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## SWOT-Analytic Hierarchy Process (AHP) of Agriclincs and Agribusiness Center (ACABC) Scheme

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### ABSTRACT

Agriclincs and Agribusiness Center (ACABC) scheme was launched by the Government of India in 2003 as a strategy for boosting agribusiness in the country through agriculture graduates. Since its inception, a substantial number of agribusiness of different kinds started in the country, and hence expanded the agribusiness environment in the country, employed a vast population, and stretched extension services to the needy farmers even in remote villages. Therefore, it was essential to understand the panoramas of the scheme from its stakeholders. Hence the perception of the agripreneurs about the ACABC scheme was examined by measuring the strengths, weaknesses, opportunities, and threats quantitatively by combining SWOT with the analytical hierarchy process (AHP). A one-day interaction meet consisting of successful agripreneurs under the Nodal Training Institute (NTI)-Varanasi was held in Varanasi (UP), in October 2018 to administer the SWOT-AHP analysis. The results revealed that ACABC scheme had high positive (84.7%) features, and act as a suitable plan for promoting agribusinesses. The most significant positive features were the potentiality of employment generation under the scheme and the favourable attitude of self-employment among agriculture graduates. Delays in subsidy release under the scheme and less practical exposure of successful agribusiness to trainees under the scheme were the areas that need improvement which impedes the success of the scheme. The greater success of the scheme will enhance self-employment among agriculture graduates who will supplement the efforts of public extension by necessarily providing extension and other services to the farmers and, hence ACABC scheme can support the efforts of the Government for doubling the incomes of farmers.

**Keywords:** ACABC scheme, Agribusiness, SWOT-AHP Analysis

India has made colossal progress in agricultural production after the green revolution; hence country had achieved record production of food grains estimated at 283.37 million tonnes during 2019–20 (PIB 2019). Since economic reforms, income growth of individuals is faster which influenced high domestic demand leading to process of demand diversification on large scale. Unfortunately, diversification is not at the pace at which it is required for the expansion of agriculture. As a result, the real agricultural growth of India has averaged about 2.8 per cent since 1960 (Economic Survey 2017–18) but the nation will have a high demand for agricultural products with population growth. Therefore, Government of India is interested in doubling farmers' income by 2022 through launching new schemes in agriculture.

Sustainable agriculture involves moving away from green revolution to evergreen revolution to increase productivity in perpetuity without ecological harm (Swaminathan and Kesavan 2018). The improvement in productivity of food grains will boost overall production in agriculture and paves the way to ensure food security for millions without dependency on imports (Singh *et al.* 2017). Therefore, only launching schemes for agriculture growth cannot be suitable strategy, real growth of agriculture can be actualized more by switching its current scenario of subsistence farming to commercial farming, i.e. transforming agriculture to agribusiness. Agribusiness like food processing industry has a high multiplier effect and employment potential (Singh *et al.* 2016). Hence, Ministry of Agriculture, Government of India has launched a scheme in 2002, viz. Agriclincs and Agribusiness Center (ACABC) to promote agribusiness environment within the country. This central sector scheme is to attract educated youth in the agriculture sector for creation of self-employment opportunities along with rendering extension services to farmers. Till now, a total of 28755 agribusinesses initiated under the scheme in different parts of the country (<http://www.agriclincs.net/>). Any learning regarding the specific

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issues concerning the ACABC scheme can contribute invaluable insights to policymakers and others in planning and implementing the scheme more effectively by its stakeholders. Therefore, this paper explores the ACABC scheme with the help of the SWOT-AHP technique to learn its achievements in terms of its objectives.

## MATERIALS AND METHODS

The focus group has open-ended discussion characteristics that empower the participants to identify issues unknown or considered insignificant by the researcher. SWOT – a method to classify internal factors (strengths and weaknesses) and external factors (opportunities and threats) when participants work in a complex interaction of social, institutional, and economic conditions. SWOT has been practiced in a variety of strategic planning contexts (Mollenhorst and de Boer 2004, Nair and Prasad 2004). However, it solely does not provide a means to determine the relative importance of the various SWOT factors either within a category or among categories. The AHP technique developed by Saaty (1977) allows estimation of relative priorities for each factor and category of SWOT. The relative priorities of factors and categories are estimated using the eigen value technique.

A one-day interaction meet consisting of successful agripreneurs under the Nodal Training Institute (NTI), Varanasi was held in Varanasi, Uttar Pradesh during October 2018 to administer the SWOT-AHP analysis for ACABC scheme. The methodology and specific issue or question to be addressed by the SWOT-AHP session was explained to the participants, and hence SWOT-AHP was conducted by following three steps:

1. Identification of SWOT factors from the participants.
2. Pair wise comparison of SWOT factors (using the fundamental scale acquired from Saaty and Vargas 2001)
3. The scaling factor or global priority value for each category and factor was determine.

The first session was conducted for identifying factors in each SWOT category that were important for the scheme. All the identified factors by individual members of the focus group were recorded and listed. Next, similar factors that showed the same broad issue were merged into one descriptive factor by group exercise involving all participants. Next, the top four factors in each SWOT category were chosen by group consensus. Thus, four most important factors in each SWOT category were identified by the focus group at the end of the first session.

In the second session, the participants were subdivided into two small groups. The two groups were then assigned to perform pairwise comparisons between each of the four factors in each SWOT category. After these comparisons, the factor in each category with highest priority was brought forward to be compared in pairwise manner with the highest priority factor in the other SWOT categories. After the first rounds of comparisons, the consistency of factors with one another was verified. Inconsistency occurs when multiple comparisons involving the same factor do not match the

same priority for that factor. The description and valuation of relative priorities for the different factors, results from pairwise comparison is represented in a reciprocal matrix where relative weight enters into the matrix and its reciprocal is entered on the opposite side of main diagonal (adopted from Stainback *et al.* 2012).

In matrix, rows denote ratios of each factor with respect to others and the transpose of the vector of weights multiplied by matrix, results is a vector represented by  $\lambda_{max}w$ , where,  $\lambda_{max}$  is the largest eigen value of matrix and  $w$  is the transpose of vector of weights. The  $\lambda_{max}$  is equal to or greater than  $n$  or number of rows or columns in matrix (Saaty 1977). The more consistent the responses are with each other, the closer  $\lambda_{max}$  is to  $n$ .

If pairwise comparisons do not consist of any inconsistencies,  $\lambda_{max}=n$  (Kurttila *et al.* 2000). In human decision-making, some inconsistency can be expected, and, therefore, a consistency ratio of 10% or less is generally deemed acceptable (Kurttila *et al.* 2000 and Saaty 2004). Matrix can be tested for consistency as:

$$CR = \frac{CI}{RI}$$

$$CI = \frac{(\lambda_{max} - n)}{(n-1)}$$

where, CR is a consistency ratio, CI is a consistency index, and RI refers to consistency index of a random matrix of order  $n$ .

After estimating the priority factor and consistency, the overall priority of each factor was used to rank the importance of the factors identified. The sum of overall priority values is equal to 1, with higher priority values indicating greater importance. Therefore, ranking the importance of each factor was made with the help of overall priority values.

## RESULTS AND DISCUSSION

The SWOT factors identified for each SWOT category for the ACABC scheme are shown in Table 1. The respondents identified four factors in each category which were the possible benefits and challenges of the ACABC scheme. Each category was analysed and most important factors in each category were selected based on their pairwise comparisons for each factor through SWOT-AHP. The strength and opportunity factors depict the positive features of the ACABC scheme. It was perceived that employment generation was a critical strength of the scheme as it provides employment to a large population. This scheme also renders assistance in acquiring the banking facilities, handholding support in commencing the agribusiness, technical support services to the farming community, and professionalism in extension service providers. All these benefits were perceived as strengths of the scheme. These findings are in incoherence with the report of Shekhar *et al.* (2014). Secondly, other positive feature was opportunity available in the ACABAC scheme. It was observed that the provision of self-employment was a vital opportunity

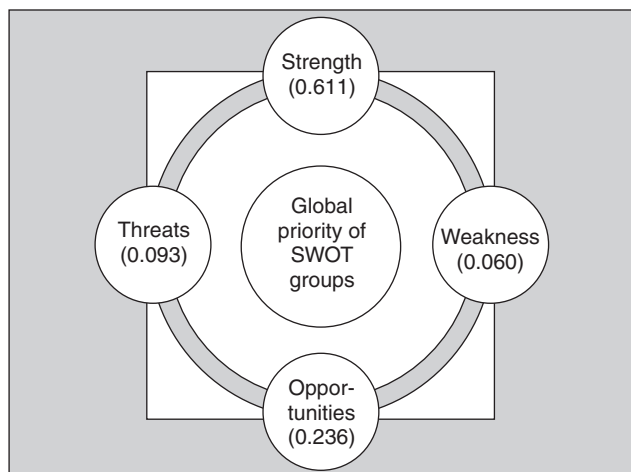


Fig 1 Global Priority of SWOT groups.

under this scheme. Nidhi *et al.* (2017) also reported that most of the respondents were interested in the ACABC scheme and became entrepreneurs in agriculture and allied sectors. Besides, ample choice of any suitable agribusiness, innovative agribusinesses as per the interest of an individual and demand for a given region, business learning, and development of the personality under the scheme were the other opportunities as perceived by the participants.

The weaknesses and threats are the negative features of the ACABC scheme. The delay in credit subsidy release from the banks and less practical exposure to successful agribusiness was perceived as major weaknesses. Other observed weaknesses were - long duration of residential training, high credit interest for the sanctioned loan, and the rigid training schedule. These results are similar as found by Karjagi *et al.* (2009) who reported that high interest on bank loan, lack of handholding support, lack of subsidy, and high rate of margin money were the major problems in starting the agribusiness under the scheme. Further, another negative feature for the scheme was a threat to the scheme. The institutional corruption was observed as a serious threat to the ACABC scheme. The unsupportive nature of different line departments of state, similar kinds of schemes for agribusiness parallel

Table 1 Factors identified in each SWOT category

Strength	Weakness
Banking and handhold support	Delay in release of subsidy
Employment generation	Rigid Training schedule
Increase in production	Less practical exposure
Professionalism in extension service	Long duration of training
Service to farming community	High credit interest
<i>Opportunity</i>	<i>Threat</i>
Basket of agribusiness	Institutional corruption
Business learning	Low success rate of ACABC
Innovative agribusiness	Market competition
Personality development	Similar schemes of State Govt.
Self-employment	Unsupportive institutions

Note: The group identified the most important four factors (shown in italic) in each category to be used later in pair wise comparisons. Factors are listed in alphabetical order

run by state government, and marketing competition were important observed threats. Finally, the low success rate of ACABC scheme was observed as a potential threat to the scheme.

The global priority scores of each SWOT categories are shown in Fig 1. The results indicate that participants observed positive (strength and opportunity) features of the ACABC scheme as more prominent and influential than negative (weakness and threat) features of the scheme. It was found that the combined positive priority value was 84.7% (0.847) compared to combined negative priority value, i.e. 15.3% (0.153). Hence it was assumed by the participants that ACABC scheme had more positive aspects towards fulfilment of its objectives. In other words, the scheme had potential to develop agribusiness culture in the country.

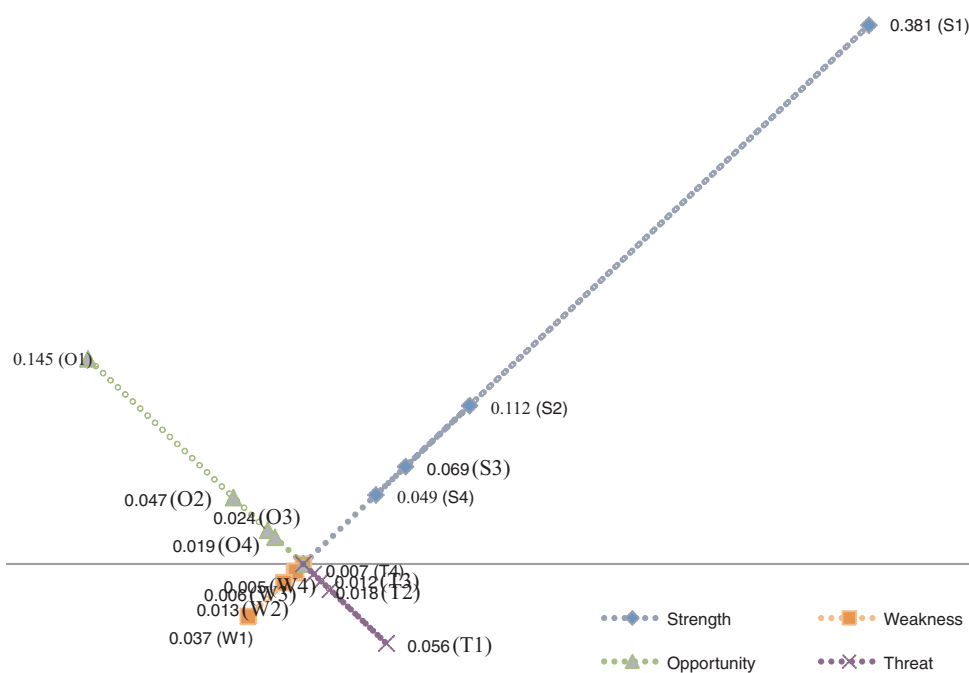


Fig 2 Local priority factors of each SWOT category.

The results of local and global priority scores for different factors of each category of SWOT for the scheme are presented in Table 2 and graphical presentation in Fig 2. It explains that the overall factor priority for the strength SWOT group of the ACABC scheme was 0.611. It inferred that strength was most important SWOT group for the scheme. Among other SWOT factors of strength, the priority factor for employment generations was 0.381, followed by other factors – to serve the farming community (0.069), professionalism in extension (0.112), and increase in production (0.049). The relative proportion of agriculture graduates getting employment in public sector in India is shrinking gradually; therefore, more job opportunities should be created in the private sector (George and Bhaskaran 2004). In such a scenario, this scheme can serve as a mainstay in employing agriculture graduates. The agriclinics and agribusiness centers also provide a wide range of services, depending on the interests of the graduates (Claire *et al.* 2010). This scheme also facilitates for professionalism in extension services through additional qualified manpower and adequate infrastructure (Ahmed *et al.* 2011; Shekara *et al.* 2011 and Bairwa *et al.* 2015).

The overall priority factor for weakness SWOT group of the scheme was 0.060. It signifies that weakness was less severe for the scheme compared to the threat SWOT group. The SWOT factors of weakness were delay in subsidy release (0.037)-(most severe), rigid training schedule (0.013), less practical exposure (0.006), and long duration of training (0.005). It signifies that delay in subsidy release from bank was one of the main impediments in the success of the scheme. It was also observed by the participant group that practical exposure to successful agribusiness was less in number which motivates the fresh candidates for the initiation of agribusiness. Besides, it was also observed that long duration of training (2 months of residential training) was not suitable for the married and female candidates due to lack of family support. It was similarly reported by Chahal and Ponnusamy (2014).

It also shows that overall factor priority for opportunity SWOT group of the scheme was 0.236. It implies that opportunity for the ACABC scheme was preferred more compared to the threat and weakness SWOT groups of the scheme. It reveals that self-employment (0.145) from agribusiness (most important factor), innovative agribusiness (0.047), business learning (0.024), and personality development (0.019) were different SWOT factors of opportunities. It signifies that agripreneurs preferred this scheme due to its greater self-employment prospect among the agriculture graduates. Parimala Devi *et al.* (2006) also reported that self-employment under ACABC scheme had great opportunities in starting agribusiness in the rural areas.

Finally, it reveals that overall factor priority for threat SWOT group to the scheme was 0.093. It inferred that threat factors were less critical over weakness factors which create hindrance in the implementation of the scheme. It reveals that institutional corruption (0.056)-most severe, market competition for agribusiness (0.012), low success rate

(0.018) of the scheme, and unsupportive institutions (0.007) were different threat to SWOT factors. It indicates that the success rate of the ACABC can be improved by minimizing institutional corruption which was mainly occurring during sanctioning of loan amount for the agribusiness. The problem of heavy competition from existing players may be due to their well-established business, greater experience, and knowledge of the market situation was also considered as threats for the agribusiness (Bairwa *et al.* 2015), and hence most of the trainees of the ACABC scheme were not successful in taking up agri-entrepreneurship (Rao and Rupkumar 2005). Hence, the low success rate of the

Table 2 SWOT Groups and SWOT factors and their priority scores for ACABC

SWOT Groups and factors	Factor priority	Priority of the factor within the group	Overall priority of the factor
<i>Strength</i>	0.611		
S1 – Employment generation		0.624	0.381
S2 – Service to farming community		0.112	0.069
S3 – Professionalism in extension		0.183	0.112
S4 – Increase in production		0.081	0.049
<i>Weakness</i>	0.060		
W1 – Delay in subsidy release		0.609	0.037
W2 – Less practical exposure		0.106	0.006
W3 – Long duration of training		0.075	0.005
W4 – Rigid training schedule		0.210	0.013
<i>Opportunity</i>	0.236		
O1 – Self-employment		0.615	0.145
O2 – Innovative agribusiness		0.200	0.047
O3 – Business learning		0.104	0.024
O4 – Personality development		0.081	0.019
<i>Threat</i>	0.093		
T1 – Institutional corruption		0.600	0.056
T2 – Unsupportive institution		0.073	0.007
T3 – Market competition		0.133	0.012
T4 – Low success rate		0.194	0.018

(Source: Authors' Computed Data)



ACABC scheme prevents inspiring candidates from joining the ACABC training programme.

The ACABC scheme is a suitable strategy for employment generation as well as transforming subsistence farming to commercial farming in the country. In the absence of a scheme like ACABC, it is a challenge to promote agribusiness in the country on a large scale, and at the same time providing employment to large number of graduates passed out each year from various agriculture universities. The agribusinesses which started earlier or other than the schemes were – limited in numbers, restricted kind of agribusiness, lack of extension professionalism, lack of business training, etc. But all these limitations of earlier agribusinesses had been overcome by extending several kinds of assistance under this scheme. This scheme has immense potential for the development of agribusiness culture among young generations. Currently, the Government of India is also propped up for “*Atma Nirbhar Bharat*”; in such state this scheme has great significance for country. There were few lacunas of the scheme, highlighted during the investigation need to be circumvented with proper assistance and guidance by the policy-makers. Therefore, an explicit strategy is needed to address the threats and weaknesses of the scheme. The sustained and increased effort in new strategies could enhance the prospects for agribusiness in the country. Consequently, there is a necessity for continued and enhanced government support for this scheme which may help to boom the agribusiness all over the country, and the dream of doubling the farm incomes can be realized with the support of this ACABC scheme.

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