

क्षेत्र विकास योजनाएं 2018-23
AREA BASED SCHEMES 2018-23

दुग्ध विकास Dairy Development
भेड़/बकरी पालन Sheep/Goat Rearing

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जिला : विदिशा
District : VIDISHA



राष्ट्रीय कृषि और ग्रामीण विकास बैंक
मध्य प्रदेश क्षेत्रीय कार्यालय, भोपाल

NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT
MADHYA PRADESH REGIONAL OFFICE, BHOPAL



नाबार्ड

ADS 2018-23
Vidisha (MP)

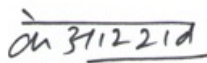
प्राक्कथन

नाबार्ड वर्ष 1990 से निरन्तर हर जिले से जुड़ी संभाव्यता युक्त ऋण योजना तैयार करता आ रहा है। पिछले तीन वर्षों से इन योजनाओं के साथ-साथ नाबार्ड प्रत्येक जिले में निवेश ऋण को बढ़ावा देने हेतु क्षेत्र विकास योजनाएं भी तैयार कर रहा है ताकि ग्रामीण क्षेत्रों, विशेषकर कृषि क्षेत्र, में पूंजी का निर्माण हो, जिससे किसानों की सकल आय में वृद्धि हो सके।

जिलों में पदस्थापित नाबार्ड के जिला विकास प्रबंधक द्वारा राज्य/केंद्र सरकार/प्रमुख बैंकों की शाखाओं, अनुसंधान संस्थानों, किसानों/अन्य हितधारकों तथा संबंधित लाइन विभागों के साथ विस्तृत परामर्श के बाद प्रत्येक जिले के लिए 02 क्षेत्रीय विकास योजनाएं तैयार की गई है ताकि संबंधित क्षेत्रों के विकास के लिए आवश्यक रोड मैप के लिए स्पष्ट रण-नीति बनाई जा सके। इस योजना में प्रत्येक हितधारक की भूमिका स्पष्ट रूप से उल्लिखित है और इसे डीसीसी/डीएलसीसी में अनुमोदनार्थ प्रेषित किया जाएगा।

जिले में क्षेत्र विकास योजनाओं को क्लस्टर के आधार पर विशिष्ट पहचान वाले क्षेत्रों में बैंकों द्वारा वित्तपोषित करने का अवसर देगा, जो बैंकों के परिचालन क्षेत्र में उपलब्ध बैकवार्ड/फारवार्ड लिंकेज के विकास तथा सुदृढीकरण में मदद करेगा।

मैं, इन क्षेत्र विकास योजनाओं को तैयार करने हेतु विभिन्न हितधारकों, राज्य सरकार के अधिकारियों एवं बैंकर्स द्वारा प्रदत्त सहायता और सहयोग की सराहना करता हूँ। मुझे विश्वास है कि यह क्षेत्र विकास योजना पुस्तिका बैंकर्स, राज्य/जिला अधिकारियों और अन्य हितधारकों के लिए उपयोगी दस्तावेज सिद्ध होगी।



के आर राव

मुख्य महाप्रबंधक

Foreword

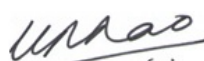
NABARD has been preparing potential linked credit plan for the districts since 1990. In the last three years, we have been preparing along with PLPs, Area Development Schemes to promote investment credit in the districts, so as to provide impetus to capital formation in rural areas particularly in agriculture sector, which will help farmers in increasing their gross income.

The District Development Manager of NABARD posted in the district has prepared Area Development Scheme for two sectors after wide consultation with line departments concerned of State / Central Govt., controlling offices / branches of major banks, research institutes, practising farmers and other stakeholders so as to have a clear view of the road map required for development of the sectors concerned in the district. The roles of each stakeholder in the scheme are clearly outlined and the same will be placed in DCC/DLCC for approval.

The area development scheme in the district will give banks an opportunity to finance specific identified sector on a cluster basis, which will help in growth / strengthening of both backward / forward linkages available in the area of operation.

I appreciate the excellent support and cooperation extended by various stake holders viz., State Government officials / Bankers in preparation of the Area Development Schemes.

I am sure that this Area Development Scheme booklet will serve as a useful document to the Bankers, State / District officials and other stake holders.



K R Rao

Chief General Manager



Area Based Schemes

Dairy Development: Milch animal financing

1. Introduction

Vidisha district is situated in the Central Eastern part of Madhya Pradesh. It has 7 blocks with a total geographical area of 7371 sq. km constituting 2.4% of the total area of the State. The average rainfall of the district is 1134 mm per annum. The district population (2011 Census) is 14.58 lakh with 11.18 lakh in rural areas. The population below poverty line is 37.4%. The Gross Domestic Product (GDP) of the district is 1.83% of the state GDP. The total irrigated area as a percentage to new sown area 66.

Dairy farming is one of the major subsidiary activities in the district providing employment opportunities to the rural poor. The milk production during 2014-15 was 2.45 lakh tonnes. The per capita availability of milk per day in the district is 460 gms as against the recommended intake of 280 gms per day. However, part of the milk is sent out of the district for packaging at Sanchi Milk Union Bhopal. There exists large market for milk in Bhopal. Crossbred cow population constitute a mere 4% of the total cattle population and their contribution to milk production is marginal. About 60% of the milk production comes from buffaloes and 40% from non-descript cows. As per the latest census the total cattle and buffalo population in the district is 6.05 lakh and 1.73 lakh respectively, of which about 3.51 lakh and 1.53 lakh are female population. The cattle population increased substantially after the last census. It indicates preference of the farmers to adopt the dairy development activity to supplement their income.

Role of dairy in enhancing farmers' income

Dairying has become an important secondary source of income for rural families and has assumed the most important role in providing employment and income generating opportunities particularly for marginal and women farmers. Most of the milk is produced by animals reared by small, marginal farmers and landless labours.

In Vidisha District there are 148 dairy cooperatives covering 1285 villages. Sanchi Milk Producers Union, Bhopal is operating four milk chilling centres in the district viz. at Vidisha, Gyrespore, Basoda and Lateri with a capacity of 5000 litres per day each. The capacity utilisation is 65%. Average daily procurement by these Chilling Plants through the cooperatives was 11,300 litres per day during 2014-15, against an installed capacity of 20,000 lpd. The chilled milk is being sent to the Sanchi Dairy Plant at Bhopal for processing and milk products.

2. Forward and backward linkages

Vidisha is predominantly an agricultural economy. Wheat, Soyabean and Channa are the major crops of the district. Vidisha district is known for dairy and dairy products. Madhya Pradesh State Cooperative Federation Limited, with the brand name Sanchi, is working around the district. It covers the whole district via 7 routes connecting different parts of Vidisha. Chilling centres are installed in Sanchi, Vidisha and Lateri.

The main dairy plant in Vidisha is of Bhopal milk union, the milk is being collected at Raw Milk Reception Dock (RMRD) from 211 dairy cooperatives. Encouraged with the transparency results under Clean Milk Production programme, 39 Bulk milk coolers were installed thus collecting daily about 25,000 liters of milk through Road Milk tanker, from 85 dairy cooperatives on 4 milk routes connecting to the main dairy plant. Hence, taken up at this stage for installing 33 Bulk Milk Coolers of 1000 - 2000 liters capacity by strengthening existing milk routes in the entire project district. This supported in collecting about 36,000 liters of milk daily from 61 primary dairy cooperatives connected to 6 milk routes.

3. Selection of the area:

a. **Location** : Vidisha, Gyrespore, Basoda and Lateri

b. **Infrastructure**:

Vidisha, Gyrespore, Basoda and Lateri are having Bulk Chilling units with capacity of 7000 litres. The villagers are able to supply milk only up to 3000 litres. Hence, these area is having potential for dairy activities and so the area based scheme is prepared. In most of the above blocks, dairy processing units are arranging cattle breeding services. Other services are available from AH Department in terms of technology support, fodder cultivation, animal health, subsidy etc.



4. Selection of beneficiaries:

The beneficiaries selected by AH department are mostly landless or small and marginal farmers totally around 1,05,000.

Unit Size and Availability of milch animals

For landless or small and marginal farmers interested in undertaking dairy farming, 2 Graded Murrah Buffalo unit will be provided. For other farmers, based on their capability and interest, more than 2 milch animals will be suggested. The animal producing on an average about 6-8 litres milk per day will be preferred. Such types of animals are available within the district as well as in the neighboring districts. As per census 2012 animal population there are 1,73,000 in the district

5. Capacity building of the beneficiaries

Training programme from Punjab National Bank having Farmer's training centre will be made available to the beneficiaries. Regarding arrangements for training there is a training centre wherein experts are called from College of Agriculture, Ganjbasoda as well as from AH department. The training centre is equipped with hostel facility, hall, LCD projector, computers, furnitures, table, chairs, classrooms and Bus service.

Stake holders and their role:

- Officials from PNB – FTC: Arrangements for training, selection of farmer and Dairy experts
- Officials from Punjab National Bank and other Banks for Credit linkages
- Milk Samiti owners who are responsible for collection of milk and supplying it to Chilling units. Maintaining of records
- Milk transporters for transportation of milk
- AH Department for animal dispensaries, medicines, supply of milch animals, AI, etc.

6. Techno economic assumptions:

The following assumptions have been made for working out the income and expenditure from the dairy unit:-

- Good quality graded buffaloes in second or third lactation, yielding an average daily milk yield of 6 to 8 litres will be purchased at a cost of ₹55000/- per animal including transportation.
- Animals which are recently calved (within 30 days of calving) with a female calf on foot (preferably) would be ideal as foundation stock. These animals will be purchased in two batches with an interval of 4 to 6 months between each batch, so as to maintain constant milk supply all through the year.
- For economic milk production, the dairy animals should have an inter calving period of around 430 days, of which, 280 will be lactation days and the rest (150 days) will be dry days.
- The animal after calving will be inseminated in the second heat so that the inter calving period will not be prolonged. The services of local veterinarian or the lay inseminator available will be utilized for the purpose.

Based on an inter calving period of 430 days, the lactation chart for the two animal farm is given below:

Year	I Batch		II Batch		Total	
	Lactation days	Dry days	Lactation days	Dry days	Lactation days	Dry days
I	250	115	180		430	115
II	280	85	215	150	495	235
III	265	100	215	150	480	250
IV	215	150	215	150	430	300
V	215	150	265	100	480	250

The animals can be kept economically for a minimum of 5 lactations and then they are culled and the value is considered at ₹ 5000/- per animal.

Income from sale of calves is not taken into consideration. Male calves will be sold within 1-3 months after birth and the income will be marginal. Female calves can be grown to replace the adults and the expenditure on feeding of these calves will compensate the replacement cost.

Feeding is the single largest item of expenditure in dairying. The feeding of dairy animals comprises of fodder (Green and dry) and concentrate feed. Of the total fodder given, two thirds



should be in the form of greens (Cultivated fodder and natural fodder) and one third should be dry fodder. Concentrate feed is given in proportion to their production (3 kg per day) as well as for maintenance (1 kg per day).

The approximate feeding schedule for lactation period and dry period is given below:

Particulars	Lactation Period		Dry Period	
	Quantity (Kg)	Cost (₹/Kg)	Quantity (Kg)	Cost (₹/Kg)
i. Concentrate Feed				
For milk	3	15	0	15
For maintenance	1	15	1	15
ii. Green Fodder	15	1	15	1
iii. Dry Fodder	5	3	5	3

Insuring the dairy animals against epidemics, natural calamities etc., is needed to minimize the risk. The premium per animal per year is taken at 4% of the cost of the animal (₹2200/- approx.). Animals need to be vaccinated against diseases which are endemic in the area. A schedule of vaccination will be prepared in consultation with the local veterinarian. The cost of veterinary aid per animal per year would be in the range of ₹1000/- per year, which is inclusive of treatment cost for calf.

Dairy farming is a labour intensive activity. Family labour of the borrower will be utilized for the purpose of looking after the unit.

The milk produced will be marketed to the nearby milk procurement centre. If the unit is near to the city or town direct marketing can also be tried. The sale price of the milk is taken at ₹ 32/- per litre of milk. Income from manure would be at ₹1000/animal/year. Income from gunny bags is considered 10 per bag and 20 bags for ton of feed.

7. Project cost for dairy unit:

The Project cost of the dairy unit includes capital cost on animals, equipment's as well as working capital for one month. Shed cost for two animals is not be considered by assuming that the shed facility will be available with selected beneficiaries. If separate shed is to be provided, each adult buffalo requires 40 Sq. ft of covered space. Equipment's required for the unit include buckets & utensils for feeding / watering / milking etc., and it may cost around ₹750 per animal. Working capital is required for the first animal for one month, which covers the cost of feeding and other miscellaneous expenses apart from insurance. Based on the above norms, the project cost for different units will be worked out.

A model for two Graded Murrah Buffalo unit is as under:

Particulars	Cost (₹)
A. Capital Cost	
Cost of Graded Murrah Buffaloes (2 animals @ 55,000/- each)	110000
Other equipment @ 750 per animal	1500
Sub Total	111500
B. Working Capital	
Feed cost (considered for one month) and other expenses	3600
Insurance	4400
Sub Total	8000
Total Outlay	119500
Promoters Margin (15%)	17900
Bank Loan	101600

8. Financing Agencies:

Borrower is required to provide a margin of 15% to 25% of the project cost as their share and the rest is considered as bank loan. The nearest bank branch will be approached for the purpose.



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(₹ lakh)

Sl. No.	Agency	Vidisha	Gyrespore	Basoda	Lateri	Total	Unit cost	Financial Outlay	Bank wise Total Targets	
									Bank	No. of animals
1	SBI	10	10	10	10	40	1.2	47.8	7.17	40.63
2	Canara	4		6		10	1.2	11.95	1.7925	10.16
3	CBI	4	8	4	4	20	1.2	23.9	3.585	20.32
4	OBC	4				4	1.2	4.78	0.717	4.06
5	PNB	4		8		12	1.2	14.34	2.151	12.19
6	UBI	4		4		8	1.2	9.56	1.434	8.13
7	UCO Bank	6	6	2		14	1.2	16.73	2.5095	14.22
8	BOB	6		6		12	1.2	14.34	2.151	12.19
9	BOI	10		6		16	1.2	19.12	2.868	16.25
10	Syndicate	10		4		14	1.2	16.73	2.5095	14.22
11	DCCB	18	10	8	6	42	1.2	50.19	7.5285	42.66
12	CMPGB	16	10	16	6	48	1.2	57.36	8.604	48.76
13	IDBI	10				10	1.2	11.95	1.7925	10.16
Targets		106	44	74	26	250		298.75	44.81	253.94

9. Physical and financial programme:

By assuming financing of two milch animal units of buffaloes and margin money of 15%, the total financial outlay for a period of two years works out to as under:

(₹ lakh)

Year	No. of units	Unit cost (₹)	Total Financial Outlay	Margin	Bank loan
2018-19	250	1.195	298.75	44.84	253.94
2019-20	273	1.195	327.60	49.14	274.46
2020-21	291	1.195	349.20	52.38	296.82
2021-22	303	1.195	363.60	54.54	309.06
2022-23	315	1.195	378.00	56.70	321.30
Total	1432		1717.15	257.57	1459.58

10. Project Profitability:

The project profitability of the dairy unit (2 animals) based on the above assumptions is given below:

Particulars / Years	I	II	III	IV	V
Income (₹)					
I. From sale of Milk	96320	110880	107520	96320	107520
II. From sale of Manure	1500	2000	2000	2000	2000
III. Income from Gunny Bags	367	443	434	404	434
Total Income	98187	113323	109954	98724	109954
Expenditure (₹)					
1. Concentrate Feed	27525	33225	32550	30300	32550
2. Green Fodder	8175	10950	10950	10950	10950
3. Dry Fodder	8175	10950	10950	10950	10950
4. Veterinary Aid	1500	2000	2000	2000	2000
5. Insurance	4400	4400	4400	4400	4400
Total Expenditure	50775	61525	60850	58600	60850
Gross Surplus (₹)	47412	51798	49104	40124	49104

11. Financial Analysis:

The financial analysis for the project is given below:

Particulars / Years	I	II	III	IV	V
Cost (₹)					
Capital cost	111500				
Recurring cost	50775	61525	60850	58600	60850
Total cost	161275	61525	60850	58600	60850
Benefits (₹)					
Income	98187	113323	109954	98724	109954
Closing Stock Value					10000
Total benefits	98187	113323	109954	98724	119954
Net benefits	(-) 63088	51798	49104	40124	59104
Discount Factor	0.869	0.756	0.657	0.571	0.497
Net Present Value		68920			
Benefit Cost Ratio (BCR)					1.24:1
Internal Rate of Return (IRR) of the Scheme					69.45%
As seen above, the project is viable with BCR, NPV and IRR at 1.24:1; ₹68690 and 69.45% respectively					

12. SWOT analysis:

STRENGTH

1. It will enhance the milk production and meet the requirement of locality efficiently.
2. The people of locality can get quality milk and owner will get reasonable price for his products.
3. Location is well connected to the city and has good transport facilities thus enable him to sell the milk at distant places.
4. The proposed venture will provide employment throughout the year and thus act as a constant source of income.
5. Well educated farmer will make use of extension work easily and implementation of innovative ideas could be achieved.

WEAKNESS

1. Power supply; it is a major problem in state which can interfere with milking procedure.
2. Under developed milk collection system and seasonal fluctuation in milk production.
3. Absence of proper data base and records.

OPPORTUNITIES

1. There is imbalance between demand and availability of milk in local area.
2. The milk can be sold directly to the co-operative with no involvement of middle man.
3. Availability of large quantities of agricultural byproducts which can reduce the cost on feeding.
4. The climate is well suitable for the cross bred cattle.

THREATS

1. Introduction of various products in local market will increase competition.
2. High cost of credit.
3. Increased urbanization of the area will lead to shrinkage of cultivable land.

13. Repayment Period:

The repayment schedule can be monthly instalments starting from second month and the total repayment period prescribed can be for 59 months. For convenience sake the yearly repayment schedule in rupees is shown overleaf:



Year	Loan outstanding at beginning of year	Gross Surplus	Interest @ 13%	Principal Paid	Total Repayment	Net Surplus
I	101600		13208	20600	33808	22604
II	81000	51798	10530	20000	30530	21268
III	61000	49104	7930	19800	27730	21374
IV	41200	40124	5356	15800	21156	18968
V	25400	49104	3302	25400	28702	20402
Total		190130	40326	101600	141926	104616
I.	After repaying the installments the borrower will be left with an average income of ₹1743/- per month.					
II.	ii. if the project is covered under subsidy schemes like DEDS, the interest burden will be reduced and repayment can be made earlier					

14. Implementation and Monitoring

- i) Initial approval at the DCC level
- ii) Block-wise allocation at BLBC meetings
- iii) Review of the implementation in DCC and BLBC meetings
- iv) Involvement of stakeholders' agencies in review meetings for ensuring the extension of support services committed by them.



Area Development Schemes Irrigation Sector

1. Introduction

Vidisha district is lying in the central part of Madhya Pradesh. It is in Bhopal commissioners division and is well connected by roads and railway. National Highway 67, connecting Bhopal and Dewas passes through the district. There are 7 tehsils and 7 blocks in the district. The block headquarters are Vidisha, Gyarspur, Basoda, Nateran, Kurwai, Sironj, Lateri. Vidisha. District with an area of 7371 Sq km lying between the North Latitudes 22° 20' and 24° 22' and East Longitudes 77° 16' and 78° 18' and falls under the Survey of India toposheet No. 54H, 54L, 55E and 55 I. The district is encircled by Guna district in the North, Sagar and Raisen in the east, Raisen in the South and Bhopal in the west.

Water is one of the most critical resources necessary for sustenance of life and central to all developmental activities. India, with 2.4% of the world's total geographical area and 18% of the world's population, has only 4% of the world's total fresh water resources. Agriculture sector alone consumes around 78% of the total water utilization. This is despite the fact that more than 55% of agriculture in India is rain fed and depends on the vagaries of monsoon.

Rainfall in Vidisha district occurs during mid of June to September. May month is the hottest month and January is the coldest month. There is need to conserve and use ground water resource efficiently by installation of drip and sprinkler irrigation system for long-term sustenance of the resource. Minor irrigation includes irrigation systems like drip and sprinkler as well as water saving devices like lining of channels, underground pipelines as they help in increasing the area under irrigation.

1.2 The climate of Vidisha district characterized by a hot summer and general dryness except during the southwest monsoon season. The year may be divided into four seasons. The cold season, December to February is followed by the hot season from March to middle of June. The period from the middle of June to September is monsoon season. October and November form the post monsoon or transition period. The normal rainfall of Vidisha district is 1135.5 mm. It receives maximum rainfall during southwest monsoon period. About 91.4% of the annual rainfall received during monsoon seasons. Only 8.6 % of the annual rainfalls take place during October to May period. The surplus water for groundwater recharge is available only during the southwest monsoon period. The maximum rainfall received in district at Kurwai i.e. 1191.0 mm and minimum at Bareli i.e. 1150.3 mm.

The details of land distribution are given as under:

Classification of Holding	Holding		Area	
	Nos.	% to Total	Ha.	% to Total
<= 1 Ha	58321	29	33055	6
>1 to <=2 Ha	56215	28	77439	15
>2 Ha	87853	43	420518	79
Total	202389	100	531012	100

1.3 The district received rainfall of 1102.3 mm, 1105.2 mm, 1145.5 mm, 1010.8 mm, 1125.6 mm and 1220.6 mm during 2011-12, 2012-13, 2013-14, 2014-15, 2015-16 and 2016-17 respectively.

1.4 Reasons or justification for preparing of area based scheme on micro irrigation:

- Project based lending is more preferable than sporadic lending. A project approach has a definite area of operation, time frame, clientele and financial projection. Monitoring and evaluation of specified projects are more result oriented than that of unplanned and sporadic ones.
- District administration has to take the depleting groundwater seriously, has to mull over a strategy to prevent the over-exploitation of groundwater and making its use more sustainable by encouraging farmers to adopt micro-irrigation methods like drip and sprinkler to conserve water and increase production. To tackle the situation, we have to come out with a multi-pronged strategy under which the efficiency of irrigation water would be enhanced and farmers to be encouraged micro-irrigation and shifting to less water-intensive crops from traditional crops.
- There is a need to prepare an Area Development Scheme (ADS) for the micro irrigation activity looking into a huge potential demand for the proposed activity, technical feasibility of the structure, suitability of area and support available from other stakeholders for implementation.
- Water is the most important agri-input whose availability can increase the income of farmers.



- The exposure of banks are very low in this sector. Advances under these activities would surely increase the business portfolio of banks in the district.

2 Status of Irrigation in the district

Status of Irrigation in the district: As against the net sown area of 5,33,611 ha, the irrigated area was 4,05,956 ha constituting 76% of net sown area. The Sources of Irrigation in the district are as under

Source	Canals	Tube well	Wells	Ponds	Others	Total
Area Irrigated (ha)	73718	134784	44246	9668	143540	405956

The main rivers in the district are Betwa, Bes and Bah and the important irrigation projects in the district are Samrat Ashok Sagar Project, Sanjay Sagar, Sagad Medium Irrigation Project, Rehati Medium Irrigation Project catering to developed irrigation potential of 54,380 ha or 19.5% of irrigation in the district.

2.1 It is observed that in Vidisha district, the stage of groundwater development is moderate (51%). In certain areas the withdrawal of groundwater is more than recharges causing depletion in groundwater level. It is observed that the fluctuation in water table is mainly due to rainfall and withdrawal of groundwater. The study on the long term analysis of water level, conducted by CGWB, indicate that water level in Vidisha district have shown a steady decline of 0 to 2.49 m during past one decade. The incidence of rainfall remaining more or less same in the period of question the only possible reason for the decline in groundwater level appears to be over development of groundwater resources indiscriminately through ever increasing number of tube wells tapping the unconfined and unconfined aquifers for agricultural, industrial and domestic uses. Hence use of drip and sprinkler systems has become a necessity

2.2 Ground Water Resources & Stage of Development in Vidisha District:

The entire command and non-command area in all blocks of district are in safe categories. The stage of ground water development has reached 51% in Vidisha district. The Net annual ground water available in the Vidisha District is 796.0 MCM and draft from all uses is 405.79 MCM, Net ground water available for future irrigation use is 377.43 MCM. The Net annual ground water resources available in the Vidisha District and draft from all uses for all the blocks is given in table below

Ground Water Resources & Stage of Development in Vidisha District

Sr. no.	District/ Assessment Unit	Sub-unit Command/ Non Command/	Net Annual Ground water Availability (ham)	Existing Gross Ground water Draft for Irrigation (ham)	Existing Gross Ground water Draft for Domestic & Industrial water Supply (ham)	Existing Gross Ground water Draft for All uses (ham)	Provision for domestic, and industrial requirement supply to next 25 year (2033) (ham)	Net Ground water Availability for future irrigation development (ham)	Stage of Ground water Development (%)
1	Basoda	Non-Command	12645	6185	919	7105	1103	5357	56
2	Gyaraspur	Non-Command	9862	5188	274	5462	458	4215	55
3	Kurwai	Non-Command	9437	5586	347	5933	561	3290	63
4	Lateri	Non-Command	10170	2710	395	3105	535	6925	31
5	Nateran	Non-Command	11466	6096	506	6602	719	4651	58
6	Sironj	Command	1122	93	17	110	28	1001	10
		Non-Command	11316	5260	474	5734	668	5388	51
7	Vidisha	Command	3647	658	143	801	259	2730	22
		Non-Command	9936	5320	408	5728	429	4186	58
District Total			79601	37096	3483	40580	4760	37743	



3. Subsidy Assistance for Micro Irrigation: GoI and GoMP extend subsidy assistance to farmers for adopting micro irrigation system under Integrated Horticulture Development mission for horticulture crops and Macro management of Agriculture for field crops.

3.1 Pradhan Mantri Krishi Sinchayee Yojana (PMKSY): Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was launched on 1st July, 2015 with the objective to achieve convergence of investments in irrigation sector at field level. The scheme aims at providing end-to-end solutions in irrigation supply chain, viz. water sources, distribution network and farm level applications. PMKSY not only focuses on creating water sources for assured irrigation, but it is also creating protective irrigation by harnessing rain water at micro level through 'Jal Sanchay' and 'Jal Sinchan'. Micro irrigation is an integral component of the scheme to maximise water use efficiency at farm level. PMKSY adopts state level planning and project wise execution that allows states to draw up their own irrigation development based on District irrigation Plans and State Irrigation Plan. The total budget allocated for implementing various components under PMKSY is ₹ 50,000 crore over four year's period (2015-16 to 2019-20).

There are four components under PMKSY which are as under:

- Accelerated Irrigation Benefit Programme (AIBP) – to focus on faster completion of ongoing Major and Medium Irrigation projects – being implemented by MOWR, RD&GR.
- PMKSY (Har Khet KoPani) – to focus on source augmentation, distribution, ground water development, lift irrigation, diversion of water from water plenty to water scarce areas, supplementing rain water harvesting beyond IWMP & MGNREGA, repair, restoration, renovation of traditional water bodies etc. – being implemented by MoWR, RD&GR.
- PMKSY (Per Drop More Crop) – to focus on micro level storage structures, efficient water conveyance & application, precision irrigation systems, topping up of input cost beyond MGNREGA permissible limits, secondary storage, water lifting devices, extension activities, coordination & management - being implemented by DAC&FW.
- PMKSY (Watershed Development) - to focus on ridge area treatment, drainage line treatment, soil and moisture conservation, water harvesting structure, livelihood support activities and other watershed works being implemented by DoLR.

The Government of India had launched Centrally Sponsored Scheme on Micro Irrigation with the objective to enhance water use efficiency in the agriculture sector by promoting appropriate technological interventions like drip & sprinkler irrigation technologies and encourage the farmers to use water saving and conservation technologies.

The pattern of assistance payable to the beneficiary under the micro irrigation scheme will be 60% for small and marginal farmers and 55% for other farmers and 65% for SC/ST farmers which will be met by both Central Government and State Government in the ratio of 60:40.

3.2 Selection of the Area

As per notice No. f 6-2-207-VII-3 dated 28.11.2017 issued by Madhya Pradesh state Government, Vidisha District has been declared as drought effected, which is of severe nature. Hence, tehsils viz. Vidisha, Gyaspur, Basauda, Nateran, Kurwai, Sironj, Lateri, Shamshabad, Teonda, Gulabjung and Pathari can be covered.

3.3 Selection of beneficiaries

- All the eligible farmers can be covered under Area Development Scheme and preference may be given to SF/MF and weaker section of the society to adopt these practices and raise their social and economic status.
- Initially 21400 farmers from all the categories are taken into consideration for 5 years plan. Subsequently, numbers will be increased with the positive response of bankers.
- Current indebtedness level of farmers is average ₹ 88000/- per KCC account, Recovery percentage of DCCB and RRB is around 95% and 80% respectively. Farmers can avail fresh loans under drip and sprinkler activities from banks under the Revised KCC guidelines.

4 Forward and backward linkages

The details of the important crops grown and their productivity in the district during the last two years are as under:

Crop	2015-16			2016-17		
	Area (Ha)	Production (Tonnes)	Productivity (kg/ha)	Area (Ha)	Production (Tonnes)	Productivity (kg/ha)
Soyabean	286330	340700	1190	312480	310920	1450
Urad	83100	54020	650	71844	65140	750



Moong	3190	1910	600	5990	5070	700
Arhar	4610	4490	975	7510	8440	1125
Maize				5250	1050	2000
Wheat	284070	854620	3000	293580	1016820	3500
Gram	173970	208760	1200	189110	166903	1200

Targets to all the bank branches is given for lending in micro irrigation activities under the area development scheme. Programme on capacity building of farmers' clubs, WUAs, FPOs, etc. to adopt micro irrigation practices would be organized and service providers like NGOs, corporates, ATMA, Agriculture and horticulture departments would be involved under the scheme for successful implementation. Platforms of BLBC/DLCC and other meeting would be used for monitoring the progress/operational issues of the schemes.

- Input suppliers, after sales services, extension agencies, dealers for drip and sprinklers etc. are available in the district to cope with the demand of farmers and with increased demand, supply can be made through nearby districts.

Allocation of Bank-wise, Branch-wise financial targets

₹ Lakh

	Basoda	Gyraspur	Kurwai	Lateri	Nateran	Sironj	Vidisha	Total
SBI	50	50	50	25	25	25	50	275
BOB	20	20	20	10	10	10	20	110
BOI	20	20	20	10	10	10	20	110
RRB	20	20	20	10	10	10	20	110
ALLAHA	20	20	20	10	10	10	20	110
CANARA	20	20	20	10	10	10	20	110
CBI	20	20	20	10	10	10	20	110
UBI	20	20	20	10	10	10	20	110
PNB	20	20	20	10	10	10	20	110
UCO	20	20	20	10	10	10	20	110
OBC	20	20	20	10	10	10	20	110
HDFC	20	20	20	10	10	10	20	110
ICICI	20	20	20	10	10	10	20	110
SYNDIC	20	20	20	10	10	10	20	110
AXIS	20	20	20	10	10	10	20	110
CORPO	20	20	20	10	10	10	20	110
VIJAYA	20	20	20	10	10	10	20	110
IOB	20	20	20	10	10	10	20	110
IDBI	20	20	20	10	10	10	20	110
BOM	20	20	20	10	10	10	20	110
DENA	20	20	20	10	10	10	20	110
ANDHRA	20	20	20	10	10	10	20	110
UNITED	20	20	20	10	10	10	20	110
DCCB	50	50	50	25	25	25	50	275
TOTAL	540	540	540	270	270	270	540	2970

Manufacturers, Suppliers after sales service of Drip and Sprinkler Irrigation System

Sr. No	Agency	Address
1	<u>Rajoriya Tractors & Harvester</u>	Ramleela Market, Vidisha
2	<u>Soni Agro Agency</u>	Vidisha
3	<u>Vishal Enterprises</u>	Ganeshganj Marg, Vidisha
4	<u>HDPE Sprinkler Irrigation Systems</u>	Near Bharat Talkies, Bhopal
5	<u>OMRF Sprinkler Pipe</u>	Hamidia Road, Bhopal



5 Capitalising the existing infrastructure

The govt. has invested heavily over the past several years in improving the infrastructure in the state. Such investments are very prominent in sectors such as irrigation and diary development.

- There are a large number of completed medium and minor irrigation projects which have been directly responsible for increasing the crop production in their command area. A natural corollary of this development should be a substantial increase in the GLC flow through banks in these areas. Thus, the command areas of several minor and medium completed irrigation projects offer immense scope for preparation of schemes which can take advantage of increased water supply.
- Similarly, the areas where watershed projects are implemented also offer scope for preparing of area based schemes. The command area of the watersheds, which range from 500 ha to 1000 ha is a compact area which facilitate, being one of the important objectives of watershed projects, these areas offer scope for implementing horticulture development schemes with focus on micro irrigation.

6. Training / Capacity building of the beneficiaries

- Specific training programmes would be organized through Horticulture department, KVKs, SAUs, NGOs, DDM NABARD and other training establishments for the targeted beneficiaries and the key stakeholders.
- Capacity building programmes for the farmers, Farmers clubs, SHGs, JLGs, and FPOs can be organized under the CAT scheme of NABARD.

7. **Techno economic assumptions & project components:** The Economics of the project are given in the annexures

8. Partners in project implementation, convergence of efforts & support expected from the State Govt.

- Convergence and technical support of Stakeholders' like Horticulture, RSETI, PNB - FTC and other related dept. would be ensured under the ADS preparation and implementation in the district.
- Initial approval will be made at DLCC meeting and thereafter Bank-wise and Branch-wise review will be done during upcoming DLCC meetings.
- Platform of DLCC/BLBC meetings would be utilised for ensuring the extension support services committed by the bankers and other stakeholders.
- Block-wise and Bank-branch-wise achievement of targets will be reviewed during BLBC meetings

9. Project cost for each unit / activity

Activity/ sub-activity	Unit cost	No of units	Total financial outlay
Drip-PMKSY-6x6 mtr.	3.4	2000	6800
Drip –PMKSY-1.8x0.6 mtr.	8.5	1500	12750
Sprinkler-PMKSY – Mini Sprinkler	8.5	2000	17000
Sprinkler – PMKSY – Portable Sprinkler	2	2000	4000
Total			40550

10. Banking network & Trends in credit flow:

Particulars	Commercial Banks	Cooperative Banks	RRBs
No of bank branches	75	18	18
Trends in credit flow for proposed activities (₹ cr.)			
Year (2014-15)	6.49	2.64	0.71
Year (2015-16)	7.34	1.19	0.78
Year (2016-17)	6.04	3.54	0.98



11. Physical and financial programme for 5 years

(₹ Lakh)

Type of Investment Activity	Unit cost	No of units	Total outlay	Bank Loan	Margin	Other sources
Drip-PMKSY-6x6 mtr. – 1 ha.	0.34	2000	680	612	10%	Subsidy can be availed from horticulture dept. under PMKSY scheme/Scheme of Govt. of MP
Drip –PMKSY-1.8x0.6 mtr. – 1 ha.	0.85	1500	1275	1147.5	10%	
Sprinkler-PMKSY – Mini Sprinkler- 1 ha.	0.85	2000	1700	1530	10%	
Sprinkler – PMKSY – Portable Sprinkler- 1 ha.	0.20	2000	400	360	10%	
Total		7500	4055	3649.5		

Profitability Analysis (individual farmers level): The detailed analysis are presented in annexure I to IV.

11.1 Security –

Loans up to ₹1.00 lakh –

- Hypothecation of Assets purchased/ created out of Bank finance.
Loan limit above ₹1.00 lakh –

- Hypothecation of Assets purchased/ created out of Bank finance.
- Mortgage of land or Declaration as per agriculture credit act or Collateral Security of adequate worth
- Third Party Guarantee.

Other securities as per the RBI guidelines.

11.2 Rate of interest for ultimate borrowers - Banks are allowed to decide the rate of interest within the overall RBI guidelines. Generally, interest rate of 12% has been charges by the banks.

11.3 Subsidy - subsidy is available for drip and sprinkler irrigation under PMKSY in the district. Eligible farmers can take the benefit of the subsidy also.

11.4 Rate of interest on NABARD refinance - As per circular of NABARD issued from time to time.

12. Repayment period:

Repayment Period will depend on the nature of activity and cash flow and will be for 9-15 years. Repayment period for the scheme is taken for 9 years without subsidy. (However, it can be decided by the financing bank as per needs of individual projects).

13. Implementation and Monitoring Mechanism

- Initial approval will be made at DLCC meeting and thereafter Bank-wise and Branch-wise review will be done during upcoming DLCC meetings
- Eligible farmers will submit the online proposals under PMKSY portal through district Horticulture department to banks or farmers can submit the proposals directly to the branches in consultation with LDM/DDM of NABARD.
- District-wise and Block-wise allocation of targets has been made which will be reviewed through LBRs during BLBC meetings
- Stakeholders' agencies like Horticulture, RSETI, KVK, ATMA and other related deptt. will be involved in DLCC/BLBC meetings for ensuring the extension of support services committed by them.

14. Expected Outcome

- With the aim of "more crop per drop" large amount of water can be saved and saved water can be used for Zayad and Rabi crops.
- Specific emphasis on water management and usage of right quantum of water.
- Energy saving at farmers' level would decrease the cost of cultivation and increases the farmers' income.
- Net irrigated area / gross irrigated area would be increased with more coverage of land under irrigation facilities.
- Specific focus on micro irrigation systems like sprinkler irrigation for field crops, drip irrigation for horticulture crops for improved water usage efficiency and also increase in production. Recent experiment has carried out by the farmers found that garlic can also be grown through drip system resulted into more production than garlic cultivated through flood irrigation methods.
- Banks can diversify their lending portfolio which will provide banks new business opportunity.



- g. Once implemented successfully, multiplier effect of these ventures will attract the attention of the neighbouring villages. After learning about the success of a project in their vicinity, will start demanding for a similar exercise in their area. These projects will soon become “demand driven”.

**Annexure I
Economics for portable Sprinkler**

Pre and Post Development Status									
Season	Crop	Area (ha)	Yield in qtl/ ha	Total yield (qtls)	Price /qtl	Total income (₹)	Cost of cultivation/ ha	Total cost of cultivation (₹)	Net income (₹)
Without project (Flood irrigation)									
Khariff	Maize	0.50	30	15	1300	19500	30000	15000	4500
	Soyabean	0.50	13	6.5	3010	19565	28000	14000	5565
Rabi	Wheat	0.50	43	21.5	1735	37303	28000	14000	23303
	Gram	0.25	13	3.25	4400	14300	18000	4500	9800
Summer	Vegetable Cultivation	0.25	159	39.75	1000	39750	40000	10000	29750
Cropping Intensity		200	Per cent			130418		57500	72918
Assumption									
1. Increase in production @ 5%, due to uniform application of water,also with adequate amount									
2. Increase in area under irrigation (Rabi & Summer) due to saving in water and water use efficiency									
With Project (Sprinkler)									
Season	Crop	Area (ha)	Yield in qtl/ha	Total yield (qtls)	price/ qtl	Total income (₹)	Cost of cultivation/ ha	Total cost of cultivation (₹)	Net income (₹)
Khariff	Maize	0.50	32	16	1300	20800	30000	15000	5800
	Soyabean	0.50	14	7	3010	21070	28000	14000	7070
Rabi	Wheat	0.50	46	23	1735	39905	28000	14000	25905
	Gram	0.25	14	3.5	4400	15400	18000	4500	10900
Summer	Vegetable cultivation	0.30	167	50.1	1000	50100	40000	12000	38100
Cropping Intensity		205	Per cent			147275		59500	87775
						Net Incremental Income			14858
							Say ₹		14858.00



Economics of Investment for 1 ha Model

Techno-economic parameters adopted :			(1 ha model)										
1	Economic life of the project investment (years)*						9						
2	Margin money (%)						10						
3	Rate of interest for borrower(%)						12						
4	Repayment period(years)*						9						
5	Investment Cost (₹)						19600.0						
6	Annual Maintenance Cost - Repairs , labor etc. @10% of investment cost (₹)						1960.00						
7	Annual Incremental Income (₹)						14858.00						
8	Discounting rate						15%						
9	Special cash flows pertaining to Other income indicated at S. Nos. 5 in the table below,have been taken as follows .												
(a)	Replacement cost of pumpset at 9 years*						0.00						
(b)	Salvage value at 9 years						0.00						
(i)	Salvage value at 9 years						1000.00						
	* Cash flows projected accordingly												
	Discounted Cash Flow :												
	S.No	Particulars						End of year					
				0	1	2	3	4	5	6	7	8	9
	1	Investment Cost	(₹)	19600.0									
	2	Other Cost (Maintenance)	(₹)			1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00
	3	Total Cost (A) (1+2)	(₹)	19600.0	0.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00
	4	Incremental Income	(₹)		14858.	14858.0	14858.00	14858.0	15600.9	15600.9	15600.9	15600.9	15600.9
	5	Other Income	(₹)										1000.00
	6	Total Benefit (B) (4+5)	(₹)	0.00	14858.0	14858.0	14858.00	14858.0	15600.9	15600.9	15600.9	15600.9	16600.9
	7	Net Benefit (C) (6-3)	(₹)	-19600.0	14858.	12898.	12898.00	12898.0	13640.9	13640.9	13640.9	13640.9	14640.9
	8	NPV of Total Costs	(₹)	23693.88									
	9	NPV of Total Benefits	(₹)	63134.18									
	10	BCR		2.66									
	11	NPV of Net Benefits	(₹)	39440.3									
	12	IRR	(%)	70%									
	13	Equal Annual Repayment	(₹)		5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00
	14	DSCR			2.53	2.20	2.20	2.20	2.33	2.33	2.33	2.33	2.50
	15	Average DSCR		2.32									



Repayment Schedule

(Amount in ₹)

Investment Cost (₹)	19600.00
Rate of interest (%)	12
Repayment year	9

Year	Principal Balance	Annual Instalment	Interest accrued	Total Outgo	Equated annual instalment
0	19600.00	0.00	2352.00	2352.00	0.00
1	19600.00	2178.00	2352.00	4530.00	3746.00
2	17422.00	2178.00	2091.00	4269.00	3746.00
3	15244.00	2178.00	1829.00	4007.00	3746.00
4	13066.00	2178.00	1568.00	3746.00	3746.00
5	10888.00	2178.00	1307.00	3485.00	3746.00
6	8710.00	2178.00	1045.00	3223.00	3746.00
7	6532.00	2178.00	784.00	2962.00	3746.00
8	4354.00	2178.00	522.00	2700.00	3746.00
9	2176.00	2176.00	261.00	2437.00	3743.00
	Total	19600.00	14111.00	33711.00	33711.00

If the subsidy component ranging from 55% to 65% of horticulture dept. is taken into consideration the repayment period can be reduced to 5 years with the same level or decreased Equated annual instalments.



**Annexure II
Economics for Mini Sprinkler**

Pre and Post Development Status									
Season	Crop	Area (ha)	Yield in qtl/ha	Total yield (qtls)	price/ qtl	Total income (₹)	Cost of cultivation/ ha	Total cost of cultivation(₹)	Net income (₹)
Without project (Flood irrigation)									
Khariff	Maize	0.50	30	15	1300	19500	30000	15000	4500
	Soyabean	0.50	13	6.5	3010	19565	28000	14000	5565
Rabi	Wheat	0.50	43	21.5	1735	37303	28000	14000	23303
	Gram	0.25	13	3.25	4400	14300	18000	4500	9800
Summer	Vegetable Cultivation	0.25	159	39.75	1000	39750	40000	10000	29750
Cropping Intensity		200	Per cent			130418		57500	72918
Assumption									
1. Increase in production @ 10%, due to uniform application of water,also with adequate amount									
2. Increase in area under irrigation (Rabi & Summer) due to saving in water and water use efficiency									
With Project (Sprinkler)									
Season	Crop	Area (ha)	Yield in qtl/ha	Total yield (qtls)	price/ qtl	Total income (₹)	Cost of cultivation/ ha	Total cost of cultivation(₹)	Net income (₹)
Kharif	Maize	0.50	33	16.5	1300	21450	30000	15000	6450
	Soyabean	0.50	15	7.5	3010	22575	28000	14000	8575
Rabi	Wheat	0.50	48	24	1735	41640	28000	14000	27640
	Gram	0.50	15	7.5	4400	33000	18000	9000	24000
Summer	Vegetable cultivation	0.30	175	52.5	1000	52500	40000	12000	40500
Cropping Intensity		230	Per cent			171165		64000	107165
						Net Incremental Income			34248
							Say ₹	34248.00	



Economics of Investment for 1 ha Model of Mini Sprinkler

Techno-economic parameters adopted :		(1 ha model)										
1	Economic life of the project investment (years)*						9					
2	Margin money (%)						10					
3	Rate of interest for borrower(%)						12					
4	Repayment period(years)*						9					
5	Investment Cost (₹)						85200.0					
6	Annual Maintenance Cost - Repairs , labor etc. @10% of investment cost (₹)						8520.00					
7	Annual Incremental Income (₹)						34248.00					
8	Discounting rate						15%					
9	Special cash flows pertaining to Other income indicated at S. Nos. 5 in the table below, have been taken as follows .											
(a)	Replacement cost of pumpset at 9 years*						0.00					
(b) (i)	Salvage value at 9 years						0.00					
	Salvage value at 9 years						1000.00					
	* Cash flows projected accordingly											
	Discounted Cash Flow :											
	S. No.	Particulars						End of year				
			0	1	2	3	4	5	6	7	8	9
1	Investment Cost (₹)		85200.00									
2	Other Cost (Maintenance) (₹)				8520.0	8520.00	8520.00	8520.00	8520.00	8520.00	8520.00	8520.00
3	Total Cost (A) (1+2) (₹)		85200.00	0.00	8520.0	8520.00	8520.0	8520.0	8520.0	8520.0	8520.0	8520.0
4	Incremental Income (₹)			34248.0	34248.0	34248.0	34248.0	35960.4	35960.4	35960.4	35960.4	35960.4
5	Other Income (₹)											1000.00
6	Total Benefit (B) (4+5) (₹)		0.00	34248.0	34248.0	34248.0	34248.0	35960.4	35960.4	35960.4	35960.4	36960.4
7	Net Benefit (C) (6-3) (₹)		-85200.0	34248.0	25728.0	25728.0	25728.0	27440.4	27440.4	27440.4	27440.4	28440.4
8	NPV of Total Costs (₹)		102995.83									
9	NPV of Total Benefits (₹)		145203.01									
10	BCR		1.41									
11	NPV of Net Benefits (₹)		42207.19									
12	IRR (%)		30%									
13	Equal Annual Repayment (₹)			5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00
14	DSCR			5.84	4.39	4.39	4.39	4.68	4.68	4.68	4.68	4.85
15	Average DSCR		4.73									



नाबार्ड

ADS 2018-23
Vidisha (MP)

Repayment Schedule						
						(Amount in ₹)
		Investment Cost (₹)		85200.00		
		Rate of interest (%)		12		
		Repayment year		9		
Year	Principal Balance	Annual Instalment	Interest accrued	Total Outgo	Equated annual instalment	
0	85200.00	0.00	10224.00	10224.00	0.00	
1	85200.00	9467.00	10224.00	19691.00	16283.00	
2	75733.00	9467.00	9088.00	18555.00	16283.00	
3	66266.00	9467.00	7952.00	17419.00	16283.00	
4	56799.00	9467.00	6816.00	16283.00	16283.00	
5	47332.00	9467.00	5680.00	15147.00	16283.00	
6	37865.00	9467.00	4544.00	14011.00	16283.00	
7	28398.00	9467.00	3408.00	12875.00	16283.00	
8	18931.00	9467.00	2272.00	11739.00	16283.00	
9	9464.00	9464.00	1136.00	10600.00	16280.00	
	Total	85200.00	61344.00	146544.00	146544.00	

If the Subsidy component ranging from 55% to 65% of horticulture dept. is taken into consideration the repayment period can be reduced to 3-5 years with the same level of repayment amount or decreased equated annual instalments.



Annexure III
The economics of Drip system (spacing of 1.8m X 0.6 m) for vegetable cultivation

Crop	Area (ha)	Yield in qtl/ha	Total yield (qtls)	price/ctl	Total income (₹)	Cost of cultivation/ha	Net income (₹)
Vegetable Cultivation	0.85	120	102	1000	102000	80000	94000
	1				102000		94000
1. Increase in production @ 15%, due to uniform application of water,also with adequate amount							
2. Increase in area under irrigation (Rabi & Summer) due to saving in water and water use efficiency							
Crop	Area (ha)	Yield in qtl/ha	Total yield (qtls)	price/ctl	Total income (₹)	Cost of cultivation/ha	Net income (₹)
Vegetable Cultivation(Drip 1.8m X 0.6 m)	0.85	138	117.30	1000	117300	80000	37300
	1				117300		37300
						Net Incremental Income	2700
							2700.00

Economics of Investment for 1 ha Model

Techno-economic parameters adopted :	(1 ha model)									
Economic life of the project investment (years)*				9						
Margin money (%)				10						
Rate of interest for borrower(%)				12						
Repayment period(years)*				9						
Investment Cost (₹)				85400.0						
Annual Maintenance Cost - Repairs , labor etc. @10% of investment cost (₹)				8540.00						
Annual Incremental Income (₹)				31800.0						
Discounting rate				15%						
Special cash flows pertaining to Other income indicated at S. Nos. 5 in the table below,have been taken as follows .										
Replacement cost of pumpset at 9 years*				0.00						
Salvage value at 9 years				0.00						
Salvage value at 9 years				1000.00						



* Cash flows projected accordingly												
Discounted Cash Flow :												
S.No	Particulars		End of year									
			0	1	2	3	4	5	6	7	8	9
1	Investment Cost	(₹)	85400.0									
2	Other Cost (Maintenance)	(₹)			8540.00	8540.00	8540.00	8540.00	8540.00	8540.00	8540.00	8540.00
3	Total Cost (A) (1+2)	(₹)	85400.0	0.00	8540.00	8540.00	8540.00	8540.00	8540.00	8540.00	8540.00	8540.00
4	Incremental Income	(₹)		31800.00	31800.00	31800.00	31800.00	33390.00	33390.00	33390.00	33390.00	33390.00
5	Other Income	(₹)										1000.00
6	Total Benefit (B) (4+5)	(₹)	0.00	31800.00	31800.00	31800.00	31800.00	33390.00	33390.00	33390.00	33390.00	34390.00
7	Net Benefit (C) (6-3)	(₹)	-85400.00	31800.00	23260.00	23260.00	23260.00	24850.00	24850.00	24850.00	24850.00	25850.00
8	NPV of Total Costs	(₹)	103237.6									
9	NPV of Total Benefits	(₹)	134841.77									
10	BCR		1.31									
11	NPV of Net Benefits	(₹)	31604.17									
12	IRR	(%)	27%									
13	Equal Annual Repayment	(₹)		5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00
14	DSCR			5.42	3.96	3.96	3.96	4.24	4.24	4.24	4.24	4.41
15	Average DSCR		4.30									

Repayment Schedule

(Amount in ₹)

Investment Cost (₹)	85400.00
Rate of interest (%)	12
Repayment year	9

Year	Principal Balance	Annual Instalment	Interest accrued	Total Outgo	Equated annual instalment
0	85400.0	0.00	10248.0	10248.00	0.00
1	85400.0	9489.00	10248.0	19737.00	16321.00
2	75911.0	9489.00	9109.00	18598.00	16321.00
3	66422.0	9489.00	7971.00	17460.00	16321.00
4	56933.0	9489.00	6832.0	16321.00	16321.00
5	47444.0	9489.00	5693.00	15182.00	16321.00
6	37955.0	9489.00	4555.00	14044.00	16321.00
7	28466.0	9489.00	3416.00	12905.00	16321.00
8	18977.0	9489.00	2277.00	11766.00	16321.00
9	9488.00	9488.00	1139.00	10627.00	16318.00
	Total	85400.00	61488.0	146888.00	146886.00

If the Subsidy component ranging from 55% to 65% of horticulture dept. is taken into consideration the repayment period can be reduced to 3-5 years with the same level of repayment amount or decreased equated annual instalments.



Annexure IV
The economics of Drip system (spacing of 6m X 6 m) for Orange cultivation

	Area (ha)	Yield in qtl/ha	Total yield (qtls)	price/ctl	Total income (₹)	Cost of cultivation/ha	Net income (₹)
Orange Cultivation	0.85	100	85		85000	60000	25000
	1				85000		25000
1. Increase in production @ 10%, due to uniform application of water, also with adequate amount							
2. Increase in area under irrigation (Rabi & Summer) due to saving in water and water use efficiency							
Crop	Area (ha)	Yield in qtl/ha	Total yield (qtls)	price/ctl	Total income (₹)	Cost of cultivation/ha	Net income (₹)
Orange Cultivation(Drip 6m X 6 m)	0.85	110	93.50	1000	93500	60000	33500
	1				93500		33500
					Net Incremental Income		6500
							6500.00

Economics of Investment for 1 ha Model

	Techno-economic parameters adopted :	(1 ha model)									
1	Economic life of the project investment (years)*					9					
2	Margin money (%)					10					
3	Rate of interest for borrower(%)					12					
4	Repayment period(years)*					9					
5	Investment Cost (₹)					33900.00					
6	Annual Maintenance Cost - Repairs , labor etc. @10% of investment cost (₹)					3390.00					
7	Annual Incremental Income (₹)					17700.00					
8	Discounting rate					15%					
9	Special cash flows pertaining to Other income indicated at S. Nos. 5 in the table below,have been taken as follows .										



(a)	Replacement cost of pumpset at 9 years*						0.00						
(b)	Salvage value at 9 years						0.00						
(i)	Salvage value at 9 years						1000.00						
	* Cash flows projected accordingly												
	Discounted Cash Flow :												
	S. No.	Particulars						End of	year				
			0	1	2	3	4	5	6	7	8	9	
	1	Investment Cost (₹)	33900.00										
	2	Other Cost (Maintenance) (₹)			3390.00	3390.00	3390.00	3390.00	3390.00	3390.00	3390.00	3390.00	3390.00
	3	Total Cost (A) (1+2) (₹)	33900.00	0.00	3390.00	3390.00	3390.00	3390.00	3390.00	3390.00	3390.00	3390.00	3390.00
	4	Incremental Income (₹)		17700.00	17700.00	17700.00	17700.00	18585.00	18585.00	18585.00	18585.00	18585.00	18585.00
	5	Other Income (₹)											1000.00
	6	Total Benefit (B) (4+5) (₹)	0.00	17700.00	17700.00	17700.00	17700.00	18585.00	18585.00	18585.00	18585.00	18585.00	19585.00
	7	Net Benefit (C) (6-3) (₹)	-33900.00	17700.00	14310.00	14310.00	14310.00	15195.00	15195.00	15195.00	15195.00	15195.00	16195.00
	8	NPV of Total Costs (₹)	40980.73										
	9	NPV of Total Benefits (₹)	75163.04										
	10	BCR	1.83										
	11	NPV of Net Benefits (₹)	34182.30										
	12	IRR (%)	44%										
	13	Equal Annual Repayment (₹)		5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00	5867.00
	14	DSCR		3.02	2.44	2.44	2.44	2.59	2.59	2.59	2.59	2.59	2.76
	15	Average DSCR	2.61										



Repayment Schedule

(Amount in ₹)

Investment Cost (₹)	33900.00
Rate of interest (%)	12
Repayment year	9

Year	Principal Balance	Annual Instalment	Interest accrued	Total Outgo	Equated annual instalment
0	33900.00	0.00	4068.00	4068.00	0.00
1	33900.00	3767.00	4068.00	7835.00	6479.00
2	30133.00	3767.00	3616.00	7383.00	6479.00
3	26366.00	3767.00	3164.00	6931.00	6479.00
4	22599.00	3767.00	2712.00	6479.00	6479.00
5	18832.00	3767.00	2260.00	6027.00	6479.00
6	15065.00	3767.00	1808.00	5575.00	6479.00
7	11298.00	3767.00	1356.00	5123.00	6479.00
8	7531.00	3767.00	904.00	4671.00	6479.00
9	3764.00	3764.00	452.00	4216.00	6476.00
	Total	33900.00	24408.00	58308.00	58308.00

If the Subsidy component ranging from 55% to 65% of horticulture dept. is taken into consideration the repayment period can be reduced to 3-5 years with the same level of repayment amount or decreased equated annual instalments.



District Development Managers (DDMs) of NABARD – M.P. Regional Office

District Development Managers (DDMs) & DDM(R) & Tem CPD of NABARD, Madhya Pradesh Regional Office						
Sl. No.	Name of Dist.	Tagged District	Name	Mobile No.	Desig	e-Mail Address
1	Balaghat	-	G.K. Shette	94249 69309 / 07632-249940	AGM	balaghat@nabard.org
2	Betul	-	D.N. Hedao	94256060 81 / 07141-230936	Mgr.	betul@nabard.org
3	Chhindwara	Seoni	Salil Zokarkar	9425049655 / 0-77372-52691 / 07162-44013	Mgr.	chhindwara@nabard.org
4	Dewas	-	Yogesh Gokhle	94256060 80 / 07272-252862	AGM	dewas@nabard.org
5	Dhar	--	Anil Kumar Soni	94256060 91 / 0729-232143	Mgr.	dhar@nabard.org
6	Gwalior	Datia	Sanjeev Raman	95252 52530 / 0751-2235808	AGM	gwalior@nabard.org
7	Hoshangabad	Harda	Naresh M. Tijare	9479958948 / 7000315860	Mgr.	hoshangabad@nabard.org
8	Indore	Ujjain	Deepak Ghorpade	98936 55753 / 0731-2575391	AGM	indore@nabard.org
9	Jabalpur	-	Sandeep Dharkar	94253 24697 - 0761-2417966	AGM	jabalpur@nabard.org
10	Jhabua	Alirajpur	Prabhudatta Sahoo	9425414099	AGM	jhabua@nabard.org
11	Katni	-	M. Dhanesh	9425017293	Mgr.	katni@nabard.org
12	Khandwa	Burhanpur	M. V. Patil	94256060 75 / 0733-2911173	AGM	khandwa@nabard.org
13	Khargone	Barwani	S A Ramteke	9090388515	Mgr.	khargone@nabard.org
14	Mandla	Dindori	A K Verma	9444878565, 7089655260	Mgr.	mandla@nabard.org
15	Mandsaur	Neemuch	Manoj Harchandani	94256060 86 / 07422-23243	Mgr.	mandsaur@nabard.org
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18	Ratlam	-	J. P. Minj	94256060 95	Mgr.	ratlam@nabard.org
19	Rewa	Sidhi	Sunil Dhikle	9425601719	Mgr.	rewa@nabard.org
20	Sagar	Damoh	Suresh Motwani	9165575048	Mgr.	sagar@nabard.org
21	Satna	Panna	E Kujur	8009460229 / 7518230123	Mgr.	satna@nabard.org
22	Shahdol	Anup pur	Sanjay Kumar Soni	94256060 90	AGM	shahdol@nabard.org
23	Shajapur	Agar-Malwa	Anil Kumar Atal	94256060 73	Mgr.	shajapur@nabard.org
24	Shivpuri	Sheopur	Raja G. Iyer	0-98600 98160	Mgr.	shivpuri@nabard.org
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राष्ट्रीय कृषि और ग्रामीण विकास बैंक

National Bank for Agriculture and Rural Development

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