

Original Research Article

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## Doubling Farmers Income through Gender Specific Interventions

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### ABSTRACT

The study was taken up with the objectives of profiling income generating activities of farm families and identifying points of interventions; conducting micro level studies to identify gender concerns and technological gaps in doubling farm income; implementing technological modules for enhancing productivity with an aim to enhance farm income with emphasis on integrating gender roles and to study the impact of the interventions to develop a gender-sensitive model for doubling farmers' income. The study was taken up in a cluster of 50 farm women from selected villages in Nimapara block of Puri district in Odisha during 2017-2020. A gender sensitive model to enhance farmers' income by addressing gender concerns and technological gaps was developed. The gender perspectives were integrated by way of assessment of gender concerns in accessing productive resources and extension services among the farm families, counselling and gender sensitization of the community, and promoting community organizations such as knowledge groups of men and women. Team of experts analyzed the technological and developmental gaps and designed need based technological modules. The need based modules were implemented through training, demonstrations, capacity building programmes, input support and advisory services, and promoting high yielding varieties and hybrids. The impact of the field level capacity building and technology transfer programmes could be realized in terms of enhancement of annual farm income from Rs. 89,300/- to Rs. 1,51,200/- (69% enhancement), and cash in hand among farm women (mean annual savings) from Rs. 18,000/- to Rs. 42,000/- (113% enhancement) between 2017-18 to 2019-20. The focus area and the extension strategies for gender mainstreaming and improving livelihood are also discussed in this paper.

#### Keywords

Doubling farmers income, Gender mainstreaming, Technological interventions, Extension strategies and Impact assessment

#### Article Info

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### Introduction

Aiming to boost Indian agriculture, the Government of India has set up a goal to double the farmers' income level by the year 2022. It is possible by formulating suitable action plan for development of location specific technologies, and timely transfer of

such technologies to the farmers' fields. To fulfil the aim, a range of approaches and strategies need to be adopted starting from transformation of production-driven as well as market-driven factors and providing an enabling environment, which support farmers in all their endeavours. Current level of average income of an Indian farmer is about

Rs. 6,430 per month (NSSO, 2012-13) with huge disparity among different regions, like farmers of Punjab earned highest income (Rs. 18,060) followed by those in Haryana (Rs. 14,440), Jammu & Kashmir (Rs. 12,685) and Kerala (Rs. 11,890), whereas farmers of Bihar earn the least (Rs. 3,560) per month. Hence, instead of 'one solution fit for all', a mix of strategies will need to be embraced which not only enhance the income to double or nearly double, but discourage the level of disparity among different regions of India (ICAR-NRRI, 2017).

The results of gender researches reveal that despite the important role women play in agricultural production, they remain disadvantaged in numerous respects. On one hand, women have limited access to a wide range of agricultural inputs including seeds and fertilizers, technological resources, equipments, land and so forth. In addition, women often lack the capacity needed to deploy these resources. For example, women may have access to land but lack the capacity needed to deploy the resources as mentioned above. Illiteracy, neo-literacy and lack of scientific knowledge are the major impediments in their growth. Furthermore, many non-tangible assets, such as social capital, human capital, rights and decision-making power, are more difficult for women to access and exercise due to cultural barriers and male domination (ICAR-CIWA, 2015).

In this background, this study was taken up with the objectives of, profiling of income generating activities of farm families and identifying points of interventions; conducting micro level studies to identify gender concerns and technological gaps in doubling farm income; implementing technological modules for enhancing productivity and doubling income with emphasis on integrating gender roles and to study the impact of the interventions to

develop a gender-sensitive model for doubling farmers' income.

## **Materials and Methods**

The study was taken up in a cluster of 50 farm women from selected villages in Nimapara block of Puri district in Odisha during 2017-2020. Mixed methods research approach was followed for collecting qualitative and quantitative data using focussed group discussions, key-informant interviews, and in-depth household interviews. Assessment of demographic profile, primary data collection on gendered contribution to family income, gendered scope of doubling family income and analysis of cropping pattern and other allied activities were carried out. Mapping the resource-base of the eco-system was done using PRA tools and interaction with local leaders and key informants. Analysis of income generating activities, income pattern and expenditure (cost of cultivation), and activity wise income generation by men and women were carried out through analysis of secondary/ census data/ micro level studies. Identification of gaps and prioritization of needs were done through stakeholder meetings, group interactions, field work and interview schedule based formal and informal surveys. Micro level studies were also conducted for identification of gaps and prioritization of needs, and developing an action plan. Implemented the need based modules for doubling the income of farm families through training, demonstrations, capacity building programmes, input support and advisory services. Modules were allotted to different farm families as per their resources and interests. Concurrent monitoring and impact assessment were also done.

The gender sensitive indicators followed for this study are summarized in the following table (Table 1.)

## Results and Discussion

### Disparity in Farmers' Income among the States in India

There is large disparity existing in annual farm household income of different states (Fig. 1). To analyse the disparity, the states were divided into four Farmers' Income Zones (FIZ) as per their annual farm household income. The national average annual farm household income is Rs. 1,07,780/-. If the income of the farmers of various states is doubled from their present income, the disparity and gap of income will also be doubled in absolute terms. To address the problem, instead of doubling the farmers' income of every farmers' Income Zone equally, the focus should be increasing the farmers' income by different factors in different FIZs so that overall the countries average farmers' household income would be doubled but the disparity will be narrowed down. It is proposed that the income of farmers in FIZ1 may be increased by 1.5 times, whereas for FIZs 2, 3 and 4 the incomes may be increased by 2.0, 2.5 and 3.5 times, respectively to achieve overall doubling of famers' income at all India level without widening the gap in the annual farm household income among the Income Zones (Courtesy: Odisha State Document on DFI, 2022 (2017), ICAR-NRRI).

### Options for Improving Farmers' Income

Farmers' income can be improved when productivity goes up, cost of production comes down, risk is reduced, post-harvest loss is minimized and commodities produced get a remunerative price. It should also improve income from allied activities to agriculture. The strategy should integrate these all. The following options are available for increasing farmers' income in rice-based systems (Pasupalak *et al.*, 2018).

### Improving productivity and quality

- Providing quality seed and enhancing seed replacement ratio
- Promoting high-yielding varieties and hybrids
- Growing nutrient rich (CR Dhan 310 and 311) and aromatic rice (Basmati)
- Increasing cropping intensity in rice-fallow areas

### Increasing input use efficiency

- Crop planning to identify areas where the crop can be grown with least input
- Promoting water harvesting and micro-irrigation to achieve per drop-more crop
- Using soil health card and site-specific crop management
- Promoting farm mechanization and solar energy

### Reducing crop loss

- Adopting plant protection measures
- Promoting resistant varieties and e-surveillance
- Crop insurance to mitigate risks at affordable cost
- Weather services and forecasting system

### Diversification

- Dairy husbandry for small farmers
- Promotion of intensive vegetable production
- Promotion of ancillary activities like poultry, beekeeping and fisheries
- Strengthening Organic Food Program

### Market price realization and value addition

- Community/co-operative farming with crop-value chain
- Use of the crop biomass to make products through small industry
- Creation of a national farm market with

information system for export and online selling  
Agribusiness Incubation Centres to promote agri-preneurship

### **Gender Sensitive Model for Doubling Farmers' Income by Addressing Gender Concerns and Technological Gaps**

The gender-sensitive model for doubling farmers' income was evolved as shown in Fig. 2.

The gender perspectives were integrated by way of assessment of gender concerns in accessing productive resources and extension services among the farm families, counselling and gender sensitization of the community, and promoting community organizations (knowledge groups of women). A team of experts analyzed the technological and developmental gaps and designed logical technological modules. The need based modules were implemented through training, demonstrations, capacity building programmes, input support and advisory services, promoting high yielding varieties and hybrids through 16 programmes covering the selected farm families during the period 2017-2020.

### **Technological Interventions for DFI**

Promoting high yielding varieties and hybrids  
Capacity building programmes- Training and demonstrations  
Advisories on site-specific crop management/ allied activities  
Soil test campaigns  
Promoting drudgery reducing farm tools  
Animal health camps  
Development of knowledge and skill on maintaining farm log books (expenditure and income)  
Development of knowledge and skill to reduce cost of cultivation/cost cutting

Development of knowledge and skill on waste reduction/ waste recycling  
Development of knowledge and skill to minimize post harvest losses  
Development of knowledge and skill on primary processing/ value addition  
Awareness creation on market linkages  
Regular interfaces and monitoring  
Convergence of developmental agencies

Concurrent monitoring and impact assessment were done using participatory tools and interview schedule based surveys (baseline and endline surveys). The impact of the field level capacity building and technology transfer programmes, and the outputs realized are given in the following table (Table 2).

The impact of gender integration on family income and the cash in hand among farmwomen are given in Table 3 and Fig.3.

From Table 2 and Fig.3., it could be inferred that the technological interventions could result in the enhancement of annual farm income from Rs. 89,300/- to Rs. 1,51,200/- (60% enhancement), and cash in hand among farm women (mean annual savings) from Rs. 18,000/- to Rs. 42,000/- (43% enhancement) between 2017-18 to 2019-20.

### **Extension Strategies for Gender Mainstreaming and Improving Livelihood**

It is pertinent to build the capacity and ability of farmwomen to shoulder new challenges and increase their efficiency. Important extension strategies to improve women's access to productive resources for gender mainstreaming and improving livelihood learnt from the study are as follows;

**Gender balanced extension system:** Agricultural knowledge is transferred inefficiently from men to women and vice-versa. Hence, there is need to increase number

of women extension workers, leading to a gender balance in extension system which will enable women farmers will have easy access to agricultural information and technologies.

**Mass media support:** The access of farm women to mass media is limited due to number of reasons. But it has potential to carry messages to a large number of farm women. However, we should examine how different media support and extension model can contribute to the dissemination of farm information and technologies to the women.

**Women friendly technologies:** The scope of agricultural knowledge & technologies for women farmers is increasing gradually. There are many technologies developed and standardized for agriculture by the National Agricultural Research and Extension System, but their potential for women and agriculture has not been adequately demonstrated. There is a dire need to harness the potential of science and technology by demonstrating their benefits, thus empowering women. Extending the women friendly tools and technological innovations will reduce the burden, and save time and energy of women.

**Credit and technical support:** Technical support should be provided to farm women which facilitates their multiple tasks. Credit facility should be given to women SHGs to increase income by way of developing micro-enterprises.

**Capacity building of women:** Different agricultural training programmes in different areas will largely improve the access to agricultural knowledge and information

among farm women. Therefore, gender sensitive extension training materials should be developed.

**Reorientation of extension and research system:** Extension and research system should be reoriented and priorities should be given to women farmers.

**Women farmer groups:** There is need to organize the women farmers into groups in order to strengthen their way from subsistence cultivator to commercial cultivator. Extension workers can be trained to work more closely with women and organize them into groups.

**Women friendly IFS model:** Involvement of women in crop and livestock production varies according to the type of crop grown and livestock reared, and socio-economic conditions. There is need to develop scientifically designed, economically profitable and socially acceptable integrated farming systems models especially for women farmers having integration of women friendly farm enterprises.

**Promotion / support of marketing through e-NAM and establishment of value chain.**

To increase income of farmers, a range of strategies (economic, technological, infrastructural/information, political/policy and social) need to be adopted to transform the current production-driven to income-driven farming system and reduce the disparity among farmers of different regions of India. A region and state-specific action plan is required to address the constraints of increasing farmers' income.

**Table.1** Gender sensitive indicators followed

<b>Types of Indicators</b>	<b>Indicators</b>	<b>Methodology to measure the indicator</b>
<b>Input Indicators</b>	Resource base: existing access to productive resources among men and women Allocation of resources to men and women Knowledge and skill Socio-economic profile of men and women Action plan- technological modules	Agro-eco System Analysis-PRA tools Bench mark survey Focussed group discussions, key-informant interviews, and in-depth household interviews Scenario building on the basis of existing technological gaps & prioritization of needs
<b>Output Indicators</b>	Number of beneficiaries No. of knowledge groups established Enhanced access to productive resources among men and women Increased productivity Successful case studies/success stories	Focussed group discussions, key-informant interviews, and in-depth household interviews Bench mark and end line surveys Documentation of successful cases
<b>Outcome indicators</b>	Gender-sensitive and sustainable model for doubling the income of farm families Enhanced farm income realized Policy recommendations to improve the farm women's access to resources and extension services for farm women	Participatory monitoring and evaluation Baseline and end line surveys.
<b>Impact Indicators</b>	Convergence of agencies Enhanced socio-economic status	Stakeholders' interfaces Participatory monitoring and evaluation Baseline and end line surveys

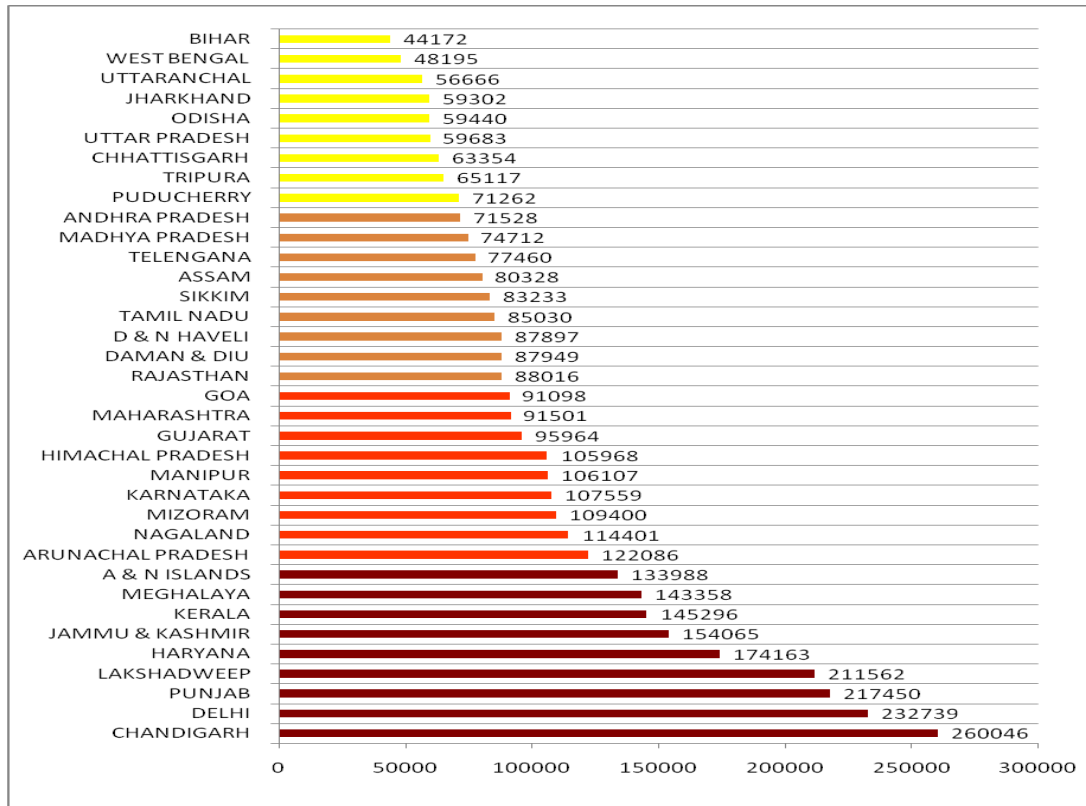
**Table.2** Income enhancement through technological interventions

Technological Interventions...	Yield/ Income	
	Before the technological interventions	After the technological interventions
Varietal replacement in paddy (Submergence tolerant varieties: Swarna Sub-1; CR-1009 Sub-1)	13-15 q/ac (Rs.16,500)	22 q/ac (Rs.24,200)
Cauliflower- varietal replacement and improved methods (Var: NS60N (F1 Hyb); Yield; 50q/ac; Invt: 10,000/-)	Rs. 40,000/ac	Rs. 75,000/ac
Improved methods of vegetable cultivation / popularization of Arka varieties (Var: Arka; Yield; 70 q/ ac; Investment: 10,000/-)	Rs. 45,000/ ac	Rs. 70,000/ ac
Plantations- Banana, Papaya (Var: Bantala, Grand Naine & Red Lady; Investment: 4,000/-)	Nil	Rs. 15,000/ 0.25 ac
Backyard poultry (Breed: Vanaraja)	Rs. 3000/ yr	Rs. 6000/ yr
Drudgery reduction- minor farm tools	-	Increased work efficiency
Nutrition- Green leafy vegetables	-	Family nutrition
Mobilization of community for building compost pits	-	Waste reduction/ recycling
Annual family income	Rs. 89,300	Rs. 1,51,200
Cash in hand among farm women (mean annual savings)	Rs. 18,000	Rs. 42,000

**Table.3** Income enhancement through gender integration

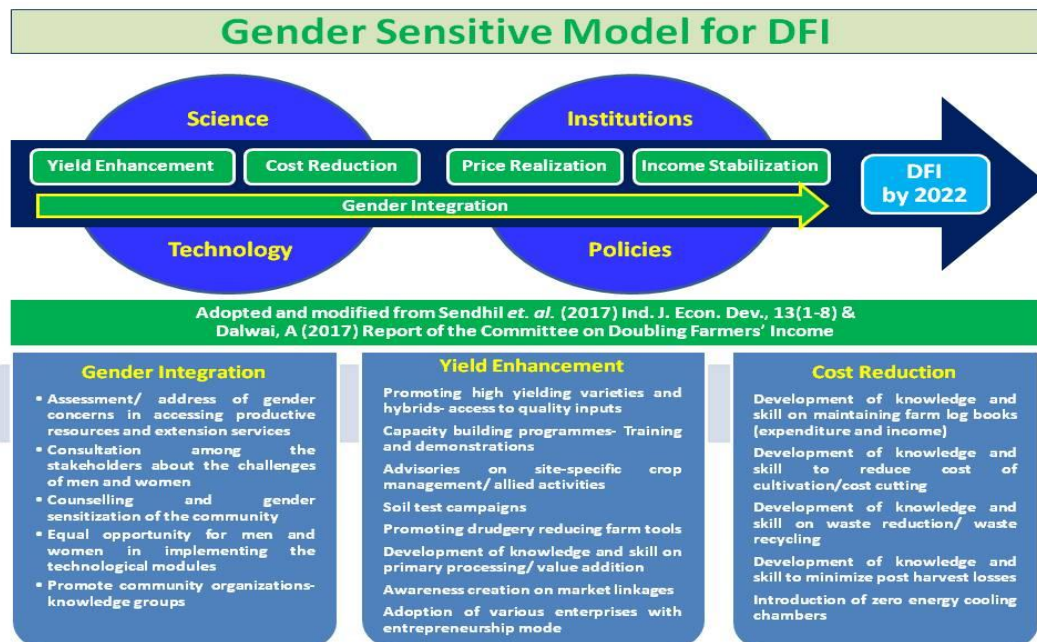
Income generating activities	Women's contribution in labour (%)	Women's contribution in financial decisions (%)	Women's contribution in family income (%)
Crops	33.00	40.00	30.00
Livestock	68.00	60.00	65.00
Wage earning	Nil	Nil	Nil
Enterprises (Mushroom)	58.00	55.00	55.00
Services	Nil	Nil	Nil
Others (if any)	Nil	Nil	Nil

Fig.1 Annual farm household income in different states of India



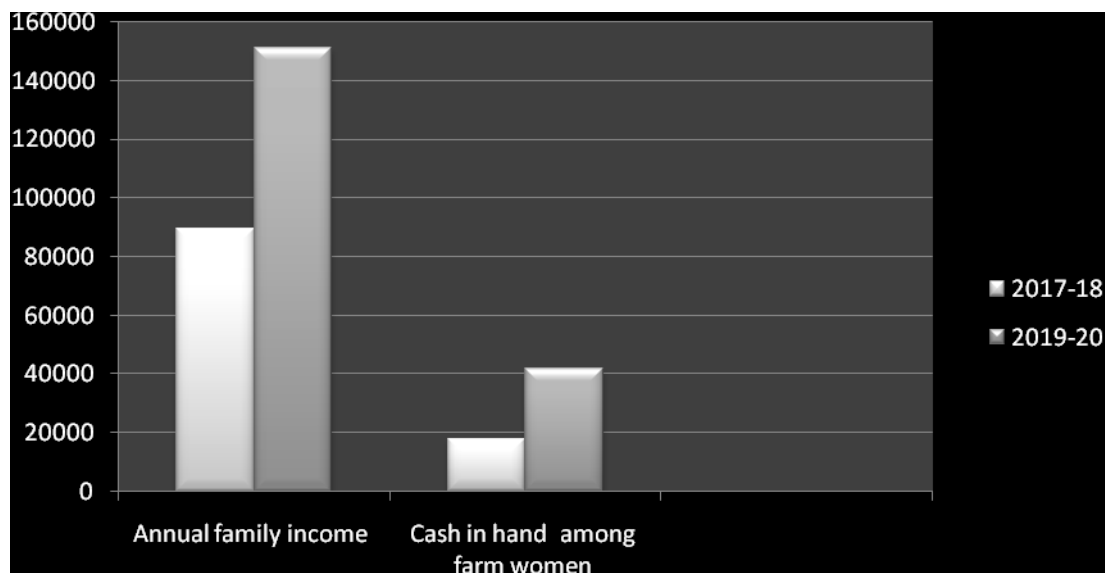
(Courtesy: Odisha State Document on DFI, 2022 (2017), ICAR-NRRI)

Fig.2 Gender-sensitive model for doubling farmers' income





**Fig.3** Impact of gender integration on family income/cash in hand among farm women



**For gender mainstreaming the focus should be on**

- Recognising women's role as farmer/agripreneur
- Promoting agricultural education among farm women
- Creation of well structured gender sensitive modules for effective transfer of technologies
- Gender mainstreaming in govt. programmes & policies
- Building resilience among farm women to cope with natural calamities and climate change
- Create database on women's participation in agriculture

**References**

Dalwai, A. 2017. Report of the Committee on Doubling Farmers' Income, Committee on Doubling Farmers' Income, Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture &

Farmers' Welfare., GOI, Vol. 14. p. 174.  
FAO. 2011. The state of food and agriculture: Women in agriculture. Closing the Gender Gap for Development, Rome: FAO.  
ICAR-CIWA. 2015. Vision 2050, ICAR-Central Institute for Women in Agriculture, Bhubaneswar. pp. 1-32.  
ICAR-NRRI. 2017. Odisha State Document on Doubling Farmers Income by 2022 (Unpublished), ICAR-NRRI, Cuttack.  
Pasupalak, S., Pathak, H., Roul. P.K., Kumar, G.A.K. and Mohapatra, M.R. 2018. Doubling farmers; Income by 2022: Strategy Document for Odisha, ICAR-NRRI, Cuttack. p.117.  
Sendhil, R., Kumar, A., Singh, S., Chatrath, R. and Singh, G.P. 2017. Framework for doubling farmers income by 2022. Ind. J. Econ. Dev. 13: 1-8.  
Sendhil, R., Ramasundaram, P. and Balaji, S.J. 2017. Transforming Indian agriculture: is doubling farmers income by 2022 in the realm of reality?. Current Science. 113 (5): 848-850.

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