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AN ECONOMIC FEASIBILITY ANALYSIS FOR AGRO ECOLOGICAL SITUATION BASED CROPPING SYSTEMS IN UNDIVIDED SIVASAGAR DISTRICT OF ASSAM

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Abstract

The Sivasagar district is situated in the Eastern part of Assam between 94 25-95 25 longitude and 26 45-27 15 latitudes. The district is inhabited by different ethnic communities and tribes has diverse agricultural systems and cropping pattern depends upon Agro-Ecological Situation (AES). It is difficult to strategies the extension activities in such diversity without knowing the farming system, cropping pattern and technology gap for production of agricultural enterprises. The district is further classified into five (5) Agro-Ecological Situations (AES) based on rainfall, physiography, soils, floods, crops and cropping pattern. A total of six, consisting of two major farming systems in each AES were identified. Predominantly Agriculture+ Horticulture+ Animal Husbandry, Agriculture + Horticulture, Agriculture + Fishery, Agriculture + Horticulture + Fishery, Agriculture + Sericulture and Horticulture + Fishery. Keeping in view of availability of skilled man power, availability of the central sector sponsored schemes, nine commodities only have been prioritized on the basis of comparative advantages and existing potentiality in different AES zones of the district. The gaps and constraints in adoption of technologies, the extension strategies and the needed mode of action for promotion and production management of major enterprises viz. horticulture, fishery, animal husbandry were identified.

Key words : Agro, Ecological, Situation, Horticulture, Animal Husbandry, fishery

A. Introduction

Economic feasibility analysis carries out on selected agricultural commodities to have a database understanding of two aspects viz, Economic potentiality & benefit cost ratio of different commodities /enterprises on the basis of percentage adoption of recommended package of practices of Assam Agricultural university, Jorhat. The study also attempts to study the Cost-benefit ratio of different Agro -Ecological Situations (AES) of the district of the

selected agricultural commodities. The main idea of this analysis was to identifying economically viable/ comparatively advantageous commodities of different enterprises so that main emphasis can be given to those commodities which have economic benefits.

The district has been classified under the Agro-climatic zone of the U

pper Brahmaputra valley zone by the ICAR based on climate (rainfall, temperature and humidity), soil characters, crops and cropping pattern under NARP programme and the district was further classified into five (5) Agro-Ecological Situations (AES) based on rainfall, physiography, soils, floods, crops and cropping pattern under the same NARP programme. All the AESs have been identified having more relevancies to agricultural activities. AES of the district are as follows

(i) Alluvial flood free (AES-I), (ii) Alluvial flood prone (AES-II), (iii) high land (AES-III), (iv) Hill (AES-IV), (V) char like area (AES-V)

Objective of the study:

- i) To study the Cost-benefit analysis in different Agro -Ecological Situations (AES) of the Sivasagar district for the selected agricultural commodities.
- ii) To identify the gaps in adoption of technology by the farmers community.

District Profile

The Sivasagar district is situated in the Eastern part of Assam between 94°25'-95°25' longitude and 26°45'-27°15' latitudes. The north and western part of the district is bound by Dibrugarh and Jorhat districts of Assam respectively and the East and Southern part is bound by Arunachal Pradesh and Nagaland. The total geographical area of the district is 2668 sq KM. The mighty Brahmaputra flows along the northern periphery of the district. The district HQ town is 364 km away from the state capital Guwahati and is a vital corridor linking the two districts of Assam i.e., Dibrugarh and Tinsukia along with the few districts of Nagaland and Arunachal Pradesh. The district is rich in natural resources such as crude oil and coal. The district lies on the southern bank of the river Brahmaputra and have a variety of soils from most recent immature Entisol in Char areas to inceptisol (old alluvial), high land and hill areas. The higher area is in alluvial flood free (AES-I) 57.02% followed by alluvial flood prone (AES-II) 26.03%, high land (AES-III), 10.60 %, hill area (AES-IV) 2.15 % and char area (AES-v) 4.18% The Blocks wise area coverage under each AES are presented in the Table 1.01

Table	le 1.01 Block wise status under each AES							
Sl No	Name of AES	Area covered (ha)	Percentage of geographical area of the district	Blocks covered	Major crops			
1	Alluvial flood free (AES-I)	128624	57.02	Amguri, Sivasagar, Nazira, Sonari, Mahmara, Lakuwa, Sapekhati,Demow, Gaurisagar	Rice, tea, vege tables, diary, piggery, fishery, sericulture			
2	Alluvial flood prone (AES_II)	58723	26.03	Amguri, Sivasagar, Nazira, Demow,, Lakuwa	Rice, Rape & mustard, livestock and fishery			
3	High land (AES-III)	29365	10.60	Amguri, nazira, Sonari, Sapekhati, Mahmara	Rice, Pulses, Horticulture, Animal husbandry, Sericulture			
4	Hill (AES-IV)	4840.25	2.15	-Do-	Horticulture, Animal husbandry, Fishery			
5	Char like area (AES V)	9434.1	4.18	Sivasagar, Gaurisagar, Demow	Mustard, Vegetables, Fishery, Animal husbandry			

Land use pattern of the district

The total geographical area of the district is 2,66,800 ha and out of which 1,86, 654(70%) is cultivable area. But only 1,67,456 ha (89,71%) is under cultivation. At present only 34% area cover more than one crop. Hence, there is a scope for expansion of more area under double/triple crops with the supply of assured irrigation. There is a scope to explore the possibility of extending sasi plantation and eri and Muga plantation in organized way. Pasture land 7411.71 ha indicates the scope of development of Animal husbandry enterprise in the district.

B. Review of Literature

A feasibility study is an assessment of the practicality of a project or system A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the rural environment, the resources required to carry through and ultimately the prospects for success (McLeod, Sam2021). In its simplest terms, the two criteria to judge feasibility are cost required and value to be attained (Young, G.I.M.1970). a feasibility study evaluates the project's potential for success, therefore, perceived objectivity is an important factor in the credibility of study for potential investors and lending institutions (grossarchive.com. retrieved,2015). It is difficult to strategies the extension activities in such diversity without knowing the farming system, cropping system, cropping pattern and technology gap for the production of Agricultural commodities.(2015)

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C. Methodology

- i) **Selection of the village:** One village from each AES has been selected to collect the primary data. Prior to the selection of the representative villages, field level information on agriculture and allied sectors have been collected from the officers of the various departments as well as KVK also. Enumerators have been selected to collect the information regarding farming system in each AES, different enterprises, diversity of socio-economic resource situation and farmer's cooperation.
- ii) **Collection of primary data:** Primary data was collected in the following representative villages (Table No 1.02) during October-December/2021 on the prescribed format by using PRA technique. The collection of information on data was done in two phases. In the first phase, three (3) days were spent in each selected AES village by the enumerators to collect relevant information and two (2) days were spent to review, sharing of collected information and planning of second visit in the common palace. In the second phase AEs team again visited for two days to collect the missing data.

Sl	Name of the AES	Name of the	Name of the block
No		representative of	
		village	
1	Alluvial flood free (AES-I)	No 1 Chawalkhowa	Sivasagar
2	Alluvial flood prone (AES_II)	Lahangaon	Nazira
3	High land (AES-III)	Majar pathar	Mahmara
4	Hill (AES_IV)	Haluating	Amguri
5	Char like area (AES-V)	Bamunb <mark>ari</mark>	Gaurisagar
2 3 4 5	High land (AES-III) Hill (AES_IV) Char like area (AES-V)	Majar pathar Haluating Bamunbari	Mahmara Amguri Gaurisagar

Table 1.02: List of representative villages for survey under AES

iii) **Compilation of primary and secondary data:** Secondary data collected from the district head of the line departments was integrated with the data collected from AESs to have a clear understanding of existing ground realities. Each identified Existing Farming System (EFS) was analyzed in terms of its interaction with other options of farming system, reasons for gaps in adoption of recommended practices.

D. Results and Discussions

a. Information on operational land holding: The operational land holding of the representative villages collected through PRA technique /tools by the AES team presented in Table 1.03. The average operational size of land holding in presentative villages under different AES is 3.92 ha, 2.29 ha, 1.6 ha, 0.78 ha, 0.32 ha in respect of large/ medium/ small / marginal and land less categories respectively and average of 2.12 ha only. The marginal farmers were found highest(373) on the basis of land holding followed by the small and medium farmers. It indicates that dissemination of

low cost agril technology and collective production and marketing approach may be more appropriate option to improve living standard of farm families.

AES	Village	Oper	Operational land holding in number & area in ha											
		Very (>4 abov	Very large (>4 ha and above)		Large (3-4 ha)		Medium (2-3 ha)		Small (1-2 ha)		Marginal (0.5-1ha)		Land less (<0.5 ha)	
		No	Area	No	Area	No	Area	No	Area	No	Area	No	Area	
Ι	No 1	-	-	5	20	`60	130	55	90	210	210	90	45	
	Chawalkhowa													
II	Lahangaon	-	=	-	-	11	28	41	71	62	59	46	184	
III	Majar pathar	-	-	2	7.5	5	14	40	60	11	45	25	40	
IV	Haluating	-	-	-	-	5	120	15	28	30	22	10	3	
V	Bamunbari	-	-	-	-	15	36	42	64	65	60	-	-	

 Table 1.03: Information on operation land holding of respective villages

b. Analysis of Existing Farming System (FFS):

Agriculture, horticulture and animal husbandry enterprises are pre -dominant in all the villages under both situations viz resource rich and resource poor. Some farmers follow fishery and sericulture enterprises. In selected village of AES-1, majority of resource rich farmers is adopting the agriculture enterprises whereas majority of resource poor farmers is adopting three enterprises viz agriculture, horticulture and animal husbandry. In village of AES-II, majority of resource rich farmers are associated with four enterprises viz. agriculture, horticulture, fishery and animal husbandry where as, majority of resource poor farmers are associated with three enterprises viz. agriculture, horticulture, fishery. Thus, in the villages of AES-III, IVand V there is no distinction difference amongst both the situation Resource wise detail of existing farming system & families associated is presented in the Table 1.04.

AES	EFS	Existing Farming	No, and %	6 families	s associa	ted
		System	Resource	rich	Resour	ce poor
			No,	%	No,	%
Ι	1	Agril	2	33.34	17	15
	2	Agri-Horti-AH	2	33.34	81	73
	3	Agri-AH-Fishery	2	33.34	13	12
		Total	6	100	111	100
II	1	Agri-Horti-AH	2	25	36	49
	2	Agri-Horti-AH- Seri	3	38	24	32
	3	Agri-Horti-AH-Fishery	3	37	13	39
		Total	8	100	73	100
III	1	Agri-Horti	3	34	76	61
	2	Agri-AH	4	44	28	23
	3	Agri-Fishery	2	22	20	16
		Total	9	100	124	100
IV	1	Agri-H <mark>orti-AH</mark>	3	38	46	78
	2	Agri-Horti-AH-Fishery	5	62	13	22
		Total	8	100	59	100
V	1	Agri-Horti-AH-Fishery	3	5	48	65
	2	Agri-Horti-AH-Seri	16	80	20	27
	3	Agri-Horti-AH	1	15	6	8
		Total	20	100	74	100

Table 1.04. Information on major Existing Farming System (EFS) in Selected villages

c. Area and productivity of selected agricultural enterprises

1. Agriculture: Major agricultural crop grown in the study area is paddy followed by mustard, black gram. Area, productivity of the winter paddy collected by AES teams from the selected villages are presented in Table 1.05.

Table 1.05: Area and productivity of Winter paddy in selected villages

AES	Name of the villages	Total cultivated	Area	under	winter paddy (ha)								
		area (ha)	2000		2005		2010)	2015	i	2020		
			А	Р	А	Р	А	Р	А	Р	А	Р	
Ι	No 1 Chawalkhowa	806.00	760	35	742	35	772	34	785	34	786	33	
II	Lahangaon	172.12	143	29.3	149	28.5	147	30	148	33	154	33.6	
III	Majar pathar	91.00	88	28	87	31	89	30	88	35	87	37	
IV	Haluating	453.00	416	24	414	20	412	19	420	19	426	18	
V	Bamunbari	114.00	104	33	104	33.6	104	37	105	28	104	30	

2. **Animal Husbandry**: Key enterprises under animal husbandry are cow, goat, pig and poultry. Most of the farmers in selected villages are rearing local breed of cows and thereby the productivity is very low. A few farmers are rearing the cross-breed cows and they are getting good yield. Now unemployed youth are coming forward for adopting pig, fowl, Dockery rearing for their self-employment. The number of meats providing poultry & duck birds and their [productivity have increased. The information on Milch cow is presented in Table 1.06

Year	No. of	animal	in diffeı	rent AE	S	Productivity in lit/cow/day in AES				
	Ι	II	III	Iv	V	Ι	II	III	Iv	V
2000	20	60	80	80	70	1.00	1.00	0.80	1.50	1.00
2005	20	65	80	80	75	1.04	1.00	0.80	1.50	1.00
2010	40	70	85	85	85	1.20	1.20	0.90	0.80	1.20
2015	80	80	80	80	80	1.40	1.50	1.20	1.20	1.50
2020	120	100	85	85	85	1.50	1.80	1.50	1.50	1.70

d. Economic analysis: Economic analysis is the study of economic system. It may also be a study of production process or an enterprise. The analysis aims to determine how effectively the economy is performing. Economist says that economic analysis is a systemic approach to find out what the optimum use of scarce resource. The main idea of this analysis was to identifying economically viable/ comparatively advantageous commodities of different enterprises so that main emphasis can be given to those commodities which have economic benefits. In this exercise, only variable cost has been taken into account on the basis of prevailing market rate of 2020. Details are presented in the Table 1.07 to 1.09.

Sl No	Enterprise/commodity	Existing poter	ntial (Amount	in Rupees/ ha)	
NO		Expenditure	Gross income	Net return	Benefit- cost ratio
1	Agricultural crops				
	-Winter paddy (Sali)	56,328.00	75050.00	18,722.00	1:1.39
	- Black gram	29,574.00	65,320.00	15,746.00	1:1.39
	-Pea (Gram)	30,809.00	50,000.00	19,190.00	1:1.62
	-Mustard	34,216.00	56,250.00	17,034.00	1:1.64
2	Horticultural Crops				
	- Fruit crops				
	-Papaya	1,39,986.00	4,00,000.00	2,60,014.00	1:2.86
	-Banana	1,36,980.00	4,00,000.00	2,63,020.00	1;2.32
	-Lemon	2,12,000.00	3,40,000.00	1,28,000.00	1;1.60
	Vegetables				
	-Cauliflower	64,356.00	2,40,000.00	1,75,195.00	1:3.72
	-Cabbage	64,805.00	2,40,000.00	1,75,195.00	1;3.72
	-Potato	1,34,987.00	2,24,000.00	89,103.00	1;1.66
	-Tomato	68,251.00	3,00,000.00	2,31,749.00	1;4.39
	-Chilli	68,598.00	2,20,000.00	1,51,042.00	1:3.90
3	Animal Husbandry (No)				

Table 1.07: Enterprise/commodity wise economic potentiality

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	-Cow (Local)	10,450.00	11,640.00	6,000.00	1:1.75
	-Cow (Cross breed)	29,620.00	48,200.00	18,580.00	1: 1.63
	-Goat (Meat production)	3,600.00	7,000.00	3,400.00	1;1.94
	-Pig (Meat production)	8,000.00	14,000.00	11,645.00	1:2.12
	-Poultry (Egg & Meat)	750.00	2200.00	1450.00	2:9.3
4	Fishery				
	-Fish (Ponds & tanks)	67,000.00	1,50,000.00	83,000.00	1:2.14
	Fish (Beels)	11,000.00	25,000.00	14,000.00	1: 2.27
5	Sericulture				
	-Eri	21,400.00	78,340.00	57,030.00	1:3.66
	-Muga	40,000.00	79,940.00	39,940.00	1;2.00

Table 1.08: Net return of enterprises/ commodities in representative village of each AES

Sl	Enterprises/	Potential	Net return in each AES (Rs)					
No	Commodities	net	Ι	II	III	IV	V	
		retu <mark>rns</mark>						
1	Agricultural c	rops						
	-Winter paddy	18,7 <mark>22.00</mark>	11,747.00	13,562.00	14,713.00	13,516.00	14,010.00	
	- Black gram	15,7 <mark>46.00</mark>	13,216.00	10,212.00	12,576.00	13,416.00	13,711.00	
1	- Pea (Gram)	19,1 <mark>90.00</mark>	16,010.0 <mark>0</mark>	15,417.0 <mark>0</mark>	16,080.00	14,071.00	15,481.00	
	- Mustard	17,0 <mark>34.00</mark>	14,177.0 <mark>0</mark>	15,217.0 <mark>0</mark>	14,235.00	16,322.00	14,117.00	
2	Horticultural cr	ops						
	-Papaya	2,60, <mark>014.00</mark>	2,12,3 <mark>54.00</mark>	1,88,678.00	2,01,010.0	2,12,345.0	1,95,645.00	
	-Banana	2,63, <mark>020.00</mark>	1,35,000.00	1,42,000 <mark>.00</mark>	1,56,000.0	1, <mark>37,000.0</mark>	1,41,000.00	
	-Lemon	1,28,000.00	98,000.00	1,07,000 <mark>.00</mark>	<mark>8</mark> 9,000.00	94 <mark>,000.00</mark>	1,12,000.00	
	-Cauliflower	1,75,195.00	1,27,317.00	1,22,156 <mark>.00</mark>	1,41,316.0	1,52,316.0	1,41.000.00	
- 22	-Cabbage	1,75,195.00	1,52,319.00	1,16,713 <mark>.00</mark>	1,34,112.0	1,15,712.0	1,48,996.00	
	-Potato	89,103.00	65,914.00	62,777.0 <mark>0</mark>	63,518.00	64,126.00	70,212.00	
~ ^ ^	-Tomato	2,31,749.00	1,96,217.00	1,78,412 <mark>.00</mark>	1,82,357.0	191,216.0	1,84,713.0	
	-Chilli	1,51,042.00	1,40,316.00	1,12,315.00	1,27,312.0	1,42,316.0	1,27,315.0	
3	Animal Husba	ndry						
	Cow (Local)	1,190.00	1,120.00	1,150.00	1,110.00	1,120.00	1,080.00	
		,				1000		
	Cow (Cross	18,580.00	18,200.00	18,120.00	18,230.00	18,444.00	17,740.00	
	Cow (Cross breed)	18,580.00	18,200.00	18,120.00	18,230.00	18,444.00	17,740.00	
	Cow (Cross breed) Goat (Meat	18,580.00 3,400.00	18,200.00 3,200.00	18,120.00 3,280.00	18,230.00 3,380.00	18,444.00 3,400.00	17,740.00 3,280.00	
	Cow (Cross breed) Goat (Meat production)	18,580.00 3,400.00	18,200.00 3,200.00	18,120.00 3,280.00	18,230.00 3,380.00	18,444.00 3,400.00	17,740.00 3,280.00	
	Cow (Cross breed) Goat (Meat production) Pig (Meat	18,580.00 3,400.00 6,000.00	18,200.00 3,200.00 5,850.00	18,120.00 3,280.00 5,900.00	18,230.00 3,380.00 5,800.00	18,444.00 3,400.00 -	17,740.00 3,280.00 5,850.00	
	Cow (Cross breed) Goat (Meat production) Pig (Meat production)	18,580.00 3,400.00 6,000.00	18,200.00 3,200.00 5,850.00	18,120.00 3,280.00 5,900.00	18,230.00 3,380.00 5,800.00	18,444.00 3,400.00 -	17,740.00 3,280.00 5,850.00	
	Cow (Cross breed) Goat (Meat production) Pig (Meat production) Poultry (Egg	18,580.00 3,400.00 6,000.00 1450.00	18,200.00 3,200.00 5,850.00 1,420.00	18,120.00 3,280.00 5,900.00 1,430.00	18,230.00 3,380.00 5,800.00 1,400.00	18,444.00 3,400.00 - 1,380.00	17,740.00 3,280.00 5,850.00 1,400.00	
	Cow (Cross breed) Goat (Meat production) Pig (Meat production) Poultry (Egg & Meat)	18,580.00 3,400.00 6,000.00 1450.00	18,200.00 3,200.00 5,850.00 1,420.00	18,120.00 3,280.00 5,900.00 1,430.00	18,230.00 3,380.00 5,800.00 1,400.00	18,444.00 3,400.00 - 1,380.00	17,740.00 3,280.00 5,850.00 1,400.00	
4	Cow (Cross breed) Goat (Meat production) Pig (Meat production) Poultry (Egg & Meat) Fishery	18,580.00 3,400.00 6,000.00 1450.00	18,200.00 3,200.00 5,850.00 1,420.00	18,120.00 3,280.00 5,900.00 1,430.00	18,230.00 3,380.00 5,800.00 1,400.00	18,444.00 3,400.00 - 1,380.00	17,740.00 3,280.00 5,850.00 1,400.00	
4	Cow (Cross breed) Goat (Meat production) Pig (Meat production) Poultry (Egg & Meat) Fishery Fish (Ponds &	18,580.00 3,400.00 6,000.00 1450.00 83,000.00	18,200.00 3,200.00 5,850.00 1,420.00 67,000.00	18,120.00 3,280.00 5,900.00 1,430.00 56,000.00	18,230.00 3,380.00 5,800.00 1,400.00 66,000.00	18,444.00 3,400.00 - 1,380.00 62,000.00	17,740.00 3,280.00 5,850.00 1,400.00 65,000.00	
4	Cow (Cross breed) Goat (Meat production) Pig (Meat production) Poultry (Egg & Meat) Fishery Fish (Ponds & tanks)	18,580.00 3,400.00 6,000.00 1450.00 83,000.00	18,200.00 3,200.00 5,850.00 1,420.00 67,000.00	18,120.00 3,280.00 5,900.00 1,430.00 56,000.00	18,230.00 3,380.00 5,800.00 1,400.00 66,000.00	18,444.00 3,400.00 - 1,380.00 62,000.00	17,740.00 3,280.00 5,850.00 1,400.00 65,000.00	
4	Cow (Cross breed) Goat (Meat production) Pig (Meat production) Poultry (Egg & Meat) Fishery Fish (Ponds & tanks) Fish (Beels)	18,580.00 3,400.00 6,000.00 1450.00 83,000.00 14,000.00	18,200.00 3,200.00 5,850.00 1,420.00 67,000.00	18,120.00 3,280.00 5,900.00 1,430.00 56,000.00 12,000.00	18,230.00 3,380.00 5,800.00 1,400.00 -	18,444.00 3,400.00 - 1,380.00 62,000.00 -	17,740.00 3,280.00 5,850.00 1,400.00 65,000.00 12,000.00	
4	Cow (Cross breed) Goat (Meat production) Pig (Meat production) Poultry (Egg & Meat) Fishery Fish (Ponds & tanks) Fish (Beels) Sericulture	18,580.00 3,400.00 6,000.00 1450.00 83,000.00 14,000.00	18,200.00 3,200.00 5,850.00 1,420.00 67,000.00 -	18,120.00 3,280.00 5,900.00 1,430.00 56,000.00 12,000.00	18,230.00 3,380.00 5,800.00 1,400.00 -	18,444.00 3,400.00 - 1,380.00 62,000.00 -	17,740.00 3,280.00 5,850.00 1,400.00 65,000.00 12,000.00	
4	Cow (Cross breed) Goat (Meat production) Pig (Meat production) Poultry (Egg & Meat) Fishery Fish (Ponds & tanks) Fish (Beels) Sericulture -Eri	18,580.00 3,400.00 6,000.00 1450.00 83,000.00 14,000.00 57,030.00	18,200.00 3,200.00 5,850.00 1,420.00 67,000.00 - 54,000.00	18,120.00 3,280.00 5,900.00 1,430.00 56,000.00 12,000.00 44,000.00	18,230.00 3,380.00 5,800.00 1,400.00 66,000.00 -	18,444.00 3,400.00 - 1,380.00 62,000.00 - 49,000.00	17,740.00 3,280.00 5,850.00 1,400.00 65,000.00 12,000.00 55,000.00	

Table 1.09: AES wise existing gap of net return in enterprises/ commodities and reasons thereof

Jap m Iv	ciurn m e	acn AES	(KS)		Avg	Reasons of GAP xxx				
[II	III	Iv	V	value	Ι	II	III	IV	V
					of Gap					
					(R s)					
ps										
5975	5160	4009	5206	4712	5212	1,2,3	1,2,3	2,3	1,2,3	2,3
2260	5264	2900	2060	1765	2850	1,5	3,6,1	3,5	6,1,5	6,5
3181	3774	3111	5120	3710	3778	3,11	3,11	3,11	3,11	3,11
2857	1817	2799	812	2917	2249	1,2	1,2,4	1,2,4	1,2	1,2
rops										
128020	121020	107020	126020	122020	120820	2,3	3,1,7	-	3,17	2,3,1
30000	21000	39000	34000	16000	28000	-	2,3	2,3	-	2,3
48327	53488	34328	23328	34644	38823	9,11	9,11	6,9	6,9	6,9,1
22876	58482	41083	39483	26199	37625	2,11	2,11	2,11	2,11	2,11
23189	26326	25585	24977	12891	22594	2,3	-	2,13	2,3,9	-
35532	53337	49392	40533	47036	45166	3,11	2,3,11	2,3	2,3	2,3
10726	38 <mark>72</mark> 7	23730	8726	23727	21127	2,10	-	10	10	2,10
andry										
70	40	80	70	110	74	1,2,3	1,2,3	1,2,6	1,2,5	1,2
380	46 <mark>0</mark>	350	136	640	393	1,2,3	1,2,3	1,2,3	1,2,6	1,2
200	120	120	-	120	110	1,2,3	1,2,3.5	1,2,4.	1,2,3	1,2,3
								5.6	,5,6	
150	100	200	- 1	150	150	3,5,6	3,5,6	-	3,5,6	3,5,6
30	20	50	70	50	44	1,2,3	1,2,3,4	1,2,5	1,2,6	1,2
	_			_						
										
59,515	65,300	43,000	-	70,000	47,563	1,3,9	1,3,9	1,3	-	1,3
	-	12,000		-	12,000		~ 1	2,3,4	-	-
12							(C_{n})			
				1						
15,697	15,800	13,500		14,600	15,899	1,2	1,2	1,4	-	1,2
25,007	24,112	22,200	-	23,100	23,605	3,5	3,5	3,5	-	3,5
	ps 975 260 181 857 ops 28020 0000 8327 2876 3189 5532 0726 ndry '0 80 200 50 50 50 50 50 50 50 50 50	II 975 5160 260 5264 181 3774 857 1817 ops 28020 28020 121020 0000 21000 8327 53488 2876 58482 3189 26326 55532 53337 0726 38727 ndry 0 40 380 360 460 200 120 50 100 30 20 50 100 30 20 50 100 30 20 50 100 50 100 50 20 50 5300 55,697 15,800 25,007 24,112	II III 975 5160 4009 260 5264 2900 181 3774 3111 3857 1817 2799 28020 121020 107020 0000 21000 39000 8327 53488 34328 2876 58482 41083 3189 26326 25585 5532 53337 49392 0726 38727 23730 mdry 70 40 80 380 460 350 200 120 120 50 100 200 30 20 50 30 20 50 30 20 50 30 20 50 30 20 50 30 20 50 50 100 200 30 20 50 30,515 65,300 <td>II III Iv 975 5160 4009 5206 260 5264 2900 2060 181 3774 3111 5120 857 1817 2799 812 ops 28020 121020 107020 126020 0000 21000 39000 34000 8327 53488 34328 23328 2876 58482 41083 39483 3189 26326 25585 24977 5532 53337 49392 40533 0726 38727 23730 8726 ndry 70 40 80 70 30 460 350 136 200 120 - - 50 100 200 - 50 50 70 - 39,515 65,300 43,000 - 5,697 15,800 13,500 - <</td> <td>II III Iv V 975 5160 4009 5206 4712 260 5264 2900 2060 1765 181 3774 3111 5120 3710 857 1817 2799 812 2917 ops 28020 121020 107020 126020 122020 0000 21000 39000 34000 16000 8327 53488 34328 23328 34644 2876 58482 41083 39483 26199 3189 26326 25585 24977 12891 5532 53337 49392 40533 47036 0726 38727 23730 8726 23727 ndry </td> <td>IIIIIIvVvalue of Gap (Rs)$975$5160400952064712521226052642900206017652850181377431115120371037788571817279981229172249ops$28020$12102010702012602012202012082000002100039000340001600028000832753488343282332834644388232876584824108339483261993762531892632625585249771289122594553253337493924053347036451660726387272373087262372721127ndry$70$4080$70$11074$640$350136640393$200$120120-120110$50$100200-150150$65,300$43,000-70,00047,563$9,515$$65,300$43,000-70,00047,563$9,515$$65,300$43,000-12,000-$5,697$15,80013,500-14,60015,899$25,007$24,11222,200-23,10023,605</td> <td>II III IV V value of Gap (Rs) I 975 5160 4009 5206 4712 5212 1,2,3 260 5264 2900 2060 1765 2850 1,5 181 3774 3111 5120 3710 3778 3,11 857 1817 2799 812 2917 2249 1,2 ops 28020 121020 107020 126020 122020 120820 2,3 0000 21000 39000 34000 16000 28000 - 8327 53488 34328 23328 34644 38823 9,11 2876 58482 41083 39483 26199 37625 2,11 3189 26326 25585 24977 12891 22594 2,3 5532 5337 49392 40533 47036 45166 3,11 0726 38727 23730 8726 2372</td> <td>II III Iv V value of Gap (Rs) I II ps $of Gap$ (Rs) I II II II II ps $of Gap$ (Rs) I 1,2,3 1,2,3 1,2,3 260 5264 2900 2060 1765 2850 1,5 3,6,1 181 3774 3111 5120 3710 3778 3,11 3,11 857 1817 2799 812 2917 2249 1,2 1,2,4 ops - 28020 121020 107020 126020 120820 2,3 3,1,7 0000 21000 39000 34000 16000 28000 - 2,3 8327 53488 34328 23328 34644 3823 9,11 2,11 2876 58482 41083 39483 26199 37625 2,11 2,11 3189 26326 2585 24977 12891 22594</td> <td>II III Iv V value of Gap (Rs) I II II II 975 5160 4009 5206 4712 5212 1,2,3 1,2,3 2,3 260 5264 2900 2060 1765 2850 1,5 3,6,1 3,5 181 3774 3111 5120 3710 3778 3,11 3,11 3,11 857 1817 2799 812 2917 2249 1,2,4 1,2,4 1,2,4 98 28020 121020 107020 126020 122020 120820 2,3 3,1,7 - 0000 21000 39000 34000 16000 28000 - 2,3 2,3 53488 34328 23328 34644 38823 9,11 9,11 6,9 2876 58482 41083 39483 26199 3,22 1,12 1,1 2,13 5532 53337 49392</td> <td>II II IV V value of Gap (Rs) I II III IV 975 5160 4009 5206 4712 5212 1,2,3 1,2,3 1,2,3 1,2,3 260 5264 2900 2060 1765 2850 1,5 3,6,1 3,5 6,1,5 311 3774 3111 5120 3710 3778 3,11 2,31 1,2,4 1,2 9,92 4,882 4919 3,762 2,11 2,11 2,11 2,11 2,11 2,11 2,11 2,11 2,11 2,13 2,39</td>	II III Iv 975 5160 4009 5206 260 5264 2900 2060 181 3774 3111 5120 857 1817 2799 812 ops 28020 121020 107020 126020 0000 21000 39000 34000 8327 53488 34328 23328 2876 58482 41083 39483 3189 26326 25585 24977 5532 53337 49392 40533 0726 38727 23730 8726 ndry 70 40 80 70 30 460 350 136 200 120 - - 50 100 200 - 50 50 70 - 39,515 65,300 43,000 - 5,697 15,800 13,500 - <	II III Iv V 975 5160 4009 5206 4712 260 5264 2900 2060 1765 181 3774 3111 5120 3710 857 1817 2799 812 2917 ops 28020 121020 107020 126020 122020 0000 21000 39000 34000 16000 8327 53488 34328 23328 34644 2876 58482 41083 39483 26199 3189 26326 25585 24977 12891 5532 53337 49392 40533 47036 0726 38727 23730 8726 23727 ndry	IIIIIIvVvalue of Gap (Rs) 975 5160400952064712521226052642900206017652850181377431115120371037788571817279981229172249 ops 28020 12102010702012602012202012082000002100039000340001600028000832753488343282332834644388232876584824108339483261993762531892632625585249771289122594553253337493924053347036451660726387272373087262372721127ndry 70 4080 70 11074 640 350136640393 200 120120-120110 50 100200-150150 $65,300$ 43,000-70,00047,563 $9,515$ $65,300$ 43,000-70,00047,563 $9,515$ $65,300$ 43,000-12,000- $5,697$ 15,80013,500-14,60015,899 $25,007$ 24,11222,200-23,10023,605	II III IV V value of Gap (Rs) I 975 5160 4009 5206 4712 5212 1,2,3 260 5264 2900 2060 1765 2850 1,5 181 3774 3111 5120 3710 3778 3,11 857 1817 2799 812 2917 2249 1,2 ops 28020 121020 107020 126020 122020 120820 2,3 0000 21000 39000 34000 16000 28000 - 8327 53488 34328 23328 34644 38823 9,11 2876 58482 41083 39483 26199 37625 2,11 3189 26326 25585 24977 12891 22594 2,3 5532 5337 49392 40533 47036 45166 3,11 0726 38727 23730 8726 2372	II III Iv V value of Gap (Rs) I II ps $of Gap$ (Rs) I II II II II ps $of Gap$ (Rs) I 1,2,3 1,2,3 1,2,3 260 5264 2900 2060 1765 2850 1,5 3,6,1 181 3774 3111 5120 3710 3778 3,11 3,11 857 1817 2799 812 2917 2249 1,2 1,2,4 ops - 28020 121020 107020 126020 120820 2,3 3,1,7 0000 21000 39000 34000 16000 28000 - 2,3 8327 53488 34328 23328 34644 3823 9,11 2,11 2876 58482 41083 39483 26199 37625 2,11 2,11 3189 26326 2585 24977 12891 22594	II III Iv V value of Gap (Rs) I II II II 975 5160 4009 5206 4712 5212 1,2,3 1,2,3 2,3 260 5264 2900 2060 1765 2850 1,5 3,6,1 3,5 181 3774 3111 5120 3710 3778 3,11 3,11 3,11 857 1817 2799 812 2917 2249 1,2,4 1,2,4 1,2,4 98 28020 121020 107020 126020 122020 120820 2,3 3,1,7 - 0000 21000 39000 34000 16000 28000 - 2,3 2,3 53488 34328 23328 34644 38823 9,11 9,11 6,9 2876 58482 41083 39483 26199 3,22 1,12 1,1 2,13 5532 53337 49392	II II IV V value of Gap (Rs) I II III IV 975 5160 4009 5206 4712 5212 1,2,3 1,2,3 1,2,3 1,2,3 260 5264 2900 2060 1765 2850 1,5 3,6,1 3,5 6,1,5 311 3774 3111 5120 3710 3778 3,11 2,31 1,2,4 1,2 9,92 4,882 4919 3,762 2,11 2,11 2,11 2,11 2,11 2,11 2,11 2,11 2,11 2,13 2,39

xxx Reasons for gaps

A. Agriculture /Horticulture	B. Animal Husbandry			
1.Use of local and traditional seeds	1. Partial adoption of technology			
2.Application of low dose of fertiliser	2. Lack of technical knowledge			
3.Improper management of pests & diseases	3. high cost of feed, medicine, vaccination			
4, use of higher seed rate	4. Non availability of improved breed			
5. use of low dose of organic manure	5. Breeding facility not available			
6. Use of higher dose of fertiliser	6. AL centre exists at long distance			
7.Repeated use of old improved seeds	C. Fishery			
8.low plant population (higher spacing)	1. Technological gap in adoption of composite pisciculture			
9.Late sowing	2. Lack of management enhancement in capture fishery			
10.difficult in weeding	3. poor quality of fish seed			
11.Exploitation of middleman	4.Lack of large sized fingerlings for stocking in ponds and beels			
12.disproportionate ratio of male/female	5. Lack of knowledge			
13. Crop grown under rainfed condition	6. Non availability of critical inputs in time			
14. improper weed management	7. Application of feed at low dose			
15. high cost of water management	8. high cost of inputs			
D, Sericulture	9. Disease occurrence			
1.Non availability of eri/muga seeds in time	2. No systematic plantation			
3.Lack of post cocoon infrastructure	4.monkey 7 bird menace			
5. Lack of awareness on new technology	6. Rearing machine not available			

The estimated annual loss of agricultural commodities due to gap in technology adoption has been presented in the Table 1.10.

Table 1.10: Estimated ar	in <mark>ual los</mark> s in a <mark>g</mark>	<mark>gricult</mark> ura <mark>l commod</mark> it	ties due to gap	o in technology
adoption		(Value in Rs)	2	

auoption				(value III Ks)			
Sl	Enterprises/ commo	dities	Cultivated	Value of	Total value		
No			area(ha)	average gap			
				(ha)/ No	116		
1	Agricultural Crops	ricultural Crops					
	-winter paddy		1,02,726	5212	53,54, 07,912		
	-Black gram		262	2850	7,46,700		
	-Pea		510	3779	10,27,200		
	-Mustard		4500	2249	1,01,20,500		
2	Horticultural crops						
	-Banana		1975	120820	23,86,19,500		
	-Lemon		792	28000	2,21,76,000		
	-cabbage		1854	37625	6,97,56,750		
	-Potato		1542	22594	1,48,39,948		
	-Tomato		222	45166	1,00,26,852		

A. Conclusion

The secondary data/information for entire district and primary data information regarding prevailing farming system and commodities etc were collected from all selected villages of AESs. At presently, more than 60 commodities of agriculture, horticulture, animal husbandry, fishery and sericulture enterprises are grown/reared in the district. Therefore, keeping in view of availability of skilled man power, availability of the central sector sponsored schemes, nine commodities only have been prioritized on the basis of

comparative advantages and existing potentiality in different blocks of the district. Similarly, identified constraints / critical issues were further prioritized mainly on the basis of risk bearing capacity of majority of the farmers, involvement of finance in adoption of technology, economic viability of technology, easiness of operationalization of technology, availability of needed inputs and marketability. All the identified critical issues were further categorized into three categories viz. extensional, researchable and policy and accordingly strategies and activities to be developed including market support policies.

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