Cot_kh_BE_mil_lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil_lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil_lion L
Madhya Pradesh	Agar Malwa	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Alirajpur	10.736	30.196	2.989	0.7444	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Anuppur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ashoknagar	0.003	0.012	0.001	0.0003	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Balaghat	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Barwani	66.003	360.620	35.701	8.8896	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Betul	1.195	2.983	0.295	0.0735	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhind	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhopal	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Burhanpur	47.242	165.949	16.429	4.0908	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chhatarpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chhindwara	27.777	246.509	24.404	6.0767	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Damoh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Datia	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dewas	12.755	54.469	5.392	1.3427	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dhar	102.271	401.973	39.795	9.9090	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dindori	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East Nimar	66.836	230.875	22.857	5.6913	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Guna	2.515	3.637	0.360	0.0897	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Gwalior	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Harda	0.938	2.017	0.200	0.0497	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Hoshangabad	0.003	0.010	0.001	0.0002	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Indore	2.519	3.642	0.361	0.0898	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_kh_SB_Kt	Cot_Kh_BE_mil-lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil-lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil-lion L
	Akola	160.180	632.832	250.601	62.3998	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Amaravati	193.240	982.704	389.151	96.8985	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Aurangabad	387.340	1552.560	614.814	153.0886	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhandara	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bid	329.340	910.128	360.411	89.7423	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Buldhana	232.900	900.480	356.590	88.7909	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chandrapur	106.360	432.624	171.319	42.6585	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dhule	166.580	747.408	295.974	73.6974	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gadchiroli	4.320	17.712	7.014	1.7465	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gondiya	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hingoli	92.620	382.368	151.418	37.7030	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jalgaon	529.400	2526.192	1000.372	249.0926	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jalna	298.440	1120.512	443.723	110.4870	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kolhapur	0.100	0.480	0.190	0.0473	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Latur	4.400	27.024	10.702	2.6647	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mumbai City	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nagpur	95.200	357.648	141.629	35.2655	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nanded	323.740	983.040	389.284	96.9317	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nandurbar	82.640	261.792	103.670	25.8137	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nasik	47.040	201.264	79.701	19.8454	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Osmanabad	24.660	89.760	35.545	8.8507	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Palghar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Parbhani	257.180	1022.400	404.870	100.8127	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Pune	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Raigarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_kh_SB_Kt	Cot_kh_BE_mil-lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil-lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil-lion L
Mizoram	West Garo Hills	4.096	12.873	0.637	0.1587	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West Khasi Hills	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Aizawl	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Champhai	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kolasib	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lawngtlai	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lunglei	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mamit	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Saiha	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Serchhip	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Nagaland	Dimapur	0.078	0.108	0.005	0.0013	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kiphire	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kohima	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Longleng	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mokokchung	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mon	0.080	0.096	0.005	0.0012	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Peren	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Phek	0.038	0.053	0.003	0.0007	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Tuensang	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Wokha	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Odisha	Zunheboto	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Angul	35.703	225.912	22.365	5.5690	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Balangir	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Baleswar	0.993	6.210	0.615	0.1531	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Baragarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_Kh_SB_Kt	Cot_kh_BE_mil_lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil_lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil_lion L
	Subarnapur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sundergarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Puducherry	Karaikal	0.107	0.619	0.061	0.0153	-1.00	-1.00	-1.00	-1.00	0.0296	0.1008	0.0050	0.0025
	Mahe	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Puducherry	0.011	0.031	0.003	0.0008	-1.00	-1.00	-1.00	-1.00	0.0095	0.0252	0.0012	0.0006
	Yanam	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Amritsar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Punjab	Barnala	9.400	88.320	74.321	18.5060	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bathinda	146.800	1326.720	1116.435	277.9923	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Faridkot	13.800	109.440	92.094	22.9313	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Fatehgarh Sahib	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Fazilka	102.667	682.400	574.240	142.9857	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Firozpur	48.600	350.400	294.862	73.4205	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gurdaspur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hoshiarpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jalandhar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kapurthala	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ludhiana	1.000	7.200	6.059	1.5086	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mansa	88.200	735.360	618.805	154.0826	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Moga	2.200	16.320	13.733	3.4196	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Muktsar	84.800	641.760	540.041	134.4702	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nawashahr	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Pathankot	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	



	Patiala	1.000	7.200	6.059	1.5086	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Rupnagar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Sangrur	11.600	102.720	86.439	21.5233	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Sas Nagar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Tarn Taran	1.000	8.000	6.732	1.6763	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Rajasthan	Ajmer	15.741	14.014	6.937	1.7273	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Alwar	12.438	12.856	3.182	0.7923	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Banswara	12.356	9.069	7.631	1.9002	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Baran	0.017	0.020	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Barmer	0.006	0.007	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bharatpur	1.283	1.624	0.563	0.1401	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhilwara	37.497	45.168	33.537	8.3508	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bikaner	2.212	2.171	1.504	0.3745	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bundi	0.060	0.074	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chittaurgarh	14.195	22.070	12.017	2.9923	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Churu	0.283	0.358	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dausa	0.015	0.018	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dholpur	0.045	0.056	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dungarpur	0.985	1.220	1.027	0.2557	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gangana-gar	109.219	120.404	41.720	10.3883	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hanuman-garh	166.885	216.563	53.599	13.3462	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jaipur	0.126	0.154	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Jaisalmer	0.194	0.243	0.108	0.0270	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Jalor	0.615	0.755	0.187	0.0465	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Jhalawar	0.006	0.007	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Jhunjhunun	0.381	0.480	0.332	0.0827	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Jodhpur	25.934	35.039	29.485	7.3419	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_kh_SB_Kt	Cot_kh_BE_mil-lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil-lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil-lion L
Sikkim	Karauli	0.065	0.076	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kota	0.017	0.022	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nagaur	42.821	56.193	25.034	6.2335	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Pali	8.608	11.241	8.346	2.0782	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Pratapgarh	1.396	0.901	0.669	0.1667	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Rajsa- mand	5.780	8.439	5.431	1.3523	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sawai Madhopur	0.012	0.015	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sikar	0.230	0.284	0.000	0.0000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sirohi	1.854	1.728	0.770	0.1916	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Tonk	1.038	1.298	0.899	0.2240	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	Udaipur	2.440	2.904	1.869	0.4653	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ariyalur	7.699	54.643	15.688	3.9063	0.2265	1.3680	0.3928	0.0978	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	Chennai	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Coim- batore	0.772	5.546	1.592	0.3965	0.0650	0.4248	0.1220	0.0304	-1.00	-1.00	-1.00	-1.00
	Cuddalore	6.283	35.221	10.112	2.5179	0.2870	1.7400	0.4996	0.1244	-1.00	-1.00	-1.00	-1.00
	Dharam- puri	10.327	73.630	21.139	5.2636	1.6570	10.7304	3.0807	0.7671	-1.00	-1.00	-1.00	-1.00
	Dindigul	1.349	7.733	2.220	0.5528	1.6060	12.1848	3.4983	0.8711	-1.00	-1.00	-1.00	-1.00
	Erode	0.693	5.259	1.510	0.3760	0.3445	2.0316	0.5833	0.1452	-1.00	-1.00	-1.00	-1.00
	Kanchi- puram	0.001	0.006	0.002	0.0004	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kanyakumari	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

Karur	0.075	0.426	0.122	0.0305	0.0095	0.0624	0.0179	0.0045	-1.00	-1.00	-1.00	-1.00
Krishnag- iri	1.637	10.459	3.003	0.7477	0.1630	1.0044	0.2884	0.0718	-1.00	-1.00	-1.00	-1.00
Madurai	4.986	20.120	5.776	1.4383	2.3600	11.1948	3.2140	0.8003	-1.00	-1.00	-1.00	-1.00
Nagapat- tinam	0.312	1.968	0.565	0.1407	1.4060	12.9204	3.7094	0.9237	-1.00	-1.00	-1.00	-1.00
Namakkal	1.881	14.812	4.253	1.0589	1.1035	9.3720	2.6907	0.6700	-1.00	-1.00	-1.00	-1.00
Nilgiri	0.005	0.030	0.009	0.0021	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Peram- balur	26.932	136.612	39.221	9.7661	0.5270	3.0312	0.8703	0.2167	-1.00	-1.00	-1.00	-1.00
Pudukkot- tai	0.018	0.112	0.032	0.0080	0.0010	0.0060	0.0017	0.0004	-1.00	-1.00	-1.00	-1.00
Ramana- thapuram	0.701	1.750	0.502	0.1251	2.3875	15.6036	4.4798	1.1155	-1.00	-1.00	-1.00	-1.00
Salem	13.130	93.720	26.907	6.6998	2.4630	15.4500	4.4357	1.1045	-1.00	-1.00	-1.00	-1.00
Sivaganga	0.126	0.730	0.210	0.0522	0.3625	2.1588	0.6198	0.1543	-1.00	-1.00	-1.00	-1.00
Teni	1.122	10.727	3.080	0.7669	0.5355	4.6500	1.3350	0.3324	-1.00	-1.00	-1.00	-1.00
Thanjavur	0.767	5.618	1.613	0.4016	1.3785	10.6284	3.0514	0.7598	-1.00	-1.00	-1.00	-1.00
Thiru- varur	1.100	5.894	1.692	0.4214	2.4650	16.5648	4.7558	1.1842	-1.00	-1.00	-1.00	-1.00
Tiruchi- rappalli	15.434	70.802	20.327	5.0615	0.2535	1.7592	0.5051	0.1258	-1.00	-1.00	-1.00	-1.00
Tirun- elveli	1.929	11.966	3.435	0.8554	1.7170	5.6160	1.6124	0.4015	-1.00	-1.00	-1.00	-1.00
Tiruppur	0.317	1.849	0.531	0.1322	0.2430	1.5228	0.4372	0.1089	-1.00	-1.00	-1.00	-1.00
Tiruvallur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tiruvan- namalai	0.551	2.893	0.830	0.2068	0.2740	1.7196	0.4937	0.1229	-1.00	-1.00	-1.00	-1.00
Tuticorin	1.800	9.148	2.626	0.6540	3.9585	19.4004	5.5699	1.3869	-1.00	-1.00	-1.00	-1.00
Vellore	6.640	36.846	10.578	2.6340	0.2455	1.4760	0.4238	0.1055	-1.00	-1.00	-1.00	-1.00
Villu- puram	6.970	38.560	11.070	2.7565	0.1805	1.1268	0.3235	0.0806	-1.00	-1.00	-1.00	-1.00
Virudhu- nagar	6.169	28.322	8.131	2.0247	5.3985	30.5448	8.7694	2.1836	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_Kh_DB_Kt	Cot_Kh_SB_Kt	Cot_Kh_BE_mil_lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil_lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil_lion L
Telangana	Adilabad	325.973	1563.951	1006.403	250.5943	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hyderabad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Karimnagar	223.570	1247.606	802.834	199.9058	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Khammam	161.558	1015.005	653.155	162.6357	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mahabubnagar	217.564	834.232	536.828	133.6702	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Medak	112.342	504.099	324.388	80.7726	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nalgonda	271.179	1168.049	751.640	187.1583	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nizamabad	18.286	78.228	50.340	12.5346	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ranga Reddy	52.014	211.449	136.067	33.8807	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Warangal	242.531	1494.261	961.557	239.4277	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tripura	Dhalai	0.357	1.371	0.068	0.0169	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gomati	0.122	0.405	0.020	0.0050	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Khowai	0.058	0.201	0.010	0.0025	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North Tripura	0.292	0.942	0.047	0.0116	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sepahijala	0.009	0.032	0.002	0.0004	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South Tripura	0.121	0.409	0.020	0.0050	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Unokoti	0.051	0.182	0.009	0.0022	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West Tripura	0.044	0.148	0.007	0.0018	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Agra	1.173	0.868	0.215	0.0535	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Aligarh	1.117	0.678	0.168	0.0418	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Allahabad	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_kh_SB_Kt	Cot_kh_BE_mil-lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil-lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil-lion L
	Ghaziabad	0.004	0.002	0.001	0.00001	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gonda	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gorakhpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hamirpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hapur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hardoi	0.943	0.365	0.090	0.0225	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hathras	1.075	0.641	0.159	0.0395	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jalaun	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jaunpur	0.032	0.018	0.004	0.0011	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jhansi	0.073	0.053	0.013	0.0033	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kannauj	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kanpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kanpur Dehat	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kasganj	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kaushambi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kheri	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kushinagar	0.005	0.002	0.001	0.00001	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lalitpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lucknow	0.118	0.067	0.017	0.0041	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Maharajganj	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mahoba	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mainpuri	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mathura	1.343	0.886	0.219	0.0546	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mau	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Meerut	0.017	0.009	0.002	0.0006	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Cot_Kh_Area_000ha	Cot_kh_DB_Kt	Cot_kh_SB_Kt	Cot_kh_BE_mil-lion L	Cot_rb_Area_000ha	Cot_rb_DB_Kt	Cot_rb_SB_Kt	Cot_rb_BE_mil-lion L	Cot_sum_Area_000ha	Cot_sum_DB_Kt	Cot_sum_SB_Kt	Cot_sum_BE_mil-lion L
West Bengal	Nanital	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Pauri Garhwal	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Pithoragarh	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Rudrapur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Tehri Garwal	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Udham Singh Nagar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Uttarkashi	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Alipurduar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bankura	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bardhaman	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Birbhum	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dakshindinajpur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Darjeeling	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Eastmedinipur	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Haora	0.044	0.134	0.007	0.0016	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hugli	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jalpaiguri	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Kochbihar	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Kolkata	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Malda	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	



Table 42: Districtwise area, dry biomass generation, surplus available and its bioethanol potential of groundnut crop in different growing seasons

State	District	GN_Kh_Area_000ha	GN_Kh_DB_Kt	GN_Kh_SB_Kt	GN_kh_BE_mil-lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil-lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil-lion L
Andaman & Nicobar	Nicobar	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	North & Middle Andaman	-1.000	-1.000	-1.00	-1.00	0.006	0.009	0.000	0.0001	-1.000	-1.000	-1.000	-1.000
Andhra Pradesh	South Andaman	-1.000	-1.000	-1.00	-1.00	0.008	0.011	0.001	0.0001	-1.000	-1.000	-1.000	-1.000
	Ananthapur	703.737	488.503	149.92	32.8329	18.623	54.974	16.871	3.6948	-1.000	-1.000	-1.000	-1.000
	Chittoor	136.375	196.759	60.39	13.2244	12.591	62.328	19.129	4.1892	-1.000	-1.000	-1.000	-1.000
	Cuddapah	56.470	58.043	17.81	3.9012	17.346	66.774	20.493	4.4880	-1.000	-1.000	-1.000	-1.000
	East Godavari	0.047	0.132	0.04	0.0089	0.245	1.153	0.354	0.0775	-1.000	-1.000	-1.000	-1.000
	Guntur	0.489	1.404	0.43	0.0943	4.888	27.780	8.526	1.8671	-1.000	-1.000	-1.000	-1.000
	Krishna	1.716	7.439	2.28	0.5000	2.090	7.348	2.255	0.4938	-1.000	-1.000	-1.000	-1.000
	Kurnool	120.260	146.160	44.86	9.8236	19.165	70.892	21.757	4.7648	-1.000	-1.000	-1.000	-1.000
	Nellore	7.266	35.260	10.82	2.3699	4.655	25.838	7.930	1.7366	-1.000	-1.000	-1.000	-1.000
	Prakasam	2.666	5.670	1.74	0.3811	4.178	22.572	6.927	1.5171	-1.000	-1.000	-1.000	-1.000
Andhra Pradesh	Srikakulam	10.909	24.323	7.46	1.6348	6.620	20.997	6.444	1.4112	-1.000	-1.000	-1.000	-1.000
	Vishakhapatnam	1.992	3.708	1.14	0.2492	0.872	3.987	1.223	0.2679	-1.000	-1.000	-1.000	-1.000
	Vizianagaram	13.264	26.720	8.20	1.7959	2.382	6.918	2.123	0.4649	-1.000	-1.000	-1.000	-1.000
	West Godavari	1.219	3.338	1.02	0.2243	3.881	18.660	5.727	1.2542	-1.000	-1.000	-1.000	-1.000
Andhra Pradesh	Anjaw					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Changlang					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Dibang Valley					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_Kh_DB_Kt	GN_Kh_BE_mil_lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_BE_mil_lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil_lion L	
Bihar	Hailakandi	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Jorhat	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Kamrup Metro	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Kamrup Rural	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Karbi Anglong	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Karimganj	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Kokrajhar	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Lakhimpur	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Marigaon	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Nagaon	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Nalbari	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	North Cachar Hills	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Sibsagar	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Sonitpur	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Tinsukia	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Udalguri	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Arariya	0.046	0.085	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Arwal	0.001	0.002	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Aurangabad	0.001	0.002	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Banka	-1.000	-1.000	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Begusarai	0.009	0.017	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Bhabua	-1.000	-1.000	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_kh_DB_Kt	GN_kh_SB_Kt	GN_kh_BE_mil-lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil-lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil-lion L
Chandigarh	Saran	-1.000	-1.00	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Sheikh-pura	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Sheohar	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Sitamardi	0.177	0.329	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Siwan	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Supaul	0.016	0.028	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Vaishali	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Chandigarh	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Balod	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Baloda Bazar	0.472	1.118	0.11	0.0242	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Chattisgarh	Balrampur	1.343	3.102	0.31	0.0673	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bastar	0.070	0.195	0.02	0.0042	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bemetara	0.244	0.658	0.07	0.0143	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bijapur	0.009	0.018	0.00	0.0004	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bilaspur	1.093	2.741	0.27	0.0594	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Dantewara	0.002	0.004	0.00	0.0001	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Dhamtari	0.010	0.026	0.00	0.0006	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Durg	0.106	0.339	0.03	0.0073	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Gariyaband	0.509	1.072	0.11	0.0232	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Janjira-Champa	0.842	2.281	0.23	0.0494	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Karnataka	Jashpur	4.090	11.574	1.15	0.2509	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kabiraham	0.274	0.886	0.09	0.0192	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kanker	0.003	0.007	0.00	0.0002	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_Kh_DB_Kt	GN_Kh_SB_Kt	GN_Kh_BE_mil_lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil_lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil_lion L
Goa	West Delhi	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	North Goa	0.411	1.860	0.18	0.0403	2.245	9.780	0.968	0.2120	-1.000	-1.000	-1.000	-1.000
Gujarat	South Goa	-1.000	-1.000	-1.00	-1.00	0.003	0.013	0.001	0.0003	-1.000	-1.000	-1.000	-1.000
	Ahmadabad	0.133	0.301	0.060	0.0131	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Amreli	135.767	245.375	48.584	10.6400	-1.000	-1.000	-1.000	-1.000	4.933	16.916	3.349	0.7335
	Anand	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	0.733	2.468	0.489	0.1070
	Aravalli	29.087	88.504	17.524	3.8377	-1.000	-1.000	-1.000	-1.000	7.084	22.707	4.496	0.9846
	Banas Kantha	35.733	108.179	21.420	4.6909	-1.000	-1.000	-1.000	-1.000	5.433	19.565	3.874	0.8484
	Bharuch	0.867	2.348	0.465	0.1018	-1.000	-1.000	-1.000	-1.000	2.100	7.164	1.418	0.3106
	Bhavnagar	55.629	132.513	26.238	5.7460	-1.000	-1.000	-1.000	-1.000	13.545	48.659	9.634	2.1100
	Botad	32.671	77.825	15.409	3.3747	-1.000	-1.000	-1.000	-1.000	7.955	28.578	5.658	1.2392
	Chhota Udepur	0.816	2.374	0.470	0.1030	-1.000	-1.000	-1.000	-1.000	17.907	51.497	10.197	2.2330
	Dahod	0.467	1.084	0.215	0.0470	-1.000	-1.000	-1.000	-1.000	1.033	3.793	0.751	0.1645
	Dangs	3.300	10.114	2.002	0.4385	-1.000	-1.000	-1.000	-1.000	0.767	2.709	0.536	0.1175
Devbhumi Dwarka	87.650	225.949	44.738	9.7976	-1.000	-1.000	-1.000	-1.000	5.560	20.119	3.984	0.8724	
Gandhinagar	2.867	9.271	1.836	0.4020	-1.000	-1.000	-1.000	-1.000	0.200	0.783	0.155	0.0339	
Gir Somnath	128.438	365.923	72.453	15.8671	-1.000	-1.000	-1.000	-1.000	7.245	23.936	4.739	1.0379	
Jamnagar	204.517	527.214	104.388	22.8610	-1.000	-1.000	-1.000	-1.000	12.973	46.944	9.295	2.0356	
Junagadh	238.528	679.571	134.555	29.4675	-1.000	-1.000	-1.000	-1.000	13.455	44.452	8.801	1.9275	
Kachchh	66.633	205.162	40.622	8.8962	-1.000	-1.000	-1.000	-1.000	26.000	104.628	20.716	4.5369	
Kheda	0.600	1.625	0.322	0.0705	-1.000	-1.000	-1.000	-1.000	0.267	0.963	0.191	0.0418	
Mahesana	3.633	8.067	1.597	0.3498	-1.000	-1.000	-1.000	-1.000	0.567	1.987	0.393	0.0861	
Mahisagar	0.128	0.298	0.059	0.0129	-1.000	-1.000	-1.000	-1.000	2.530	9.105	1.803	0.3948	
Morbi	119.427	244.821	48.475	10.6159	-1.000	-1.000	-1.000	-1.000	4.040	13.677	2.708	0.5931	

Narmada	0.200	0.542	0.107	0.0235	-1.000	-1.000	-1.000	-1.000	-1.000	4.000	14.147	2.801	0.6134
Navsari	0.100	0.181	0.036	0.0078	-1.000	-1.000	-1.000	-1.000	-1.000	0.367	1.144	0.226	0.0496
Panch Mahals	0.105	0.244	0.048	0.0106	-1.000	-1.000	-1.000	-1.000	-1.000	2.070	7.450	1.475	0.3230
Patan	0.100	0.181	0.036	0.0078	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Porbandar	71.533	155.677	30.824	6.7505	-1.000	-1.000	-1.000	-1.000	-1.000	0.200	0.722	0.143	0.0313
Rajkot	179.140	367.232	72.712	15.9239	-1.000	-1.000	-1.000	-1.000	-1.000	6.060	20.516	4.062	0.8896
Sabar Kantha	34.146	103.896	20.571	4.5051	-1.000	-1.000	-1.000	-1.000	-1.000	8.316	26.657	5.278	1.1559
Surat	3.533	6.441	1.275	0.2793	-1.000	-1.000	-1.000	-1.000	-1.000	2.500	6.742	1.335	0.2924
Suren-dranagar	16.867	58.996	11.681	2.5582	-1.000	-1.000	-1.000	-1.000	-1.000	1.267	4.395	0.870	0.1906
Tapi	2.867	8.007	1.585	0.3472	-1.000	-1.000	-1.000	-1.000	-1.000	8.700	31.665	6.270	1.3731
Vadodara	0.384	1.117	0.221	0.0484	-1.000	-1.000	-1.000	-1.000	-1.000	8.427	24.234	4.798	1.0508
Valsad	0.267	0.542	0.107	0.0235	-1.000	-1.000	-1.000	-1.000	-1.000	0.100	0.181	0.036	0.0078
Ambala	0.002	0.004	0.00	0.0002	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Bhiwani	0.019	0.023	0.00	0.0010	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Faridabad	0.001	0.002	0.00	0.0001	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Fatehabad	0.610	1.230	0.24	0.0533	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Gurugram	0.015	0.013	0.00	0.0005	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Hisar	0.250	0.483	0.10	0.0209	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jhajjar	0.124	0.229	0.05	0.0099	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Jind	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kaithal	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Karnal	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Kuruk-shetra	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Mahen-dragarh	0.078	0.154	0.03	0.0067	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Mewat	0.002	0.004	0.00	0.0002	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Palwal	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Panchkula	0.042	0.181	0.04	0.0078	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Panipat	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_Kh_DB_Kt	GN_Kh_SB_Kt	GN_Kh_BE_mil_lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil_lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil_lion L
Himachal Pradesh	Rewari	0.078	0.136	0.03	0.0059	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Rohtak	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Sirsa	1.102	2.227	0.44	0.0966	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Sonapat	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Yamu-nanagar	0.029	0.029	0.01	0.0013	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bilaspur	0.001	0.002	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Chamba	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Hamirpur	0.001	0.002	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kangra	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kinnaur	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kullu	0.041	0.046	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Lahul & Spiti	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Mandi	0.002	0.002	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Shimla	0.010	0.017	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Sirmaur	0.012	0.022	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Jammu & Kashmir	Solan	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Una	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Anantnag	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Baramula	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Chilas	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Gilgit	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Gilgit Wazarat	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Jammu	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kathua	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Leh And Ladakh	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_Kh_DB_Kt	GN_Kh_SB_Kt	GN_kh_BE_mil-lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil-lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil-lion L	
Karnataka	Sahibganj					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Saraikeela Khar-sawan					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Simdega					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
	Bagalkot	2.442	2.900	0.86	0.1883	20.266	46.127	13.678	2.9954	26.031	48.698	14.440	3.1624	
	Ballari	52.460	66.419	19.69	4.3131	6.869	10.436	3.095	0.6777	8.279	13.322	3.950	0.8651	
	Belagavi	33.713	51.691	15.33	3.3567	4.659	9.774	2.898	0.6347	3.778	6.029	1.788	0.3915	
	Bengaluru Rural	0.373	0.562	0.17	0.0365	0.051	0.108	0.032	0.0070	0.032	0.051	0.015	0.0033	
	Bengaluru Urban	0.104	0.125	0.04	0.0081	0.022	0.035	0.010	0.0023	0.007	0.011	0.003	0.0007	
	Bidar	0.309	0.248	0.07	0.0161	0.508	0.943	0.280	0.0612	0.352	0.547	0.162	0.0355	
	Chamara-janagar	13.552	16.384	4.86	1.0640	0.026	0.040	0.012	0.0026	0.015	0.022	0.006	0.0014	
	Chikbal-lapur	24.813	32.716	9.70	2.1245	0.482	0.815	0.242	0.0530	0.183	0.292	0.087	0.0190	
	Chik-kamag-aluru	4.759	6.872	2.04	0.4463	0.390	0.584	0.173	0.0379	0.111	0.190	0.056	0.0123	
	Chitra-durga	109.005	115.455	34.23	7.4975	3.688	6.819	2.022	0.4428	2.454	4.485	1.330	0.2912	
	Dakshin Kannada	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Davangere	14.389	26.547	7.87	1.7239	2.497	6.349	1.883	0.4123	3.794	8.675	2.572	0.5633	
Dharwad	29.795	50.476	14.97	3.2778	0.890	1.667	0.494	0.1082	0.664	1.409	0.418	0.0915		
Gadag	38.405	52.075	15.44	3.3817	9.560	16.557	4.909	1.0752	7.461	12.635	3.747	0.8205		
Hassan	0.672	0.855	0.25	0.0555	0.367	0.782	0.232	0.0508	0.075	0.141	0.042	0.0091		
Haveri	18.022	35.862	10.63	2.3288	2.806	5.660	1.678	0.3676	2.045	3.380	1.002	0.2195		
Kalabur-agi	1.235	1.066	0.32	0.0692	3.598	4.974	1.475	0.3230	3.085	4.599	1.364	0.2987		



Kodagu	0.023	0.031	0.01	0.0020	0.023	0.036	0.011	0.0023	0.004	0.007	0.002	0.0005
Kolar	10.394	15.915	4.72	1.0335	0.015	0.023	0.007	0.0015	0.007	0.011	0.003	0.0007
Koppal	15.574	22.774	6.75	1.4789	24.038	36.895	10.940	2.3959	21.250	28.613	8.484	1.8581
Mandhya	1.443	1.733	0.51	0.1125	0.037	0.057	0.017	0.0037	-1.000	-1.000	-1.000	0.0000
Mysuru	3.585	4.390	1.30	0.2851	0.072	0.131	0.039	0.0085	0.049	0.079	0.024	0.0052
Raichur	6.474	7.176	2.13	0.4660	27.837	41.924	12.431	2.7224	38.956	64.980	19.268	4.2197
Ramnagar	4.262	8.301	2.46	0.5391	0.048	0.093	0.028	0.0060	0.028	0.045	0.013	0.0029
Shivamogga	0.470	0.742	0.22	0.0482	0.258	0.423	0.125	0.0275	0.102	0.158	0.047	0.0102
Tumakuru	91.868	67.133	19.91	4.3595	1.430	3.359	0.996	0.2181	1.268	2.885	0.855	0.1873
Udupi	-1.000	-1.000	-1.00	-1.00	1.923	6.698	1.986	0.4349	-1.000	-1.000	-1.000	-1.000
Uttar Kannada	0.226	0.265	0.08	0.0172	2.114	6.651	1.972	0.4319	0.354	0.649	0.193	0.0422
Vijayapura	21.077	19.352	5.74	1.2567	28.088	31.926	9.467	2.0732	21.549	27.452	8.140	1.7827
Yadgir	5.704	7.364	2.18	0.4782	21.417	29.276	8.681	1.9012	29.579	35.544	10.540	2.3082
Kerala									-1.000	-1.000	-1.000	-1.000
Alappuzha									-1.000	-1.000	-1.000	-1.000
Ernakulam									-1.000	-1.000	-1.000	-1.000
Idukki									-1.000	-1.000	-1.000	-1.000
Kannur									-1.000	-1.000	-1.000	-1.000
Kasargod									-1.000	-1.000	-1.000	-1.000
Kollam									-1.000	-1.000	-1.000	-1.000
Kottayam									-1.000	-1.000	-1.000	-1.000
Kozhikod									-1.000	-1.000	-1.000	-1.000
Malappuram									-1.000	-1.000	-1.000	-1.000
Palakkad									-1.000	-1.000	-1.000	-1.000
Pattanamittia									-1.000	-1.000	-1.000	-1.000
Thiruvananthapuram									-1.000	-1.000	-1.000	-1.000

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_kh_DB_Kt	GN_kh_SB_Kt	GN_kh_BE_mil_lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil_lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil_lion L
Lakshadweep	Thirssur									-1.000	-1.000	-1.000	-1.000
	Wayanad									-1.000	-1.000	-1.000	-1.000
	Lakshadweep									-1.000	-1.000	-1.000	-1.000
Madhya Pradesh	Agar Malwa	1.039	1.931	0.19	0.0419	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Alirajpur	9.594	21.238	2.10	0.4605	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Anuppur	0.631	1.152	0.11	0.0250	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Ashoknagar	0.451	1.471	0.15	0.0319	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Balaghat	0.724	1.661	0.16	0.0360	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Barwani	10.141	24.899	2.46	0.5398	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Betul	5.094	17.319	1.71	0.3755	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bhind	-1.000	-1.000	-1.0	-1.0	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bhopal	0.330	0.910	0.09	0.0197	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Burhanpur	0.553	1.434	0.14	0.0311	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Chhatarpur	7.418	15.639	1.55	0.3391	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Chhindwara	19.287	71.804	7.11	1.5568	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Damoh	0.358	0.726	0.07	0.0157	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Datia	7.438	17.279	1.71	0.3746	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Dewas	0.542	1.330	0.13	0.0288	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Dhar	3.309	8.637	0.86	0.1873	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Dindori	0.014	0.031	0.00	0.0007	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
East Nimar	2.787	7.950	0.79	0.1724	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Guna	0.271	0.608	0.06	0.0132	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	
Gwalior	0.366	0.876	0.09	0.0190	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_kh_DB_Kt	GN_kh_SB_Kt	GN_kh_BE_mil_lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil_lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil_lion L
Maharashtra	West Ni-mar	7.813	19.022	1.88	0.4124	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Ahmadnagar	4.380	5.707	0.56	0.1237	-1.000	-1.000	-1.000	-1.000	2.725	7.405	0.733	0.1605
	Akola	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	3.050	10.114	1.001	0.2193
	Amaravati	0.940	1.517	0.15	0.0329	-1.000	-1.000	-1.000	-1.000	2.550	7.450	0.738	0.1615
	Aurangabad	5.140	6.718	0.67	0.1457	-1.000	-1.000	-1.000	-1.000	0.200	0.361	0.036	0.0078
	Bhandara	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	0.100	0.144	0.014	0.0031
	Bid	5.800	5.346	0.53	0.1159	-1.000	-1.000	-1.000	-1.000	2.250	4.109	0.407	0.0891
	Buldhana	0.460	0.686	0.07	0.0149	-1.000	-1.000	-1.000	-1.000	1.750	4.696	0.465	0.1018
	Chandrapur	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	0.010	0.036	0.004	0.0008
	Dhule	16.140	26.548	2.63	0.5756	-1.000	-1.000	-1.000	-1.000	5.150	14.809	1.466	0.3211
	Gadchiroli	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	0.010	0.036	0.004	0.0008
	Gondiya	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Hingoli	0.100	0.072	0.01	0.0016	-1.000	-1.000	-1.000	-1.000	3.200	5.463	0.541	0.1184
	Jalgaon	1.600	3.179	0.31	0.0689	-1.000	-1.000	-1.000	-1.000	2.050	5.012	0.496	0.1087
	Jalna	0.400	0.423	0.04	0.0092	-1.000	-1.000	-1.000	-1.000	0.367	0.482	0.048	0.0104
	Kolhapur	52.100	139.532	13.81	3.0252	-1.000	-1.000	-1.000	-1.000	2.475	10.023	0.992	0.2173
	Latur	2.780	3.142	0.31	0.0681	-1.000	-1.000	-1.000	-1.000	2.675	5.734	0.568	0.1243
	Mumbai City	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Nagpur	2.840	3.670	0.36	0.0796	-1.000	-1.000	-1.000	-1.000	0.475	1.806	0.179	0.0392
Nanded	0.150	0.241	0.02	0.0052	-1.000	-1.000	-1.000	-1.000	6.300	12.100	1.198	0.2623	
Nandurbar	4.520	7.080	0.70	0.1535	-1.000	-1.000	-1.000	-1.000	5.000	10.655	1.055	0.2310	
Nasik	28.640	49.304	4.88	1.0690	-1.000	-1.000	-1.000	-1.000	0.425	0.921	0.091	0.0200	
Osmanabad	7.620	7.766	0.77	0.1684	-1.000	-1.000	-1.000	-1.000	1.550	1.896	0.188	0.0411	
Palghar	0.200	0.361	0.04	0.0078	-1.000	-1.000	-1.000	-1.000	0.100	0.181	0.018	0.0039	

	Parbhani	0.175	0.226	0.02	0.0049	-1.000	-1.000	-1.000	-1.000	-1.000	4.950	8.217	0.814	0.1782
	Pune	41.260	72.673	7.19	1.5756	-1.000	-1.000	-1.000	-1.000	-1.000	7.575	24.878	2.463	0.5394
	Raigarh	0.100	0.181	0.02	0.0039	-1.000	-1.000	-1.000	-1.000	-1.000	0.200	0.858	0.085	0.0186
	Ratnagiri	0.133	0.241	0.02	0.0052	-1.000	-1.000	-1.000	-1.000	-1.000	0.100	0.361	0.036	0.0078
	Sangli	25.580	47.498	4.70	1.0298	-1.000	-1.000	-1.000	-1.000	-1.000	1.450	3.251	0.322	0.0705
	Satara	42.940	113.399	11.23	2.4586	-1.000	-1.000	-1.000	-1.000	-1.000	5.425	22.485	2.226	0.4875
	Sindhudurg	1.840	3.756	0.37	0.0814	-1.000	-1.000	-1.000	-1.000	-1.000	2.300	8.353	0.827	0.1811
	Solapur	2.020	2.167	0.21	0.0470	-1.000	-1.000	-1.000	-1.000	-1.000	3.600	8.714	0.863	0.1889
	Suburban Mumbai	-1.000	-1.000	-1.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Thane	0.300	0.542	0.05	0.0117	-1.000	-1.000	-1.000	-1.000	-1.000	0.100	0.361	0.036	0.0078
	Wardha	0.200	0.206	0.02	0.0045	-1.000	-1.000	-1.000	-1.000	-1.000	3.675	10.479	1.037	0.2272
	Washim	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	0.725	1.671	0.165	0.0362
	Yavatmal	0.100	0.181	0.02	0.0039	-1.000	-1.000	-1.000	-1.000	-1.000	8.525	20.859	2.065	0.4523
Ma-nipur	Bishnupur					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Chandel					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Churachandpur					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Imphal East					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Imphal West					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Senapati					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Tamenglong					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Thoubal					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Ukhrul					-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
		East Garo Hills	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Meghalaya	East Khasi Hills	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Jaintia Hills	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000



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State	District	GN_Kh_Area_000ha	GN_kh_DB_Kt	GN_kh_BE_mil-lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil-lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil-lion L
Mizoram	Ri Bhoi	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	South Garo Hills	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	West Garo Hills	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	West Khasi Hills	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Aizawl	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Champhai	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kolasib	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Lawngtlai	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Lunglei	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Mamit	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Saiha	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Serchhip	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Nagaland	Dimapur	0.147	0.283	0.0092	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kiphire	0.030	0.054	0.0018	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kohima	0.080	0.144	0.0047	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Longleng	0.020	0.032	0.0010	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Mokokchung	0.115	0.217	0.0070	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Mon	0.040	0.072	0.0023	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Peren	0.062	0.111	0.0036	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Phek	0.060	0.111	0.0036	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Tuensang	0.090	0.163	0.0053	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Wokha	0.072	0.129	0.0042	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Zunheboto	0.108	0.199	0.0065	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Angul	1.947	3.783	0.0820	0.289	0.692	0.069	0.0150	-1.000	-1.000	-1.000	-1.000

Balangir	4.494	8.300	0.82	0.1800	0.240	0.557	0.055	0.0121	-1.000	-1.000	-1.000	-1.000
Baleswar	-1.000	-1.000	-1.00	-1.00	1.944	4.808	0.476	0.1042	-1.000	-1.000	-1.000	-1.000
Baragarh	12.021	20.631	2.04	0.4473	1.220	3.073	0.304	0.0666	-1.000	-1.000	-1.000	-1.000
Bhadrak	0.027	0.030	0.00	0.0007	0.030	0.057	0.006	0.0012	-1.000	-1.000	-1.000	-1.000
Boudh	0.018	0.021	0.00	0.0005	0.016	0.018	0.002	0.0004	-1.000	-1.000	-1.000	-1.000
Cuttack	0.159	0.210	0.02	0.0046	1.450	3.167	0.314	0.0687	-1.000	-1.000	-1.000	-1.000
Deogarh	0.086	0.178	0.02	0.0039	0.068	0.169	0.017	0.0037	-1.000	-1.000	-1.000	-1.000
Dhenkanal	0.448	0.731	0.07	0.0159	2.573	7.814	0.774	0.1694	-1.000	-1.000	-1.000	-1.000
Gajapathi	0.069	0.124	0.01	0.0027	0.185	0.394	0.039	0.0085	-1.000	-1.000	-1.000	-1.000
Ganjam	1.140	2.217	0.22	0.0481	1.382	3.676	0.364	0.0797	-1.000	-1.000	-1.000	-1.000
Jagatsinghpur	-1.000	-1.000	-1.00	-1.00	1.039	2.781	0.275	0.0603	-1.000	-1.000	-1.000	-1.000
Jaipur	0.046	0.097	0.01	0.0021	11.334	27.607	2.733	0.5985	-1.000	-1.000	-1.000	-1.000
Jharsuguda	0.230	0.425	0.04	0.0092	0.051	0.143	0.014	0.0031	-1.000	-1.000	-1.000	-1.000
Kalahandi	0.705	0.991	0.10	0.0215	1.048	2.178	0.216	0.0472	-1.000	-1.000	-1.000	-1.000
Kandhamal	0.254	0.366	0.04	0.0079	0.001	0.001	0.000	0.0000	-1.000	-1.000	-1.000	-1.000
Kendrapara	-1.000	-1.000	-1.00	-1.00	1.825	3.920	0.388	0.0850	-1.000	-1.000	-1.000	-1.000
Kendujhar	0.091	0.149	0.01	0.0032	0.043	0.081	0.008	0.0018	-1.000	-1.000	-1.000	-1.000
Khordha	-1.000	-1.000	-1.00	-1.00	0.377	0.899	0.089	0.0195	-1.000	-1.000	-1.000	-1.000
Koraput	0.184	0.317	0.03	0.0069	0.208	0.405	0.040	0.0088	-1.000	-1.000	-1.000	-1.000
Malkangiri	-1.000	-1.000	-1.00	-1.00	2.526	10.505	1.040	0.2278	-1.000	-1.000	-1.000	-1.000
Mayurbhanj	0.017	0.025	0.00	0.0005	1.888	5.024	0.497	0.1089	-1.000	-1.000	-1.000	-1.000
Nabarangapur	0.371	0.389	0.04	0.0084	0.018	0.022	0.002	0.0005	-1.000	-1.000	-1.000	-1.000
Nayagarh	0.053	0.108	0.01	0.0023	0.003	0.007	0.001	0.0002	-1.000	-1.000	-1.000	-1.000
Nuapada	1.279	1.980	0.20	0.0429	0.186	0.560	0.055	0.0121	-1.000	-1.000	-1.000	-1.000
Puri	-1.000	-1.000	-1.00	-1.00	3.813	8.560	0.847	0.1856	-1.000	-1.000	-1.000	-1.000

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_Kh_DB_Kt	GN_Kh_SB_Kt	GN_Kh_BE_mil-lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil-lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil-lion L
Karnataka	Raygada	0.212	0.290	0.03	0.0063	0.063	0.154	0.015	0.0033	-1.000	-1.000	-1.000	-1.000
	Sam-balpur	0.030	0.048	0.00	0.0010	0.025	0.063	0.006	0.0014	-1.000	-1.000	-1.000	-1.000
	Subar-napur	0.025	0.052	0.01	0.0011	0.342	0.932	0.092	0.0202	-1.000	-1.000	-1.000	-1.000
	Sunder-garh	0.653	1.143	0.11	0.0248	0.190	0.601	0.060	0.0130	-1.000	-1.000	-1.000	-1.000
Puducherry	Karaikal	0.025	0.087	0.00	0.0000	0.010	0.018	0.002	0.0004	0.003	0.006	0.001	0.0001
	Mahe	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Puducherry	0.008	0.035	0.00	0.0000	0.300	1.264	0.125	0.0274	0.037	0.154	0.015	0.0033
Punjab	Yanam	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Amritsar	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Barnala	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bathinda	0.100	0.181	0.04	0.0078	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Faridkot	0.100	0.181	0.04	0.0078	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Fatehgarh Sahib	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Fazilka	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Firozpur	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Gurdaspur	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Hoshiarpur	9.320	30.558	6.05	1.3250	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Jalandhar	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kapurthala	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Haryana	Ludhiana	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Mansa	1.000	1.806	0.36	0.0783	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Moga	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Muktsar	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_kh_DB_Kt	GN_kh_SB_Kt	GN_kh_BE_mil-lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil-lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil-lion L
Sikkim	Jhunjhunun	2.911	9.485	0.94	0.2056	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Jodhpur	74.212	243.502	84.37	18.4778	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Karauli	0.912	2.511	1.37	0.2994	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kota	0.275	0.924	0.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Nagaur	13.082	39.359	11.69	2.5600	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Pali	1.102	3.455	1.20	0.2622	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Pratapgarh	0.626	1.647	0.57	0.1250	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Rajsa- mand	1.723	2.916	1.01	0.2212	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Sawai Madhopur	5.671	14.808	5.13	1.1237	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Sikar	24.557	85.595	29.66	6.4952	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Sirohi	7.442	21.762	5.39	1.1796	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Tonk	14.148	30.053	8.93	1.9547	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Udaipur	2.778	4.471	1.55	0.3393	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	East	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
North	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
South	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
West	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Tamil Nadu	Ariyalur	9.400	52.922	36.68	8.0318	3.300	35.987	24.939	5.4617	-1.000	-1.000	-1.000	-1.000
	Chennai	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Coim- batore	5.409	20.787	14.41	3.1547	1.186	5.309	3.679	0.8057	-1.000	-1.000	-1.000	-1.000
	Cuddalore	6.762	39.670	27.49	6.0206	7.602	56.521	39.169	8.5780	-1.000	-1.000	-1.000	-1.000
	Dharam- puri	11.241	52.106	36.11	7.9080	3.776	17.399	12.058	2.6406	-1.000	-1.000	-1.000	-1.000
	Dindigul	6.836	34.148	23.66	5.1826	5.121	41.277	28.605	6.2645	-1.000	-1.000	-1.000	-1.000
	Erode	13.856	41.811	28.97	6.3455	1.882	9.635	6.677	1.4623	-1.000	-1.000	-1.000	-1.000



Kanchipuram	13.157	71.318	49.42	10.8238	10.793	84.780	58.753	12.8668	-1.000	-1.000	-1.000
Kanyakumari	0.938	2.971	2.06	0.4509	0.013	0.085	0.059	0.0129	-1.000	-1.000	-1.000
Karur	3.018	12.684	8.79	1.9249	1.015	5.272	3.653	0.8001	-1.000	-1.000	-1.000
Krishnagiri	12.166	51.855	35.94	7.8699	1.216	8.105	5.617	1.2301	-1.000	-1.000	-1.000
Madurai	5.175	25.190	17.46	3.8230	1.370	5.411	3.750	0.8212	-1.000	-1.000	-1.000
Nagapattinam	1.966	9.374	6.50	1.4227	2.159	14.075	9.754	2.1361	-1.000	-1.000	-1.000
Namakkal	20.554	69.888	48.43	10.6066	5.926	35.096	24.322	5.3264	-1.000	-1.000	-1.000
Nilgiri	0.718	4.755	3.30	0.7217	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Perambalur	5.755	21.603	14.97	3.2786	1.386	6.270	4.345	0.9516	-1.000	-1.000	-1.000
Pudukkottai	8.905	28.524	19.77	4.3289	3.099	12.229	8.475	1.8560	-1.000	-1.000	-1.000
Ramathapuram	5.255	17.829	12.36	2.7058	3.565	7.407	5.133	1.1242	-1.000	-1.000	-1.000
Salem	13.845	49.699	34.44	7.5426	3.707	22.471	15.573	3.4104	-1.000	-1.000	-1.000
Sivaganga	6.405	23.217	16.09	3.5236	1.163	7.815	5.416	1.1861	-1.000	-1.000	-1.000
Teni	1.916	9.539	6.61	1.4477	0.417	2.770	1.920	0.4205	-1.000	-1.000	-1.000
Thanjavur	5.004	28.734	19.91	4.3609	5.021	29.858	20.691	4.5314	-1.000	-1.000	-1.000
Thiruvavur	1.749	12.227	8.47	1.8556	3.734	36.778	25.487	5.5817	-1.000	-1.000	-1.000
Tiruchirappalli	8.233	30.605	21.21	4.6448	2.753	17.717	12.278	2.6888	-1.000	-1.000	-1.000
Tirunelveli	0.830	3.662	2.54	0.5557	0.324	2.166	1.501	0.3288	-1.000	-1.000	-1.000
Tiruppur	6.475	16.647	11.54	2.5265	1.373	13.630	9.446	2.0686	-1.000	-1.000	-1.000
Tiruvallur	6.067	42.149	29.21	6.3968	7.606	68.880	47.734	10.4537	-1.000	-1.000	-1.000
Tiruvannamalai	46.250	167.997	116.42	25.4964	24.091	144.581	100.195	21.9426	-1.000	-1.000	-1.000
Tuticorin	0.381	1.615	1.12	0.2452	0.265	1.760	1.220	0.2671	-1.000	-1.000	-1.000
Vellore	37.362	149.147	103.36	22.6355	5.961	36.429	25.245	5.5287	-1.000	-1.000	-1.000

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_kh_DB_Kt	GN_kh_SB_Kt	GN_kh_BE_mil_lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil_lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil_lion L
Telangana	Villupuram	30.392	135.254	93.73	20.5271	16.868	121.866	84.453	18.4953	-1.000	-1.000	-1.000	-1.000
	Virudhunagar	4.242	9.455	6.55	1.4349	1.988	6.709	4.650	1.0182	-1.000	-1.000	-1.000	-1.000
	Adilabad	0.003	0.005	0.00	0.0003	1.443	4.942	1.517	0.3321	-1.000	-1.000	-1.000	-1.000
	Hyderabad	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Karimnagar	0.145	0.236	0.07	0.0159	8.375	24.319	7.463	1.6345	-1.000	-1.000	-1.000	-1.000
	Khammam	0.373	1.054	0.32	0.0709	5.212	18.794	5.768	1.2632	-1.000	-1.000	-1.000	-1.000
	Mahabubnagar	11.559	25.109	7.71	1.6876	92.791	310.132	95.180	20.8443	-1.000	-1.000	-1.000	-1.000
	Medak	0.048	0.065	0.02	0.0043	1.022	2.225	0.683	0.1495	-1.000	-1.000	-1.000	-1.000
	Nalgonda	4.690	7.629	2.34	0.5127	12.920	29.276	8.985	1.9677	-1.000	-1.000	-1.000	-1.000
	Nizamabad	0.018	0.048	0.01	0.0032	1.081	4.234	1.299	0.2845	-1.000	-1.000	-1.000	-1.000
Tripura	Ranga Reddy	0.075	0.116	0.04	0.0078	7.484	21.148	6.490	1.4213	-1.000	-1.000	-1.000	-1.000
	Warangal	3.252	13.491	4.14	0.9068	21.530	68.054	20.886	4.5740	-1.000	-1.000	-1.000	-1.000
	Dhalai	0.104	0.199	0.00	0.0000	0.115	0.253	0.000	0.0000	-1.000	-1.000	-1.000	-1.000
	Gomati	0.011	0.019	0.00	0.0000	0.021	0.045	0.000	0.0000	-1.000	-1.000	-1.000	-1.000
	Khowai	0.017	0.033	0.00	0.0000	0.031	0.067	0.000	0.0000	-1.000	-1.000	-1.000	-1.000
	North Tripura	0.027	0.057	0.00	0.0000	0.053	0.112	0.000	0.0000	-1.000	-1.000	-1.000	-1.000
	Sepahijala	0.005	0.008	0.00	0.0000	0.004	0.005	0.000	0.0000	-1.000	-1.000	-1.000	-1.000
	South Tripura	0.049	0.092	0.00	0.0000	0.112	0.241	0.000	0.0000	-1.000	-1.000	-1.000	-1.000
	Unokoti	0.009	0.023	0.00	0.0000	0.032	0.070	0.000	0.0000	-1.000	-1.000	-1.000	-1.000
	West Tripura	0.055	0.107	0.00	0.0000	0.048	0.102	0.000	0.0000	-1.000	-1.000	-1.000	-1.000



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_kh_DB_Kt	GN_kh_SB_Kt	GN_kh_BE_mil_lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil_lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil_lion L
	Gautam-budhna-gar	0.002	0.002	0.00	0.00001	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Gazipur	0.067	0.106	0.02	0.0053	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Ghaziabad	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Gonda	0.022	0.037	0.01	0.0018	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Gorakhpur	3.314	7.464	1.70	0.3722	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Hamirpur	0.228	0.237	0.05	0.0118	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Hapur	-1.000	-1.000	-1.00	0.0000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Hardoi	8.403	14.657	3.34	0.7309	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Hathras	0.012	0.019	0.00	0.0010	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Jalaun	0.015	0.023	0.01	0.0011	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Jaunpur	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Jhansi	24.120	37.482	8.53	1.8691	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kannauj	1.685	2.829	0.64	0.1411	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kanpur	0.213	0.355	0.08	0.0177	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kanpur Dehat	0.006	0.010	0.00	0.0005	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kasganj	0.145	0.221	0.05	0.0110	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kaushambi	0.247	0.442	0.10	0.0221	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kheri	6.562	9.373	2.13	0.4674	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Kushinagar	0.523	1.178	0.27	0.0588	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Lalitpur	10.830	15.659	3.57	0.7809	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Lucknow	0.067	0.094	0.02	0.0047	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Maharajan-ganj	1.084	2.376	0.54	0.1185	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Mahoba	8.351	7.054	1.61	0.3517	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	GN_Kh_Area_000ha	GN_Kh_DB_Kt	GN_Kh_SB_Kt	GN_Kh_BE_mil_lion L	GN_rb_Area_000ha	GN_rb_DB_Kt	GN_rb_SB_Kt	GN_rb_BE_mil_lion L	GN_sum_Area_000ha	GN_sum_DB_Kt	GN_sum_SB_Kt	GN_sum_BE_mil_lion L
West Bengal	Bageshwar	0.002	0.004	0.00	0.0002	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Chamoli	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Champawat	0.038	0.076	0.02	0.0038	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Dehradun	0.090	0.177	0.04	0.0088	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Haridwar	0.931	2.015	0.46	0.1005	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Nanital	0.055	0.112	0.03	0.0056	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Pauri Garhwal	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Pithoragarh	0.016	0.035	0.01	0.0017	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Rudraprayag	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Tehri Garhwal	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Udham Singh Nagar	0.030	0.071	0.02	0.0035	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Uttarkashi	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Alipurduar	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
	Bankura	0.191	0.291	0.06	0.0126	0.069	0.214	0.042	0.0093	0.332	1.271	0.252	0.0551
Bardhaman	0.050	0.094	0.02	0.0041	1.728	6.432	1.274	0.2789	0.516	1.309	0.259	0.0568	
Birbhum	0.047	0.088	0.02	0.0038	0.026	0.054	0.011	0.0023	0.061	0.163	0.032	0.0070	
Dakshindinajpur	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	0.0000	0.335	0.977	0.193	0.0424	
Darjeeling	0.001	0.002	0.00	0.0001	0.005	0.014	0.003	0.0006	0.013	0.027	0.005	0.0012	
Eastmedinipur	-1.000	-1.000	-1.00	-1.00	1.092	3.314	0.656	0.1437	17.538	80.287	15.897	3.4814	

Haora	-1.000	-1.000	-1.000	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	5.252	22.759	4.506	0.9869
Hugli	-1.000	-1.000	-1.000	-1.00	0.486	1.359	0.269	0.0589	12.274	46.635	9.234	2.0222			
Jalpaiguri	0.050	0.129	0.03	0.0056	1.019	3.112	0.616	0.1349	3.547	12.792	2.533	0.5547			
Kochbihar	0.296	0.280	0.06	0.0122	0.244	0.541	0.107	0.0235	0.170	0.256	0.051	0.0111			
Kolkata	-1.000	-1.000	-1.00	-1.00	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	0.0000			
Malda	0.073	0.077	0.02	0.0034	0.153	0.212	0.042	0.0092	0.108	0.303	0.060	0.0131			
Mursida- bad	0.020	0.054	0.01	0.0023	0.197	1.123	0.222	0.0487	0.162	0.745	0.148	0.0323			
Nadia	0.037	0.088	0.02	0.0038	3.722	12.293	2.434	0.5331	3.057	12.357	2.447	0.5358			
North 24 Pargana	-1.000	-1.000	-1.00	-1.00	0.072	0.158	0.031	0.0068	1.946	8.819	1.746	0.3824			
Pashchim Medi- nipur	0.408	0.645	0.13	0.0280	4.482	14.386	2.848	0.6238	8.297	28.403	5.624	1.2316			
Puruliya	0.765	1.408	0.28	0.0611	0.025	0.038	0.008	0.0016	0.004	0.025	0.005	0.0011			
South 24 Parganas	0.191	0.291	0.06	0.0126	-1.000	-1.000	-1.000	-1.000	0.054	0.144	0.028	0.0062			
Uttar_Di- najpur	-1.000	-1.000	-1.00	-1.00	0.098	0.491	0.097	0.0213	-1.000	-1.000	-1.000	-1.000			
<b>All India Total</b>	<b>28637</b>	<b>4399</b>	<b>9449</b>	<b>2648</b>	<b>580</b>	<b>593</b>	<b>2145</b>	<b>961</b>	<b>211</b>	<b>483</b>	<b>1305</b>	<b>263</b>			

Table 43: Districtwise area, dry biomass generation, surplus available and its bioethanol potential of castor crop in different growing seasons

State	District	Castor_Kh_Area_000ha	Castor_Kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
Andaman & Nicobar	Nicobar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North & Middle Andaman	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Andhra Pradesh	South Andaman	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ananthapur	16.0842	12.5213	4.34	1.6313	0.1640	0.1872	0.0649	0.0244
	Chittoor	0.1824	0.2050	0.07	0.0267	-1.00	-1.00	-1.00	-1.00
	Cuddapah	1.3826	1.3090	0.45	0.1705	0.0597	0.0592	0.0205	0.0077
	East Godavari	0.0442	0.0730	0.03	0.0095	-1.00	-1.00	-1.00	-1.00
	Guntur	1.3778	3.9754	1.38	0.5179	0.4367	1.7000	0.5891	0.2215
	Krishna	-1.00	-1.00	-1.00	-1.00	0.0200	0.0312	0.0108	0.0041
	Kurnool	62.2858	60.2645	20.88	7.8515	0.4777	0.4952	0.1716	0.0645
	Nellore	0.0545	0.0720	0.02	0.0094	0.0150	0.0228	0.0079	0.0030
	Prakasam	7.4092	11.0064	3.81	1.4340	1.6537	3.0696	1.0636	0.3999
Arunachal Pradesh	Srikakulam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Vishakhapatnam	0.0025	0.0036	0.00	0.0005	-1.00	-1.00	-1.00	-1.00
	Vizianagaram	0.0048	0.0058	0.00	0.0008	-1.00	-1.00	-1.00	-1.00
	West Godavari	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Anjaw	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Changlang	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dibang Valley	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East Kameng	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East Siang	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kurung Kumey	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lohit	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lower Dibang Valley	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lower Subansiri	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Papum-Pare	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Tawang	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	



Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
Bihar	Arariya	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Arwal	0.0010	0.0024	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
	Aurangabad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Banka	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Begusarai	0.0080	0.0192	0.00	0.0004	-1.00	-1.00	-1.00	-1.00
	Bhabua	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhagalpur	0.0073	0.0168	0.00	0.0003	-1.00	-1.00	-1.00	-1.00
	Bhojpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Buxar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Darbhanga	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gaya	0.0270	0.0624	0.00	0.0012	-1.00	-1.00	-1.00	-1.00
	Gopalganj	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jahanabad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jamui	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Katihar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Khagaria	0.0010	0.0024	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
	Kishanganj	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Lakhisarai	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Madhepura	0.0040	0.0096	0.00	0.0002	-1.00	-1.00	-1.00	-1.00
	Madhubani	0.0887	0.2032	0.01	0.0038	-1.00	-1.00	-1.00	-1.00
Munger	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Muzaffarpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Nalanda	0.0010	0.0024	0.00	0.0000	-1.00	-1.00	-1.00	-1.00	
Nawada	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Pashchim Cham- paran	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Patna	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Purbi Champaran	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Purnia	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Rohtas	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Saharsa	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	



	Samastipur	0.0260	0.0600	0.00	0.0011	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Saran	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sheikhpura	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sheohar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sitamarhi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Siwan	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Supaul	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Vaishali	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Chandigarh	Chandigarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Chattisgarh	Balod	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Baloda Bazar	0.0030	0.0024	0.00	0.0002	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Balrampur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bastar	0.0037	0.0032	0.00	0.0002	0.0025	0.0024	0.0005	0.0002	0.0002	0.0002	0.0002
	Bemetara	0.0470	0.0360	0.01	0.0027	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bijapur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bilaspur	0.1940	0.1608	0.03	0.0120	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dantewara	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	DhamTari	0.0023	0.0024	0.00	0.0002	0.0030	0.0024	0.0005	0.0002	0.0002	0.0002	0.0002
	Durg	0.0020	0.0024	0.00	0.0002	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gariyaband	0.0030	0.0048	0.00	0.0004	0.0030	0.0024	0.0005	0.0002	0.0002	0.0002	0.0002
	Janjgir_Champa	0.0260	0.0200	0.00	0.0015	0.0330	0.0256	0.0051	0.0019	0.0019	0.0019	0.0019
	Jashpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kabirdham	-1.00	-1.00	-1.00	-1.00	0.0057	0.0040	0.0008	0.0003	0.0003	0.0003	0.0003
	Kanker	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kondagaon	-1.00	-1.00	-1.00	-1.00	0.0010	0.0008	0.0002	0.0001	0.0001	0.0001	0.0001
	Korba	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Korea	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mahasamund	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Mungeli	0.0045	0.0036	0.00	0.0003	0.0040	0.0032	0.0006	0.0002	0.0002	0.0002	0.0002	
Narainpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Raigarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Raipur	0.0060	0.0048	0.00	0.0004	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
Dadar & Nagar Haveli	Raj Nandgaon	0.0010	0.0010	0.00	0.0001	-1.00	-1.00	-1.00	-1.00
	Sukma	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Surajpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Surguja	0.0010	0.0010	0.00	0.0001	-1.00	-1.00	-1.00	-1.00
	Dadar & Nagar Haveli	-1.00	-1.00	-1.00	-1.00	0.0000	-1.00	-1.00	-1.00
	Daman	-1.00	-1.00	-1.00	-1.00	0.0000	-1.00	-1.00	-1.00
	Diu	-1.00	-1.00	-1.00	-1.00	0.0000	-1.00	-1.00	-1.00
	Central	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	New Delhi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Delhi	North	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North East	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North West Delhi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shahadra	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South East	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South West Delhi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West Delhi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North Goa	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South Goa	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Goa	Ahmadabad	38.833	170.960	126.938	47.7286	-1.00	-1.00	-1.00	-1.00
	Amreli	2.067	9.920	7.366	2.7695	-1.00	-1.00	-1.00	-1.00
	Anand	2.867	13.760	10.217	3.8415	-1.00	-1.00	-1.00	-1.00
	Aravalli	31.817	134.210	99.651	37.4686	-1.00	-1.00	-1.00	-1.00
	Banas Kantha	128.300	688.720	511.375	192.2768	-1.00	-1.00	-1.00	-1.00
	Bharuch	5.900	27.200	20.196	7.5937	-1.00	-1.00	-1.00	-1.00
	Bhavnagar	0.399	1.966	1.459	0.5488	-1.00	-1.00	-1.00	-1.00
	Botad	0.234	1.154	0.857	0.3223	-1.00	-1.00	-1.00	-1.00
	Chhota Udepur	16.388	82.307	61.113	22.9785	-1.00	-1.00	-1.00	-1.00
	Dahod	0.433	2.160	1.604	0.6030	-1.00	-1.00	-1.00	-1.00
Gujarat									



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
Himachal Pradesh	Karnal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kurukshetra	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mahendragarh	0.0337	0.1236	0.09	0.0345	-1.00	-1.00	-1.00	-1.00
	Mewat	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Palwal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Panchkula	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Panipat	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Rewari	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Rohtak	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sirsa	1.4013	1.5704	1.17	0.4384	-1.00	-1.00	-1.00	-1.00
	Sonipat	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Yamunanagar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bilaspur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chamba	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hamirpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kangra	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kinnaur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kullu	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	Lahul & Spiti	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mandi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shimla	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sirmaur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Solan	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Una	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Jammu & Kashmir	Anantnag	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Baramulla	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chilas	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gilgit	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gilgit Wazarat	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jammu	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
Karnataka	Simdega								
	Bagalkot	0.0200	0.0408	0.01	0.0038	-1.00	-1.00	-1.00	-1.00
	Ballari	0.2936	0.5443	0.13	0.0507	-1.00	-1.00	-1.00	-1.00
	Belagavi	0.2452	0.4877	0.12	0.0454	-1.00	-1.00	-1.00	-1.00
	Bengaluru Rural	0.2160	0.3965	0.10	0.0369	-1.00	-1.00	-1.00	-1.00
	Bengaluru Urban	0.1522	0.2923	0.07	0.0272	-1.00	-1.00	-1.00	-1.00
	Bidar	0.0095	0.0168	0.00	0.0016	-1.00	-1.00	-1.00	-1.00
	Chamarajanagar	0.4768	0.3739	0.09	0.0348	-1.00	-1.00	-1.00	-1.00
	Chikballapur	0.1260	0.2410	0.06	0.0224	-1.00	-1.00	-1.00	-1.00
	Chikkamagaluru	0.3784	0.7142	0.18	0.0665	-1.00	-1.00	-1.00	-1.00
	Chitradurga	1.0058	2.1038	0.52	0.1958	-1.00	-1.00	-1.00	-1.00
	Dakshin Kannada	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Davangere	0.2276	0.4248	0.11	0.0395	-1.00	-1.00	-1.00	-1.00
	Dharwad	0.0010	0.0024	0.00	0.0002	-1.00	-1.00	-1.00	-1.00
	Gadag	0.0253	0.0516	0.01	0.0048	-1.00	-1.00	-1.00	-1.00
	Hassan	1.4598	2.9275	0.72	0.2724	-1.00	-1.00	-1.00	-1.00
	Haveri	0.0144	0.0274	0.01	0.0025	-1.00	-1.00	-1.00	-1.00
	Kalaburagi	0.0665	0.1218	0.03	0.0113	-1.00	-1.00	-1.00	-1.00
	Kodagu	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kolar	0.0864	0.1598	0.04	0.0149	-1.00	-1.00	-1.00	-1.00
Koppal	0.6690	1.9406	0.48	0.1806	-1.00	-1.00	-1.00	-1.00	
Mandhya	0.8038	1.4837	0.37	0.1381	-1.00	-1.00	-1.00	-1.00	
Mysuru	2.4048	3.3643	0.83	0.3131	-1.00	-1.00	-1.00	-1.00	
Raichur	1.0500	0.6998	0.17	0.0651	-1.00	-1.00	-1.00	-1.00	
Ramnagar	1.2992	5.4821	1.36	0.5102	-1.00	-1.00	-1.00	-1.00	
Shivamogga	0.0280	0.0432	0.01	0.0040	-1.00	-1.00	-1.00	-1.00	
Tumakuru	3.1164	4.3987	1.09	0.4093	-1.00	-1.00	-1.00	-1.00	
Udupi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Uttar Kannada	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	

	Vijayapura	0.0035	0.0072	0.00	0.0007	-1.00	-1.00	-1.00	-1.00	-1.00
	Yadgir	0.0576	0.1109	0.03	0.0103	-1.00	-1.00	-1.00	-1.00	-1.00
Kerala	Alappuzha	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ernakulam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Idukki	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kannur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kasargod	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kollam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kottayam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kozikod	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Malappuram	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Palakkad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Pattanamittia	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Thiruvananthapuram	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Thrissur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Wayanad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Lakshadweep	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Madhya Pradesh	Agar Malwa	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Alirajpur	0.5280	0.5694	0.17	0.0636	-1.00	-1.00	-1.00	-1.00	-1.00
	Anuppur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ashoknagar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Balaghat	0.0208	0.0156	0.00	0.0017	-1.00	-1.00	-1.00	-1.00	-1.00
	Barwani	0.1025	0.0762	0.02	0.0085	-1.00	-1.00	-1.00	-1.00	-1.00
	Betul	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhind	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhopal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Burhanpur	0.0083	0.0048	0.00	0.0005	-1.00	-1.00	-1.00	-1.00	-1.00
	Chhatarpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chhindwara	0.0225	0.0168	0.00	0.0019	-1.00	-1.00	-1.00	-1.00	-1.00
	Damoh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Datia	2.2395	2.5968	0.77	0.2900	-1.00	-1.00	-1.00	-1.00	-1.00

# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
	Dewas	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Dhar	0.0788	0.0936	0.03	0.0105	-1.00	-1.00	-1.00	-1.00
	Dindori	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	East Nimar	0.4605	0.3258	0.10	0.0364	-1.00	-1.00	-1.00	-1.00
	Guna	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Gwalior	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Harda	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Hoshangabad	0.0153	0.0176	0.01	0.0020	-1.00	-1.00	-1.00	-1.00
	Indore	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jabalpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jhabua	0.1953	0.2604	0.08	0.0291	-1.00	-1.00	-1.00	-1.00
	Katni	0.0050	0.0036	0.00	0.0004	-1.00	-1.00	-1.00	-1.00
	Mandla	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mandsaur	0.0010	0.0005	0.00	0.0001	-1.00	-1.00	-1.00	-1.00
	Morena	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Narsinghpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Nimach	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Panna	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Raisen	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Rajgarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ratlam	0.0010	0.0005	0.00	0.0001	-1.00	-1.00	-1.00	-1.00
	Rewa	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sagar	0.0598	0.0360	0.01	0.0040	-1.00	-1.00	-1.00	-1.00
	Satna	0.0035	0.0024	0.00	0.0003	-1.00	-1.00	-1.00	-1.00
	Sehore	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Seoni	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shahdol	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shajapur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sheopur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shivpuri	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00



Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
Manipur	Raigarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ratnagiri	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sangli	0.4000	0.3600	0.11	0.0402	-1.00	-1.00	-1.00	-1.00
	Satara	0.5000	0.4800	0.14	0.0536	-1.00	-1.00	-1.00	-1.00
	Sindhudurg	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Solapur	0.1333	0.1560	0.05	0.0174	-1.00	-1.00	-1.00	-1.00
	Suburban Mumbai	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Thane	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Wardha	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Washim	0.1000	0.0720	0.02	0.0080	-1.00	-1.00	-1.00	-1.00
	Yavatmal	0.9000	0.9600	0.29	0.1072	-1.00	-1.00	-1.00	-1.00
	Bishnupur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chandel	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Churachandpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Imphal East	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Imphal West	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Senapati	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tamenglong	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Thoubal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Ukhrul	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Meghalaya	East Garo Hills	0.0144	0.0250	0.01	0.0023	0.0160	0.0384	0.0095	0.0036
	East Khasi Hills	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Jaintia Hills	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ri Bhoi	0.0030	0.0101	0.00	0.0009	0.0060	0.0240	0.0059	0.0022
	South Garo Hills	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West Garo Hills	0.0194	0.0293	0.01	0.0027	0.0170	0.0288	0.0071	0.0027
Mizoram	West Khasi Hills	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Aizawl	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Champhai	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Kolasib	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00





# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L	
Andhra Pradesh	Kendrapara	-1.00	-1.00	-1.00	-1.00	0.0200	0.0240	0.0059	0.0022	
	Kendujhar	0.1425	0.2700	0.07	0.0251	-1.00	-1.00	-1.00	-1.00	
	Khordha	0.0400	0.0480	0.01	0.0045	0.0075	0.0120	0.0030	0.0011	
	Koraput	0.5975	0.5280	0.13	0.0491	0.4550	0.5880	0.1455	0.0547	
	Malkangiri	0.0500	0.0660	0.02	0.0061	0.0850	0.0960	0.0238	0.0089	
	Mayurbhanj	0.2125	0.2880	0.07	0.0268	0.0100	0.0240	0.0059	0.0022	
	Nabarangapur	0.1650	0.2040	0.05	0.0190	1.0850	1.5660	0.3876	0.1457	
	Nayagarh	0.3575	0.4020	0.10	0.0374	0.1175	0.1680	0.0416	0.0156	
	Nuapada	0.9875	1.3140	0.33	0.1223	0.4125	0.6420	0.1589	0.0597	
	Puri	0.0350	0.0360	0.01	0.0034	-1.00	-1.00	-1.00	-1.00	
	Rayagada	0.5950	0.7620	0.19	0.0709	0.1650	0.2160	0.0535	0.0201	
	Sambalpur	0.0350	0.0360	0.01	0.0034	0.0825	0.1080	0.0267	0.0101	
	Subarnapur	0.0200	0.0240	0.01	0.0022	0.0350	0.0540	0.0134	0.0050	
	Sundergarh	0.2525	0.3120	0.08	0.0290	0.1450	0.2100	0.0520	0.0195	
	Karaikal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Mahe	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Puducherry	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Yanam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Punjab	Amritsar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Barnala	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Bathinda	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Faridkot	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Fatehgarh Sahib	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Fazilka	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Firozpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Gurdaspur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Hoshiarpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Jalandhar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Kapurthala	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
	Ludhiana	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	



Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
Sikkim	Karauli	0.0010	0.0024	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
	Kota	0.0110	0.0240	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
	Nagaur	0.2794	0.7762	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
	Pali	5.8554	10.0766	4.49	1.6879	-1.00	-1.00	-1.00	-1.00
	Pratapgarh	0.0103	0.0090	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
	Rajsamand	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sawai Madhopur	0.0050	0.0120	0.01	0.0000	-1.00	-1.00	-1.00	-1.00
	Sikar	0.0053	0.0108	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
	Sirohi	42.4598	187.4568	83.51	31.4005	-1.00	-1.00	-1.00	-1.00
	Tonk	0.1004	0.1195	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	Udaipur	0.0384	0.0754	0.00	0.0000	-1.00	-1.00	-1.00	-1.00
	East	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	North	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	South	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ariyalur	0.0410	0.0248	0.01	0.0042	-1.00	-1.00	-1.00	-1.00
	Chennai	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Coimbatore	0.0540	0.0747	0.03	0.0125	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	Cuddalore	0.0143	0.0105	0.00	0.0018	-1.00	-1.00	-1.00	-1.00
	Dharampuri	0.4790	0.1329	0.06	0.0223	-1.00	-1.00	-1.00	-1.00
	Dindigul	0.1740	0.0804	0.04	0.0135	-1.00	-1.00	-1.00	-1.00
	Erode	0.6250	0.3347	0.15	0.0561	-1.00	-1.00	-1.00	-1.00
	Kanchipuram	0.0020	0.0011	0.00	0.0002	-1.00	-1.00	-1.00	-1.00
	Kanyakumari	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Karur	0.0183	0.0469	0.02	0.0079	-1.00	-1.00	-1.00	-1.00
	Krishnagiri	1.0320	0.5911	0.26	0.0990	-1.00	-1.00	-1.00	-1.00
	Madurai	0.0920	0.0792	0.04	0.0133	-1.00	-1.00	-1.00	-1.00
	Nagapattinam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tamil Nadu	Namakkal	3.0310	1.5470	0.69	0.2591	-1.00	-1.00	-1.00	-1.00
	Nilgiri	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

Perambalur	0.1557	0.0843	0.04	0.0141	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Pudukkottai	0.0020	0.0011	0.00	0.0002	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Ramanathapuram	0.0685	0.0552	0.02	0.0092	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Salem	1.1797	0.5445	0.24	0.0912	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Sivaganga	0.0073	0.0071	0.00	0.0012	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Teni	0.1830	0.1021	0.05	0.0171	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Thanjavur	0.0035	0.0024	0.00	0.0004	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Thiruvannamalai	-1.000	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tiruchirappalli	0.3287	0.2102	0.09	0.0352	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tirunelveli	0.0777	0.0264	0.01	0.0044	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tiruppur	0.1330	0.0557	0.02	0.0093	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tiruvallur	0.0150	0.0042	0.00	0.0007	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tiruvannamalai	0.0077	0.0140	0.01	0.0024	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Tuticorin	0.0807	0.0612	0.03	0.0103	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Vellore	0.2887	0.2046	0.09	0.0343	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Villupuram	0.0743	0.1153	0.05	0.0193	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Virudhunagar	0.0330	0.0184	0.01	0.0031	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Adilabad	0.1254	0.1526	0.05	0.0199	0.0065	0.0108	0.0037	0.0014	0.0014	0.0014
Hyderabad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Karimnagar	0.0908	0.0970	0.03	0.0126	0.0210	0.0192	0.0067	0.0025	0.0025	0.0025
Khammam	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Mahabubnagar	65.2570	84.3830	29.24	10.9938	0.2440	0.3264	0.1131	0.0425	0.0425	0.0425
Medak	0.4692	0.5323	0.18	0.0694	0.7227	1.0592	0.3670	0.1380	0.1380	0.1380
Nalgonda	4.8690	2.0597	0.71	0.2683	0.0115	0.0036	0.0012	0.0005	0.0005	0.0005
Nizamabad	0.0145	0.0186	0.01	0.0024	0.0020	0.0024	0.0008	0.0003	0.0003	0.0003
Ranga Reddy	2.6348	1.8653	0.65	0.2430	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Warangal	0.7090	0.9370	0.32	0.1221	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Dhalai	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Gomati	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Khowai	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
North Tripura	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Sepahijala	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00



# Estimation of Surplus Crop Residues in India for Biofuel Production

State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
	South Tripura	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Unokoti	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	West Tripura	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Uttar Pradesh	Agra	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Aligarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Allahabad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ambedkarnagar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Amethi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Amroha	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Auraiya	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Azamgarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Badaun	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Baghpat	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bahraich	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Ballia	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Balrampur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Banda	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Barabanki	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bareilly	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Basti	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bhadohi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bijnor	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bulandsahar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chandauli	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chitrakoot	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Deoria	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Etah	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Etawah	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Faizabad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Farrukhabad	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00



# Estimation of Surplus Crop Residues in India for Biofuel Production

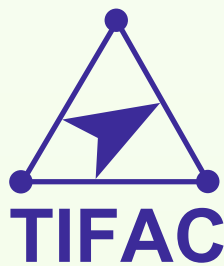
State	District	Castor_Kh_Area_000ha	Castor_kh_DB_Kt	Castor_kh_SB_Kt	Castor_kh_BE_million L	Castor_rb_Area_000ha	Castor_rb_DB_Kt	Castor_rb_SB_Kt	Castor_rb_BE_million L
Uttarakhand	Pilibhit	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Pratapgarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Rae Bareli	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Rampur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Saharanpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sambhal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Santkabirnagar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shahjahanpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shamali	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Shrawasti	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Siddharthnagar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sitapur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sonbhadra	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Sultanpur	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Unnao	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Varanasi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Almora	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Bageshwar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Chamoli	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
	Champawat	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Dehradun	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Haridwar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Nainital	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Pauri Garhwal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Pithoragarh	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Rudraprayag	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Tehri Garwal	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Udham Singh Nagar	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	
Uttarkashi	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	



**Personal use only**



Personal use only



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