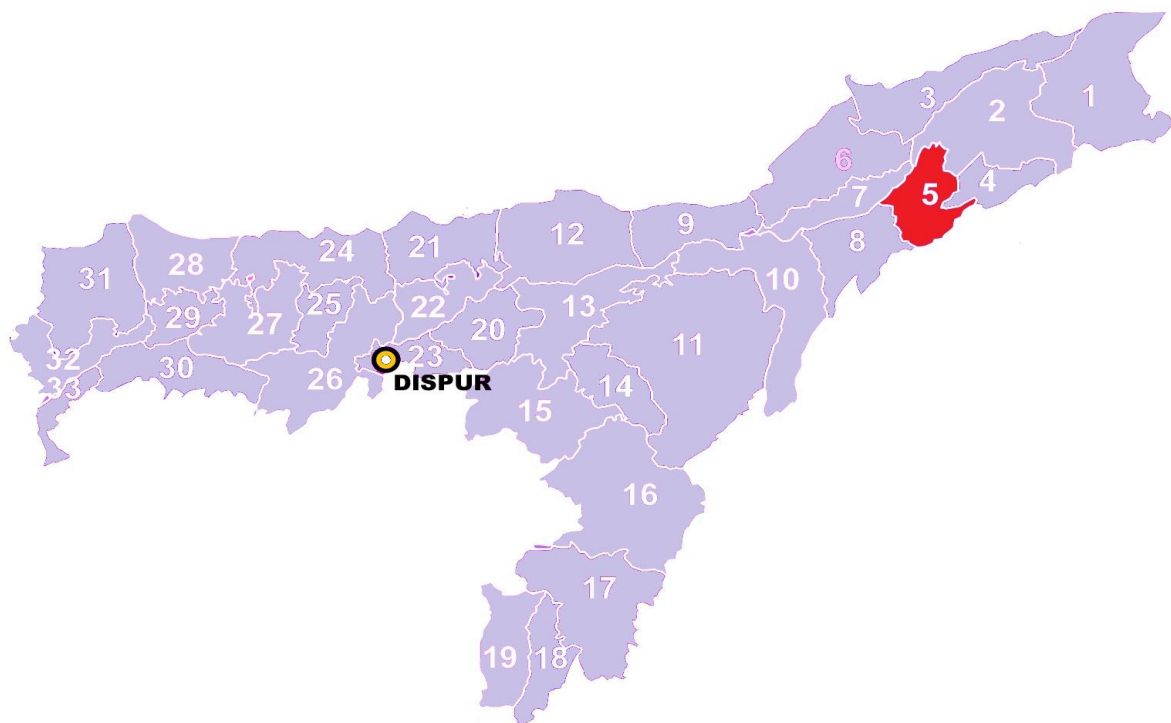


Area Development Schemes Sivasagar District



राष्ट्रीय कृषि और ग्रामीण विकास बैंक
असम क्षेत्रीय कार्यालय, गुवाहाटी

National Bank for Agriculture and Rural Development
Assam Regional Office

G. S. Road, Dispur, Guwahati - 781 006

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मुख्य महाप्रबंधक के कलम से ...

अभी भी असम में कृषि प्रथाएँ प्रमुखतः एकल फसल पर आधारित हैं। जहाँ, इस पारंपरिक मनस्थिति को बदलने के लिए, अन्य क्षेत्रों में ध्यान केन्द्रित करने जैसे अनेक उपाय किए जा रहे हैं, वहाँ पर डेयरी, सूअर पालन, बकरी पालन, मत्स्य पालन जैसे संबद्ध गतिविधियों ने ग्रामीण असम के सांस्कृतिक, सामाजिक एवं आर्थिक बनावट में महत्वपूर्ण भूमिका निभाई है।

नाबार्ड ने इन अनुषंगी गतिविधियों की महत्व को समझते हुए, विशेषकर निरंतर लाभप्रद आय प्रदान करने में, असम के सभी जिलों में क्षेत्र विकास योजनाओं के निर्माण की सुविधा के लिए पहल की है।

इन योजनाओं के बारे में सभी हितधारकों यानी संबन्धित विभागों, बैंकरों और गैर सरकारी संगठनों के साथ मिलकर इस दिशा में संकल्पना किया गया एवं विचार-विमर्श के बाद आम सहमति से इन्हें अंतिम रूप दिया गया है। विशिष्ट परियोजना क्षेत्रों में शाखाओं की पहचान की गई है तथा अगले पाँच वर्षों अर्थात् 2018-19 से 2022-23 तक विविध क्षेत्रों के तहत बैंकिंग योजनाएँ तैयार की गई हैं।

सही दिशा में उठाए गए छोटे छोटे कदमों को जब एकजुट कर लिया जाता है तो इससे बहुत बड़ा फर्क दिखाई देता है। बैंकिंग योजनाओं के बारे में बताते हुए मुझे असीम खूशी महसूस हो रही है जिसमें असम के डेयरी, सूअर पालन, बकरी पालन, मत्स्य पालन और बुनाई क्षेत्र को सुविधाजनक बनाने के लिए बैंकरों द्वारा लगभग रु.802 करोड़ की बड़ी राशि की परिकल्पना की गई है।

किसानों तक आधार स्तरीय ऋण प्रवाह की वृद्धि करने में ये बैंकिंग योजनाएँ लंबे समय तक सहायक होंगी तथा “2022 तक किसानों की आय को दोगुना करना” अधिदेश की उपलब्धि की ओर इसका प्रबल योगदान भी रहेगा। ऋणों के संबंध में हो रहे गैर-निष्पादित आस्तियाँ (एनपीए) को लेकर बैंकरों की वास्तविक शंका को नाबार्ड समझता है। इस जोखिम को कम करने के लिए, नाबार्ड ने अनेक जिलों में संयुक्त देयता समूह कार्यक्रम के साथ क्षेत्र विकास योजना को मिला दिया है। क्षेत्र विकास योजनाओं के तहत गैर सरकारी संगठनों के माध्यम से पोषित संयुक्त देयता समूह लाभार्थी होंगे, जहाँ गैर सरकारी संगठन ऋण संविभाग की गुणवत्ता बनाये रखने में सहायता करेंगे और उचित अदायगी नीति को सुविधाजनक बनाएँगे।

मुझे पूरा विश्वास है कि नाबार्ड की इस पहल का परिणाम बहुत जल्द ही 2018-19 में शुरू होने जा रहे बैंकिंग योजनाओं में दिखाई देगा। इसी सकारात्मक सोच के साथ मैं पूरे दिल से सभी हितधारकों को इस महान उद्यम में सहभागी बनने के लिए आमंत्रित करती हूँ।



[राजश्री के बरुआ]

मुख्य महाप्रबंधक

नाबार्ड, असम क्षेत्रीय कार्यालय, गुवाहाटी

From Chief General Manager's Desk

Agriculture in Assam is still predominantly practiced in the mono-cropping mode. Although many inroads have been made in focused areas to break this traditional mindset, allied activities such as dairy, piggery, goatery and fishery, have played an important role in the cultural, social and economic fabric of rural Assam.

NABARD recognizing the importance of these allied activities, especially given the steady profitable income, has taken the initiative to facilitate formulation of Area Development Schemes in all the districts of Assam, from 2018-19 to 2022-23, under various sectors.

Small steps in the right direction make a big difference when aggregated. It gives me immense pleasure to share the Banking Plans wherein a whopping ₹802 crore has been envisaged by the bankers to facilitate the Dairy, Piggery, Goatery, Fishery and Weaving sectors in Assam.

These Banking Plans would go a long way in increasing the Ground Level Credit to farmers and contribute immensely towards the achievement of "Doubling of Farmers' Income by 2022" mandate. NABARD understands the genuine apprehension of the bankers regarding loans going NPA. To mitigate this risk, NABARD has converged the Area Development Scheme with its Joint Liability Group programme in many districts. Joint Liability Groups nurtured through NGOs would be the beneficiaries under the Area Development Schemes, wherein the NGOs would help in maintaining the quality of the loan portfolio and facilitate good repayment ethics.

I am confident this initiative of NABARD will culminate into the Banking Plans being launched soon in 2018-19. On this positive note, I welcome all the stakeholders to wholeheartedly participate in this noble venture.



[Rajashree K Baruah]
Chief General Manager
NABARD, Assam Regional Office
Guwahati

DAIRY FARMING

Area Development Scheme on Dairy Farming

1. Introduction

Agriculture is the main activity of the rural people in the district. The major crops grown in the district are Ahu Paddy, Sail Paddy, BORO Paddy, mustard, Potato, Peas, Lentil, Black gram, Ginger, Turmeric and vegetables. Livestock in Assam is highly livelihood-oriented and is generally owned by small and marginal farmers and landless agricultural labourers which forms more than 90% of the households in the district. Dairy has potential to be taken up successfully as a main occupation by unemployed educated youth and as an important source of subsidiary income by small / marginal farmers, agricultural labourers and women in the scheme area of Sivasagar block in the district.

The estimated per capita availability of milk is 88.36 g/day which is higher than the the State Average of 70g/day but lower than the National average of 299 g/day(Yr 2014-15 estimates of Dept. of Animal Husbandry and Dairy, Govt. of India)

The present Area Development scheme has been launched with objectives to provide employment opportunity and promote setting up of modern dairy farms for production of clean milk and to bring structural changes in the unorganised sector processing and marketing of milk at village level and to bring about upgradation of quality and traditional technology to handle milk on a commercial scale.

This Area Development Scheme would provide a platform for all concerned viz., Farmers, Bankers, NGOs and Line Departments to work in a coordinated manner and would also fulfil the objective of scientific lending and creation of quality assets through infrastructural and other promotional support from State Government and credit support by Commercial Banks and RRBs with technical and refinance assistance from NABARD in the scheme area.

The support of State Government to promote dairy infrastructure and support services in the project area would give an impetus to develop employment opportunity and nutritional security as well as income support to a number of households in the area.

2. Forward and Backward Linkages

2.1. Availability of Milch Animals / Purchase of Quality Dairy Animals

As per 19th Livestock Census 2012, the population of cross breed, indigenous cows and buffaloes were estimated at 18941, 159882 and 19685 respectively.

The population of female breedable cross breed cattle and indigenous cattle is about 73728 forming 41.23% of total cattle population and buffaloes is about 7568, 14.3% of the cattle population.

The milk processing plant at Sundarpukhuri is the only processing plant in Sivasagar district. The installed capacity of the plant is 5000 litres of milk per day and has a facility for pasteurization of milk.

2.2 Veterinary Health and Cross Breeding Infrastructure

Veterinary services will be provided by experienced veterinary doctors hired by the SHGs. However, in addition, Department of Animal Husbandry, Government of Assam may depute Veterinary Surgeons on weekly basis from the Sivasagar Block Veterinary Hospital to the project area for vaccination, disease surveillance and treatment of the animals. Artificial Insemination services and primary health services could be provided by Veterinary hospital under Sivasagar Block.

2.3. Feed and Fodder Development

Fodder such as berseem, lucern, oats, maize, sorghum, guinea grass and cow pea could be cultivated by the farmers depending upon the availability of land owned or leased by the farmer. Additionally, paddy straw would be given as dry fodder and local grass/leaves, etc., if any, available around the village/common field during lean period. Concentrate feed would also be available from local market. Farmers may formulate home-made feed if they have the necessary experience. Fodder seed would also be supplied by Department to producers, where ever needed.

2.4 Milk Marketing Infrastructure

The district can produce about 52000 litres of milk per day as against requirement of 498465 litres per day. There are eight numbers of Dairy Cooperative Societies in Sivasagar district. Per day production of milk by the above societies is 5.5 kilo litres. The annual productivity in per unit of fixed capital is only Rs 35 thousand in Assam, less than half of all-India average of Rs 86 thousand per annum. Similarly, the productivity of labour is two times lower in Assam. The capital productivity is low largely because of unused installed capacity of plants. As a result of idle capacity, the ratio of fixed cost to value of output is as high as 0.81, while it is only 0.11 at the all-India level. The low labour productivity in Assam has led to high cost of creating a job, that is, fixed cost per employee is quite high in the state (Rs 0.39 million).

Critical Infrastructure

- i. At least 1 Milk van with capacity of around 2,000 litres may be required in the first year for transportation of milk in each of the project area. More no. of Milk vans may be sponsored/financed based on the requirement.
- ii. At least 1 Bulk Milk Chamber (BMC) would be required to store the milk for a brief period in the first year, at the project area. More no. may be sponsored/financed based on the requirement.

3. Selection of the Area

The scheme would be implemented in Sivasagar Development block of the district. There are 126333 number of house hold in Sivasagar development Block. Total 102942 number of Cultivators are depended on agriculture farming in Sivasagar out of which 68071 are small and marginal farmers and 28643 are Agriculture labourers and landless farmers. The block has 17 Gram Panchayats and has 118 villages.

The following infrastructure are available in the Sivasagar Development Block.

- | | |
|------------------------|-------------|
| 1. Veterinary Hospital | - 2 Nos |
| 2. A/I Centre | - 6 Nos |
| 3. F AC | - 5 Nos |
| 4. No of Vety Officers | - 6 Nos |
| 5. S V F A | - 1 No |
| 6. V F A | - 5 Nos |
| 7. Cattle population | - 79890 Nos |
| 8. Buffalo Population | - 8588 Nos |
| 9. Cross Breed Cow | - 705 Nos |

Most of the banks like State Bank of India, United Bank of India, Central Bank of India, Assam Gramin Vikash Bank are available in the block.

The good communication system in the block is a plus point for any sort of business in the area. So, based on the available infrastructure, the area may be selected for this scheme.

4. Selection of Beneficiaries

Criteria adopted for selecting the beneficiaries should be based on availability of the area for growing the green fodder / availability of the space for cattle shed, own farm dry fodder resources, concentrate feed sourcing, experience, etc. Minimum unit size is 2 milch animals. Depending upon the interest and resources of the farmers, multiple units of 2 milch animals can be considered.

5. Capacity Building of the Beneficiaries

There is a lack of knowledge and capacity on modern approaches to milk production and handling. The district has no such facilities to cater scientific rearing and feeding techniques for production of good quality milk. So, arrangement from NABARD's promotional funds in consultation with KVKs/Veterinary Department and participating NGO would be a great help for the farmers.

6. Techno Economic Assumptions

A. Cost Chart

Sl. No.	Particulars	Physical Unit
1	No. of Animals	2
	No. of Animals in First Batch	1
	No. of Animals in Second Batch	1
	No. of Days after which Second batch animal is purchased after First	180
	Stage at which the animal is bought (Days of Lactation) / freshly calved animals in 1st to 3rd calving	30
	Breed	HF/Jersey Cross
2	Average Milk Yield (Litre/Day/Animal) with peak yield during first 3 months of lactation 20% to 25% above average yield	8
	Lactation Yield per Animal (Litre)	2400
3	Average Cost of Animal (₹ /Animal)	40000
4	Cost of Transportation (₹ / Animal)	2000
5	Cost of Equipment (Chaff cutter, feeding buckets, milk cans, etc.) (₹ /Animal)	3500
6	Shed - Area (Sq. Ft./Animal)	65
7	Cost of Construction of Shed (₹ /Sq.Ft.)	300
8	Green Fodder Requirement (Kg./Animal/Day)	10
9	Dry Fodder (Kg./Animal/Day)	5
10	Concentrate Feed - Maintenance (Kg./Animal/Day)	1.25
11	Concentrate Feed - Production (kg./Animal/Day) 2.75 for 8 kg. milk / 0.25 kg additional for every kg. of milk	3.25
12	Concentrate Feed - Last 60 Days of Pregnancy (Kg./Animal/Day)	0.5
13	Cost of Green Fodder (₹ /Kg)	4
14	Cost of Dry Fodder (₹ /Kg)	3
15	Cost of Concentrate (₹ /Kg)	25
16	Insurance Premium (%) 1 Year (5%) 3 Years (7%)	5
17	Cost of Breeding (₹/Animal/Year) / Animals to be inseminated preferably within its second heat after calving	200
	Electricity and water (₹ /Animal/Year)	1200
	Miscellaneous expenses (sanitation, chemicals, etc.) (₹/Animal)	200
18	Lactation Period (Days)	300
19	Dry Period (Days)	100
20	Veterinary Aid (₹ /Animal/Year) Cost of Vaccination and disease control and veterinary services / Animals to be vaccinated as per schedule prescribed by veterinary doctor	1000
21	Price of Milk (₹ /Litre)	40
22	Income from sale of manure (₹ /Animal/Year) /To be utilised in the Farm / Vermicompost	3000

Sl. No.	Particulars	Physical Unit
23	Residual Value / Scrap Value of Animals after economic life of 5-6 lactation (₹ /Animal)	10000
24	Margin (%)	15
25	Interest Rate (%)	12

B. Lactation Chart

Year	I	II	III	IV	V	VI
First Batch	365	365	365	365	365	365
Lactation Days	270	300	300	290	265	265
Dry Days	95	65	65	75	100	100
Days in Last 60 days of Pregnancy	55	25	40	60	60	60
Second Batch	185	365	365	365	365	365
Lactation Days	185	265	265	265	265	265
Dry Days	0	100	100	100	100	100
Days in Last 60 days of Pregnancy	0	60	60	60	60	60
Both Batches						
Lactation Days	455	565	565	555	530	530
Dry Days	95	165	165	175	200	200
Days in Last 60 days of Pregnancy	55	85	100	120	120	120

C. Feed Chart

Sl. No.	Particulars	Lactation Period		Dry Period	
		Quantity (Kg / animal/ day)	Cost (₹/animal/ day)	Quantity (Kg / animal/day)	Cost (₹/animal/day)
i	Concentrate Feed				
	For milk	3.25	81.25	0	0
	For maintenance excluding last 60 days of pregnancy	1.25	31.25	1.25	31.25
	Additional feed during last 60 days of pregnancy	0	0	0.5	12.5
ii	Green Fodder	10	40	10	40
iii	Dry Fodder	5	15	5	15

7. Partners in Implementation, Convergence & Support State

The partners in the implementation of the project would consists of participating bank branches, Lead District Manager, Krishi Vigyan Kendra, RSETI, Dairy Farmers, Department of Animal Husbandry, NABARD and District administration.

8. Project Cost for Dairy Unit

Capital Investment for 2 Cross Bred Cows

Sl. No.	Particulars	Cost (in ₹)
1	Cost of Crossbred Cows	80000
2	Cost of Transportation of Cows	4000
3	Equipments	7000
4	Cost of Construction of Shed	39000
5	Concentrate Feed Cost for 1 month	3375
6	Insurance	4000
7	Veterinary Expenses	2000
8	Miscellaneous	400
Total Investment Cost		1,39,775

It is expected that the cost of labour (small dairy units up to 4-6 animals will be managed by family labour. Larger dairy units may require one labourer for every 10 animals

9. Banking Network and Trends in Credit Flow

Sivasagar district has a network of bank branches aggregating to 71 as on 31st March 2017. There are 58 Commercial Banks including private Bank. One RRB (Assam Gramin Vikash Bank) with 12 branches and one State Cooperative Bank having single branch and 22 PACS are operating in the district.

The CD ratio in the district is 44.88 as on 31st March 2017.

Five numbers of branches of Assam Gramin Vikash Bank, IDBI Bank, Sivasagar Branch have been selected/identified for participating in the implementation of ADS on Dairy under Sivasagar Development Block.

10. Physical and Financial Programme

(₹ in lakh)

Name of Bank	Total	
	Phy Units	Financial
AGVB, Joisagar Branch	50	69.5
AGVB, Sivasagar Branch	50	69.5
AGVB, Konwarpur Branch	50	69.5
Total	150	208.5

Details of year-wise projections are given in the Annexures

11. Project Profitability

Expenditures/Cost (₹) [year-wise cost of production] (Amt. in ₹)

A. Income	Year I	Year II	Year III	Year IV	Year V	Year VI
Sale of Milk	145600	180800	180800	177600	169600	169600
Sale of Manure / Vermi-compost	6000	6000	6000	6000	6000	6000
Salvage value	-	-	-	-	-	20000
Total Income	151600	186800	186800	183600	175600	195600
B. Expenditure						
Feed Cost						
Green Fodder	22000	29200	29200	29200	29200	29200
Dry Fodder	8250	10950	10950	10950	10950	10950
Concentrate - Maintenance	1250	2500	2031	1719	2500	2500
Concentrate - Production	51188	63563	63563	62438	59625	59625
Concentrate - Last 60 Days of Pregnancy	2406	3719	4375	5250	5250	5250
Breeding Expenses	400	400	400	400	400	400
Veterinary and other Expenses	2000	2000	2000	2000	2000	2000
Insurance	4000	4000	4000	4000	4000	4000
Electricity and water	2400	2400	2400	2400	2400	2400
Miscellaneous expenses	400	400	400	400	400	400
Total Expenditure	94294	119131	119319	118756	116725	116725
Less Expenditure	9775	-	-	-	-	-
Total Expenditure after netting Capitalised expenditure	84519	119131	119319	118756	116725	116725
Gross Surplus	67081	67669	67481	64844	58875	78875

12. Financial Analysis

(Amt. in ₹)

Cash flow and Calculation of IRR	Year I	Year II	Year III	Year IV	Year V	Year VI
Investment Cost	139775	0	0	0	0	0
Recurring Cost	84519	119131	119319	118756	116725	116725
Total Cost	224294	119131	119319	118756	116725	116725
Income	151600	186800	186800	183600	175600	195600
Net Income	-72694	67669	67481	64844	58875	78875
NPW of Total Cost @ 15%	195038	90080	78454	67899	58033	50463
	539968					
NPW of Income @ 15%	131826	141248	122824	104974	87304	84563
	672739					

Cash flow and Calculation of IRR	Year I	Year II	Year III	Year IV	Year V	Year VI
NPW of Net Income @ 15%	-63212	51167	44370	37075	29271	34100
	132771					
Benefit Cost Ratio	1.25					
IRR	63.7%					

13. Sensitivity Analysis

The above financial analysis has been recalculated taking into consideration 5% increase in cost and 5% decrease in benefits and indicated below. **(Amt. in ₹)**

Total Cost after 5% increase	235508	125088	125285	124694	122561	122561
Total Income after 5% reduction	144020	177460	177460	174420	166820	185820
Net Income	-91488	52372	52175	49726	44259	63259
NPW of Total Cost @ 15%	204790	94584	82377	71294	60934	52987
	566966					
NPW of Income @ 15%	125235	134185	116683	99725	82939	80335
	639102					
NPW of Net Income @ 15%	-79555	39601	34306	28431	22005	27349
	72136					
Benefit Cost Ratio	1.13					
IRR	29.40%					

14. SWOT Analysis

- **Strengths:**
 - Good supplementary activity in the scheme area for doubling the farmers' income.
 - Adequate availability of forward and backward linkages in the scheme area.
- **Weaknesses:**
 - Limited green fodder availability in the scheme area.
 - Inadequate awareness among the farmers on scientific dairy farming.

- **Opportunities:**
 - Growing demand for milk from consumers in the area due to increasing in income level.
 - Proximity to demand centres/markets.
- **Threats:**
 - Changes in Govt. policy leading to adverse procurement price.
 - Weak monsoons adversely affect the milk production and thereby milk procurement.
 - Climate change may also affect productivity of milch cows.

15. Repayment Period

The repayment is considered to be 5 years including moratorium period.

A. Bankability

(Amt. in ₹)

Year	I	II	III	IV	V
Unit Cost	139775				
Margin (%)	15				
Bank Loan	119000				
Rate of Interest (%)	12				
Loan O/S at the beginning of the year	119000	97364	73023	50895	27761
Gross Surplus	67081	67669	67481	64844	58875
Payment of Interest	14280	11684	8763	6107	3331
Repayment of Principal	21636	24341	22128	23134	27761
Loan O/S at the end of the year	97364	73023	50895	27761	0
Total Outgoing	35916	36025	30891	29241	31092
Net Surplus	31165	31644	36590	35602	27783

B. Repayment Schedule

(Amt. in ₹)

Year	Income	Expenses	Gross Surplus	Instalments	Net Surplus
I	151600	84519	67081	35916	31165
II	186800	119131	67669	36025	31644
III	186800	119319	67481	30891	36590
IV	183600	118756	64844	29241	35602
V	175600	116725	58875	31092	27783

16. Implementation Strategy and Monitoring Mechanism

- **Department of Animal Husbandry (DAH)** will create awareness about dairy in the districts and guide dairy farmers to establish farm units on scientific lines in the districts under the scheme. The department may also conduct veterinary health camps and provide training on scientific farming to the beneficiaries identified under the plan. It may identify suitable farmers interested in expanding their farms with credit.
- **Branches of Banks** may select suitable farmers identified by the Department of Animal Husbandry and or directly identify clients and finance diversified activities under dairy. Branches may ensure successful implementation of the banking plan in the districts.
- **NABARD** will prepare banking plans, ensure implementation of the plans in association with participating banks and line departments; facilitate capacity building of beneficiaries of the plans through RSETIs/training institutes/KVKs and provide exposure visits, whenever required.
- **Arrangements for Insurance and the Cost of Insurance:** An Insurance Scheme has been launched under the National Livestock Mission. Under this scheme, Central Government and State Government will contribute 30% each and farmers' contribution will be 40% of the premium for general category and for SC/ST farmers, Government share will be 80% and farmer's contribution will be 20%. Fund is available with the District Veterinary Departments. Otherwise, a five year insurance premium @ 10% of the cost of cows is applicable.

A Project Implementation and Monitoring Committee [PIMC] would be constituted for monitoring of the Area Development Scheme in each district. The PIMC would consist of the participating bank branches, Lead District Manager, Krishi Vigyan Kendra, RSETI, representative of the beneficiary farmers, Department of Animal Husbandry and NABARD with Deputy Commissioner of the respective district as Chairman.

17. Conclusion

Doubling real income of farmers by 2022 over the base year of 2015-16, would require approximate annual growth of 10.41% in farmers' income. This implies that the on-going and previously achieved rate of growth in farm income has to be sharply accelerated. Thrust has to be given, therefore, for development of allied activities to harness all possible sources of growth in farmers' income by the targeted year.

The results of the financial analysis of the project indicates that it is financial viable/bankable.

Area Development Scheme - Banking plan on Dairy Farming
Bank wise and Block wise targets - Physical and Financial

Name of the District : Sivasagar

Unit Cost(₹ in lakh) **1.39**

Physical Units in Nos. and Financial in ₹ lakh

Name of Block	2018-19		2019-20		2020-21		2021-22		2022-23		Total	
	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial
SIVASAGAR	30	41.7	30	41.7	30	41.7	30	41.7	30	41.7	150	208.5
		0		0		0		0		0	0	0
		0		0		0		0		0	0	0
Total	30	41.7	30	41.7	30	41.7	30	41.7	30	41.7	150	208.5

Unit Cost(₹ in lakh) **1.39**

Name of Bank	2018-19		2019-20		2020-21		2021-22		2022-23		Total	
	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial
AGVB, Joisagar	10	13.9	10	13.9	10	13.9	10	13.9	10	13.9	50	69.5
AGVB, Sivasagar	10	13.9	10	13.9	10	13.9	10	13.9	10	13.9	50	69.5
AGVB, Konwarpur	10	13.9	10	13.9	10	13.9	10	13.9	10	13.9	50	69.5
Total	30	41.7	30	41.7	30	41.7	30	41.7	30	41.7	150	208.5

Consolidated

Name of Block	Total	
	Phy Units	Financial
SIVASAGAR	150	208.5
Total	150	208.5

Name of Bank	Total	
	Phy Units	Financial
AGVB, Joisagar Branch	50	69.5
AGVB, Sivasagar Branch	50	69.5
AGVB, Konwarpur Branch	50	69.5
Total	150	208.5

PIG FARMING

Area Development Scheme on Pig Farming

1. Introduction

While most other states in India are gradually moving away from their traditional agriculture-based economy toward industry or service-oriented economy, Assam is still heavily dependent on the agricultural sector. In Sivasagar district agriculture is also the main occupation of major portion of the population. About 80% of population depends on agriculture and allied enterprises. There are about 102942 number of cultivators and 28643 agricultural labourers in the district.

Sivasagar district has inhabited by population of Ahom, Sonowal and Missing tribes who traditionally prefer pig rearing. There is very good market for pork in the district. Two number of Govt Pig Farms namely Gargaon (Khanikar) and Kapahtoli is presently under renovation work. These two farms in future can act as nucleus Centre for dissemination of hybrid piglet, feed and technical guidance. Piggery farms are profitable business. There is good potential scope for piggery farming in the district and help in Self-employment generation. The Tribal population prefer pig breeding as a tradition and their economy contribute in the district economy. Many of these breeder produce are able to capture nearby Nagaland Market of the pig.

Characteristics of the Piggery farming (small producers) (with or without land)

Most of the Piggery farmers in the district are small and marginal farmers undertaking Piggery farming in an unorganized way with own land and some are tenant farmers. Some of the farmers have undertaken the activity individually in their backyards and some have been undertaking under JLG mode.

Type of animals reared by small Piggery farmers

Most of the farmers rear indigenous type of pigs. Some are undertaking farming with Hampshire HSX 1 type.

The advantages of pig farming are:

- a) Pigs have got highest feed conversion efficiency i.e., they produce more live weight gain from a given weight of feed than any other class of meat producing animals except broilers.
- b) Pig can utilise wide variety of feed stuffs viz., grains, forages, damaged feed and garbage and convert them into valuable nutritious meat. However, feeding of damaged grains, garbage and other unbalanced ration may result in lower feed efficiency.

- c) They are prolific with shorter generation interval. A sow can be bred as early as 8-9 months of age and can farrow twice in a year. They produce 6-12 piglets in each farrowing.
- d) Pig farming requires small investment on building and equipment.
- e) Pigs are known for their meat yield, which in terms of dressing percentage ranges from 65 – 80% in comparison to other livestock species whose dressing yields may not exceed 65%.
- f) Pork is most nutritious with high fat and low water content and has got better energy value than that of other meats. It is rich in vitamins like Thiamin, Niacin and Riboflavin.
- g) Pigs manure is widely used as fertilizer for agriculture farms and fish ponds.
- h) Pigs store fat rapidly for which there is an increasing demand from poultry feed, soap, paints and other chemical industries.
- i) Pig farming provides quick returns since the marketable weight of fatteners can be achieved with in a period of 6-8 months.

2. Forward and Backward Linkages

2.1. Availability of Piglets

The pig population of the district is 55037. There are only one livestock markets in Rajmai Tea Estate near to Demow in entire Sivasagar district. Apart from these markets most of the villages in the district has a traditional weekly-markets and various agricultural products including livestock are also available. Popular Breed in the district is Hampshire X Local, Large Black X local, T & D, Ghurgroo, Large white Yorkshire X local, Saddleback X local.

ICDP – Demow and AH & Veterinary office, Sivasagar introduced high yielding fodder in the district. The farmers availing the facilities of the piggery society are turning toward the production of fodder for pig. The department has giving incentive to oat and maize production in the district.

2.2. Veterinary and Cross Breeding Infrastructure

The following infrastructure are available in Nazira Development Block:

- | | |
|------------------------|---------|
| 1. Veterinary Hospital | - 6 Nos |
| 2. A/I Centre | - 5 Nos |
| 3. F.A.C. | - 5 Nos |
| 4. No of vety Officer | -8 Nos |
| 5. VFA | -7 Nos |

The department has taken the initiation of the risk management program in which the farmers can avail livestock insurance coverage of their valuable productive

animals. The government is providing up to 80% subsidy of the insurance premium to BPL/SC/ST farmers and 60% subsidy to the APL livestock breeder. The department has initiated the step to curtail the epidemic of FMD and other contagious disease through continuous vaccination program.

2.3. Feed and Fodder Development

Feed plays an important role in successful pig production. The quality of the ration determines the rate of growth of young pigs to a great extent. Pig is an omnivorous animal and can utilize feed of both animal and vegetable sources. Pig, being a mono-gastric animal requires all nutrients including good quality proteins and vitamins in proper amounts and proper proportions. A carefully planned feeding programme is, therefore, important for a successful swine production. It is obvious that pig feeding must be as economical and efficient as possible.

Tapioca chips, tapioca flour, thippi or tapioca waste, rubber seed cake, tobacco seed cake, mango seed kernel, molasses, fallow, hatchery waste etc., along with various agro-industrial products can be incorporated in pig rations. Garbage, such as kitchen waste and other vegetable waste can also be useful feed if properly cooked and fed. In large cities garbage is available in large quantities which can be well processed and fed to pigs.

2.4 Marketing Infrastructure

People of Assam and the north eastern states mostly prefer fresh meat. Hence butchers' shops are the major source of supplying meat to the consumers. In the district there are only one livestock markets located at Rajmai TE near Demow and Simaluguri. Apart from these market most of the villages in the district has a traditional weekly market and various agricultural products including livestock are also available.

3. Selection of the Area

The Sivasagar has a population of 673441 of which 102942 are cultivator. People living in Sivasagar district depend on multiple skills. There are 31149 number of house hold in Nazira development Block out of which 23147 are BPL family. Total 102942 number of Cultivators are depended on agriculture farming in Sivasagar out of which 68071 are small and marginal farmers and 28643 are Agriculture labourers and landless farmers. Nazira is one of the development blocks in the district. The block has 20 Gram Panchayats and has 116 villages. The following infrastructure are available in Nazira Development Block:

Pig Population:

- | | |
|----------------|------------|
| 1. Local Pig | - 7356 Nos |
| 2. Cross Breed | - 5125 No |

Most of the banks like State Bank of India, Canara Bank, Indian Bank, UBI, UCO and Assam Gramin Vikash Bank are available in the block.

The good communication system in the block is a plus point for any sort of business in the area. So, based on the available infrastructure, the area may be selected for this scheme.

The Animal Husbandry and Veterinary Dept. has been providing health care, artificial insemination facilities and extension services. KVK, Sivasagar, SIRD, Jaysagar and RESETI also providing various extension / training programme.

4. Selection of Beneficiaries

Beneficiary under ADS will be selected by Block AH & Veterinary Department in association with the bank branches viz; AGVB, SBI, UCO, UBI and ACAB Ltd. Preference will be given to beneficiaries having access to fodder and experience in pig rearing.

5. Training and Capacity Building of Beneficiaries

Block Animal Husbandry and Veterinary Office imparts training for Piggery Development. Under Cattle Insurance Program several workshops have already been organized by the department to increase capacity building of Piggery Farmers. NABARD would facilitate capacity building of beneficiaries through intensive skill development training either exclusively or in association with District Veterinary / AH & Vet. Department involving LDM, Branch Manager, R'SETI and KVK etc.

6. Techno Economic Assumption

A. Cost Chart

Sl. No.	Particulars	Physical Unit
1	Breed	Crossbred Pigs
2	No. of Animals	
	No of Boar (No.) 1 or 2	1
	No of Sow (No.) 3 or 10	3
	No of Animal in First Batch	1
	No of Animal in Second Batch	1
	No of Animal in Third Batch	1
	No. of Months after which Second and Third batch animal Purchased after First	2
	Stage at which the animal is bought(Months)	3
	Body Weight of Animals(Kg/Animal)	25
	Rate of Animal(₹./kg body wt)	150
	Cost of Animal (₹. /Animal)	3750
	Cost of Transportation (₹. / Animal)	250
3	Cost of Equipment (₹./Animal)	800
4	Housing	
	Shed - Area (Sq. Ft.)	290

Sl. No.	Particulars	Physical Unit
	Cost of Construction of Shed (₹./Sq.Ft.)	300
	Open Area (Sq Ft)	310
	Cost of Construction of open area (₹./Sq ft)	100
	Family labour used for housing (lumpsum ₹..)	0
5	Feed Requirement	
	Boar (Kg/Animal/Day)	3
	Sow (Kg/Animal/Day)	3.5
	Weaner (up to 2 months) (Kg/Animal/Day)	0.2
	Fattener (3 to 5 months) (Kg/Animal/Day)	1.5
	Fattener (6 to 8 months) (Kg/Animal/Day)	2
	Agricultural Waste (%)	70
	Cost of Agricultural Waste (₹./Kg)	0.5
	Concentrate Feed (%)	30
	Cost of Concentrate (₹. /Kg)	25
6	Insurance Premium (%) 1 Year(5%)3 Years(7%)	7
7	Technical Specifications	
	Pregnancy Period (Months)	4
	Lactation Period (Months)	2
	No of piglets per farrowings	8
	Mortality among weaners(%)	20
	Mortality among fattener(%)	10
	Age at Maturity (Months)	9
8	Medicines and Ovehead	
	Veterinary Aid (₹./Animal/Year)	3000
9	Financial and Banking Specifications	
	Age of Fattener at Sale (months)	8
	Weight of fattener at Sale (Kg)	80
	Rate of Fattener at sale (₹./Kg)	150
	Price of Fattener at Sale (₹.)	12000
	Income from sale of manure (₹./Year) To be utilised as FYM	0
	Salvage Value of all animals /value of closing stock at the year end (₹.)	99000
	Margin (%)	15
	Interest Rate (%)	12
	No. of Days in a Year	360
	Repayment Period (5 to 7 Years)	5

B. Herd Projection Chart

Year	I	II	III	IV	V	VI
Year - >	1	2	3	4	5	6
All Batches						
Growing Boar - months	6	0	0	0	0	0
Growing Sow - months	18	0	0	0	0	0
Boar-months	6	12	12	12	12	12
Sow-months	18	36	36	36	36	36
Weaners-months	36	72	72	72	72	72
3 to 5 months fatteners months	0	90	90	90	90	90
6 to 8 months fatteners months	0	90	90	90	90	90
Sale of fatteners (no)	0	15	30	30	30	30

C. Water Requirement

Sl. No.	Maturing Age (in weeks)	Requirement (in litres)
1	8-12	3-5
2	13-18	6
3	19-24	7.5
4	25	8

7. Partners in Implementation of the Project

The partners in the implementation of the project would consist of participating bank branches, LDM, KVK, RSETI, piggery farmers, Department of Animal Husbandry, NABARD and District Administration.

8. Project Cost

Project cost of the (3+1) Piggery - Breeder cum fattener unit - 3 Crossbred sows and one exotic boar is as under.

Breeder cum fattener Unit Cost

(Amt. in ₹)

Sl. No.	Cost	Specifications	No of animals	₹./ unit	Amount (₹.)
1	Pig sty	Sft. per animal	No.	₹/sft	
i	Boar	70	1	250	17500
ii	Sow	60	3	250	45000
2	Fattener shed	12.5	20	250	62500
3	Equipments				3000
4	Cost of Piglets				
i	Boar	3 months	1	4000	4000

Sl. No.	Cost	Specifications	No of animals	₹./ unit	Amount (₹.)
ii	Sow	3 months	3	2500	7500
5	Supplementary feed	Feed (Kg)	No.	Total (Kg)	
i	Concentrate feed	1134		25	28350
ii	Creep feed for piglets (up to weaning)	9	27	25	6075
6	Insurance	5%			1946
				Total	175871
				Say	176000

Phasing of Investment Cost**(Amt. in ₹)**

Phasing of Investment Cost	Purchase of Animal	Housing	Equipment	Feed Cost	Medicines and overhead	Insurance	Total
Quarter I	11500	125000	3000	5737	100	1946	147283
Quarter II				5737	100		5837
Quarter III				5737	100		5837
Quarter IV				5738	100		5838
Quarter V				5738	100		5838
Quarter VI				5738	100		5838
	11500	125000	3000	34425	600	1946	176471

Phasing of Loan**(Amt. in ₹)**

Phasing of Loan	Purchase of Animal	Housing	Equipment	Feed Cost	Medicines and overhead	Insurance	Total
Quarter I	9775	106252	2550	4876	85	1654	125192
Quarter II				4876	85		4961
Quarter III				4876	85		4961
Quarter IV				4877	85		4962
Quarter V				4877	85		4962
Quarter VI				4877	85		4962
	9775	106252	2550	29259	510	1654	150000

9. Banking Network and Trends in Credit Flow

Sivasagar district has a network of bank branches aggregating to 71 as on 31st March 2017. There are 58 Commercial Banks including private Bank. One RRB (Assam Gramin Vikash Bank) with 12 branches and one State Cooperative Bank having single branch and 22 PACS are operating in the district. The CD ratio in the district is 44.88 as on 31st March 2017.

Five numbers of branches of Assam Gramin Vikash Bank, IDBI, Sivasagar branch have been selected/identified for participating in the implementation of ADS on Piggery under Nazira Development Block.

10. Physical and financial programme:

Bank-wise physical and financial target

(₹ in lakh)

Name of Bank	Total	
	Phy Units	Financial
AGVB	150	244.50
Total	150	244.5

11. Project Profitability

Calculation of profitability of the project with 3 sows and 1 boar is as under

(Amt. in ₹)

Income	Year I	Year II	Year III	Year IV	Year V	Year VI
Sale of fattener	0	180000	360000	360000	360000	360000
Sale of Manure	0	0	0	0	0	
Value of closing stock						99000
Total Income	0	180000	360000	360000	360000	459000
Expenditure						
Amount of Feed						
Breeding Stock						
Growing Boar (3 to 8 months)	360	0	0	0	0	0
Growing Sow (3 to 8 months)	1080	0	0	0	0	0
Boar	540	1080	1080	1080	1080	1080
Sow	1890	3780	3780	3780	3780	3780
Weaner (up to 2 months)	216	432	432	432	432	432
Fattener (3 to 5 months)	0	4050	4050	4050	4050	4050
Fattener (6 to 8 months)	0	5400	5400	5400	5400	5400
Sub Total	4086	14742	14742	14742	14742	14742
Feed Cost	32075	115725	115725	115725	115725	115725
Veterinary and other Expenses	600	12000	12000	12000	12000	12000
Insurance	1946	4950	4950	4950	4950	4950

Area Development Scheme - Pig Farming
Sivasagar District

Income	Year I	Year II	Year III	Year IV	Year V	Year VI
Miscellaneous expenses	1000	1000	1000	1000	1000	1000
Total Expenditure	35621	133675	133675	133675	133675	163159
Less Capitalised Expenditure	35621	2350				
Total Expenditure after netting Capitalised expenditure	0	131325	133675	133675	133675	163159
Gross Surplus	0	48675	226325	226325	226325	295841
Operating Profit Before Interest and Depreciation	-35621	46325	226325	226325	226325	295841
Net Profit	-35621	46325	226325	226325	226325	295841

12. Financial Analysis

The financial analysis for 3 sows and 1 boar is as under.

(Amt. in ₹)

Cash flow and Calculation of IRR	Year I	Year II	Year III	Year IV	Year V	Year VI
Investment Cost	176000	0	0	0	0	0
Recurring Cost	0	131325	133675	133675	133675	163159
Total Cost	176000	131325	133675	133675	133675	163159
Income	0	180000	360000	360000	360000	459000
Net Income	-176000	48675	226325	226325	226325	295841
NPW of Total Cost @ 15%	153043	99300	87893	76429	66460	70538
	553664					
NPW of Income @ 15%	0	136106	236706	205831	178984	198438
	956065					
NPW of Net Income @ 15%	-153043	36805	148813	129402	112524	127900
	402401					
Benefit Cost Ratio	1.73					
IRR	55.50%					

13. Sensitivity Analysis

The above financial analysis has been recalculated taking into consideration 5% increase in cost and 5% decrease in benefits and indicated below. (Amt. in ₹)

Cash flow and Calculation of IRR	Year I	Year II	Year III	Year IV	Year V	Year VI
Total Cost after 5% increase	184800	137891	140358	140358	140358	171317
Total Income after 5% reduction	0	171000	342000	342000	342000	436050
Net Income	-184800	33109	201642	201642	201642	264733
NPW of Total Cost @ 15%	160696	104265	92288	80250	69783	74065
	581347					
NPW of Income @ 15%	0	129301	224871	195540	170034	188516
	908262					
NPW of Net Income @ 15%	-160696	25035	132583	115289	100252	114451
	326915					
Benefit Cost Ratio	1.56					
IRR	44.30%					

14. SWOT Analysis

- **Strengths:**
 - Good supplementary activity in the scheme area for doubling the farmers' income.
 - Adequate availability of forward and backward linkages in the scheme area.
- **Weaknesses:**
 - Limited fodder availability in the scheme area.
 - Inadequate awareness among the farmers on scientific rearing.
- **Opportunities:**
 - Growing demand for meat from consumers in the area due to increasing in income level.
 - Proximity to demand centres / markets.
- **Threats:**
 - Changes in Govt. policy leading to adverse procurement price.

- Weak monsoons adversely affect the meat production and thereby meat procurement.
- Climate change may also affect growth of pigs.

15. Repayment

The repayment is considered to be 5 years including moratorium period.

A. Bankability

(Amt. in ₹)

Year	I	II	III	V	V
Unit Cost	176000				
Margin (%)	15				
Bank Loan	140076	9924			
Rate of Interest (%)	12				
Loan O/S at the beginning of the year	140076	166809	144568	100759	54959
Accrual of interest	16809	20017	17348	12091	6595
Gross Surplus	0	48675	226325	226325	226325
Repayment of Interest	0	20017	17348	12091	6595
Repayment of Principal	0	22241	43809	45800	54959
Loan O/S at the end of the year	156885	144568	100759	54959	0
Total Outgoing	0	42258	61157	57891	61554
Net Surplus	0	6417	165168	168434	164771

B. Repayment

(Amt. in ₹)

Year	Income	Expenses	Gross Surplus	Instalments	Net Surplus
I	0	0	0	0	0
II	180000	131325	48675	42258	6417
III	360000	133675	226325	61157	165168
IV	360000	133675	226325	57891	168434
V	360000	133675	226325	61554	164771

16. Implementation Strategy and Monitoring Mechanism

- **Department of Animal Husbandry (DAH)** will create awareness about piggery in the respective districts and guide pig farmers to establish breeding and breeder-cum-fattener units of pigs and pork retail outlet units on scientific lines in the districts under the scheme. The Department may also conduct veterinary health camps and provide training to the beneficiaries of the plan on scientific pig farming. It may identify suitable pig farmers interested in expanding their farms with credit.
- **Branches of Banks** may select suitable pig farmers identified by the Department of Animal Husbandry and or directly identify clients and finance diversified activities under piggery. Branches may ensure successful implementation of the banking plan in the districts.
- **NABARD** prepare Banking Plans; ensure implementation of the plan in association with participating Banks and line departments; facilitate capacity building of beneficiaries of the plans through RSETIs / Training Institutes / KVKs and provide exposure visits whenever required.
- A Project Implementation and Monitoring Committee would be constituted for monitoring of the Area Development Scheme in the respective districts. The PIMC would consist of the participating bank branches, Lead District Manager, Krishi Vigyan Kendra, RSETI, representative of the beneficiary farmers, Department of Animal Husbandry and NABARD with Deputy Commissioner as Chairman in each district.
- Possibility of implementing the project through a reputed NGO/s under JLG mode may be explored. Incentives to NGO/s may be given by NABARD.

17. Conclusion

Doubling real income of farmers by 2022 over the base year of 2015-16, would require approximate annual growth of 10.41 per cent in farmers' income. This implies that the on-going and previously achieved rate of growth in farm income has to be sharply accelerated. Therefore, thrust has to be given for development of allied activities to harness all possible sources of growth in farmers' income by the targeted year.

The results of the financial analysis of the project indicates that it is financial viability/bankability.

Area Development Scheme - Banking plan on Pig Farming
Bank wise and Block wise targets - Physical and Financial

Name of the District : Sivasagar

Unit Cost (₹ in lakh)

1.76

Physical Units in Nos. and Financial in ₹ lakh

Name of Block	2018-19		2019-20		2020-21		2021-22		2022-23		Total	
	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial
NAZIRA	30	48.9	30	48.9	30	48.9	30	48.9	30	48.9	150	244.5
Total	30	48.9	30	48.9	30	48.9	30	48.9	30	48.9	150	244.5

Unit Cost (₹ in lakh)

1.76

Name of Bank	2018-19		2019-20		2020-21		2021-22		2022-23		Total	
	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial
AGVB, Upper Nazira Br	10	16.3	10	16.3	10	16.3	10	16.3	10	16.3	50	81.5
AGVB, Tengapukhuri Br	10	16.3	10	16.3	10	16.3	10	16.3	10	16.3	50	81.5
AGVB, Messagarh Br	10	16.3	10	16.3	10	16.3	10	16.3	10	16.3	50	81.5
Total	30	48.9	30	48.9	30	48.9	30	48.9	30	48.9	150	244.5

Consolidated

Name of Block	Total	
	Phy Units	Financial
NAZIRA	150	244.5
Total	150	244.5

Name of Bank	Total	
	Phy Units	Financial
AGVB, Upper Nazira Br	50	81.5
AGVB, Tengapukhuri Br	50	81.5
AGVB, Messagarh Br	50	81.5
Total	150	244.5