

AREA DEVELOPMENT SCHEME – DAIRY
Improved/ Crossbred Cows Yielding 8 – 10 litres of milk per day: 02 Cow unit

1. Introduction

Pakur was formed as a separate district from a sub-division under Sahibganj district on 28 January 1990. The district covers an area of over 1805.59 sq km divided into 6 blocks viz. Pakur, Pakuria, Hiranpur, Littipara, Amrapara and Maheshpur. The district has 1250 villages of which 1128 villages are inhabited. It is predominantly a tribal district having a tribal population of about 49 %. The agriculture economy of the district is characterized by dependence on nature, mono cropping, inadequate irrigation facilities and small and marginal holdings, low investment, low productivity, uncertain and weak marketing and storage arrangement. Rice being the staple food and land being low lying and rain-fed, paddy is the principal crop of the district. In Pakur district total number of land holdings is 107426 covering area of 126391 ha. Proportion of small and marginal farmers is 82% which hold only 31% of total cultivable land. Average size of land holdings of small and marginal farmers is than 1.18 ha. Gross cropped area of the district is 66488 ha. Of which net sown area and irrigated area is 52721 ha. and 12977 ha., respectively. Cropping intensity of the district is 126%. Major crops cultivated in the district are Paddy, wheat, maize etc.

The small and marginal farmers have in their possession almost 50% of the animals and production to their credit. Approximately, 84% of landholdings belong to small and marginal farmers who averagely own 0.83 ha of land. With a view to impacting both poverty reduction and increasing milk production, focusing on base of small and marginal farmers has been central to policy for dairy development in the state.

As per NSSO 70 round of data, for the period from July 2012 to June 2013 , income of agricultural households from Animal Husbandry was Rs.1193/- which constituted 25.27% of the total income of Rs.4721/- and this portion of income in absolute term was more than many Indian states and much above the all India average of Rs.763/-.On the basis of this intrinsic strength , the State Government has been quick enough to focus on the growth driver segment of the Animal Husbandry i.e. Dairy Development. Further, a Dairy centric farming system has the potential for providing organic input to crop husbandry for sustainable crop production and solving rural energy scarcity by planning for production of bio-gas. Moreover, more profits can be earned depending upon the breed of animals reared, improvement in managerial skills and marketing tie-up.

Average percentage distribution by industry current prices at base year 2011-12 of the livestock for the period from 2013-14 to 2015-16 hovered around 2.5% of GVA when average

Agri-GVA stood at almost 15% during the same period. Per cattle milk production stood at 1.59 kg as against 3.0 kg on all India basis. Considering the potential in growth of Animal Husbandry in the state and gap in productivity, this can be doubled for ensuring economic prosperity as well as poverty reduction in the state.

Total milk production of the district in 2015-16 was 49019 lit and per capita availability of milk 55 gm against all India average 307 gm.

Animals reared by small dairy farmers (Desi breeds/CB bred/Buffaloes). Dairy farming is widely prevalent in Pakur due to availability of fodder land comparatively less developed agricultural activities. However this sector is still under developed as indigenous cattle population is mainly of non-descript species with low yield. Productivity of the milch animals is also low due to poor quality of milch animals and poor arrangement of feed and fodder availability.

In the district rural milk trade practices are not established and milk marketing network is not much developed and milk is produced mostly for household consumption and local marketing. There is scope for cooperative development and milk route development through institutional arrangements with milk processing plant.

Rearing milch animals has traditionally been specific to certain communities and groups. They generally are better informed and are aware of improved farming practices like feeding of fodder, cattle feed, bran and cereals. They purchase crossbred cows and improved breeds of buffaloes and maintain them.

1.1. Status of the Animal Husbandry

1.1.1 Jharkhand

Animal husbandry sector has the potential of providing the much needed hedging risk against the crop loss due to natural calamities in Jharkhand. Live Stock Sector plays pivotal role in rural employment. This Sector has also highest potential for rural self-employment generation at the lowest investment per unit possible. Livestock population had decreased marginally in Jharkhand to 18.10 million in 2012 from 18.05 million in 2007. The total cattle population is 8.73 million numbers in the state. There is a 0.58% decrease in number of cattle during the inter census period (2007-2012).

The production of milk has increased to 1812.38 thousand MT in 2015-16 as against 1733.73 thousand MT in 2014-15.

1.1.2 Pakur District

As per the livestock census 2012 the total bovine population of the district is 3.16 lakh, of which around 38.60% are female animals. The details of cross bred, indigenous cattle and buffaloes is given below:

Bovine Population	Pakur			
	Male	Female	Total	Ratio (Male to Total)
Indigenous Cattle	100787	153723	254510	66%
Crossbred	1451	6021	7472	24%
Buffalo	19428	34227	53655	57%
Total Bovine	121666	193971	315637	63%

The total female breedable population of the district is 5.71 lakh. A comparison of breedable population of the district vis. a.vis Jharkhand is given in the table:

Breedable Population	Jharkhand	Pakur
Indigenous Cattle	8730083	261982
Crossbred	306983	256173
Buffalo	1185942	53655
Total	9916025	571810

2.Forward and backward linkages:

There is a scope for increasing or scaling up the milk production in the district through cross breeding programme and also creating awareness among the farmers about the scientific housing, breeding, feeding and health care of animals which will improve the milk production and productivity in the district. Based on analysis of Primary and Secondary data of different potential agricultural activities in the state dairy sector has been identified as one of the most potential sector for capital formation in agriculture. As such this sector has been selected for implementation of Area Development Scheme in the district.

2.1 Milk Production

The total milk production of the district is around 49019 mt per annum which works out to 55 gm per person per day as against the national average of 307 gms per day.

2.2 Infrastructure for veterinary services:

There are 10 Veterinary institutes, 20 Artificial Insemination Centres in the district. The gap in requirement of Veterinary Hospitals and AI centers could be partly bridged through RIDF assistance for new centers and also by encouraging private veterinary clinics and private AI

centers under the scheme for Agriclincs and Agribusiness centers through institutional finance involving unemployed veterinary graduates.

This will be a supplementary measure to the long term planned programmes of AH Department of opening new centers and upgradation of existing centers. AI centers involving diploma holders / Paravets could also be promoted by imparting training through any suitable agency.

2.3 Feed and fodder

Cultivation of fodder as a commercial activity is not in practice in the district. Further, the preservation of green fodder in the form of silage or hay is not generally practiced by the farmers.

Concentrate cattle feed is available through private agents in the districts and farmers also prepare concentrate mixture by purchasing the ingredients locally. Cultivation and preservation of fodder can be promoted among the farmers in district.

2.4 Marketing infrastructure - Milk societies, Milk routes,

2.4.1 Sources for animals

Availability of good quality animals is one of the major constraints affecting credit support for dairy development in the district. The milch animals therefore can be purchased from other parts of the Jharkhand and also from other States viz., West Bengal. Hiranpur cattle market in the district is the notable livestock market for procurement of animals.

From discussions with various stakeholders, it has been observed that among CB cows, Jersey and HF crossbred cows are common in the district and HF crossbred has well acclimatized to the local conditions. Among buffaloes, Murrah / Graded Murrah are the most preferred by farmers.

2.4.2 Milk procurement, Supply, etc.

There is no milk route in the district. One dairy society in the district which is non-functional.

2.4.3 Marketing of Milk:

As such the present system of marketing of milk is very much unorganized, majority of milk produced in the district is handled privately by the farmers / through agents. The proposed milk processing unit 60000 LPD at Sahibganj in district headquarter could be catalyst for establishing of milk route viz. Hiranpur, Pakur and Maheshpur in the district. The bank may also encourage the private entrepreneurs for setting up Automatic Milk Collection Unit (AMCUs) / Bulk Milk Cooler Unit (BMCUs) for procurement of milk.

3. Selection of the area

After discussion with various stakeholders viz. Bankers, DDO, DTO etc., Pakur, Rajmahal and Pathna block has been selected for implementation of Area Development Scheme. Although the dairy projects have a scope for establishment throughout the district but during the year 2018-19, seven villages of three panchayats of Pakur block namely Kalidaspur, Haripur and Lakhipahari villages of Kalidaspur panchayat; Chandpur and Sonapur villages of Ishkapur panchayat and Lakhinarainpur and Taranagar villages of Taranagar panchayat may be targeted for implementation. Other blocks viz., Maheshpur, Litipara, Hiranpur may also implement the ADS

4. Selection of the beneficiaries

Implementing bank have the sole discretion for selection of borrowers as per their norms, however to facilitate the process of financing the units Dairy Development Department may provide the list of the perspective borrowers to concerned Branch Manager implementing ADS.

4.1 Unit Size: Minimum Unit size would be 2 animals and in multiples of two thereafter. The banks are free to finance units of any size as per the technical feasibility and financial viability of the project.

5. Training/ Capacity Building of the Beneficiaries

Various avenues are available for capacity building if beneficiaries in the district. Bank of India sponsored RSETI is giving training to dairy entrepreneurs. Besides KVK and various NGOs are regularly providing capacity building inputs to beneficiaries. NABARD also conducts various workshops and capacity building programs in the district where farmers are given inputs about dairy farming.

6. Techno economic assumptions

Breed of Cow selected

Freshly calved indigenous dairy breed/ crossbred cows in 1st or 2nd lactation will be purchased in two batches of two animals each at an interval of 5 to 6 months.

Techno-economic Assumptions

No. of animals:	2 (In two batches at 6 months' interval)
Average Milk Yield:	10 ltr/day
Milk Price:	Rs 25/day
Floor space (sqft) per adult animal:	50 sqft
Floor space (sqft) per calf:	20 sqft
Rate of interest:	13%
Project period:	5 years

Lactation Chart for cross-bred cows

S. No.	Particulars	Years					
		I	II	III	IV	V	VI
1	<u>Lactation Days</u>						
a)	First batch	275	295	300	300	295	275
b)	Second batch	180	275	275	275	275	275
	Total	455	570	575	575	570	550
2	<u>Dry Days</u>						
a)	First batch	90	70	65	65	70	90
b)	Second batch	-	90	90	90	90	90
	Total	90	160	155	155	160	180

Feeding schedule and cost of feeding: - As given below

Sr. No.	Particulars	Lactation Period		Dry Period	
		Quantity (Kg)	Cost (Rs.)	Quantity (Kg)	Cost (Rs.)
I	Concentrate Feed	4	80.00	4	80.00
	For milk				
	For maintenance				
Ii	Green Fodder (to be produced in own farm)	25	0.00	15	0.00
Iii	Dry Fodder	6	12.00	3	6.00
	TOTAL		92.00		86.00

7. Partners in implementation, convergence of efforts, support from State Govt

The initiatives of the State Government are centered on breed improvement of native non-descript type milch animal along with breeding of exotic breeds. The most popular state plan schemes are 02 Milch Cattle Induction on 90% subsidy to BPL women beneficiaries. Along with this, running of the Technical input Programmes and carrying out Infrastructural Development have been also given due care by the State Government. In addition to this for some period, Milch Cattle Induction under CSS-RKVY has also helped the State in increasing milk production. Other programmes such as CSS-NLM with sub-missions (Fodder & Feed Development and Skill Development, Technology Transfer and Extension), National Programme on Dairy Development, National Programme for Bovine Breeding and DEDS have also influenced dairy development in the state. The most promising “Jharkhand Dairy Development Plan” under the aegis of NDDB and duly anchored by Jharkhand State Cooperative Milk Producers’s Federation has accelerated the dairy development in the

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state. NDDB is promoting “ Medha” and JMF is spread to 15 districts of the state out of 24. NDDB has been instrumental in provision of services to farmers including procurement. Establishment of 1 lakh litre per day milk processing plant and manufacturing of Area Specific Mineral Mixture in mineral mixture plant both at Hotwar, Ranchi have been coordinated by NDDB. Out of 32000 villages of the state, 8300 potential villages will be covered under Milk Procurement System including chilling facility. Milk Processing Plants shall be established at Palamau, Deoghar, Jamshedpur, Hazaribag, Dhanbad, Godda, Giridih, Gumla and Sahibganj for post-collection management. There is an elaborate plan for increasing the range of milk products and establishment of milk booths in strategic location.

7.1 Complementary role played by NABARD

Dairy development under Animal Husbandry has got maximum attention of NABARD. In addition to ARF, NABARD is supporting Term lending of RRBs and Cooperative Banks through LTRCF support. Potential mapping and preparation of Area Development Schemes pertaining to Dairy sector has got pointed focus of NABARD considering economic opportunity available under the segment. NABARD has conducted state level workshops to sensitize stakeholders and been supportive in implementation of DEDS in the state. During 2016-17, on the basis of realizable potential, NABARD prepared district-wise banking plan and launched the same in SLBC Sub-Committee on Agriculture and Allied Sectors.

8. Project Cost

Particulars	Cost/Unit	Unit	Total Cost
Capital Costs			
Cost of Animal (Rs./animal)	50000	2	100000
Civil Work (Asbestos sheet attached shed)			
a) Shed for 02 adult animals	200	100	20000
b) Shed for 02 calves	200	40	8000
Dairy equipment	1500	2	3000
Transportation cost	1000	2	2000
Cost for water supply, electrification of shed, record keeping etc.	4000	LS	4000
Sub Total			137000
Recurring Costs (Capitalised)			
Fodder cultivation/Fodder purchase (Rs./acre)	10000	0.25	2500
Conc. Feed for 1st animal @ 6 kg/day for 1 month	20	120	2400
Insurance for 1st animal for 1 year with PTD cover	5%	1	2500
Veterinary aid/animal/ year (Rs.)	1000	1	1000
Miscellaneous expenses	4000	LS	4000
Sub Total			12400 say

			13000
Total financial outlay			149400 say 150000
Margin Money (15%)			22500
Bank Loan (85%)			127500

9. Banking Network/Financing Agencies:

The financing will be sourced from Banks would be Bank of India and Vananchal Gramin Bank, State Bank of India and Allahabad bank in Pakur district.

10. Physical and financial programme

Bank-wise physical and financial programme has to be given in detail in a tabular form as suggested below:

10.1 Physical Target

Block	No of Units					Total units
	Ist Yr	2nd Yr	3rd Yr	4th Yr	5th Yr	
Pakur	5	7	11	13	16	52
Maheshpur	4	6	9	11	14	44
Hiranpur	4	6	8	10	12	40
TOTAL	13	19	28	34	42	136

10.2 Financial Target**(Rs. Lakh)**

Block	Total Financial outlay					Total financial outlay	Margin contribution	Credit flow
	Ist Yr*	2nd Yr	3rd Yr	4th Yr	5th Yr			
Pakur	7.50	10.50	16.50	19.50	24.00	78.00	11.70	66.30
Maheshpur	6.00	9.00	13.50	16.50	21.00	66.00	9.90	56.10
Hiranpur	6.00	9.00	12.00	15.00	18.00	60.00	9.00	51.00
TOTAL	19.50	28.50	42.00	51.00	63.00	204.00	30.60	173.40

10.3 Target: 2018-19

District	Blocks	Name of the bank	Unit cost	No of Units	TFO	Bank Loan	Margin
Pakur	Pakur Maheshpur Hiranpur	BOI, VGB, SBI, Allahabad	1.5	13	19.50	16.525	2.925

10.4 Target 2018-23

District	Year	Physical	Financial (Rs. lac)
Pakur	2018-19	13	16.58
	2019-20	19	24.26
	2020-21	28	35.7
	2021-22	34	43.35
	2022-23	42	53.55

11. Project Profitability

The project profitability for six years has to be given in a tabular form with the following details

Sr. No.	Particulars / Years	I	II	III	IV	V	VI
I.	Income (Rs.)						
I	From sale of milk	113750	142500	143750	143750	142500	137500
ii	From sale of manure	300	300	300	300	300	300
iii	Income from gunny bags	100	100	100	100	100	100
	Total income	114150	142900	144150	144150	142900	137900
II	Expenditure (Rs.)						
I	Feeding during lactation period	39460	52440	52900	52900	52440	50600
ii	Feeding during dry period	7740	13760	13330	13330	13760	15480
iii	Veterinary Aid & Breeding	1500	3000	3000	3000	3000	3000
iv	Electricity & Water	1000	2000	2000	2000	2000	2000
V	Insurance	2500	5000	5000	5000	5000	5000
vi	Misc. exp. If any	0	0	0	0	0	0
	Total Expenditure	52200	76200	76230	76230	76200	76080
	Total Expenditure net of capitalized cost	39200	76200	76230	76230	76200	76080
	Gross Surplus (Rs.)	74950	66700	67920	67920	66700	61820

12. Financial Analysis:

Sr. No.	Particulars / Years	I	II	III	IV	V	VI
I.	Cost (Rs.)						
i	Capital Cost	150000					
ii	Recurring Cost	39200	76200	76230	76230	76200	76080
iii	Total Cost	189200	76200	76230	76230	76200	76080
II	Benefits (Rs.)						
i	Income	114150	142900	144150	144150	142900	137900

ii	Residual Value						23438
	Total Benefits	114150	142900	144150	144150	142900	161338
	Net Benefits						
	Discount Factor	0.8695 65	0.75614 3	0.65751 6	0.5717 53	0.49717 6	0.432327
	Net Present Value						138686.97
	Benefit Cost Ratio (BCR)						1.36
	Internal Rate of Return (IRR) of the Scheme						86.50%

Residual Value:

(Rs. Amt)

Civil Structures @5%	21667
Equipment @10%	1771
Total	23438

Note: Salvage value of the animals has not been taken into account while calculating economics.

12.1 Financial Feasibility

Based on the techno-economic parameters assumed under the project, the detailed income and expenditure are worked out. The investments are found to generate adequate surplus and financially viable and bankable. The major financial indicators of the project are as under:

Investment	NPV @15% DCF (Rs.)	BC Ratio @ 15%DCF	IRR
Dairy	138686.97	1.36	86.50%

13. Sensitivity Analysis:

By assuming 5% increase in cost and 5% decrease in benefits, NPV, BCR and IRR have been worked out as under:

No.	Years / Particulars	1	2	3	4	5	6
	Total cost after 5% increase	189200	80010	80042	80042	80010	79884
	Total benefits after 5% reduction	114150	135755	136943	136943	135755	153271
	NPV (Rs.)	106279.36					
	BCR	1.27					
	IRR	70.92%					

14. Repayment Schedule

Repayment schedule – 5 Years with one year grace period

Year	Loan Outstanding	Interest	Net Profit	Repayment of Principal	Payment of Interest	Net Surpluses
1	127500	16575	-75050	0	16575	-91625
2	127500	16575	66700	25500	16575	24625
3	102000	13260	67920	25500	13260	29160
4	76500	9945	67920	25500	9945	32475
5	51000	6630	66700	25500	6630	34570
6	25500	3315	85258	25500	3315	56443
Total						85648

15. Implementation Strategy and Monitoring Mechanism

- Initial approval at the DCC level
- Block-wise allocation at BLBC meetings
- Review of the implementation in DCC and BLBC meetings
- Involvement of stakeholders' agencies in review meetings for ensuring the extension of support services committed by them.
- The progress should be monitoring regularly in DCC/DLRC as an agenda.

16. Expected outcome/ Conclusion

The Area Development Scheme on Dairy Development Sector, will discuss and facilitate the implementation of perspective plan of the State Govt., infrastructure gaps, available incentives/schemes from both Central and State Govt., fiscal incentives (taxes, subsidies etc.) available / being proposed for development of the Sector, support mechanism available / needed for procurement and marketing from State and Central Govt., and identify scope for convergence of efforts and areas for financing in the entire value chain of the sector. As can be seen from the analysis shown above, a unit of two cows can generate an income of Rs. 85648.00 over a period of five years. Such supplementary income will help in doubling the farmers' income, increase in milk availability, increase in capital formation in agriculture through term lending, etc.