



**DISTRICT IRRIGATION PLAN
DIBRUGARH, ASSAM**



**NABARD
CONSULTANCY
SERVICES**

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District Irrigation Plan, 2016-2020

Dibrugarh, Assam



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Executive Summary

In an agrarian economy like India, agriculture utilizes the major share of country's exploitable water resources. Though the sector utilizes the maximum share of exploitable water resources, availability of the same at different locations to different extent makes it vital to adopt effective utilization of water through storage, channelizing and judicial use. At some places like Punjab and Haryana, the environmental and socio-economic rationale for this capture by the sector is now being questioned. Accordingly, it is needed to challenge and change the fundamentals of the prevailing view of water resources exploitation. A new and more suitable approach to water resources allocation is necessary if the population is to be adequately fed, without further degradation and destruction of the critical ecosystem services. Water productivity needs to be enhanced considerably, and economic cost-benefit analysis and pricing regimes can play a significant role in such a process. However, these economic measures will not be sufficient on their own. They will need to be buttressed by technological innovation and institutional changes in order to encourage a more equitable distribution of resources and to mitigate potential international conflicts across 'shared' water basins.

Water has unique characteristics that determine both its allocation and use as a resource by agriculture. Agricultural use of water for irrigation is itself contingent on land resources. In a situation of growing water scarcity and rising demands for non-agricultural (household and industrial) use of water, reassessment of sectoral allocations of water are inevitable. In developing countries, irrigated agriculture plays a vital role in contributing towards domestic food security and poverty alleviation. Therefore, achievement of these objectives is dependent on adequate allocations of water to agriculture. Justification of such allocations requires that irrigated agriculture be a cost-effective means of achieving stated political or social objectives, such as food security or poverty alleviation, and that all externalities be taken into account in the pricing mechanism. Improved allocation of irrigation water is required within the agriculture sectors in order to achieve greater efficiency in the use of irrigation water and existing irrigation infrastructure. Reallocation is also required in order to reduce waterlogging and salinization of irrigated land, to decrease the negative environmental impacts and other externalities of irrigation (caused by over extraction of groundwater and depletion and pollution of surface water).

Government of India launched Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) to address the constraints in providing assured irrigation as well as increasing efficiency and

productivity of current water use to bring more prosperity to the rural areas. Priorities of Government of India were reflected in the Hon'ble President's address to the joint Session of the Parliament of 16th Lok Sabha where he indicated that "Each drop of water is precious. Government is committed to giving high priority to water security. It will complete the long pending irrigation projects on priority and launch the 'Pradhan Mantri Krishi Sinchayee Yojana' with the motto of 'Har Khet Ko Pani'. There is a need for seriously considering all options including linking of rivers, where feasible; for ensuring optimal use of our water resources to prevent the recurrence of floods and drought. By harnessing rain water through 'Jal Sanchay' and 'Jal Sinchan', we will nurture water conservation and ground water recharge. Micro irrigation will be popularised to ensure 'Per drop-More crop'".

PMKSY has been approved with an indicative outlay of Rs.50,000 crore over a period of five years from 2015-16 to 2019-20. The programme is an amalgamation of on-going schemes of Ministry of Water Resources, River Development and Ganga Rejuvenation, Ministry of Agriculture & Cooperation and Ministry of Rural Development. The existing schemes AIBP, CADWM, MI, SWMA, Watershed & Convergence with MGNREGA were brought together under the umbrella program of PMKSY. Further the scheme seeks convergence with scheme like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNRES), Rashtriya Krishi Vikas Yojana (RKVY), Jawaharlal Nehru National Solar Mission and Rural Electrification programmes (JLNNSM&REP), Rural Infrastructure Development Fund (RIDF), Members of Parliament Local Area Development Scheme (MPLAD), Members of Legislative Assembly Local Area Development Fund (MLALAD), Local Body Funds (LBF), Working Plan of State Forest Department (WPSFD) etc. The PMKSY will be implemented in an area development mode only by adopting a decentralized state level planning and projectised execution structure that will allow the state to draw up their own irrigation development plans based on DIPs and SIPs with a horizon of 5-7 years. The program will be supervised and coordinated utilizing the existing mechanism and structure available under Rashtriya Krishi Vikas Yojana (RKVY) program with state agriculture department acting as the State Nodal Agency for implementation of PMKSY. However, the implementing departments for the four components like AIBP, PMKSY (Har Khet Ko Pani), PMKSY (Per drop more crop) and PMKSY (watershed development) will be decided by the respective program ministry/department.

The five chapters along with introduction chapter, explains the profile of district, its water requirement for agriculture and allied sector, water availability, assessment of water

requirement for various sectors and strategic action plan for augmentation and effective management of available water resources.

District Demography:

As per 2011 census, the population of the district is 13,26,335 which is 4.25% of the state's population. With a population density of 392 person per square kilometer, Dibrugarh is relatively equally denser compared to the population density of the state (398 person per square kilometer). The number of males and females in the district are 6,76,434 and 6,49,901 respectively forming a sex ratio of 961 female per 1000 male. Compared to the population recorded in 2001 census, there was an increase of 11.92 percent in the population in 2011. The literacy rate of the district is 76.05% which is higher than the average literacy rate of the state which stood at 72.19%. There are 2,76,867 households in the district.

Agriculture in Dibrugarh:

The district has net and gross cropped areas of 1,27,313 hectares and 1,88,692 hectares respectively, the net cropped area being 68 percent of the total geographical area. About 61,379 hectares out of the net cropped areas is put under multiple cropping with an average cropping intensity 148 percent as against 152.43 percent for the state.

District Water Profile:

In Dibrugarh district stage of ground water development is 15 %, which shows under the SAFE category. As long-term water level trend does not show any major change so the whole district may be considered as SAFE.

Demand for water and the gap:

Total present water requirement for the district is 649.29 MCM while the total future water requirement for the district is 661.66 MCM. The present water availability/demand and also for 2020 are worked out as explained above and the water gap is found out. The water budget clearly shows the water gap between the water availability and requirement. The negative gap indicates that there is sufficient water resources for irrigation, domestic and the industrial uses without creating any deficit in our water potential.

PMKSY Financial Proposal:

Total plan of Dibrugarh district for four years works out to be Rs. 110593.0lakh. Maximum share of Rs. 58249.2 lakh (52%) is for Irrigation department followed by Agriculture department with Rs. 46777.80 lakh (43%) and Soil Conservation department with Rs. 5566.00 lakh (5%). The total plan of four years is equally divided in to 4 years i.e. 2016-17, 2017-18, 2018-19 and 2019-20.

Expected Outcome:

The gross irrigated area in the district is 7187.5 hectare which is around 4% of 188692 hectare of the gross cropped area. Agriculture, Irrigation and Soil Conservation departments of the district have proposed to bring additional 127157.5 hectares of land under irrigated cultivation system. Thus, total of around 80% of the gross cropped area will be under agriculture.

Introduction

Background

Preparation of decentralized area specific district planning process visualized in various plans took concrete shape through the years and initiatives like specific guidelines on methodologies and processes for preparation of district plans; framework for preparation of perspective plan, medium term and annual plans by then planning commission in 1969 and the 73rd and 74th constitutional amendments conferring constitutional status to Panchayats at district and sub district level; local self-government in urban areas; constitution of district planning committee to consolidate the plans prepared at Panchayats and municipalities and prepare a draft development plan for the whole district.

The decentralized planning process was further strengthened through emphasis by planning commission on preparation of district level plans and making it an integral part of the process of preparation of the states 11th five year plan. The Planning commission issued guidelines in August 2006 for preparation of the district plans. The guidelines define the District Planning as ‘the process of preparing an integrated plan for the local government sector in a district taking into account the resources (natural, human and financial) available and covering the sectoral activities and schemes assigned to the district level and below and those implemented through local governments in a state. The document that embodies this statement of resources and their allocation for various purposes is known as the District Plan’.

Government of India through a resolution in National Development Council on 29th May 2007 conceived a special Additional Central Assistance Scheme (ACAS) to address the slow growth of agriculture and allied sectors by incentivizing states to draw up plans for their agriculture sectors more comprehensively. The NDC resolution states "GoI will introduce a new Additional Central Assistance Scheme to incentivize states to draw up plans for their agriculture sector more comprehensively, taking agro-climatic conditions, natural resource issues and technology into account, and integrating livestock, poultry and fisheries, etc. This will involve a new scheme for Additional Central Assistance (ACA) to State Plans, administered by the Union Ministry of Agriculture over and above its existing Centrally Sponsored Schemes, to supplement the State-specific strategies including special schemes for beneficiaries of land reforms. The newly created National Rainfed Area Authority will, on request, assist States in planning for rainfed areas".

The NDC in its resolution advised the states to prepare a comprehensive district agriculture plans (C-DAP) that will fully utilize available resources and will include allied agriculture sectors. Further, GOI issued a manual on preparation of comprehensive district agriculture plans to help the states prepare C-DAP. As per these guidelines, the objective of district planning is ‘to design an integrated and participatory action plan for the development of local area in general and agriculture and allied sectors in particular’. The objectives of Comprehensive District Agriculture Plan (C-DAP) are:

- To prepare a Comprehensive District Agriculture Plan (C-DAP) through participatory process involving various organisations and stakeholders.
- To enable optimum utilisation of scarce natural, physical & financial resources.
- To assess and plan for the infrastructure required to support the agriculture development.
- To establish linkages with the required institutional support services, like credit, technology transfer, ICT, research etc.
- To evolve an action plan for achieving sustainable agricultural growth with food security and cropping system that will improve farmers’ income.

The guidelines required the state/district authorities to (i) ensure that the agricultural plans are prepared for the district and then integrated into the agricultural plans of the State based on the agro-climatic conditions, availability of technology, trained manpower and natural resources; (ii) local needs / crops / feed and fodder / animal husbandry / dairying / fisheries / priorities are reflected in the plan; (iii) productivity gaps for important crops and livestock and fisheries are reduced; and (iv) the returns to the farmers from these are maximized.

The latest move in the process of strengthening of decentralized planning process was the Government of India guidelines issued in 2015 in the form of a template for the preparation of District Irrigation Plan (DIP) and State Irrigation Plan (SIP) as part of the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) program and made the preparation of DIP and SIP mandatory for the states to receive funds from the program. The present report is a product of these long drawn efforts of Government of India to strengthen the decentralized planning

process in the country focusing on the vital resource i.e., water.

Water is of vital importance for human & animal life, maintenance of ecological balance and promotion of developmental activities. Considering its vital importance and ever increasing demand for water, in the face of population growth, urbanization & industrialization and considerations of climatic change, making water, an increasingly a scarce resource, available to multiple uses, planning and management of this vital resources, utilization of water economically, optimally and equitably assumes greater importance.

According to the 12th Five year Plan the water budget estimates of India by Ministry of Water Resources suggests an availability of 1123 billion cubic meters (BCM) against a current estimated demand of 710 BCM. The Standing Committee of the Ministry of Water Resources estimates that this water demand will rise to 1093 BCM by 2025. Though the existing water availability in the immediate future seems to be adequate, with the near constant supply of water resources in the face of increasing demand on account of population growth, urbanisation and industrialization will strain the water supply-demand balance.

The per capita water availability which stood at 5,177 cubic meters in 1951 was reduced to 1820 cubic meters in 2001 while the international prescribed limit is 1800 cubic meters. The projected per capita availability of water is 1341 cubic meters in 2025 and 1140 cubic meters in 2050 suggesting shortage of water in the medium term¹. Further, the all India water balance estimates does not reflect the variations in water balance across time and space-certain areas having a positive water balance and the others facing acute shortage. The problem is further accentuated by water quality related issues.

With the abundant surface and ground water supply in the first five decades since independence, more than 80 percent of the total available water resources were allocated for irrigation purposes and the rest meeting the domestic and industrial demands. In a recent study² on the demand for water from agriculture, domestic and industrial uses in 2000, 2025 and 2050 seems to suggest that domestic demand (34 BCM in 2000, 66 BCM in 2025 and 101 BCM in 2050) and industrial demand (42 BCM in 2000, 92 BCM in 2025 and 161 BCM in 2050) for water will utilize the total balance water available while agriculture demand for

¹Ministry of Water Resources (2011), Strategic Plan for Ministry of Water Resources, GoI, New Delhi

²Amarasinghe, U.A., Shah T., Turrall, H. and Anand, B.K. 2007. *India's water future to 2025-2050: Business-as-usual scenario and deviations*. Research Report 123, International Water Management Institute, Colombo.

water will be (605 BCM in 2000, 675 BCM in 2025 and 637 BCM in 2050). This change is partly because of the changing sectoral contributions of India's GDP and also partly because of dynamics of irrigation development in the country where the initial expansion in area under irrigation is propelled by the availability of abundant water resources and availability of good quality land. This is no longer the case in many of the states where the availability of land and water are serious constraints for further expansion of irrigation. Further, as per the erstwhile planning commission up to March 2012 out of 141 million hectares of net sown area in the country 114 (or 81%) million hectares is Irrigation Potential Created (IPC) and 88 (or 62%) million hectares is Irrigation Potential Utilised (IPU) leaving almost 20% of irrigated potential unutilized. This leaves 40 percent of the net sown area in the country dependent on rainfall which makes farming a high risk and less productive.

The competing demands for water resources and the emerging issues and concerns were to be addressed through certain basic principles and commonality in approaches in dealing with planning, development and management of water resources³ under an Integrated Water Resource Management framework. The main objectives of water resource management as delineated in National Water Policy 2012 are:

- a) Planning, development and management of water resources need to be governed by common integrated perspective considering local, regional, State and national context, having an environmentally sound basis, keeping in view the human, social and economic needs.
- b) Principle of equity and social justice must inform use and allocation of water.
- c) Good governance through transparent informed decision making is crucial to the objectives of equity, social justice and sustainability. Meaningful intensive participation, transparency and accountability should guide decision making and regulation of water resources.
- d) Water needs to be managed as a common pool community resource held, by the state, under public trust doctrine to achieve food security, support livelihood, and ensure equitable and sustainable development for all.
- e) Water is essential for sustenance of eco-system, and therefore, minimum ecological needs should be given due consideration.

³Ministry of Water Resources, National Water Policy, 2012, GoI, New Delhi.

- f) Safe Water for drinking and sanitation should be considered as pre-emptive needs, followed by high priority allocation for other basic domestic needs (including needs of animals), achieving food security, supporting sustenance agriculture and minimum eco-system needs. Available water, after meeting the above needs, should be allocated in a manner to promote its conservation and efficient use.
- g) All the elements of the water cycle, i.e., evapo-transpiration, precipitation, runoff, river, lakes, soil moisture, and ground water, sea, etc., are interdependent and the basic hydrological unit is the river basin, which should be considered as the basic hydrological unit for planning.
- h) Given the limits on enhancing the availability of utilizable water resources and increased variability in supplies due to climate change, meeting the future needs will depend more on demand management, and hence, this needs to be given priority, especially through (a) evolving an agricultural system which economizes on water use and maximizes value from water, and (b) bringing in maximum efficiency in use of water and avoiding wastages.
- i) Water quality and quantity are interlinked and need to be managed in an integrated manner, consistent with broader environmental management approaches inter-alia including the use of economic incentives and penalties to reduce pollution and wastage.
- j) The impact of climate change on water resources availability must be factored into water management related decisions. Water using activities need to be regulated keeping in mind the local geo climatic and hydrological situation.

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through ‘Jal Sanchay’ and ‘Jal Sinchan’, we will nurture water conservation and ground water recharge. Micro irrigation will be popularised to ensure ‘Per drop-More crop’.

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The funds under this program would be provided to the states as per the pattern of assistance of Centrally Sponsored Schemes (CSS) decided by the Ministry of Finance and NITI Aayog. During 2015-16 the existing pattern of assistance of ongoing scheme was continued. An outlay of Rs. 50,000 crore has been approved for 2015-20. The financial assistance provided to the state governments from this centrally sponsored scheme is subject to fulfilment of certain conditions. Firstly, a state will become eligible to access PMKSY fund only if it has prepared the District Irrigation Plans (DIP) and State Irrigation Plan (SIP), excepting for the initial year, and the expenditure in water resource development for agriculture sector in the year under consideration is not less than the baseline expenditure, which is defined as the average of the expenditure in irrigation sector irrespective of the department in the state plan

in three years prior to the year under consideration. Secondly, States will be given additional weightage for levying charges on water and electricity for irrigation purposes, so as to ensure sustainability of the programme. Thirdly, interstate allocation of PMKSY fund will be decided based on

- Share of percentage of unirrigated area in the state vis-à-vis national average including prominence of areas classified under Desert Development Programme (DDP) and Drought Prone Area Development Programme (DPAP)
- Increase in percentage share of expenditure on water resource development for agriculture sector in State Plan expenditure in the previous year over three years prior to it and
- Improvement in irrigation efficiency in the state.

Vision

The overreaching vision of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) will be to ensure access to some means of protective irrigation to all agricultural farms in the country, to produce ‘per drop more crop’, thus bringing much desired rural prosperity.

Objective

The objectives of the PMKSY are to:

- a) Achieve convergence of investments in irrigation at the field level (preparation of district level and, if required, sub district level water use plans).
- b) Enhance the physical access of water on the farm and expand cultivable area under assured irrigation (Har Khet ko Pani),
- c) Integration of water source, distribution and its efficient use, to make best use of water through appropriate technologies and practices.
- d) Improve on-farm water use efficiency to reduce wastage and increase availability both in duration and extent,
- e) Enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop).
- f) Enhance recharge of aquifers and introduce sustainable water conservation practices

- g) Ensure the integrated development of rainfed areas using the watershed approach towards soil and water conservation, regeneration of ground water, arresting runoff, providing livelihood options and other NRM activities.
- h) Promote extension activities relating to water harvesting, water management and crop alignment for farmers and grass root level field functionaries.
- i) Explore the feasibility of reusing treated municipal waste water for peri-urban agriculture, and
- j) Attract greater private investments in irrigation.

Strategy/approach

To achieve these objectives PMKSY adopted strategies that include

- a) Creation of new water sources; repair, restoration and renovation of defunct water sources; construction of water harvesting structures, secondary & micro storage, groundwater development, enhancing potentials of traditional water bodies at village level like Jal Mandir (Gujarat); Khatri, Kuhl (H.P.); Zabo (Nagaland); Eri, Ooranis (T.N.); Dongs (Assam); Katas, Bandhas (Odisha and M.P.) etc.
- b) Developing/augmenting distribution network where irrigation sources (both assured and protective) are available or created;
- c) Promotion of scientific moisture conservation and run off control measures to improve ground water recharge so as to create opportunities for farmers to access recharged water through shallow tube/dug wells;
- d) Promoting efficient water conveyance and field application devices within the farm viz, underground piping system, Drip & Sprinklers, pivots, rain-guns and other application devices etc.;
- e) Encouraging community irrigation through registered user groups/farmer producers' organizations/NGOs; and
- f) Farmer oriented activities like capacity building, training and exposure visits, demonstrations, farm schools, skill development in efficient water and crop management practices (crop alignment) including large scale awareness on more crop per drop of water through mass media campaign, exhibitions, field days, and extension activities through short animation films etc.

Programme Components

PMKSY has following four components:

1. Accelerated Irrigation Benefit Programme (AIBP) to focus on faster completion of ongoing Major and Medium Irrigation including National Projects.

2. PMKSY (Har Khet ko Pani): This component focuses on-

- a) Creation of new water sources through Minor Irrigation (both surface and ground water)
- b) Repair, restoration and renovation of water bodies; strengthening carrying capacity of traditional water sources, construction rain water harvesting structures (Jal Sanchay);
- c) Command area development, strengthening and creation of distribution network from source to the farm;
- d) Ground water development in the areas where it is abundant, so that sink is created to store runoff/ flood water during peak rainy season.
- e) Improvement in water management and distribution system for water bodies to take advantage of the available source which is not tapped to its fullest capacity (deriving benefits from low hanging fruits). At least 10% of the command area to be covered under micro/precision irrigation.
- f) Diversion of water from source of different location where it is plenty to nearby water scarce areas, lift irrigation from water bodies/rivers at lower elevation to supplement requirements beyond IWMP and MGNREGS irrespective of irrigation command.
- g) Creating and rejuvenating traditional water storage systems like Khatri, Kuhl etc. at feasible locations.

3. PMKSY (Per Drop More Crop)

- a) Programme management, preparation of State/District Irrigation Plan, approval of annual action plan, Monitoring etc.
- b) Promoting efficient water conveyance and precision water application devices like drips, sprinklers, pivots, rain-guns in the farm (Jal Sinchan);
- c) Topping up of input cost particularly under civil construction beyond permissible limit (40%), under MGNREGS for activities like lining inlet, outlet, silt traps, distribution system etc.

- d) Construction of micro irrigation structures to supplement source creation activities including tube wells and dug wells (in areas where ground water is available and not under semi critical/ critical/ over exploited category of development) which are not supported under AIBP, PMKSY (Har Khet ko Pani), PMKSY (Watershed) and MGNREGS as per Taluka/district irrigation plan.
- e) Secondary storage structures at tail end of canal system to store water when available in abundance (rainy season) or from perennial sources like streams for use during dry periods through effective on-farm water management;
- f) Water lifting devices like diesel/ electric/ solar pumpsets including water carriage pipes, underground piping system.
- g) Extension activities for promotion of scientific moisture conservation and agronomic measures including cropping alignment to maximise use of available water including rainfall and minimise irrigation requirement (Jal Sarankchan);
- h) Capacity building, training and awareness campaign including low cost publications, use of pico projectors and low cost films for encouraging potential use water source through technological, agronomic and management practices including community irrigation.
- i) The extension workers will be empowered to disseminate relevant technologies under PMKSY only after requisite training is provided to them especially in the area of promotion of scientific moisture conservation and agronomic measures, improved/ innovative distribution system like pipe and box outlet system, etc. Appropriate Domain Experts will act as Master Trainers.
- j) Information Communication Technology (ICT) interventions through NeGP-A to be made use in the field of water use efficiency, precision irrigation technologies, on farm water management, crop alignment etc. and also to do intensive monitoring of the Scheme.

4. PMKSY (Watershed Development)

- a) Effective management of runoff water and improved soil & moisture conservation activities such as ridge area treatment, drainage line treatment, rain water harvesting, in-situ moisture conservation and other allied activities on watershed basis.
- b) Converging with MGNREGS for creation of water source to full potential in identified backward rainfed Talukas including renovation of traditional water bodies

Rationale/ Justification

In reference to the status and need of irrigation, the water resource management including irrigation related priorities was identified for Dibrugarh district by the peoples' representatives of district with support from administration and technical experts. For instance the reports of Strategic Research and Extension Plan (SREP) prepared under ATMA program, Comprehensive District Agriculture Plan (C-DAP) prepared as part of Rashtriya Krishi Vikas Yojana (RKVY), Potential Linked Credit Plans (PLP) of NABARD and the Integrated District Development Plan etc. identified number of irrigation related issues for Dibrugarh district including (i) creating irrigation potential through water harvesting structure, Nalla and Check Bundh, Percolation and Recharge tanks (ii) promoting water use efficiency through sprinkler and drip irrigation; (iii) promoting protected polyhouse cultivation to minimize risk factors and enhance quality and productivity; (iv) Improvement of on-farm water delivery and efficiency of existing irrigation systems; (v) promotion of soil conservation of arable & non-arable land through engineering measures; (vi) increase the forest cover in the district and (vii) land improvement measures.

Methodology

During the course of preparation of District Irrigation Plan (DIP) the team visited Dibrugarh district to collect data and have interaction with all the stakeholders. Methodology adopted to prepare DIP is outlined in brief as under:

- a) Collection of primary and secondary data from field from various sources including published documents and websites.
- b) Various meetings were held to obtain ground level realities and data from key personnel/stakeholders through structured, unstructured interviews, focused group discussions etc.
- c) Meetings with various State Government departments and related institutions were held
- d) Meeting was also held with State Level authorities.
- e) GIS maps of the areas/clusters were studied to understand the land morphology, topography of the district.
- f) Focused group discussions and interaction with agriculture officers, horticulture officers, soil conservation officers, extension officers, rural development department, animal husbandry department, irrigation officers both at Talukas and district level for identifying the key issues and focus areas of the region.

g) Discussion with NABARD officer of the district was also held during the visit.

On the basis of detailed discussion and analysis of data, the team arrived at the projections of various components of PMKSY and Department wise plan for four years from 2016-17 to 2019-20 as detailed in the plan.

Chapter 1 : General Information of the District

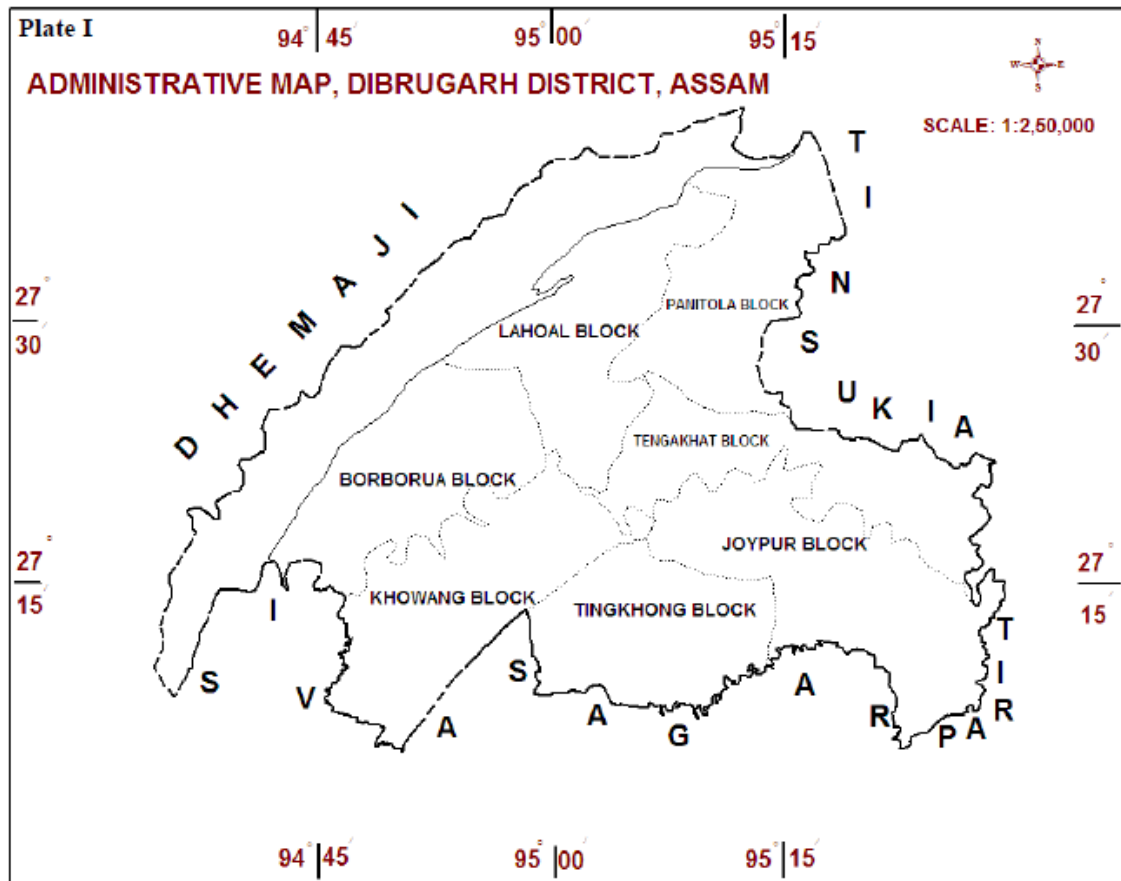
1.1 District Profile

The District is situated in eastern part of Assam and Agro climatically also on eastern part of Upper Brahmaputra Valley zone. The district is located at 95° 51'45" E Longitude and 27° 21' 49"N Latitude. The total geographical area of the district is 3,38,100 ha. The mighty Brahmaputra flows along the northern periphery of the district. Buridihing and Sessa are main tributaries of the district that are flowing across the district. Southern part of the district is almost surrounded by hills of Arunachal Pradesh. Tinsukia district is situated in the east of the district and Sivsagar district in the west.



Source: C-DAP, Dibrugarh

Map 1-1: Location of Dibrugarh on the map of Assam



Source: CGWB Report, Dibrugarh

Map 1-2: Dibrugarh district map

Table 1-1: District Profile

Name of the District	District Code	Latitude	Longitude
Dibrugarh	AS06	27° 21' 49" North	95° 51' 45" East

Source: Census of India 2011, Dibrugarh

The district headquarter town Dibrugarh is situated on the bank of the almighty Brahmaputra, which is one of the oldest towns of Assam. The NH- 37 is passing through the district towards Tinsukia. The road distance from Dibrugarh to State capital Dispur is 443kms. The district is well connected by Air airport, which is situated at Mohanbari that is about 20 kms from district headquarters. The district is also well connected by Railways and by Waterways particularly with Dhemaji district of state and Arunachal Pradesh. The entire district consists of only one Civil Sub division. There are 7 Blocks, comprising of 93 Gaon Panchayats and 1362 Revenue Villages. However, the district has 2 Agril Subdivisions with headquarter at Dibrugarh and Joypur.

Administrative Set-up of Dibrugarh

The Deputy Commissioner of the district is the overall in charge of the administration of the entire district. He also acts as a Collector in case of the revenue matters as a District Magistrate in case of maintenance of law and order and General Administration, as a District Election Officer in case of conduct of Election, as a Principal Census officer while conducting Census and so on. A number of officers like Additional Deputy Commissioners, Sub-Divisional Officers, Extra Assistant Commissioners and others assist the Deputy Commissioner in looking after the administration of the district.

Dibrugarh district is an administrative district of Assam with its headquarter located in Dibrugarh town. The Dibrugarh district has a single sub division and seven circles. The revenue circles are Dibrugarh East, Dibrugarh West, Chabua, Tengakhat, Naharkatia, Tingkhong, and Moran. There are 9 towns which includes 3 statutory towns and 6 census towns. The district has seven Community Development Blocks comprising a total of 1348 villages spread over all the Revenue circles. In order to maintain law and order by the police, the district is divided into 14 Police stations and 19 out posts. The Police stations are Dibrugarh Sadar Town(city), Lahowal(City), Chabua, Tengakhat,Duliajan, Naharkatia, Joypur, Tingkhong, Rajgarh, Moran, Khowang, Borboruah(city), Rohumoria, Ghoramara. Dibrugarh district has an area of 3381 Sq.Km.(Rural: 3335.52 Sq.Km and Urban: 45.48 Sq.Km.).

1.2 District Demography

As per 2011 census, the population of the district is 13,26,335 which is 4.25% of the state's population. With a population density of 392 person per square kilometer, Dibrugarh is relatively equally denser compared to the population density of the state (398 person per square kilometer). The number of males and females in the district are 6,76,434 and 6,49,901 respectively forming a sex ratio of 961 female per 1000 male. Compared to the population recorded in 2001 census, there was an increase of 11.92 percent in the population in 2011. The literacy rate of the district is 76.05% which is higher than the average literacy rate of the state which stood at 72.19%. There are 2,76,867 households in the district.

Table 1-2: Demography of Dibrugarh

Name of the Block	Population			SC		ST		Total	
	M*	F	CH	NHH	NM	NHH	NM	NHH	NM
Barbaruah	84851	81984	20243	2176	10939	5534	27223	34434	166835
Lahoal	75742	73564	19906	1540	7575	529	2450	30765	149306
Panitola	64461	60262	16648	1462	6944	1014	5505	25470	124723

Tengakhat	112046	108432	27237	2208	10959	3384	15854	46801	220478
Khowang	86247	83512	20520	487	2507	4223	21482	35160	169759
Tingkhong	80447	78848	21804	332	1661	1902	9087	32308	159295
Joypur	85873	82598	21249	997	5006	3391	15675	35474	168471
Urban Centres	86767	80701	15603	2769	13285	1347	5595	36455	167468
Total	676434	649901	163210	11971	58876	21324	102871	276867	1326335

Source: Census of India 2011, Dibrugarh

*M- Male, F- Female, CH- Children 0-14 years, NHH- No. of households, NM- No. of members

Tengakhat block has the highest population of 2,20,478 while Panitolablock has the lowest population of 1,24,723. In urban population, total population is 1,67,468 with 36,455 number of households. The following figure shows the number of male, female and children population in the blocks of Dibrugarh district.

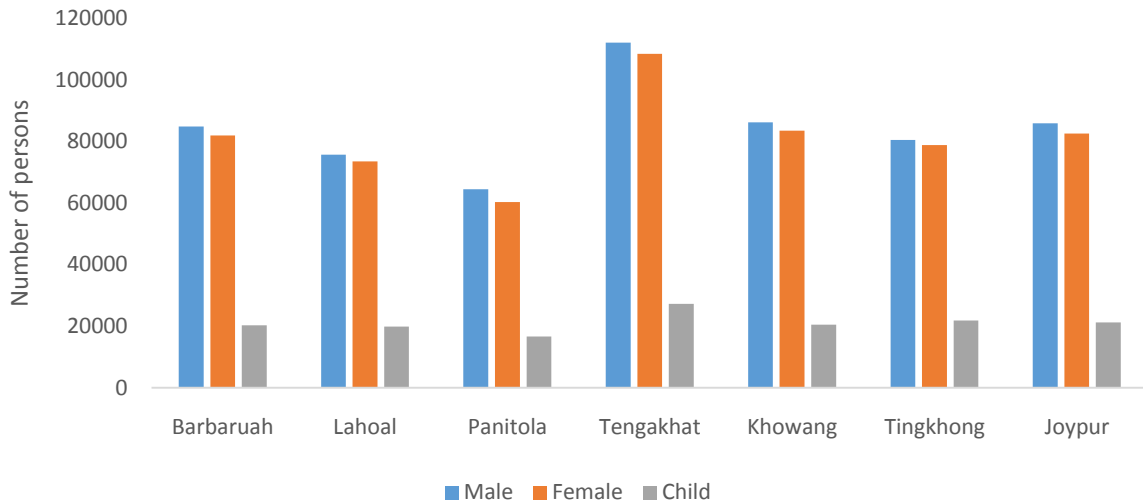


Figure 1-1: Number of Male, Female and Children in blocks of Dibrugarh district

Total number of SC households in the district is 11,971 with the total population of 58,876. Out of this, Tengakhat block has the highest number of SC population of 10,959 while Tingkhong block has the lowest SC population of 1,661. Total number of ST households in the district is 21,324 with the total population of 1,02,871. Out of this, Barbaruah block has the highest number of ST population of 27,223 while Lahoal block has the lowest ST population of 2,450.

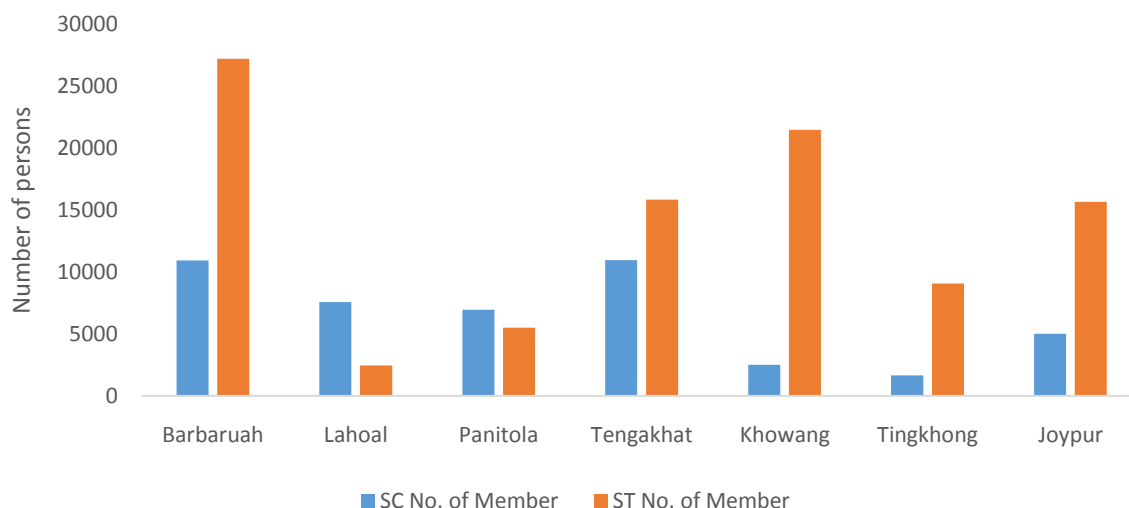


Figure 1-2: Number of SC and ST members in blocks of Dibrugarh district

1.3 Biomass and Livestock

Next to Agriculture and Horticulture, Livestock rearing is an important enterprise of the district. Cows, buffaloes, draft animals, goats pigs, poultry/ducks are main commodities of livestock enterprise. Cross breed cows, improved breed buffaloes and upgraded pigs in small numbers are also reared in almost all the blocks of the district. Mostly the local breeds are common. The population of the Small and Large animals are given in Table no. 1-3.

Table 1-3: Population of Small and Large Animals in Dibrugarh

Name of the Blocks	Small Animals				Large Animal	
	Ducks (No.)	Goats (Nos.)	Sheep (Nos.)	Indigenous Cow (Nos.)	Hybrid Cow (Nos.)	In Descriptive Buffalo (Nos.)
Barbaruah	305907	44829	-	129553	6502	26973
Lahoal	17299	7996	-	23544	1856	107
Panitola	8617	13115	-	48855	2573	4149
Tengakhata	50581	30055	14	31238	2209	726
Khowang	129239	32950	172	53282	1875	549
Tingkhong	61658	25205	66	89505	653	1993
Joypur	5650	25012	-	35070	3008	828
Total	578951	179162	252	411047	18676	35325

Source: C-DAP, Dibrugarh

1.4 Agro-Ecology, Climate, Hydrology and Topography

The State has delineated into 6 Agro Climatic zones on the basis of Physiography, Climate, Soil, Crops and cropping patterns. The district comes under the Upper Brahmaputra valley zone and it occupies 20% area of the zone. Based on cropping pattern, soil, Physiography and flood occurrence the district has been divided into 3 different Agro Ecological Situations, with a view to generate location specific Technology to meet the needs of farmers. The situations are, AES-I (Humid Alluvial Flood Prone) AES-II (Humid Alluvial Flood Free) and

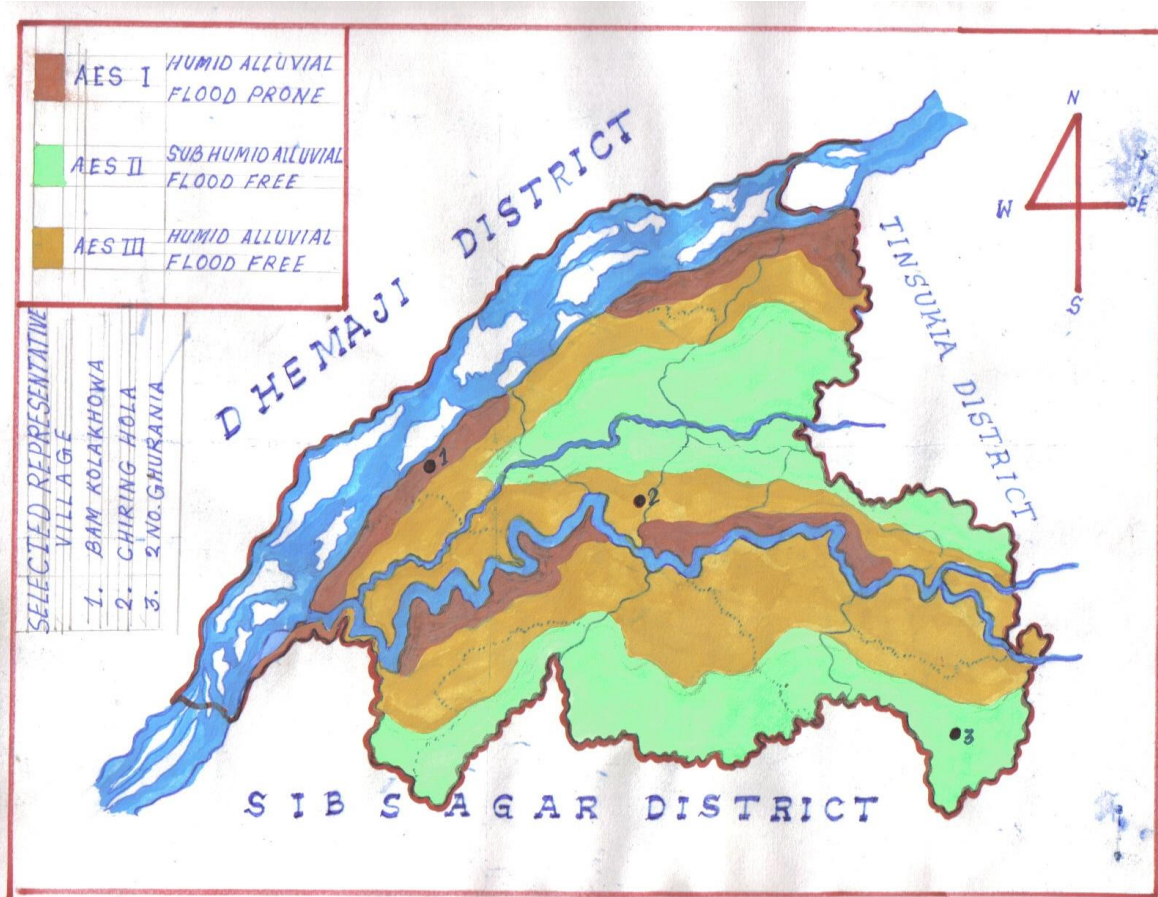
AES-III (Sub Humid Alluvial Flood Free). The highest area i.e. 1,87,750 ha viz.56.40% of the total cultivable area of district is covered by AES-I (Humid Alluvial Flood prone), followed by AES-II (Humid Alluvial Flood Free), which covered 1,00,225 ha viz 30.1% and AES –III (Sub Humid Alluvial Flood free) is covered 45,061 ha i.e.13.5% of the district. Almost partial area of all 7 blocks falls more or less in all 3 situations.

Climate of the district can be divided into four distinct seasons viz pre-monsoon, monsoon, post monsoon & winter. The pre-monsoon occurs from March to May. The rainfall during this period remained around to 25% of total precipitation; monsoon starts from June to August and precipitation is around 53% of the total precipitation; post monsoon season starts from Sept to Nov. and rainfall is received around 18% of the total during this season. The winter season starts from Dec to Feb, characterized by low temperature and scanty rainfall with cool breeze. The rainfall is around 4% of the total during winter season. The Average annual Rainfall of the district is around 2,076 mm. The minimum temperature (average) of the district goes to 9.5^oC in the month of January and maximum (average) to 36.6^oC in the month of August. The relative humidity of the district varies from 52% to 60 % in the evening and 85.5% to 92% in the morning hours. In the pre monsoon seasons it remains almost 93% in the morning hours and 65% in the evening hours. During monsoon season it remains 94% in the morning hours and 77% in the evening hours. During post monsoon season it remains 95% in the morning hours and 66% in the evening hours and during winter season it remains 97% to 98% in morning hours and 53% in evening hours.

Table 1-4: Topography, Rainfall and Climate of Dibrugarh district

Agro-Ecological Situation Type	Type of Terrain	Normal Annual Rainfall (mm)	Average Monthly Rainfall (mm)	No. of Rainy days (No.)	Temperature	
					Minimum	Maximum
AES I	Humid Alluvial Flood prone	2076	173	135	9.5 ^o C	36.6 ^o C
AES II	Humid Alluvial Flood Free					
AES III	Sub Humid Alluvial Flood Free					

Source: C-DAP, Dibrugarh



Source: C-DAP, Dibrugarh

Figure 1-3: Spread of AES in Dibrugarh

1.5 Soil Profile

The district is occupied with two different land forms namely- (1) Flood plain of Brahmaputra river and (2) the terrace deposits and denudational hills in the southern part.

- 1) Flood plains: The alluvial flood plains occupying the maximum part of the district is almost flat, except gentle undulations at places. Land elevation of the land ranges between 86.88 m and 152 m above msl. General slope is towards west and south west.
- 2) The terrace deposits and denudational hills: This present in the south eastern part of the district, range in elevation from 115 to 350m AMSL and rise upto 500m AMSL in Tikak Parbat area. The regional trend of the hills is NE-SW.

Soils of the area are sandy to clayey loam type and grayish is color. They are acidic in reaction with PH ranges from 4.6 to 5.9. They are also characterized by low to medium phosphate and medium to high potash content. Based on pedogenic and pedological characters, soils of this area may be classified into following classes

- a) Recent riverine alluvial soils (Antisol)

- b) Old riverine alluvial soils (Inceptisol)
- c) Old mountain valley alluvial soils (Alfisol)

The predominantly soil of the district is clay loam which is covering an area of 255062 ha that is 76.59% of the total geographical area followed by clay soil with 8.78%, Sandy soil-by 7.60% and sandy loam soil-7.03%. Major areas of all AES and blocks are having clay loam soil, similarly clay, sandy and sandy loam soils are also found in all blocks. Large area under clay soil is present in two blocks namely Tengakhat and Lahowal in comparison to other five blocks. Block wise soil classification is shown in table below. 36972 ha cultivable area is mildly acidic in reaction and 4163 ha is deficient in micronutrients.

Table 1-5: Block wise textural classification of soils (area in Ha.)

Name of Block	Clay		Clay loam		Sandy Soil		Sandy loams	
	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%
Borboruah	1850	4.27	37365	86.16	2674	6.17	1480	3.41
Panitola	786	2.92	12395	45.99	9556	35.46	4213	15.63
Tengakhat	12584	23.78	33850	63.97	995	1.88	5483	10.36
Joypur	1590	3.26	42570	87.18	2980	6.10	1688	3.46
Tingkhong	995	2.08	45928	96.23	520	1.09	284	0.59
Khowang	855	2.00	34358	80.42	1640	3.84	5870	13.74
Lahowal	10572	14.99	48596	68.90	6950	9.85	4409	6.25
Total	29232	8.78	255062	76.59	25315	7.60	23427	7.03

Source: C-DAP, Dibrugarh

1.6 Soil Erosion and Run-off Status

Soil erosion is a serious problem in Assam especially in the hilly regions and areas in the north bank of the Brahmaputra bordering Bhutan and Arunachal Pradesh. Sheet and river bank erosion of the Brahmaputra and land-slides in the hilly terrains contribute substantially to the sedimentation problem of the rivers and productivity decline of farm land covering lakhs of hectares. The catchment of the Brahmaputra is characterized by very steep hill slopes with coarse soil texture and unstable land mass. This causes high instantaneous run-off and heavy siltation in the tributaries as well as in the channels of the main river. It is also frightening that the mighty river is drifting its course now towards southern bank and causing sedimentation in the north bank.

1.7 Land Use pattern

The total geographical area of the district is 3,33,036 Ha out of which 38.22% is cultivable, 8.5% is forest, 51.32% is under non-agricultural use and 2.12% is barren/waste land. Area under pasture is very negligible and marginally productive due to prevailing system of open grazing since long without adding any nutrient. This area is required to be given special

attention for corrective treatment to enhance the productivity. The following table gives the block wise information on land use pattern.

Table 1-6: Land use pattern in Dibrugarh district

Name of Block	TGA	Area Under Agriculture				Area under Forest (Ha)	Area under Wasteland (Ha)	Area under other uses (Ha)
		GCA	NSA	AST	CI (%)			
Barbaruah	43369	23560	17313	6247	136.08	10630	806	14620
Lahoal	70527	37674	22227	15447	169.50	980	1307	46013
Panitola	26950	13510	10140	3370	133.23	2929	1179	12702
Tengakhath	52912	33820	23413	10407	144.45	4472	928	24099
Khowang	42723	29179	19793	9386	147.42	3750	820	18360
Tingkhong	47727	21157	15326	5831	138.05	2840	946	28615
Joypur	48828	29792	19101	10691	155.97	2841	1098	25788
Total	333036	188692	127313	61379	148.21	28442	7084	170197

TGA- Total Geographical Area, GCA- Gross Cropped Area, NSA- Net Sown Area, AST- Area Sown more than once, CI- Cropping Intensity

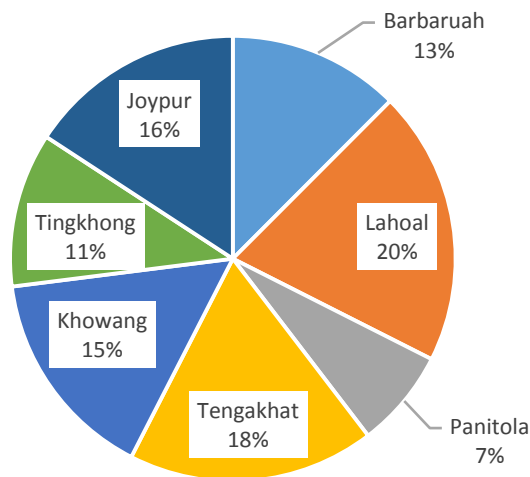


Figure 1-4: Block wise share of gross cropped area in Dibrugarh

Chapter 2 : District Water Profile

Water is vital for survival of both plants and animals. It is the central component of the planet Earth controlling the weather, climate, plant and animal kingdom. It supports agriculture, forestry, navigation, industries and hydroelectricity generation and other uses such as for recreation, water sports activities etc. The importance of water has been recognized all over the world. Water resource development and management practices are given top priorities all over the world to avoid the water crisis in future. This chapter outlines the different type of crops, productivity and irrigation status of the Dibrugarh district.

2.1 Area wise, Crop wise, irrigation Status

The district has net and gross cropped areas of 1,27,313 hectares and 1,88,692 hectares respectively, the net cropped area being 68 percent of the total geographical area. About 61,379 hectares out of the net cropped areas is put under multiple cropping with an average cropping intensity 148 percent as against 152.43 percent for the state. The crop wise irrigated and rainfed area sown in different seasons like Kharif, Rabi and Summer in the district for each block is given in Annexure I.

2.2 Production and Productivity of Major crops

Paddy is the principal crop of the district due to its climatic adaptability, main staple food & hereditary in nature of region. This crop is grown thrice in a year as winter paddy (sali rice), autumn paddy (Ahu rice) and as summer paddy (boro rice). Winter paddy is a main crop that is predominately grown in the district over and covers an area of 74124 ha, which is around to 39.2% of total cultivable area. The area under Autumn paddy (Ahu Paddy) was around to 5408ha. Likewise, Summer Paddy (Boro rice) covered an area of 80 ha. The low area under summer and autumn paddy is mainly due to high cost of cultivation and less remunerative return.

The areas of autumn Paddy has been shifted towards kharif vegetables and area of summer rice has been shifted to Rape & Mustard & Rabi vegetables. Next to Rice, oilseed crop particularly Rape & Mustard have occupied an area of 8873 ha, which is showing a marginal increasing trend over 1990. Area under pulse crops also shows an increasing trend with a present area of 2436 ha (including Rabi and kharif). The area under Wheat, Maize, Sesamum, Jute, linseed & other cereals shows decreasing trends. The block wise, areawise production and productivity of different types of crops are given in the tabular forms in Annexure II.

2.3 Irrigation based classification

The irrigation potential in the district is developed both from the surface and ground water sources. The irrigation department is responsible for creation of major, medium and minor irrigation schemes. The agriculture department has also created irrigation potential in different cultivable area by way of installation of shallow tube well schemes.

Table 2-1: Irrigation based classification

Name of the Blocks	Gross Irrigated Area (in Ha)	Un-Irrigated or Totally Rainfed (in Ha)
Barbaruah	1293	22267
Lahoal	1012	36662
Panitola	414.5	13095.5
Tengakhat	1560	32260
Khowang	1090	28089
Tingkhong	446	20711
Joypur	1372	28420
Total	7187.5	181504.5

Source: C-DAP, Dibrugarh

Chapter 3 : Water Availability in Dibrugarh

Water availability is an important issue for ascertaining the demand of water for domestic, livestock, irrigation, industrial and power generation projects. The water availability depends on topography, climatic conditions, rainfall, soil profile, infiltration rate, run off and human activities over the catchment area. The changes in the water levels of the surface source are mainly because of the variations in the inflow from the upper catchments. The fluctuations constitute a sensitive indicator of past and present climate and human activities at a local and regional scale. In the hydrological point of view, the entire Dibrugarh district falls under the Brahmaputra basin.

3.1 Status of Water Availability

For creating access to water source either assured or protective to each farmer will require a demand and supply assessment of crop water requirements, effective rainfall and potential source of existing and new water sources considering the geo-hydrological and agro ecological scenario of the block. The master plan will include information on all sources of available water, distribution network, defunct water bodies, new potential water sources both surface and sub surface system, application to conveyance provisions, crops and cropping system aligned to available /designed quantity of water and suitability to local agro ecology. All activities pertaining to water harvesting, water augmentation from surface and sub surface sources, distribution and application of water including repair, renovation and restoration of water bodies, major, medium and minor irrigation works, command area development etc. are to be taken up within the frame work of this master plan. Emphasis is to be given for deriving the potential benefit from low hanging fruits like extending the reach/coverage of water source through effective distribution and application mechanism, reducing the gap between potential created and utilized through more focus on command area development and precision irrigation. Proper integration of creation of diversion head work and water harvesting structures, distribution system like canals and command area development works and precision farming is to be made for best possible use of water resources. The block wise status of surface and groundwater water availability in MCM per Ha for the district is given in the table below.

Table 3-1: Status of water availability in Dibrugarh district

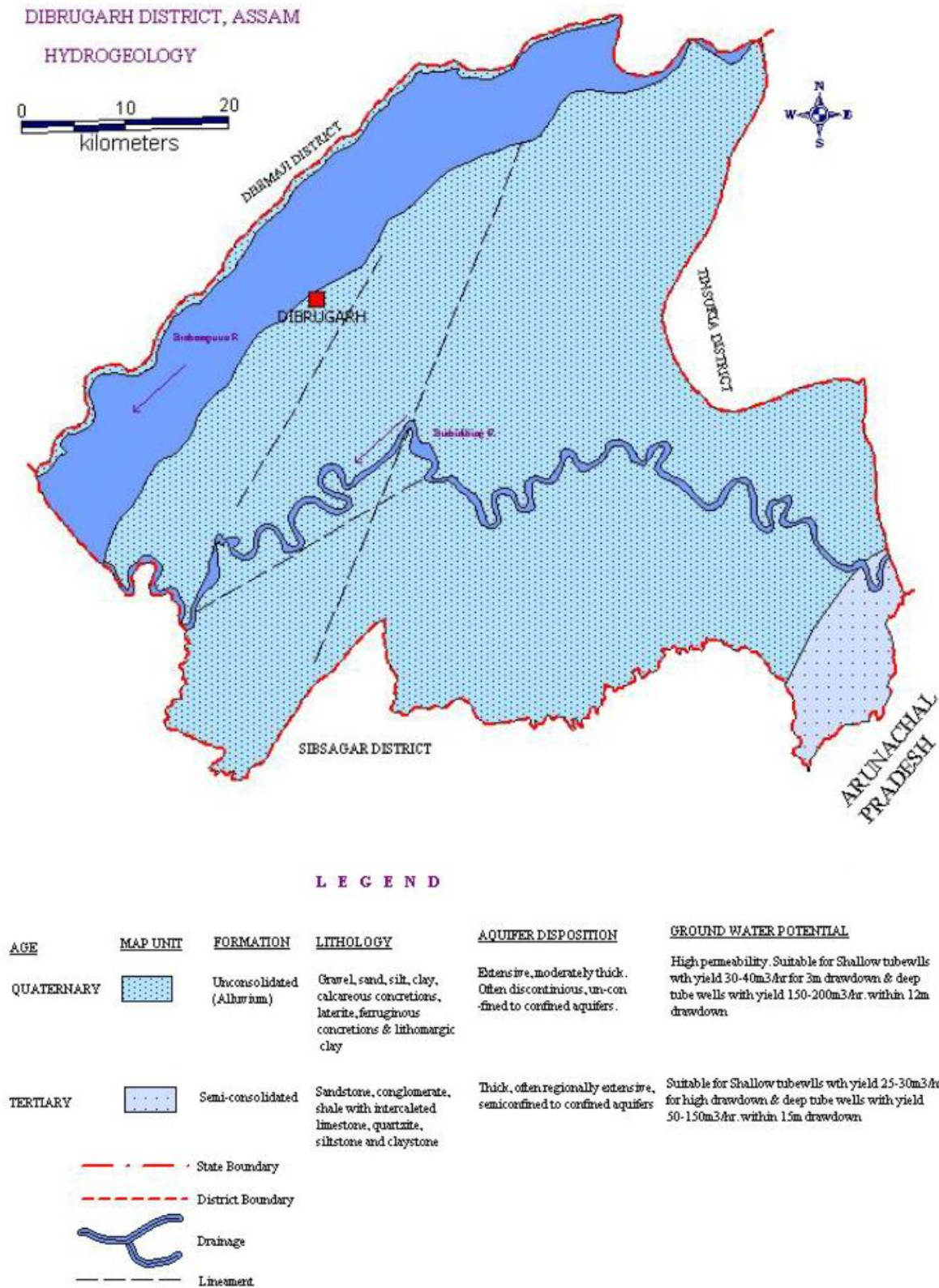
Sources	Kharif	Rabi	Summer	Total
Surface Irrigation				
Canal (Major & medium irrigation)	120.5	14.3	5.9	140.7
Minor Irrigation tanks				

Lift Irrigation/ Diversion	265.14	83.7	25.6	374.44
Various water bodies including Rain Water Harvesting				
Treated Effluent Received from STP				
Untreated Effluent				
Perennial sources of water				
Ground Water				
Open Well				
Deep Tube Well	25.4	10	4.6	40
Medium Tube Well	54.1	17	84	155.1
Shallow Tube Wells	11	3	1.67	15.67
Total	476.14	128	121.77	725.91

3.2 Status of Ground Water Availability

Hydrogeology

Unconsolidated alluvial deposits of Quaternary Age covers major part of the district. Only about 4 % area of the district is underlain by semi consolidated formation of Tertiary Age belongs to Disang and Barail Groups of rock. A single system of aquifer (granular zone) below a thin clay cover on top is present mainly in the southern part of the district. In the northern part, this single aquifer system is separated into a multiple aquifer system by thick clay partings. Thickness of aquifer increases from east to west. Ground water in the shallow aquifer group exists in unconfined to semi confined condition. In general depth of tube wells varies from 35 to 45 m. The tube wells constructed down to a depth of 50 m yields 27 to 45 m³/hour. Hydrogeology of the district is depicted in Plate-II. Pre-monsoon depth to water level ranges from 0.16 to 4.23 m bgl. It is observed that Pre-monsoon depth to water level ranges from 2 to 4 m bgl in the southern part of the district i.e. Khowang, Joypur area and in a limited area in the northern part of the district i.e. parts of Lahol, Borboruah and Tengakhat. But, in parts of Lahol and Panitola blocks, depth to water level goes upto 4 m bgl. Post-monsoon depth to water level ranges in this district from 0.14 to 5.693 m bgl.



Source: CGWB Report of Dibrugarh district

Figure 3-1: Hydrogeology of Dibrugarh

The water table contour ranges in elevation from 97 m above msl in western part to 113 m above msl in the eastern part. The gradient varies between 0.30 to 0.55 m/km. Seasonal fluctuation in most part of the district is within 1 to 2 m .But, along the Burhi-Dihing river and Brahmaputra river, the fluctuation is less than 1m. In semi-consolidated Tertiary formation, water level fluctuation is 2 to 4 m. The piezometric surface rests between 1.25 and 4 m bgl. A number of shallow bamboo tubewells constructed in this district down to a depth of 36 m by tabbing 12 to 15 m of saturated medium to coarse grained sand zone. Yield of these wells varies from 27 to 31.5 m³/ hour. Deep tube wells constructed down to 253 m bgl yield around 82 - 164 m³/ hour for a nominal drawdown of 2 – 3 m. Transmissivity in the area ranges from 6,500 to 10,350 m²/day. Storage coefficient ranges from 2.57 X 10⁻³ while specific capacity ranges from 798 to 915.

Ground Water Resources

Methodology adopted for ground water resource estimation of Dibrugarh District of Assam is as per GEC 1997 Report, i.e. Ground Water Level Fluctuation and Rainfall infiltration factor Method. Assessment unit can be categorized into 4 categories as SAFE, SEMI-CRITICAL, CRITICAL, and OVER-EXPLOITED. In Dibrugarh district stage of ground water development is 15 %, which shows under the SAFE category. As long-term water level trend does not show any major change so the whole district may be considered as SAFE. The detailed status of ground water, draft, recharge and gaps for the district as collected from CGWB is given separately in table below.

Table 3-2: Status of Ground Water Availability

District	Status of Block as per Central Ground Water Board Notification			Ground Water (MCM)		
	Critical	Semi-Critical	Safe	Draft	Recharge	Gap
Dibrugarh			Safe	266.76	1794.65	1527.89

Source: CGWB, Guwahati Regional Office

Ground Water Quality

Chemically, the water to be used for domestic purpose should preferably be soft, low in dissolved solids and free from poisonous constituents. Ground water of the district is colorless, odor-less and free from turbidity. Presence of TDS within 150 to 1000 ppm, SAR within 0.30 to 1.97, RSC value within 0.01 to 1.01 meq /lt and Fe content in most part of the district is below 5 ppm in ground water. But, in and around Tengakhat area, concentration of iron is found more than permissible limit for drinking purpose. Moreover, goiter has been reported in some of the villages like Kalakhowa, Lejai and Sessa area which is due to

deficiency of iodine in ground water. Thus, in general, the area is safe in all respect for utilizing of ground water.

3.3 Status of Command Area

Block wise villages covered in various commandis as below.

Taluka	Villages in Command Area
Panitola	Dinjoy Satra
Lahoal	Hilodhari Chandoi pathar, Ginichuk Pathar, Rongpuria, Romai, Phutahula, Garukhunda, Modarkhat, Rohmaria
Tengakhat	Tengakhat , Kheremia, Chiringkhat, Dighalia, Borbam, Ghumtal Hamukoni, Lezioni Pathar, Rongsongi pathar, Kapahuwa, Nakhangia
Joypur	Tokowbeel , Rongpur Dighali, Sassoni, Tipam Fakial, Amguri, Sikasubam, Bhumuk pathar, Uriamguri, Singibeel
Tingkhong	Chaharikata, Naharpara Borbeel, Dasuk Kasalubam, Kenduguri, Chapatoli, Rongsowal, Borbam
Khowang	Duliabam, Borbeel, Bahanipathar, Kololowa, Khowang, Madhakali Pathar, Naharani, Kachamari, Hunghungia, Azarguri, Athabari
Barbaruah	Sessa area, Dewanbari Mottock Koibortta Gaon, Lezai, Tingkhong Mohpoliamora, Lepetkata Kacharigaon

Block wise status of command area for Bordikarai Irrigation Scheme is given in Annexure III.

3.4 Existing type of Irrigation

Khowang block has the highest canal command area which is 3041 hectares while the lowest canal command area is for Tingkhong block which is 234 hectares only. In this region, due to high availability of the ground water, ground water extraction can increase the irrigated area. Block wise existing types of Irrigation is given in Annexure IV.

Chapter 4 : Water Requirement/Demand

Whenever an engineer is given the duty to design a water supply scheme for a particular use of the community, it becomes imperative upon him, to first of all, evaluate the amount of water available and the amount of water required/ demanded by the public. In fact, the first study is to consider the demand, and then the second requirement is to find sources to fulfil that demand. Many a times a compromise is sought between the two. It is very difficult to precisely assess the quantity of water demanded by the public since there are many variable factors affecting water consumption. The various type of water demands for a district may be as follows.

4.1 Domestic Water Demand

This includes the water requirement in private buildings for drinking, cooking, bathing, lawn sprinkling, gardening, sanitary purposes etc. The amount of domestic water consumption per person shall vary according to the living condition of the consumers. On an average, this domestic consumption under normal conditions in Indian city is expected to be around 135 litres/day/person as per IS: 1172-1971. In a developed and an affluent country like USA, this figure goes as high as 340 litres/day/person. This is because more water is consumed in rich living, air cooling/conditioning, automatic household appliances, car washing etc. The total domestic consumption generally amounts to 55 to 60% of the total water consumption.

The total domestic water demand shall be equal to the total design population multiplied by the per capita domestic consumption i.e. 135 litre/day. As the last population census was made in 2011, the actual population of the district in 2015 is not readily available. Considering the population of the Dibrugarh district as per Census, 2011 the projected population in 2020 is worked out assuming the last decadal growth of 11.92% and annual exponential growth rate of 1.192% to apply for the period 2011-2020 (9 years). The domestic water demand is given in the table below.

Table 4-1: Domestic water demand (MCM)

Blocks	Population as per 2011 Census	Population in 2015	Present Water Demand (MCM)	Projected Population in 2020	Water Demand in 2020 (MCM)
Barbaruah	166835	174790	8.22	184733	9.10
Lahoal	149306	156425	7.36	165324	8.15
Panitola	124723	130670	6.15	138103	6.81
Tengakhat	220478	230990	10.86	244131	12.03
Khowang	169759	177853	8.36	187971	9.26
Tingkhong	159295	166890	7.85	176384	8.69

Joypur	168471	176504	8.30	186545	9.19
Population in Town & municipal area of the district	167468	175453	8.25	185434	9.14
Total population In the district	1326335	1389574	65.36	1468624	72.37

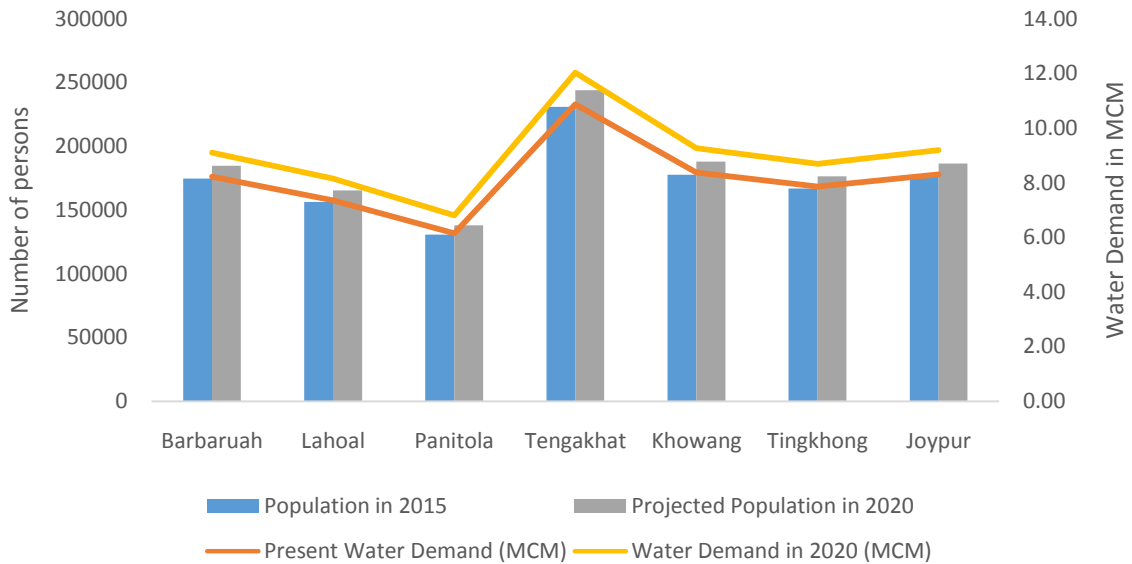


Figure 4-1: Population and domestic water requirement

4.2 Crop water demand

Water requirement of a crop means the total quantity and the way in which a crop requires water, from the time it is sown to the time it is harvested (crop period). Different crops will have different water requirements and the same crop may have different water requirements at different places of the same country depending upon the climate, type of soil, method of cultivation and useful rainfall etc. The total quantity of water required by the crop for its full growth may be expressed in Hectare-m or in Million Cubic meter or simply as a depth to which the total supplied irrigation water would stand above the surface without percolation or evaporation. This depth is known as delta for the crop. On the other hand duty is defined as the area irrigated per cumec of discharge running for the base period. The duty helps us in designing the efficient canal irrigation system. If we know the crops area required to be irrigated and their duties, we can work out the discharge required for designing the canal.

Consumptive use for a particular crop may be defined as the total amount of water used by the plant in transpiration (building of plant tissues etc.) and evaporation from adjacent soils or from plant leaves, in any specified time. Therefore, crop water requirements are defined as

“the depth of water needed to meet the water loss through evapo-transpiration of a disease free crop, growing in large fields under non restricting soil conditions including soil water and fertility and achieving full production under the given growing environment. Consumptive use for a particular crop may be defined as the total amount of water used by the plant in transpiration (building of plant tissues etc.) and evaporation from adjacent soils or from plant leaves, in any specified time. Thus crop water requirement is nothing but the consumptive use itself, but exclusive of effective precipitation, stored soil moisture or ground water. Consumptive use or evapotranspiration depends upon all those factors on which evaporation and transpiration depend such as, temperature, sunlight, wind movement etc. The crop water requirement of different blocks in the Dibrugarh district has been worked out and a statement is prepared as shown in table below which outlines the required and available water potential in the district.

Table 4-2: Crop water requirement (MCM)

Block	Area sown (Ha)	Irrigated area (Ha)	Crop Water Demand (MCM)	Water Potential Required (MCM)	Existing Water Potential (MCM)	Water Potential to be created (MCM)
Barbaruah	23560	1293	70.68	70.68	3.88	66.80
Lahoal	37674	1012	113.02	113.02	3.04	109.99
Panitola	13510	414.5	40.53	40.53	1.24	39.29
Tengakhata	33820	1560	101.46	101.46	4.68	96.78
Khowang	29179	1090	87.54	87.54	3.27	84.27
Tingkhong	21157	446	63.47	63.47	1.34	62.13
Joypur	29792	1372	89.38	89.38	4.12	85.26
Total	188692	7187.5	566.08	566.08	21.56	544.51

4.3 Livestock water demand

As per the livestock census of 2003 & 2007, there was a population growth of 30% in four years (Average yearly growth rate being 7.20%). The livestock water demand of the district is determined by multiplying the total livestock population in the district by the per capita water requirement (litres/day/No) for each category of the population. With the existing population recorded for a base year, the total projected livestock population in 2020 may be worked out and accordingly the livestock water demand is worked out. The livestock water demand is given in the table below.

Table 4-3: Livestock water demand (MCM)

Block	Total number of live stock	Present Water demand (MCM)	Water demand in 2020 (MCM)	Existing Water potential (MCM)	Water potential to be created (MCM)
Barbaruah	513764	7.50	9.75	7.50	2.25
Lahoal	50802	0.74	0.96	0.74	0.22
Panitola	77309	1.13	1.47	1.13	0.34
Tengakhath	114823	1.68	2.18	1.68	0.50
Khowang	218067	3.18	4.14	3.18	0.96
Tingkhong	179080	2.61	3.40	2.61	0.78
Joypur	69568	1.02	1.32	1.02	0.30
Total	1223413	17.86	23.22	17.86	5.36

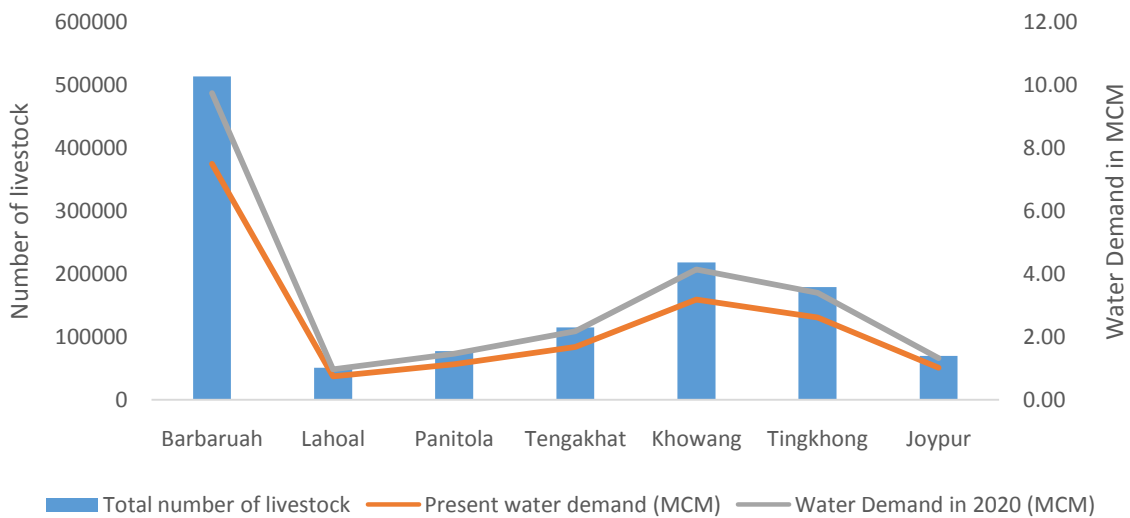


Figure 4-2: Population and water requirement of livestock

4.4 Industrial water demand

This includes the quantity of water required to be supplied to offices, factories, different industries, hostels, hospitals etc. This quantity will vary considerably with the nature of city and with the type of industries and commercial establishments present in it. On an average, a provision of 20-25% of the total water consumption is generally made in the design for these uses. In small residential communities, the industrial use may be as low as 45 /litre/day, but in industrial cities, it may be as high as 450 litres/day. Some of the industries may develop their own supplies and may place little or no demand on municipal system. Zoning of the city affects the location of the industries and may help in estimating future industrial demands. Since, Dibrugarh district economy is mainly dependent on Agriculture, there are no major industries in the district which consume water in large amount. Thus, total water requirement being very low for industrial usage, it is taken as 0.

4.5 Water demand for Power Generation

As reported by the Assam Power Distribution Ltd (APDCL), CAZ, Dibrugarh, presently there is no any power plant in the Dibrugarh district and in the years to come i.e. up to the year 2020, there is no any plan to tap resources for power generation and it was informed that the water requirement for power generation may be treated as nil. Hence there is no demand for water from power sector.

4.6 Total water demand of the district for various sectors

The total water demand of the district for all the sectors described in 4.1 to 4.5 are given in the are assessed by summing up all the values of water demand for domestic uses, livestock, power and industrial/commercial uses etc. The current water demand has been indicated in Table 4-4 and the projected water demand has been depicted in Table 4-5. Total present water requirement for the district is 649.29 MCM while the total future water requirement for the district is 661.66 MCM. In present, maximum water demand is for Lahoal block which is 121.12 MCM while minimum is for Panitola block which is 47.80 MCM. In projected future, maximum water demand is for Lahoal block which is 122.13 MCM while minimum is for Panitola block which is 48.80 MCM.

Table 4-4: Present Water Demand of the district for various sectors

Block	Demand from Components (MCM)					Total MCM
	Domestic	Crop	Livestock	Industrial	Power generation	
Barbaruah	8.22	70.68	7.50	0	0	86.40
Lahoal	7.36	113.022	0.74	0	0	121.12
Panitola	6.15	40.53	1.13	0	0	47.80
Tengakhat	10.86	101.46	1.68	0	0	114.00
Khowang	8.36	87.537	3.18	0	0	99.09
Tingkhong	7.85	63.471	2.61	0	0	73.93
Joypur	8.30	89.376	1.02	0	0	98.69
Urban Centres	8.25	-	-	-	-	8.25
Total	65.36	566.08	17.86	0.00	0.00	649.29

Table 4-5: Total Water Demand of the district for various sectors (Projected for 2020)

Block	Demand from Components (MCM)					Total MCM
	Domestic	Crop	Livestock	Industrial	Power generation	
Barbaruah	9.10	70.68	9.75	0	0	89.53
Lahoal	8.15	113.022	0.96	0	0	122.13
Panitola	6.81	40.53	1.47	0	0	48.80
Tengakhat	12.03	101.46	2.18	0	0	115.67
Khowang	9.26	87.537	4.14	0	0	100.94
Tingkhong	8.69	63.471	3.40	0	0	75.56
Joypur	9.19	89.376	1.32	0	0	99.89

Urban Centres	9.14	-	-	-	-	9.14
Total	72.37	566.08	23.22	0.00	0.00	661.66

4.7 Water Budget

The water budget of the district for the base year 2015-16 and 2020-21 as per water availability and demand is given in the table below. The present water availability/demand and also for 2020 are worked out as explained above and the water gap is found out. The water budget clearly shows the water gap between the water availability and requirement. The negative gap indicates that there is sufficient water resources for irrigation, domestic and the industrial uses without creating any deficit in our water potential.

Table 4-6: Water Budget (Volume in MCM)

Name of District	Existing water availability		Total (MCM)	Water Demand (MCM)		Water Gap (MCM)	
	Surface Water	Ground Water		Present	Projected (2020)	Present	Projected (2020)
Dibrugarh	515.14	210.77	725.91	649.29	661.66	-76.62	-64.25

Chapter 5 Strategic Action Plan for Irrigation in District under PMKSY

5.1 Department wise, year wise plan

Total plan of Dibrugarh district for four years works out to be Rs. 110593.0lakh (Table 5-1). Maximum share of Rs. 58249.2 lakh (52%) is for Irrigation department followed by Agriculture department with Rs. 46777.80 lakh (43%) and Soil Conservation department with Rs. 5566.00 lakh (5%). The total plan of four years is equally divided in to 4 years i.e. 2016-17, 2017-18, 2018-19 and 2019-20. Fig.5-1 indicates department-wise year -wise share in PMKSY for four years from 2016-17 to 2019-20.

Table 5-1: Department-wise year-wise proposal under PMKSY

Department	Year				Total
	2016-17	2017-18	2018-19	2019-20	
Agriculture	11694.45	11694.45	11694.45	11694.45	46777.80
Irrigation	14562.30	14562.30	14562.30	14562.30	58249.20
Soil Conservation	1391.50	1391.50	1391.50	1391.50	5566.00
Total	27648.25	27648.25	27648.25	27648.25	110593.00

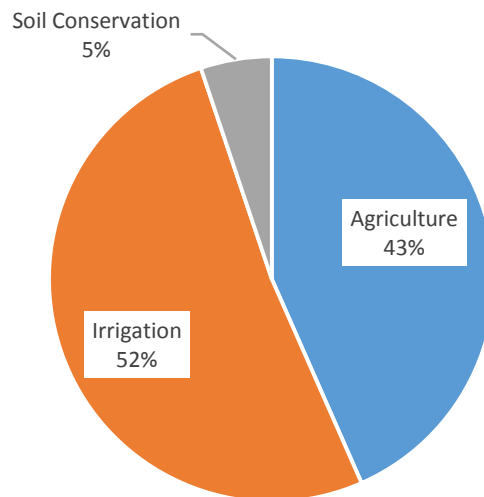


Figure 5-1: Share of departments in proposal

5.2 Component wise, year wise plan

As discussed above about various components of PMKSY, the plan is prepared accordingly. Table 5-2 shows component wise plan for 4 years starting from 2016-17 to 2019-20. AIBP component is of Rs. 6070.20 lakh (5.49%), which will be executed by Irrigation department. Har Khet ko Pani (HKKP) component is of Rs. 52179 lakh (47.18%), which will be executed by Irrigation department. Per Drop More Crop (PDMC) components is of

Rs.25372.8 lakh (22.94%), which will be executed mainly by Agriculture department. Watershed component has a total proposal of Rs. 5566.00 lakh which is 5.03% of district's PMKSY proposal. This component will be implemented by Soil Conservation department. Convergence with MGNREGA is proposed by Agriculture department for Rs. 21405 lakh which is 19.35% of district's PMKSY proposal. All the stakeholders need to have coordination among themselves to have the maximum irrigation efficiency and to avoid duplicity. Fig. 5-2 represents the graphical representation of various components of PMKSY, year wise plan and share.

Table 5-2: Component wise plan

Component	2016-17	2017-18	2018-19	2019-20	Total
AIBP	1517.55	1517.55	1517.55	1517.55	6070.20
HKKP	13044.75	13044.75	13044.75	13044.75	52179.00
PDMC	6343.20	6343.20	6343.20	6343.20	25372.80
Watershed	1391.50	1391.50	1391.50	1391.50	5566.00
Convergence	5351.25	5351.25	5351.25	5351.25	21405.00
Total	27648.25	27648.25	27648.25	27648.25	110593.00

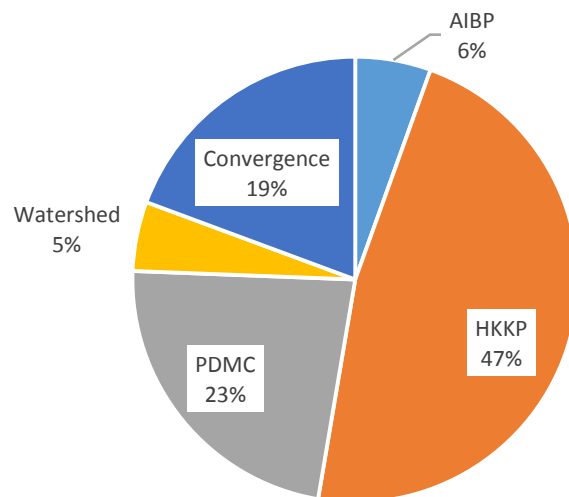


Figure 5-2: Component wise plan under PMKSY

5.3 Block wise, year wise plan

Block wise, year wise plan for the district is as shown in table below. For all the blocks, the amount has been same for each year i.e. 2016-17, 2017-18, 2018-19 and 2019-20. Overall, the maximum amount has been proposed for Joypur block which is Rs. 22819.38 lakh and the minimum amount is proposed for Panitola block which is Rs. 6323.90 lakh. Block wise plan for every department has given in Annexure V.

Table 5-3: Block wise, year wise plan

Blocks	2016-17	2017-18	2018-19	2019-20	Total
Barbaruah	4396.37	4396.37	4396.37	4396.37	17585.47
Lahoal	3185.88	3185.88	3185.88	3185.88	12743.50
Panitola	1580.98	1580.98	1580.98	1580.98	6323.90
Tengakhat	4473.48	4473.48	4473.48	4473.48	17893.94
Khowang	4090.34	4090.34	4090.34	4090.34	16361.36
Tingkhong	4216.36	4216.36	4216.36	4216.36	16865.45
Joypur	5704.85	5704.85	5704.85	5704.85	22819.38
Total	27648.25	27648.25	27648.25	27648.25	110593.00

5.4 Block wise, component wise plan

Block wise, component wise plan for the district is as shown in table below. For AIBP component, Joypur block is given the highest amount of Rs. 3259 lakh while several blocks have nil amount. For Har Khet Ko Pani component, Joypur block has the highest amount of Rs. 11200 lakh while Panitola block has the lowest amount of Rs. 5041 lakh. For Per Drop More Crop component, Khowang block has the highest amount of Rs. 7406 lakh while Panitola block has the lowest amount of Rs. 987.90 lakh. For PMKSY-Watershed component, Tingkhong block has the highest amount of Rs. 1993.45 lakh while Lahoal and Panitola blocks havenil amount. For Convergence with MGNREGA component, Barbaruah, Lahoal and Joypur blocks have the highest amount of Rs. 3900 lakh each while Panitola block has the lowest amount of Rs. 295 lakh.

Table 5-4: Block wise, component wise plan

Blocks	AIBP	HKKP	PDMC	Watershed	Convergence	Total
Barbaruah	703.10	10000.00	2413.30	569.07	3900.00	17585.47
Lahoal	1081.20	5645.00	2117.30	0.00	3900.00	12743.50
Panitola	0.00	5041.00	987.90	0.00	295.00	6323.90
Tengakhat	0.00	7985.00	4481.00	1652.94	3775.00	17893.94
Khowang	1026.90	5253.00	7406.00	815.46	1860.00	16361.36
Tingkhong	0.00	7055.00	4042.00	1993.45	3775.00	16865.45
Joypur	3259.00	11200.00	3925.30	535.08	3900.00	22819.38
Total	6070.20	52179.00	25372.80	5566.00	21405.00	110593.00

5.5 Block wise, department wise plan

Block wise, component wise plan for the district is as shown in table below. Agriculture department has proposed the highest amount for Khowang block (Rs. 9266 lakh) while the lowest amount for Panitola block (Rs. 1282.90 lakh). Irrigation department has proposed highest amount for Joypur block (Rs. 14459 lakh) while the lowest for Panitola block (Rs.

5041 lakh). Soil Conservation department has proposed highest amount for Tingkhong block (Rs. 1993.45 lakh) while nil amount for Lahoal and Panitola blocks.

Table 5-5: Block wise, department wise plan

Blocks	Agriculture	Irrigation	Soil Conservation	Total
Barbaruah	6313.30	10703.10	569.07	17585.47
Lahoal	6017.30	6726.20	0.00	12743.50
Panitola	1282.90	5041.00	0.00	6323.90
Tengakhat	8256.00	7985.00	1652.94	17893.94
Khowang	9266.00	6279.90	815.46	16361.36
Tingkhong	7817.00	7055.00	1993.45	16865.45
Joypur	7825.30	14459.00	535.08	22819.38
Total	46777.80	58249.20	5566.00	110593.00

5.6 Expected Output and Outcome

As stated earlier the gross irrigated area in the district is 7187.5 hectare which is around 4% of 188692 hectare of the gross cropped area. Various departments of the district have proposed to bring additional 127157.5 hectares of land under irrigated cultivation system. Table below represents the target proposed by various department to bring additional land under irrigated cultivation through PMKSY.

Table 5-6: Block wise, component wise area in ha. to be contemplated for irrigation

	AIBP	HKKP	PDMC	Watershed	Convergence	Total
Barbaruah	374	4750	4776	4376	3900	18176
Lahoal	680	2840	4506	0	3900	11926
Panitola	0	2560	2171.5	0	1795	6526.5
Tengakhat	0	4495	6105	12879	2875	26354
Khowang	740	2455	7078	6698	2095	19066
Tingkhong	0	3000	5100	16538	2875	27513
Joypur	2415	5665	5616	0	3900	17596
Total	4209	25765	35352.5	40491	21340	127157.5

5.7 Conclusion

The following benefits are intended from the District Irrigation Plan.

1. A total of 127157.5 Hectares of Irrigation potential is proposed to be created under the four components of PMKSY. Thus, 80% of cultivable area would be brought under the command of assured irrigation. It would boost up the gross crop intensity significantly as the farmers would be able to go for multiple cropping sequences throughout the year.
2. Under the component AIBP, 4209 hectares of land is contemplated to be brought under irrigation with the total amount of Rs. 6070.20 lakh by Irrigation department.

3. Under the component 'Har Khet Ko Pani', 25765 hectares of land is contemplated to be brought under irrigation with the total amount of Rs. 52179 lakh by Irrigation department.
4. Under Per Drop More Crop component, 35352.5 hectares of land is contemplated to be brought under irrigation with the total amount of Rs. 25372.8 lakh by Agriculture department.
5. Under Watershed component, 40491 hectares of land is contemplated to be brought under irrigation with the total amount of Rs. 5566.00 lakh by Soil Conservation and Agriculture department.
6. Under Convergence with MGNREGA component, 21340 hectares of land is contemplated to be brought under irrigation with the total amount of Rs. 21405 lakh by Agriculture department.

Thus, the overall economy of the district would get better and better in the days to come after the contemplated projects get implemented and yield results in terms of enhanced crop production.

Annexure I : Area wise, crop wise irrigation status

Name of the Block: Joypur															
Crop Type	Kharif (Area in ha)			Rabi (Area in ha)			Summer Crop(Area in ha)			Total (Area in ha)			Horticulture & Plantation Crops (Area in ha)		
	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total
A) Cereals		9175	9175			0		116	116	0	9291	9291	844	1200	2044
B) Coarse Cereals		7	7		15	15			0	0	22	22			
C) Pulses	2	85	87	80	20	100			0	82	105	187			
D) Oil Seeds	3	143	146	75	25	100			0	78	168	246			
E) Fibre		25	25		120	120		23	23	0	168	168			
Total	5	9435	9440	155	180	335	0	139	139	160	9754	9914	844	1200	2044
Name of the Block: Khowang															
Crop Type	Kharif (Area in ha)			Rabi (Area in ha)			Summer Crop(Area in ha)			Total (Area in ha)			Horticulture & Plantation Crops (Area in ha)		
	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total
A) Cereals		13641	13641			0	9		9	9	13641	13650	40	3129	3169
B) Coarse Cereals		28	28	16	18	34		14	14	16	60	76			
C) Pulses		64	64	70	57	127		17	17	70	138	208			
D) Oil Seeds			0	7	227	234			0	7	227	234			
E) Fibre			0			0			0	0	0	0			
Total	0	13733	13733	93	302	395	9	31	40	102	14066	14168	40	3129	3169
Name of the Block: Lahoal															
Crop Type	Kharif (Area in ha)			Rabi (Area in ha)			Summer Crop(Area in ha)			Total (Area in ha)			Horticulture & Plantation Crops (Area in ha)		
	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total
A) Cereals	131	12596	12727	5	128	133	20	127	147	156	12851	13007	272	1470	1742
B) Coarse Cereals			0		47	47	7		7	7	47	54			
C) Pulses			0	7	166	173	25		25	32	166	198			
D) Oil Seeds			0	5	211	216	23		23	28	211	239			
E) Fibre			0			0			0	0	0	0			
Total	131	12596	12727	17	552	569	75	127	202	223	13275	13498	272	1470	1742
Name of the Block: Panitola															
Crop Type	Kharif (Area in ha)			Rabi (Area in ha)			Summer Crop(Area in ha)			Total (Area in ha)			Horticulture & Plantation Crops (Area in ha)		
	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total
A) Cereals		8813	8813		85	85			0	0	8898	8898	27	871	898
B) Coarse Cereals			0			0			0	0	0	0			
C) Pulses			0		224	224			0	0	224	224			

D) Oil Seeds			0		223	223			0	0	223	223			
E) Fibre			0			0			0	0	0	0			
Total	0	8813	8813	0	532	532	0	0	0	0	9345	9345	27	871	898
Name of the Block: Tengakhat															
Crop Type	Kharif (Area in ha)			Rabi (Area in ha)			Summer Crop(Area in ha)			Total (Area in ha)			Horticulture & Plantation Crops (Area in ha)		
	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total
A) Cereals	122	11492	11614			0	127	20	147	249	11512	11761	398	771	1169
B) Coarse Cereals		21	21	24	38	62	15	23	38	39	82	121			
C) Pulses	27	1	28	47	126	173	10	67	77	84	194	278			
D) Oil Seeds	29	7	36	64	285	349			0	93	292	385			
E) Fibre			0			0			0	0	0	0			
Total	178	11521	11699	135	449	584	152	110	262	465	12080	12545	398	771	1169
Name of the Block: Tingkhong															
Crop Type	Kharif (Area in ha)			Rabi (Area in ha)			Summer Crop(Area in ha)			Total (Area in ha)			Horticulture & Plantation Crops (Area in ha)		
	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total
A) Cereals	572	8721	9293	3	1378	1381	72	341	413	647	10440	11087	182	1472.5	1654.5
B) Coarse Cereals	0	6	6	0	8	8		16	16	0	30	30			
C) Pulses		12.5	12.5	40	138	178		53	53	40	203.5	243.5			
D) Oil Seeds			0		188.5	188.5		3	3	0	191.5	191.5			
E) Fibre			0			0			0	0	0	0			
Total	572	8739.5	9311.5	43	1712.5	1755.5	72	413	485	687	10865	11552	182	1472.5	1654.5
Name of the Block: Borbaruah															
Crop Type	Kharif (Area in ha)			Rabi (Area in ha)			Summer Crop(Area in ha)			Total (Area in ha)			Horticulture & Plantation Crops (Area in ha)		
	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total
A) Cereals	56	9000	9056	25	285	310	10	185	195	91	9470	9561	32	1309	1341
B) Coarse Cereals	2	16	18	12	45	57	5	14	19	19	75	94			
C) Pulses		42	42	5	210	215	2	70	72	7	322	329			
D) Oil Seeds			0		510	510			0	0	510	510			
E) Fibre			0			0			0	0	0	0			
Total	58	9058	9116	42	1050	1092	17	269	286	117	10377	10494	32	1309	1341

Annexure II : Production and Productivity of major crops

Name of the Block: JOYPUR															
Season	Crop Sown					Rain fed				Irrigated			Total		
	Cereals	Coarse Cereals	Pulses	Oil Seeds	Fiber Crops	Area (ha)	Production (qtn/yr)	Productivity or Yield (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)
A. Kharif	10600					10600	203520	1920	8700.00				203520	1920	8700.00
B. Rabi	250					250	5025	2010	8700.00				6132	2010	8700.00
B.Rabi		20				20	440	2200	7500.00				440	2200	7500.00
B.Rabi			60			60	336	560	5000.00				336	560	5000.00
B.Rabi				250		250	2000	800	6500.00				480	800	6500.00
Summer	50					50	1005	2010	7500.00				1005	2010	7500.00
Horticultural & Plantation	1700 (Veg)					1700	54400	3200	12500.00				54400	3200	12500.00
Total	10900	20	60	250	0	12930	266726	12700	56400.00				266313	12700	56400.00
Name of the Block: KHOWANG															
Season	Crop Sown					Rain fed				Irrigated			Total		
	Cereals	Coarse Cereals	Pulses	Oil Seeds	Fiber Crops	Area (ha)	Production (qtn/yr)	Productivity or Yield (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)
A. Kharif	8500					8500	1,63,200	1920	7,500.00				1,63,200	1920	7,500.00
RABI	500					500	10050	2010	7500.00				10050	2010	7500.00
RABI		120				120	2640	2200	7500.00				2640	2200	7500.00
RABI				700		700	5600	800	6500.00				5600	800	6500.00
RABI			600			600	3360	560	5000.00				3360	560	5000.00
SUMMER	150					150	3015	2010	10,000.00				3015	2010	10,000.00
RABI (VEG)	750					750	24000	3200	12500.00				24000	3200	12500.00
KHARIF (VEG)	500					500	16000	3200	12500.00				16000	3200	12500.00
SUMMER (VEG)	300					300	9600	3200	12500.00				9600	3200	12500.00
HORTI	300					300	9000	3000	20000.00				9000	3000	20000.00
Name of the Block: LAHOWAL															

Season	Crop Sown					Rain fed				Irrigated			Total		
	Cereals	Coarse Cereals	Pulses	Oil Seeds	Fiber Crops	Area (ha)	Production (qtn/yr)	Productivity or Yield (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)
A. Kharif	8500					8500	163200	1920	8700.00	2412	2010	12000.00	165612	3930	20700.00
B. Rabi	320					320	6432	2010	8700.00				6132	2010	8700.00
B.Rabi		20				20	440	2200	7500.00				440	2200	7500.00
B.Rabi			60			60	336	560	5000.00				336	560	5000.00
B.Rabi				450		450	3600	800	6500.00				480	800	6500.00
Summer	50					50				1005	2010	10000.00	1005	2010	10000.00
Horticultural & Plantation	1000 (Veg)					1000	32000	3200	12500.00				32000	3200	12500.00
Total	8870	20	60	450	0	10400	206008	10690	48900.00	3417	4020	22000.00	206005	14710	70900.00
Name of the Block: PANITOLA															
Season	Crop Sown					Rain fed				Irrigated			Total		
	Cereals	Coarse Cereals	Pulses	Oil Seeds	Fiber Crops	Area (ha)	Production (qtn/yr)	Productivity or Yield (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)
A. Kharif	7650					6950	146880	1920	8700.00	14070	2010	12000.00	160950	3930	20700.00
B.Rabi				540		140	1120	800	6500.00	3200	880	10000.00	4000	1680	16500.00
			250			50	325	650	6500.00	1500	800	8500.00	1825	1450	15000.00
Summer			100			10	65	650	6500.00	675	750	7500.00	1325	1400	14000.00
Horticultural & Plantation	150					50	1600	3200	15000.00	4000	4000	18000	5600	7200	33000.00
Total	7800		350	540	0	7200	149990	7220	43200.00	23445	8440	56000.00	173700	15660	99200.00
Name of the Block: TENGAKHAT															
Season	Crop Sown					Rain fed				Irrigated			Total		
	Cereals	Coarse Cereals	Pulses	Oil Seeds	Fiber Crops	Area (ha)	Production (qtn/yr)	Productivity or Yield (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)
A. Kharif	7500					7500	144000	1920	8700.00				144000	1920	8700.00
B. Rabi	150					150	5025	2010	8700.00				5025	2010	8700.00
B.Rabi		20				20	440	2200	7500.00				440	2200	7500.00

B.Rabi			50			50	280	560	5000.00				280	560	5000.00
B.Rabi				350		350	2800	800	6500.00				2800	800	6500.00
Summer	50					50	1005	2010	7500.00				1005	2010	7500.00
Horticultural & Plantation	1400					1400	44800	3200	12500.00				44800	3200	12500.00
Total	9100	20	50	350	0	9520	198350	12700	56400.00				198350	12700	56400.00

Name of the Block: TINGKHONG

Season	Crop Sown					Rain fed				Irrigated			Total		
	Cereals	Coarse Cereals	Pulses	Oil Seeds	Fiber Crops	Area (ha)	Production (qtn/yr)	Productivity or Yield (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)
A. Kharif	9900					9900	203520	1920	8700.00				203520	1920	8700.00
B. Rabi	250					250	5025	2010	8700.00				5025	2010	8700.00
B.Rabi		20				20	440	2200	7500.00				440	2200	7500.00
B.Rabi			60			60	336	560	5000.00				336	560	5000.00
B.Rabi				250		250	2000	800	6500.00				2000	800	6500.00
Summer	50					50	1005	2010	7500.00				1005	2010	7500.00
Horticultural & Plantation	1000					1000	32000	3200	12500.00				32000	3200	12500.00
Total	11200	20	60	250	0	11530	244326	12700	56400.00				244326	12700	56400.00

Name of the Block: BORBARUAH

Season	Crop Sown					Rain fed				Irrigated			Total		
	Cereals	Coarse Cereals	Pulses	Oil Seeds	Fiber Crops	Area (ha)	Production (qtn/yr)	Productivity or Yield (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)	Production (qtn/yr)	Productivity (Kgs/ha)	Cost of Cultivation (Rs./ha)
A. Kharif	9200	20	20	5	10	8500	163200	1920	8700.00	241200	2010	12000.00	404400	3930	20700.00
B.Rabi	460	10	170	350	2	420	8484	2020	8700.00	804	2010	12000.00	9288	4030	20700.00
Summer	180	5	50		2	150	3030	2020	8700.00	603	2010	12000.00	3633	4030	20700.00
Horticultural & Plantation	3300		12	5	2	2500	51250	2050	13500.00	17200	2150	15000.00	68450	4200	28500.00
Total	13140	35	252	360	16	11570	225964	8010	39600.00	259807	8180	51000.00	485771	16190	90600.00

Annexure III :Status of Command Area

Name of the Block: Panitola									
Area in Ha									
Sl No	Name of the Village	Information of Canal Command			Information on the other Services Command			Total Area	
		Total Area	Developed Area	Undeveloped Area	Total Area	Developed Area	Undeveloped Area	Developed Command	Undeveloped Command
1	2	3	4	5	6	7	8	4+7	5+8
1	Dinjoy Satra	N/A	N/A	-----	140 H	140 H	-----	140 H	-----
Total					140 H	140 H	-----	140 H	-----
Name of the Block: Lahowal									
Area in Ha									
Sl No	Name of the Village	Information of Canal Command			Information on the other Services Command			Total Area	
		Total Area	Developed Area	Undeveloped Area	Total Area	Developed Area	Undeveloped Area	Developed Command	Undeveloped Command
1	2	3	4	5	6	7	8	4+7	5+8
1	Hilodhari Chandoi pathar	N/A	N/A	-----	120 H	120 H	-----	120 H	-----
2	Ginichuk Pathar	N/A	N/A	-----	90 H	90 H	-----	90 H	-----
3	Rongpuria, Romai, Phutahula, Nagaon	N/A	N/A	-----	210 H	210 H	-----	210 H	-----
4	Garukhunda	N/A	N/A	-----	60 H	60 H	-----	60 H	-----
5	Modarkhat (defunct scheme)	600 H (presently nil)	600 H (presently nil)	-----	-----	-----	-----	600 H	-----
2	Rohmaria	N/A	N/A	-----	54 H	54 H	-----	54 H	-----
Total		600 H	600 H	-----	534H	534 H	-----	1134 H	-----
Name of the Block: Tengakhat									
Area in Ha									
Sl No	Name of the Village	Information of Canal Command			Information on the other Services Command			Total Area	
		Total Area	Developed Area	Undeveloped Area	Total Area	Developed Area	Undeveloped Area	Developed Command	Undeveloped Command
1	2	3	4	5	6	7	8	4+7	5+8
1	Tengakhat , Kheremia	1010 H	1010 H	-----	-----	-----	-----	1010 H	-----
2	Chiringkhat	-----	-----	-----	420 H (Presently only 200 H)	420 H (Presently only 200 H)	-----	420 H	-----
3	Dighalia	-----	-----	-----	90 H	90 H	-----	90 H	-----
4	Borbam	-----	-----	-----	60 H	60 H	-----	60 H	-----
5	Ghumtal Hamukoni	-----	-----	-----	120 H	120 H	-----	120 H	-----
6	Lezioni Pathar	-----	-----	-----	60 H	60 H	-----	60 H	-----
7	Rongsongi pathar (Defunct)	-----	-----	-----	60 H (presently)	60 H	-----	60 H	-----

					nil)	(presently nil)		(presently nil)	
8	Kapahuwa (Defunct)	-----	-----	-----	60 H (presently nil)	60 H (presently nil)	-----	60 H (presently nil)	-----
9	Nakhangia				300 H (Currently nil)				
Total		1010 H	1010 H	-----	860 H	860 H	-----	1880 H	-----

Name of the Block: Joypur

Area in Ha

Sl No	Name of the Village	Information of Canal Command			Information on the other Services Command			Total Area	
		Total Area	Developed Area	Undeveloped Area	Total Area	Developed Area	Undeveloped Area	Developed Command	Undeveloped Command
1	2	3	4	5	6	7	8	4+7	5+8
1	Tokowbeel	60 H (presently nil)	60 H (presently nil)	-----	-----	-----	-----	60 H	-----
2	Rongpur Dighali	70 H (presently nil)	70 H (presently nil)	-----	-----	-----	-----	70 H	-----
3	Sassoni	100 H	100 H	-----	-----	-----	-----	100 H	-----
4	Tipam Fakial	815 H (presently nil)	815 H (presently nil)	-----	-----	-----	-----	815 H	-----
5	Amguri	70 H (presently nil)	70 H (presently nil)	-----	-----	-----	-----	70 H	-----
6	Sikasubam	-----	-----	-----	60 H	60 H	-----	60 H	-----
7	Bhumuk pathar	31 H (presently nil)	31 H (presently nil)	-----	-----	-----	-----	31 H	-----
8	Uriamguri	-----	-----	-----	60 H (presently nil)	60 H (presently nil)	-----	60 H	-----
9	Singibeel	-----	-----	-----	60 H (presently nil)	60 H (presently nil)	-----	60 H	-----
Total		1146 H	1146 H	-----	180 H	180 H	-----	1326 H	-----

Name of the Block: Tingkhong

Area in Ha

Sl No	Name of the Village	Information of Canal Command			Information on the other Services Command			Total Area	
		Total Area	Developed Area	Undeveloped Area	Total Area	Developed Area	Undeveloped Area	Developed Command	Undeveloped Command
1	2	3	4	5	6	7	8	4+7	5+8
1	Chaharikata	-----	-----	-----	60 H	60 H	-----	60 H	-----
2	Naharpara Borbeel	-----	-----	-----	30 H	30 H	-----	30 H	-----
3	Dasuk Kasalubam	-----	-----	-----	90 H	90 H	-----	90 H	-----
4	Kenduguri	-----	-----	-----	60 H	60 H	-----	60 H	-----
5	Chapatoli	108 H (presently nil)	108 H (presently nil)	-----	-----	-----	-----	108 H (presently nil)	-----

6	Rongsowal	66 H (presently nil)	66 H (presently nil)	-----	-----	-----	-----	66 H (presently nil)	-----
7	Borbam	60 H (presently nil)	60 H (presently nil)	-----	-----	-----	-----	60 H (presently nil)	-----
Total		234 H	234 H	-----	240 H	240 H	-----	474 H	-----

Name of the Block: Khowang

Area in Ha

Sl No	Name of the Village	Information of Canal Command			Information on the other Services Command			Total Area	
		Total Area	Developed Area	Undeveloped Area	Total Area	Developed Area	Undeveloped Area	Developed Command	Undeveloped Command
1	2	3	4	5	6	7	8	4+7	5+8
1	Duliabam	30 H	30 H	-----	-----	-----	-----	30 H	-----
2	Borbeel	40 H	40 H	-----	-----	-----	-----	40 H	-----
3	Bahanipathar	80 H	80 H	-----	-----	-----	-----	80 H	-----
4	Kololowa	407 H	407 H	-----	-----	-----	-----	407 H	-----
5	Khowang	2050 H	2050 H	-----	-----	-----	-----	2050 H	-----
6	Madhakali Pathar	-----	-----	-----	90H	90H	-----	90H	-----
7	Naharani (Work in progress)	-----	-----	-----	90H (presently nil)	90H (presently nil)	-----	90H	-----
8	Kachamari (Work in progress)	-----	-----	-----	60H (presently nil)	60H (presently nil)	-----	60H	-----
9	Hunghungia (Work in progress)	374H (presently nil)	374H (presently nil)	-----	-----	-----	-----	374H	-----
10	Azarguri	30H (presently nil)	30H (presently nil)	-----	-----	-----	-----	30H	-----
11	Athabari	30H (presently nil)	30H (presently nil)	-----	-----	-----	-----	30H	-----
Total		3041 H	3041 H	-----	240 H	240 H	-----	3281 H	-----

Name of the Block: Barbaruah

Area in Ha

Sl No	Name of the Village	Information of Canal Command			Information on the other Services Command			Total Area	
		Total Area	Developed Area	Undeveloped Area	Total Area	Developed Area	Undeveloped Area	Developed Command	Undeveloped Command
1	2	3	4	5	6	7	8	4+7	5+8
1	Sessa area	600 H	600 H	-----	-----	-----	-----	600 H	-----
2	Dewanbari Mottock Koibortta Gaon	-----	-----	-----	90 H	90 H	-----	90 H	-----
3	Lezai	200 H (presently nil)	200 H (presently nil)	-----	-----	-----	-----	200 H	-----
4	Itakhuli (Work in progress)	-----	-----	-----	120 H (presently nil)	120 H (presently nil)	-----	120 H	-----

5	Tingkhong Mohpoliamora (Work in progress)	-----	-----	-----	120 H (presently nil)	120 H (presently nil)	-----	120 H	-----
6	Lepetkata Kacharigaon (Work in progress)	-----	-----	-----	120 H (presently nil)	120 H (presently nil)	-----	120 H	-----
Total		800 H	800 H	-----	450 H		-----	1250 H	-----

Annexure IV :Existing types of Irrigation

Name of the Block: Panitola																	
Source of Irrigation	Surface Irrigation (1)					Ground Water (2)					Other Sources including Traditional WHS (3)	Treated effluent discharge from STP	Water extraction devices/Lift			Total	
	Canal Based		Tanks/Ponds/Reservoirs			Tube Wells		Open Wells	Bore well				Electricity pump (4)	Diesel pumps (5)	Others (6)	Irrigation sources (1+2+3)	Water extracting units (4+5+6)
	Govt. Canal	Community/Pvt. Canal	Community Ponds including small	Individual/Pvt. Ponds	Govt. Reservoir/Dams	Govt.	Pvt.	Community/Govt.	Govt.	Pvt.							
MDTW Scheme at Dinjoy Satra	----	----	----	-----	-----	4	----	-----	----	---	-----	-----	4	----	----	4	4
Command area						120	H										
Name of the Block: Lahowal																	
Source of Irrigation	Surface Irrigation (1)					Ground Water (2)					Other Sources including Traditional WHS (3)	Treated effluent discharge from STP	Water extraction devices/Lift			Total	
	Canal Based		Tanks/Ponds/Reservoirs			Tube Wells		Open Wells	Bore well				Electricity pump (4)	Diesel pumps (5)	Others (6)	Irrigation sources (1+2+3)	Water extracting units (4+5+6)
	Govt. Canal	Community/Pvt. Canal	Community Ponds including small	Individual/Pvt. Ponds	Govt. Reservoir/Dams	Govt.	Pvt.	Community/Govt.	Govt.	Pvt.							
MDTW Scheme at Ginichuk Pathar	----	----	----	-----	-----	3	----	-----	----	---	-----	-----	1	----	----	43	43
MDTW Scheme at Rongpuria, Romai, Phutahulla, Nagaon	----	----	----	-----	-----	7	----	-----	----	---	-----	-----	5	----	----		
MDT scheme at Hiloidhari Chandoipathar	----	----	----	-----	-----	4	----	-----	----	---	-----	-----	4	----	----		
MDTW Scheme at	----	----	----	-----	-----	2	----	-----	----	---	-----	-----	2	----	----		

Garukhunda																	
Rohmaria	----	-----	-----	-----	-----	27	---	-----	---	---	-----	-----	-----	27	-----		
Command area						534 H											
Name of the Block:Tengakhat																	
Source of Irrigation	Surface Irrigation (1)					Ground Water (2)					Other Sources including Traditional WHS (3)	Treated effluent discharge from STP	Water extraction devices/Lift			Total	
	Canal Based		Tanks/Ponds/Reservoirs			Tube Wells		Open Wells	Bore well				Electricity pump (4)	Diesel pumps (5)	Others (6)	Irrigation sources (1+2+3)	Water extracting units (4+5+6)
	Govt. Canal	Community/Pvt. Canal	Community Ponds including small	Individual/Pvt. Ponds	Govt. Reservoir/Dams	Govt.	Pvt.	Community/Govt.	Govt.	Pvt.							
MDTW Scheme at Dighalia	----	---	-----	-----	-----	3	---	-----	----	---	-----	-----	1	---	-----	41	24
MDTW Scheme at Borbam	----	---	-----	-----	-----	2	---	-----	----	---	-----	-----	5	---	-----		
MDT scheme at Na-Khangia	----	---	-----	-----	-----	10	---	-----	----	---	-----	-----	4	---	-----		
MDTW Scheme at Chiringkhat	----	---	-----	-----	-----	14	---	-----	----	---	-----	-----	2	---	-----		
MDTW Scheme at Lezioni pathar	----	---	-----	-----	-----	2	---	-----	----	---	-----	-----	2	---	-----		
MDTW Scheme at Ghumtal Hamukoni	----	---	-----	-----	-----	4	---	-----	----	---	-----	-----	4	---	-----		
MDTW Scheme at Kapahuwa	----	---	-----	-----	-----	2	---	-----	----	---	-----	-----	2	---	-----		
MDTW Scheme at Rongsongi Pathar	----	---	-----	-----	-----	2	---	-----	----	---	-----	-----	2	---	-----		
Command						117											

area						0											
LIS from river Buridehing in Tengakhat Kheremia mouza	1	---	----	-----	-----	---	---	-----	---	---	-----	-----	1	---	----		
Command area	1010																
Name of the Block: Joypur																	
Source of Irrigation	Surface Irrigation (1)					Ground Water (2)					Other Sources including Traditional WHS (3)	Treated effluent discharge from STP	Water extraction devices/Lift			Total	
	Canal Based		Tanks/Ponds/Reservoirs			Tube Wells		Open Wells	Bore well				Electricity pump (4)	Diesel pumps (5)	Others (6)	Irrigation sources (1+2+3)	Water extracting units (4+5+6)
	Govt. Canal	Community/Pvt. Canal	Community Ponds including small	Individual/Pvt. Ponds	Govt. Reservoir/Dams	Govt.	Pvt.	Community/Govt.	Govt.	Pvt.							
MDTW Scheme at Silkasubam	----	---	----	-----	-----	2	---	-----	----	---	-----	-----	1	---	----	11	11
MDTW Scheme at Uriamguri	----	---	----	-----	-----	2	---	-----	----	---	-----	-----	2	---	----		
MDTW scheme at Singibeel	----	---	----	-----	-----	2	---	-----	----	---	-----	-----	2	---	----		
LIS from river Buridehing in Tipling Fakial mouza	1	---	----	-----	-----	---	---	-----	----	---	-----	-----	1	---	----		
LIS from river Buridehing in Sassoni mouza	1	---	----	-----	-----	---	---	-----	----	---	-----	-----	1	---	----		
LIS from Dighalibeel in Dighalibeel	1	---	----	-----	-----	---	---	-----	----	---	-----	-----	1	---	----		

area																	
LIS from Tokowbeel in Tokowbeel area	1	---	----	-----	-----	---	---	-----	---	---	-----	-----	1	---	----		
LIS from river Singahutibebel in Kheremia mouza	1	-----	-----	-----	-----	---	---	-----	---	---	-----	-----	---	---	-----		
Command area	1146 H					180 H											
Name of the Block: Tingkhong																	
Source of Irrigation	Surface Irrigation (1)					Ground Water (2)					Other Sources including Traditional WHS (3)	Treated effluent discharge from STP	Water extraction devices/Lift			Total	
	Canal Based		Tanks/Ponds/Reservoirs			Tube Wells		Open Wells	Bore well				Electricity pump (4)	Diesel pumps (5)	Others (6)	Irrigation sources (1+2+3)	Water extracting units (4+5+6)
	Govt. Canal	Community/Pvt. Canal	Community Ponds including small	Individual /Pvt. Ponds	Govt. Reservoir/Dams	Govt.	Pvt.	Community/Govt.	Govt.	Pvt.							
MDTW Scheme at Dasuk Kasalubam	----	---	----	-----	-----	3	---	-----	----	---	-----	-----	3	---	----	11	11
MDTW Scheme at Kenduguri	----	---	----	-----	-----	2	---	-----	----	---	-----	-----	2	---	----		
DTW scheme at Naharpara Borbeel	----	---	----	-----	-----	1	---	-----	----	---	-----	-----	1	---	----		
MDTW Scheme at Chaharikata	----	---	----	-----	-----	2	---	-----	----	---	-----	-----	---	2	----		
LIS from river Desang in Joypur area	1	---	----	-----	-----	---	---	-----	----	---	-----	-----	1	---	----		
LIS from river Desang	1	---	----	-----	-----	---	---	-----	----	---	-----	-----	1	---	----		

Source of Irrigation	Surface Irrigation (1)					Ground Water (2)					Other Sources including Traditional WHS (3)	Treated effluent discharge from STP	Water extraction devices/Lift			Total	
	Canal Based		Tanks/Ponds/Reservoirs			Tube Wells		Open Wells	Bore well				Electricity pump (4)	Diesel pumps (5)	Others (6)	Irrigation sources (1+2+3)	Water extracting units (4+5+6)
	Govt. Canal	Community/Pvt. Canal	Community Ponds including small	Individual/Pvt. Ponds	Govt. Reservoir/Dams	Govt.	Pvt.	Community/Govt.	Govt.	Pvt.							
in Rongsowal area																	
LIS from river Desang in Chapatoli area	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		
Command area	234 H					240 H											
Name of the Block: Khowang																	
MDTW Scheme at Madhakali Pathar	-----	---	-----	-----	-----	3	---	-----	---	---	-----	-----	3	---	-----		
LIS (Medium) from river Buridehing in Khowang area	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		
LIS from river Buridehing in Kololowa area	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----	16	16
LIS from river Demow in Khowang area	-----	---	-----	-----	-----	---	---	-----	---	---	-----	-----	-----	---	-----		
Duliabam Point	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		
Bahanipathar point	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		
Borbeel	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		

Point																	
Naharani DTW Scheme	-----	---	-----	-----	-----	2	---	-----	---	---	-----	-----	2	---	-----		
Kachamari DTW Scheme	-----	---	-----	-----	-----	2	---	-----	---	---	-----	-----	2	---	-----		
LIS from river Tiloi in Hunghungia area	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		
LIS from river Demow in Khowang area	-----	---	-----	-----	-----	---	---	-----	---	---	-----	-----	-----	---	-----		
Azarguri Point (old)	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		
Azarguri Point (new)	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		
Naharani Point	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----		
Command area	3041 H					240 H											
Name of the Block: Barbaruah																	
Source of Irrigation	Surface Irrigation (1)					Ground Water (2)					Other Sources including Traditional WHS (3)	Treated effluent discharge from STP	Water extraction devices/Lift			Total	
	Canal Based		Tanks/Ponds/Reservoirs			Tube Wells		Open Wells	Bore well				Electricity pump (4)	Diesel pumps (5)	Others (6)	Irrigation sources (1+2+3)	Water extracting units (4+5+6)
	Govt. Canal	Community/Pvt. Canal	Community Ponds including small	Individual/Pvt. Ponds	Govt. Reservoir/Dams	Govt.	Pvt.	Community/Govt.	Govt.	Pvt.							
LIS from river Buridehing in Sessa Area	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----	18	16
Dewanbari Mottock Koirbotta DTW scheme	-----	---	-----	-----	-----	3	---	-----	---	---	-----	-----	-----	3	-----		

DTW scheme at Tingkhong Mohpoliamora	----	---	-----	-----	-----	4	---	-----	---	---	-----	-----	4	---	-----
DTW scheme at Itakhuli	----	---	-----	-----	-----	4	---	-----	---	---	-----	-----	4	---	-----
Lepetkata Kacharigaon DTW Scheme	----	---	-----	-----	-----	4	---	-----	---	---	-----	-----	2	-----	-----
LIS from river Sessa in Lezai area	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	-----	-----
LIS from river Buridehing in Sessa Area	1	---	-----	-----	-----	---	---	-----	---	---	-----	-----	1	---	-----
Command area	800 H					450 H									

Annexure V :Strategic Action Plan for irrigation in District (Block wise)

Barbaruah Block

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
BARBARUAH	MOA & FWDAC & FW	Per drop more crop (Micro irrigation) New Scheme	DPAP Drip	26	26	5-7Yrs	7.8
			DPAP Sprinkler	80	40	5-7Yrs	40.00
			Shallow Tube Well (Diesel)	550	1100	5-7Yrs	330.00
			Shallow Tube Well (Electrical)	650	1300	5-7Yrs	97.50
			Shallow Tube Well (Solar)	200	400	5-7Yrs	1000.00
			Low Lift Pump (5HP)	650	1300	5-7Yrs	325.00
			Training & Extension activities (for 5 yrs)	26	10	5-7Yrs	13.00
			Total	2022 Nos	13029.5 Ha		1813.30
BARBARUAH	MOA & FWDAC & FW	Convergence with MGNREGA	Water conservation	325	1625	5-7Yrs	1625.00
			Water Harvesting	325	1625	5-7Yrs	1625.00
			Renovation of Water Bodies	130	650	5-7Yrs	650.00
				Per drop more crop (Topping up of MGNREGA)	Lining inlet,outlet, silt traps,distribution system	600	600
TOTAL					4550 Ha		4500.00

NAME OF THE BLOCK	CONCERNED MINISTRY/ DEPARTMENT	COMPONENT	ACTIVITY	NAME OF GP	TOTAL NUMBER/ CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL (HA)	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
BARBARUAH	MOWR	Har Khat Ko Pani	LIS	JOKAI	1	20	5-7Yrs	44.00
				BOGIBIL	2	40	5-7Yrs	88.00
				CHIRING DAINIJAN	1	20	5-7Yrs	44.00

			KHANI KOR	2	40	5-7Yrs	88.00
			DULIA KAKOTY	1	20	5-7Yrs	44.00
			BORBARUAH	1	20	5-7Yrs	44.00
			KOLAKHOWA	1	20	5-7Yrs	44.00
			KOTOHA	1	20	5-7Yrs	44.00
			BORPOTHER	8	800	5-7Yrs	1760.00
			JOKAI	12	1200	5-7Yrs	2640.00
			RAJABHETA	3	300	5-7Yrs	660.00
			BOGIBIL	1	100	5-7Yrs	220.00
			CHIRING DAINIJAN	1	100	5-7Yrs	220.00
			NIZ MANCOTTA	1	100	5-7Yrs	220.00
			KHANI KOR	1	100	5-7Yrs	220.00
			DULIA KAKOTY	1	100	5-7Yrs	220.00
			GARUDHARIA	3	300	5-7Yrs	660.00
			BORBARUAH	3	300	5-7Yrs	660.00
			KOLAKHOWA	3	300	5-7Yrs	660.00
			KOTOHA	2	200	5-7Yrs	440.00
			LEZAI	1	100	5-7Yrs	220.00
			GRAND TOTAL	50	4200		9240.00 L

BORBARUAH						
Sl.No.	Name of Scheme	G.P.	Area	Proposed amount (In Rs. Crore)	Population benefited	Remarks
1	Kamargaon DTW Scheme	Kamargaon Rajabheta	90	1.5	3437	----
2	Gosamora DTW Scheme-2Pts (TSP)	Jamira	60	1.00	2906	-----
3	Jokai Chengawari Gaon DTW Scheme – (2 Pts.)	jokai	60	1.00	300	-----
4	DTW Scheme Deoribari Motok Kaibotro gaon (3pts)	lezai	100	0.80	1500	-----
6	Chengamari Tekela Gaon DTW i/s (5 Points)	Borpathar	150	2.5	500	-----
7	Larua DTW Irrigation Scheme (Solar)	Jamira	300 H	6.565	700	under AIBP component
8	PIF by STW point for farmers of SCSP area for the year 2014-15 (37 nos)	borbaruah	74 H	0.466	300	Work in progress (40 %) under AIBP component

DIP, PMKSY
Component wise Budget Estimation for Borbaruah development Block
Period 2015-16 to 2020-21

Sl. No.	Project Component	Name of IWMP		Total Fund
		Dibrugarh-III(Kalakhowa)		

1	Administrative cost	49.5400	49.5400					
2	Institutional & Capacity Building	19.6900	19.6900					
3	DPR Preparation	0.0000	0.0000					
4	Eantry Point Activities	0.0000	0.0000					
5	Evaluation	6.5640	0.0000					
6	Monitoring	6.5640	0.0000					
7	Work Phase (NRM)	355.4640	355.4640					
8	Livelihood	52.4960	52.4960					
9	Production System	59.0600	59.0600					
10	Consolidation	19.6920	19.6920					
Total		569.0700	555.9420					
Sl. No.	Name of the Block	Concerned Ministry/ Department	Component	Activity	Total Number/ Capacity (Cum)	Compo-nent Area/ Irrigation Potential (Ha)	Estimated Cost (Rs in Lakh)	Period of Implementation (5/7 Yrs)
1	Borbaruah	DOLR	Dibrugarh-II (Kolakhowa) IWMP	Land Development Project (Earth work)	15200 cum.	118	9.04000	5 Years
2				Land Development Project (Ring bund)	30850 Rm	864	66.36600	
3				Earthen Channel/Drainage line Treatment	21300 Rm	307	23.61000	
4				Field Bund	3112 Rm	94	7.22000	
5				W.D. Project				
6				Reclamation of Swampy Land				
7				Desiltation	7727 cum	344	26.40000	
8				Water harvesting Tank	1 no	33	2.56	
9				Boulder Spur				
10				Sluice gate	3 Nos.	169	13.00000	
11				Graded bund (With provision of Hume Pipe)				
12				Boulder Pitching				
13				Nalla Bund (With provision of Slab Culvert)				
14				Masonry Stop Dam				
15				Afforestation	16.20 Ha	97	7.45000	
16				Nursery	2 Nos.	58	4.45000	
17				Road side plantation				
18				Shallow Tube Well	5 Nos	16	1.25000	
19				Block plantation	5090 Nos	139	17.32000	
20				Farm pond	8 Nos(27279m ³)	458	35.17800	
21				Vegitative cover	15 Ha	39	3.00000	
22				Land Development (Earthe Field bund)				
23				Brickling drainage channel	600 Rm	53	4.08000	
24				Bamboo screen with sand field bags	2324 Cum	355	34.98000	
25				Dredging	10515cum	206	15.47000	
26				Earthen check dam				
27				Wood/Bamboo Procupine	2900 Rm	667	51.22000	

28			Horticulture	16.16 Ha	170	18.44000
29			Boulder Gabion			
30			Fishery dev. Work			
31			Bamboo bank protection			
32			Diversion channel			
33			<i>Trenching</i>	2000 cum.	38	2.94000
34			<i>Water Harvesting structure</i>	1 No	61	4.71000
35			<i>Ipomea eradication and dredging</i>	9.0 Ha	88	6.78000
			Total		4376	355.4640
			Borbaruah Block Grand Total		4376	355.4640

Joypur Block

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
JPYPUR	MOA & FWDAC & FW	Per drop more crop (Micro irrigation) New Scheme	DPAP Drip	26	26	5-7Yrs	7.8
			DPAP Sprinkler	80	40	5-7Yrs	40.00
			Shallow Tube Well (Diesel)	1200	2400	5-7Yrs	720.00
			Shallow Tube Well (Electrical)	630	1260	5-7Yrs	94.50
			Shallow Tube Well (Solar)	140	280	5-7Yrs	700.00
			Low Lift Pump (5HP)	700	1400	5-7Yrs	350.00
			Training & Extension activities (for 5 yrs)	26	10	5-7Yrs	13.00
			Total	2022 Nos	13029.5 Ha		1925.30
JOYPUR	MOA & FWDAC & FW	Convergence with MGNREGA	Water conservation	325	1625	5-7Yrs	1625.00
			Water Harvesting	325	1625	5-7Yrs	1625.00
			Renovation of Water Bodies	130	650	5-7Yrs	650.00
		Per drop more crop (Topping up of MGNREGA)	Lining inlet,outlet, silt traps,distribution system	200	200	5-7Yrs	2000.00
TOTAL					4550 Ha		5900.00

NAME OF THE BLOCK	CONCERNED MINISTRY/ DEPARTMENT	COMPONENT	ACTIVITY	NAME OF GP	TOTAL NUMBER/ CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL (HA)	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
JOYPUR	MOWR	Har Khat Ko Pani	LIS	DHADUMIA	1	20	5-7Yrs	44.00
				JOYPUR	1	20	5-7Yrs	44.00
				KACHARIPATHER	0	0		0.00
				SHANTIPUR	1	20	5-7Yrs	44.00
				NAMRUP	1	20	5-7Yrs	44.00
				TIPAM FAKIAL	1	20	5-7Yrs	44.00
				GHINAI	0	0		0.00
				NIGAM	1	20	5-7Yrs	44.00
				AMGURI	1	20	5-7Yrs	44.00
				MERBIL	1	20	5-7Yrs	44.00
				BORBAM	1	20	5-7Yrs	44.00
				DIGHALIA	1	20	5-7Yrs	44.00

			D T W	DHADUMIA	2	200	5-7Yrs	440.00
				JOYPUR	2	200	5-7Yrs	440.00
				KACHARIPATHER	1	100	5-7Yrs	220.00
				SHANTIPUR	2	200	5-7Yrs	440.00
				NAMRUP	2	200	5-7Yrs	440.00
				TIPAM FAKIAL	2	200	5-7Yrs	440.00
				GHINAI	1	100	5-7Yrs	220.00
				NIGAM	2	200	5-7Yrs	440.00
				AMGURI	1	100	5-7Yrs	220.00
				MERBIL	2	200	5-7Yrs	440.00
				BORBAM	1	100	5-7Yrs	220.00
				DIGHALIA	2	200	5-7Yrs	440.00
				GRAND TOTAL	31	2200		4840.00 L

JOYPUR						
Sl.No.	Name of Scheme	G.P.	Area	Proposed amount (In Rs. Crore)	Population benefited	Remarks
1	Mothanoni area DTW – 10 Pts.	Merbil	300	5.00	797	-----
2	Na-Khangia Sonowal Sapmari DTW – 10 Pts.	Merbil	300	5.00	794	-----
3	Uriamguri DTW Scheme (2 Pts.)	Merbil	60	0.7	330	-----
4	Joypur DTW Scheme - (20 Pts)	Merbil	300	10.00	908	-----
5	Namphake DTW Scheme - (3 Pts)	Tipam Fakial	90	1.5	735	-----
6	Gethupathar & Joypur DTW Scheme – (2 Pts.)	Dhadumia	60	2.00	1247	-----
7	Balimora and Balijan Pathar DTW Scheme (4 Pts.)	Balimora	60	2.00	1094	-----
8	Kenduguri Panchayat DTW Scheme – (2 Pts.)	Kenduguri	60	1.00	1095	-----
9	MDTW Scheme Uraiamguri (2Pts)	Nakhangia Hatibondha	60	0.60	200	Partially Operative
10	MDTW Scheme Singibill (2Pts)	Merbeel	30	0.60	330	Partially Operative
11	MDTW Scheme Silkasubam(2Pts)	Merbeel	60	0.50	450	Partially Operative
12	LIS from river Buridehing in Tipling Fakial Mouza	Tipam Fakial	815	14.00	1614	Partially operative. Proposed under AIBP
13	LIS from river Buridehing in Sassoni Mouza	Borbam	1000	12.00	1627	Partially operative. Proposed under AIBP
14	LIS from river Tokowbeel in Tokowbeel area	Merbeel	60	0.50	501	Partially operative. Proposed under AIBP
15	LIS from river Singahutibeel under Khermia Mouza	Amguri	70	0.60	842	Partially operative. Proposed under AIBP
16	LIS from Dighalibeel in Dighalibeel area	Merbeel	70	0.60	444	Partially operative under AIBP
17	Borbam F.I.S. under AIBP for the year 2013-14	Nigam	400	4.89	2054	New under AIBP

DIP, PMKSY
Component wise Budget Estimation for Joypur development Block
Period 2015-16 to 2020-21

Rs. In lacs

Sl. No.	Project Component	Name of IWMP		Total Fund
		Dibrugarh-III(Upper disam)		
1	Administrative cost	50.0200		50.0200
2	Institutional & Capacity Building	19.8000		19.8000
3	DPR Preparation	0.0000		0.0000
4	Eantry Point Activities	0.0000		0.0000
5	Evaluation	6.6000		6.6000
6	Monitoring	6.6000		6.6000
7	Work Phase (NRM)	320.1000		320.1000
8	Livelihood	52.7800		52.7800
9	Production System	59.3800		59.3800
10	Consolidation	19.8000		19.8000
Total		535.0800		535.0800

Sl. No.	Name of the Block	Concerned Ministry/ Department	Component	Activity	Total Number/ Capacity (Cum)	Compo-nent Area/ Irrigation Potential (Ha)	Estimated Cost (Rs in Lakh)	Period of Implementation (5/7 Yrs)
1	Joypur	DOLR	Dibrugarh-III (Upper Disam) IWMP	Water Harvesting Tank				5 Years
2				Land Development Project	8000 Rm	276	20.4000	
3				Earthen Channel/Drainage line Treatment	42100 Rm	1478	109.0700	
4				Field Bund	5300 rm	203	14.9500	
5				Reclamation of Swampy Land				
6				Desiltation				
7				Boulder Spur				
8				Sluice gate				
9				Graded bund (With provision of Hume Pipe)				
10				Boulder Pitching	600 Rm	159	11.77	
11				Nalla Bund (With provision of Slab Culvert)				
12				Afforestation (<i>Sum Plantation</i>)	7.75 Ha	453	33.4000	
13				Farm pond	13 No(69750m ²)	1346	98.4200	
14				Vegitative cover				
15				Land Development (Earthe Field bund)				
16				Wood/Bamboo Procupine				
17				Horticulture (<i>Nursery</i>)	1.50 Ha	113	8.31	

18			Boulder Gabion			
19			Fishery dev. Work			
20			Bamboo band protection			
21			<i>Culvert</i>	2 No.	25	1.84
22			<i>RCC Check dam</i>	3 No.	296	21.94
			Total		4349	320.1000
			Joypur Block all Total		4349	320.1000

Khowang Block

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
KHOWANG	MOA & FWDAC & FW	Per drop more crop (Micro irrigation) New Scheme	DPAP Drip	38	38	5-7Yrs	11.4
			DPAP Sprinkler	105	105	5-7Yrs	52.50
			Shallow Tube Well (Diesel)	1200	2400	5-7Yrs	720.00
			Shallow Tube Well (Electrical)	400	800	5-7Yrs	60.00
			Shallow Tube Well (Solar)	1200	2400	5-7Yrs	6000.00
			Low Lift Pump (5HP)	600	1200	5-7Yrs	300.00
			Training & Extension activities (for 5 yrs)	26	10	5-7Yrs	13.00
			Total	2022 Nos	13029.5 Ha		7156.90
KHOWANG	MOA & FWDAC & FW	Convergence with MGNREGA	Water conservation	325	1625	5-7Yrs	1625.00
			Water Harvesting	22	220	5-7Yrs	110.00
			Renovation of Water Bodies	25	250	5-7Yrs	125.00
		Per drop more crop (Topping up of MGNREGA)	Lining inlet,outlet, silt traps,distribution system	25	125	5-7Yrs	250.00
TOTAL					4550 Ha		2110.00

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	NAME OF GP	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL (HA)	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
KHOWANG	MOWR	Har Khat Ko Pani	LIS	Khowang	2	40	5-7 Yrs	88.00
				Haladhi Bari	2	20	5-7 Yrs	44.00
				KOLLOWLUA	2	40	5-7 Yrs	88.00
				GOJPURIA	2	20	5-7 Yrs	44.00
			D T W	Dhemechi	1	100	5-7 Yrs	220.00

			Pathalibam	2	200	5-7 Yrs	440.00
			SEPON	1	100	5-7 Yrs	220.00
			Dikhari Moran	1	100	5-7 Yrs	220.00
			TELOINAGAR	1	100	5-7 Yrs	220.00
			GOJPURIA	2	200	5-7 Yrs	440.00
			Haladhi Bari	2	200	5-7 Yrs	440.00
			NAHORONI	2	200	5-7 Yrs	440.00
			TINTHENGIA	1	100	5-7 Yrs	220.00
			NAKHAT	1	100	5-7 Yrs	220.00
			Khowang	2	200	5-7 Yrs	440.00
			BAMUNBARI	1	100	5-7 Yrs	220.00
			KOLLOWLUA	1	100	5-7 Yrs	220.00
			LENGERI	1	100	5-7 Yrs	220.00
			RANGCHALI	1	100	5-7 Yrs	220.00
			GRAND TOTAL	28	2120		4664.00 L

KHOWANG						
Sl.No.	Name of Scheme	G.P.	Area	Proposed amount (In Rs. Crore)	Population benefited	Remarks
1	Bor Ghuguloni DTW – 10 Pts	Rangchali	300	5.00	589	-----
2	Ghuguloni Borbam DTW – 10 Pts.	Rangchali	300	5.00	1160	-----
3	Pathalibam Panitola DTW – 10 Pts.	Pathalibam	300	5.00	1582	-----
4	Burikhowang Naharoni DTW – 10 Pts.	kololowa	300	5.00	793	-----
5.	Cherepakhati DTW Scheme – (2 Pts.)	kololowa	60	1.00	513	-----
6	LIS from river Demow in Khowang area					-----
i	Azarguri Point (Old)	Athabari	80	1.2	645	Defunct
ii	Azarguri Point (New)	Azarguri	100	1.5	831	Defunct
7	LIS form river Demow in Khowang area					-----
i	Bahanipathar Point	khowang	25	0.60	200	-----
ii	Borbeel Point	khowang	30	0.60	200	-----
8	Halodhibari DTW scheme (10 pts)	Halodhibari	300	5.00	2000	-----
9	Dhemechi DTW scheme(10 pts)	Dhemechi	300	5.00	700	-----
10	LIS from river Tiloi in Hunghungia Area	Naharani	394 H	3.56 (balance amount)	2100	under AIBP component (work in progress)
11	Bhogalipatahr DTW Irrigation Scheme (Solar)	Tinthengia	300 H	6.565	800	under AIBP component
12	PIF by STW point for farmers of SCSP area for the year 2014-15 (23 nos)	khowang	46 H	0.144	200	Work in progress (40 %) under AIBP component

DIP, PMKSY
Component wise Budget Estimation for Khowang development Block

Period 2015-16 to 2020-21

Rs. In lacs

Sl. No.	Project Component	Name of IWMP		Total Fund
		Dibrugarh-IV (Dhemachi)	Dibrugarh-VIII (Dhemachi-2)	
1	Administrative cost	40.9700	42.0000	82.9700
2	Institutional & Capacity Building	17.2200	21.0000	38.2200
3	DPR Preparation	0.0000	0.0000	0.0000
4	Eantry Point Activities	0.0000	0.0000	0.0000
5	Evaluation	4.8000	4.2000	9.0000
6	Monitoring	4.8000	4.2000	9.0000
7	Work Phase (NRM)	243.0727	235.2000	478.2727
8	Livelihood	43.2000	37.8000	81.0000
9	Production System	48.0000	42.0000	90.0000
10	Consolidation	14.4000	12.6000	27.0000
Total		416.4627	399.0000	815.4627

Sl. No.	Name of the Block	Concerned Ministry/ Department	Component	Activity	Total Number/ Capacity (Cum)	Component Area/ Irrigation Potential (Ha)	Estimated Cost (Rs in Lakh)	Period of Implementation (5/7 Yrs)
1	Khowang	DOLR	Dhemachi-1 IWMP	Land Development Project	618 Rm	26	1.85400	5 Years
2				Earthen Channel/Drainage line Treatment	19695 Rm	661	46.35680	
3				Field Bund				
4				W.D. Project				
5				Reclamation of Swampy Land				
6				Desiltation				
7				Percolation Tank				
8				Boulder Spur				
9				Sluice gate				
10				Graded bund (With provision of Hume Pipe)				
11				Boulder Pitching	800 Sqm.	191	13.36000	
12				Nalla Bund (With provision of Slab Culvert)				
13				Masonry Stop Dam				
14				Afforestation				
15				<i>Paddy field up gradation for 3 crops</i>	4 Ha	131	9.20000	
16				<i>Coconut plantation</i>	2820 Nos.	400	28.00000	
17				Shallow Tube Well	141 Nos	362	25.38000	
18				Block plantation				
19				Farm pond	19nos(75546m ²)	1378	96.52194	
20				Vegitative cover				

21				Land Development (Earthe Field bund)				
22				Brickling drainage channel				
23				Bamboo screen with sand field bags				
24				Dredging				
25				Earthen check dam				
26				Wood/Bamboo Procupine				
27				Horticulture (<i>Banana</i>)	16 Ha	240	22.40000	
28				Boulder Gabion				
29				Fishery dev. Work				
30				Bamboo bank protection				
31				Diversion channel				
				Total		3390	243.0727	
1	Khowang	DOLR	Dhemachi-2 IWMP	Land Development Project	5500 Rm	233	16.50000	5 Years
2				Earthen Channel/Drainage line Treatment	20350 Rm	826	58.50000	
3				Field Bund	15600 Rm	629	44.50000	
4				W.D. Project				
5				Reclamation of Swampy Land	13.5 Ha	127	9.00000	
6				Desiltation				
7				Percolation Tank				
8				Boulder Spur				
9				Sluice gate	2 No.	188	14.50000	
10				Graded bund (With provision of Hume Pipe)				
11				Boulder Pitching	400 Rm	212	15.00000	
12				Nalla Bund (With provision of Slab Culvert)				
13				Masonry Stop Dam				
14				Afforestation				
15				<i>Tea Nursery</i>				
16				Farm pond	10 Nos(43357m ³)	857	60.70000	
17				Land Development (Earthe Field bund)				
18				Boulder Gabion				
19				Fishery dev. Work				
20				Bamboo bank protection	1700 Rm	151	10.50000	
21				Diversion channel				
22				<i>Culvert</i>	2 No	14	1.00000	
23				<i>Water Harvesting pond</i>	3929 m ³	71	5.00000	
				Total		3308	235.2000	
				Khowang Block Grand Total		6698	478.2727	

Lahool Block

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
LOHOWAL	MOA & FWDAC & FW	Per drop more crop (Micro irrigation) New Scheme	DPAP Drip	26	26	5-7Yrs	7.8
			DPAP Sprinkler	80	40	5-7Yrs	40.00
			Shallow Tube Well (Diesel)	520	1040	5-7Yrs	312.00
			Shallow Tube Well (Electrical)	630	1260	5-7Yrs	94.50
			Shallow Tube Well (Solar)	140	280	5-7Yrs	700.00
			Low Lift Pump (5HP)	600	1200	5-7Yrs	300.00
			Training & Extension activities (for 5 yrs)	26	10	5-7Yrs	13.00
			Total	2022 Nos	13029.5 Ha		1467.30
LOHOWAL	MOA & FWDAC & FW	Convergence with MGNREGA	Water conservation	325	1625	5-7Yrs	1625.00
			Water Harvesting	325	1625	5-7Yrs	1625.00
			Renovation of Water Bodies	130	650	5-7Yrs	650.00
		Per drop more crop (Topping up of MGNREGA)	Lining inlet,outlet, silt traps,distribution system	650	650	5-7Yrs	650.00
TOTAL					4550 Ha		4550.00

NAME OF THE BLOCK	CONCERNED MINISTRY/ DEPARTMENT	COMPONENT	ACTIVITY	NAME OF GP	TOTAL NUMBER/ CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL (HA)	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
LOHOWAL	MOWR	Har Khat Ko Pani	LIS	BOKUL	0	0	0	0.00
				HILOIDHARI	1	20	5-7 Yrs	44.00
				LOHOWAL	1	20	5-7 Yrs	44.00
				TIMONA	1	20	5-7 Yrs	44.00
				MODERKHAT	3	60	5-7 Yrs	132.00
				ROMAI	1	20	5-7 Yrs	44.00

			CHIRINGHULA	0	0	0	0.00
			MAIJAN	0	0	0	0.00
			NIZ KANAI	0	0	0	0.00
			MOHANBARI	0	0	0	0.00
			EKORATOLI	0	0	0	0.00
			PHOKANARKHAT	3	60	5-7 Yrs	132.00
			ROHMARIA	0	0	0	0.00
		D T W	BOKUL	1	100	5-7 Yrs	220.00
			HILOIDHARI	1	100	5-7 Yrs	220.00
			LOHOWAL	1	100	5-7 Yrs	220.00
			TIMONA	1	100	5-7 Yrs	220.00
			MODERKHAT	1	100	5-7 Yrs	220.00
			ROMAI	1	100	5-7 Yrs	220.00
			CHIRINGHULA	1	100	5-7 Yrs	220.00
			MAIJAN	2	200	5-7 Yrs	440.00
			NIZ KANAI	1	100	5-7 Yrs	220.00
			MOHANBARI	1	100	5-7 Yrs	220.00
			EKORATOLI	2	200	5-7 Yrs	440.00
			PHOKANARKHAT	3	300	5-7 Yrs	660.00
			ROHMARIA	4	400	5-7 Yrs	880.00
GRAND TOTAL				30	2200		4840.00 L

LAHOWAL						
Sl.No.	Name of Scheme	G.P.	Area	Proposed amount (In Rs. Crore)	Population benefited	Remarks
1	Bebezia DTW scheme 4pts	Bokel	120	2.00	832	-----
2	MDTW scheme Ginichuk Pathar 3 pts	Ginichuk	90	0.90	310	Partially operative
3	MDTW scheme Rongpuria Romai Phutatullah 7 pts	Romai, Modarkhat	60	1.00	2071	Partially operative
4	MDTW scheme Garukhunda 2pts	Romai	60	0.60	775	Partially operative
5	Romai Gaon STWS (20 pts)	Romai	40	0.15	956	-----
6	LIS from river SESSA in Bokul Area	Bokul	600 H	10.56	2000	under AIBP component (LA work in progress)
7	PIF by STW point for farmers of SCSP area for the year 2014-15 (40 nos)	Rohmoriam, Bokul	80 H	0.252	300	Work in progress (40 %) under HKKP component

Panitola Block

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
PANITOLA	MOA & FWDAC & FW	Per drop more crop (Micro irrigation) New Scheme	DPAP Drip	10	10	5-7Yrs	3.7
			DPAP Sprinkler	15	7.5	5-7Yrs	7.50
			Shallow Tube Well (Diesel)	250	250	5-7Yrs	150.00
			Shallow Tube Well (Electrical)	168	840	5-7Yrs	25.20
			Shallow Tube Well (Solar)	15	150	5-7Yrs	75.00
			Low Lift Pump (5HP)	127	254	5-7Yrs	63.50
			Training & Extension activities (for 5 yrs)	26	10	5-7Yrs	13.00
Total			611	1521.5 Ha		337.90	
PANITOLA	MOA & FWDAC & FW	Convergence with MGNREGA	Water conservation	13	65	5-7Yrs	65.00
			Water Harvesting	25	1625	5-7Yrs	125.00
			Renovation of Water Bodies	21	105	5-7Yrs	105.00
		Per drop more crop (Topping up of MGNREGA)	Lining inlet,outlet, silt traps,distribution system	30	650	5-7Yrs	650.00
TOTAL				89	2445 Ha		945.00

NAME OF THE BLOCK	CONCERNED MINISTRY/ DEPARTMENT	COMPONENT	ACTIVITY	NAME OF GP	TOTAL NUMBER/ CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL (HA)	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
PANITOLA	MOWR	Har Khat Ko Pani	LIS	DINJOY	2	20	5-7 Yrs	44.00
				PULUNGA	0	0	5-7 Yrs	0.00
				JERAI	0	0	5-7 Yrs	0.00
				NADUA	2	40	5-7 Yrs	88.00
				HATIALI	2	40	5-7 Yrs	88.00
				DIKOM	1	20	5-7 Yrs	44.00

			RONGCHUNGI	2	40	5-7 Yrs	88.00
			BINDHAKOTA	1	20	5-7 Yrs	44.00
			DINJOY	2	200	5-7 Yrs	440.00
			PULUNGA	2	200	5-7 Yrs	440.00
			JERAI	2	200	5-7 Yrs	440.00
			NADUA	2	200	5-7 Yrs	440.00
			HATIALI	2	200	5-7 Yrs	440.00
			DIKOM	3	300	5-7 Yrs	660.00
			RONGCHUNGI	2	200	5-7 Yrs	440.00
			BINDHAKOTA	1	100	5-7 Yrs	220.00
			GRAND TOTAL	30	1780		3916.00 L

PANITOLA						
Sl.No.	Name of Scheme	G.P.	Area(in Hectare)	Proposed amount(Approx Rs. In crore)	Population benefited	Remarks
1	Panitola STWS (100 pts)	Panitola	200	0.75	1325	-----
2	MDTW scheme Dinjoy Satra- 4pts	Naduwa & Dinjoy	140	1.5	2250	Partially operative
3	Tipomia DTW Scheme (5 points)	Rongsongi	150	3.75	358	-----
4	Lohali DTW Scheme (5 points)	Rongsongi	150	3.75	421	-----

Tengakhat Block

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
TENGAKHAT	MOA & FWDAC & FW	Per drop more crop (Micro irrigation) New Scheme	DPAP Drip	35	70	5-7Yrs	10.50
			DPAP Sprinkler	50	25	5-7Yrs	25.00
			Shallow Tube Well (Diesel)	1200	2400	5-7Yrs	720.00
			Shallow Tube Well (Electrical)	750	1500	5-7Yrs	112.50
			Shallow Tube Well (Solar)	250	500	5-7Yrs	1250.00
			Low Lift Pump (5HP)	700	1400	5-7Yrs	350.00
			Training & Extension activities (for 5 yrs)	26	10	5-7Yrs	13.00
			Total	2022 Nos	13029.5 Ha		2481.00
TENGAKHAT	MOA & FWDAC & FW	Convergence with MGNREGA	Water conservation	300	600	5-7Yrs	1500.00
			Water Harvesting	325	1625	5-7Yrs	1625.00
			Renovation of Water Bodies	130	650	5-7Yrs	650.00
		Per drop more crop (Topping up of MGNREGA)	Lining inlet,outlet, silt traps,distribution system	200	200	5-7Yrs	2000.00
TOTAL					4550 Ha		5775.00

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	NAME OF GP	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
TENGAKHAT	MOWR	Har Khat Ko Pani	LIS	TELPANI BAMUNIKURIA	1	20	0	44.00
				BHADOI	1	20	5-7 Yrs	44.00
				Kothalguri	1	20	5-7 Yrs	44.00
				Nakari Bhekulajan	1	20	5-7 Yrs	44.00
				Tengakhat	1	20	5-7 Yrs	44.00
			D T W	DIGHALIA	1	100	5-7 Yrs	220.00
				NA KHANGIA	1	100	5-7 Yrs	220.00
				TIPLING & RONGAGORA	1	100	5-7 Yrs	220.00
				DULIAJAN	1	100	5-7 Yrs	220.00

			KAPAHUWA	1	100	5-7 Yrs	220.00
			KACHARIPATHER	1	100	5-7 Yrs	220.00
			GONDHIA BHAJANI	1	100		220.00
			Bokuloni G.P.	1	100		220.00
			BHEKULAJAN	1	100	5-7 Yrs	220.00
			Kheremia G.P.	1	100	5-7 Yrs	220.00
GRAND TOTAL				30	1100		2420.00 L

TENGAKHAT						
Sl.No.	Name of Scheme	G.P.	Area	Proposed amount (In Rs. Crore)	Population benefited	Remarks
1	Borpathar Rongagora DTW 25 pts	Tipling & Rongagora	750	12.50	1536	-----
2	Dighalia DTW scheme 5 pts	Dighalia	150	1.75	1289	-----
3	Borbam DTW Scheme	Na-Khangia	120	2.00	1197	-----
4	1 No. Hatibondha DTW 2 pts	Na-Khangia	60	1.00	182	-----
5	Chakali pathar DTW scheme 2pts	Na-Khangia	60	1.00	541	-----
6	Moderkhat Area DTW scheme 8 pts	Moderkhat	240	4.00	486	-----
7	MDTW scheme at Ronsongi pathar (2 pts)	Duliajan	70	0.60	1100	Partially Operative
8	MDTW scheme at Kapahuawa (3 pts)	Kapahuwa	75	0.60	429	Partially Operative
9	MDTW scheme Chiringhat (14 pts)	Duliajan	240	1.5	1266	Partially Operative
10	Kheremia DTW scheme	Duliajan	300	5.00	1000	-----
11	Sessa Napali STWS (20 pts)	Dhaman	40	0.15	432	-----
12	Kacharipathar DTW – (3 Pts.)	Kacharipathar	90	10	746	-----
13	Na Deogharia Sensua DTW scheme (5 points)	Bhekulajan	150	3.75	458	-----

DIP, PMKSY
Component wise Budget Estimation for Tengakhat development Block
Period 2015-16 to 2020-21

Sl. No.	Project Component	Name of IWMP				Total Fund
		Dibrugarh-I (Bamunikuria)	Dibrugarh-VI (Bhekulajan)	Dibrugarh-X (Tipling)	Dibrugarh-XII (Bhadoi)	
1	Administrative cost	38.0900	40.9700	48.0000	48.0000	175.0600
2	Institutional & Capacity Building	17.4200	17.2200	24.0000	24.0000	82.6400
3	DPR Preparation	0.0000	0.0000	0.0000	0.0000	0.0000
4	Eantry Point Activities	0.0000	0.0000	19.2000	19.2000	38.4000
5	Evaluation	5.8200	4.8000	4.8000	4.8000	20.2200
6	Monitoring	5.2400	4.8000	4.8000	4.8000	19.6400

7	Work Phase (NRM)	98.8992	242.9806	268.8000	268.8000	879.4798
8	Livelihood	37.0800	43.2000	43.2000	43.2000	166.6800
9	Production System	54.5300	48.0000	48.0000	48.0000	198.5300
10	Consolidation	29.0900	14.4000	14.4000	14.4000	72.2900
Total		286.1692	416.3706	475.2000	475.2000	1652.9398

Sl. No.	Name of the Block	Concerned Ministry/ Department	Component	Activity	Total Number/ Capacity (Cum)	Component Area/ Irrigation Potential (Ha)	Estimated Cost (Rs in Lakh)	Period of Implementation (5/7 Yrs)
1	Tengakhat	DOLR	Dibrugarh-I (Bamunikuria) IWMP	Water Harvesting Tank				5 Years
2				Land Development Project				
3				Earthen Channel/Drainage line Treatment	6813 Rm	376	15.6000	
4				Field Bund	10151 Rm	759	31.3692	
5				Reclamation of Swampy Land				
6				Desiltation				
7				Percolation Tank				
8				Boulder Spur				
9				Sluice gate				
10				Graded bund (With provision of Hume Pipe)				
11				Boulder Pitching				
12				Nalla Bund (With provision of Slab Culvert)				
13				Masonry Stop Dam				
14				Afforestation				
15				Road side plantation				
16				Fuel Wood				
17				Shallow Tube Well				
18				Block plantation				
19				Farm pond	5No.(26685 m ²)	314	37.65	
20				Vegitative cover				
21				Land Development (Earthe Field bund)				
22				Brickling drainage channel				
23				Bamboo screen with sand field bags				
24				Dredging				
25				Earthen check dam				
26				Wood/Bamboo Procupine				
27				Horticulture (<i>Nursery</i>)	2.86 Ha	120	14.28	
28				Boulder Gabion				
29				Fishery dev. Work				
30				Bamboo band protection				
31				Diversion channel				

				Sub Total	1569	98.8992		
1	Tengakhat	DOLR	Dibrugarh-VI (Bhekulajan) IWMP	Land Development Project	12000 Rm	650	36.00000	5 Years
2				Earthen Channel/Drainage line Treatment	18100 Rm	778	40.54400	
3				Field Bund	19550 Rm	866	60.79200	
4				Reclamation of Swampy Land				
5				Desiltation				
6				Percolation Tank				
7				Boulder Spur				
8				Sluice gate				
9				Boulder Pitching				
10				Nalla Bund (With provision of Slab Culvert)				
11				Afforestation	13 Ha	135	5.92800	
12				Afforestation (<i>Nursery</i>)	4 Nos	80	9.19100	
13				<i>Sum Plantation</i>	2 Ha	23	3.00000	
14				Road side plantation	600 Nos.	10	1.92000	
15				Shallow Tube Well				
16				Block plantation				
17				Farm pond	17Nos(60516m ³)	776	77.63200	
18				Vegitative cover				
19				Land Development (Earthe Field bund)				
20				Brickling drainage channel				
21				Bamboo screen with sand field bags				
22				Dredging				
23				Earthen check dam				
24				Wood/Bamboo Procupine				
25				Horticulture (<i>Nursery</i>)				
26				Boulder Gabion				
27				Fishery dev. Work				
28				Bamboo bank protection				
29				Diversion channel				
30				<i>Ipomea eradication</i>	6.50 Ha	72	7.97362	
				Sub Total	3390	242.9806		
1	Tengakhat	DOLR	Dibrugarh-X (Tipling) IWMP	Land Development Project				5 Years
2				Earthen Channel/Drainage line Treatment	23700 Rm	1201	81.57000	
3				Field Bund	4700 Rm	152	10.29000	
4				<i>Periphery bund</i>	6000 Rm	193	13.14000	
5				<i>Agri bund</i>	13400 Rm	432	29.35000	
6				Reclamation of Marshy Land	11800 cum	657	44.60000	
7				Desiltation				
8				Boulder Spur	400 Sqm	124	8.44000	
9				Sluice gate				
10				Graded bund	600 Rm	19	1.31000	

11				Boulder Pitching	400 Sqm	98	6.66000	
12				Nalla Bund (With provision of Slab Culvert)				
13				Afforestation				
14				Road side plantation				
15				Shallow Tube Well				
16				Block plantation				
17				Farm pond	9200 Cum	191	13.00000	
18				Reclamation of Community pond	1400 cum	78	5.29000	
19				Vegitative cover				
20				Land Development (Earthe Field bund)				
21				Brickling drainage channel				
22				Bamboo screen with sand field bags				
23				Dredging				
24				Earthen check dam				
25				Wood/Bamboo Procupine				
26				Horticulture Plantation	31.94	679	46.15000	
27				Boulder Gabion				
28				Fishery dev. Work				
29				Bamboo bank protection				
30				Diversion channel				
31				Slab culvert	9 Nos.	135	8.99000	
				Sub Total		3960	268.8000	
1				Land Development Project				
2				Earthen Channel/Drainage line Treatment	35000 Rm	1829	124.25000	
3				Field Bund				
4				Periphery bund				
5				Agril bund	3500 Rm	113	7.65000	
6				Reclamation of Marshy Land				
7				Desiltation				
8				Boulder Spur				
9				Sluice gate				
10				Graded bund				
11	Tengakhat	DOLR	Dibrugarh-XII (Bhadoi) IWMP	Boulder Pitching	2300 Sqm	564	38.30000	5 Years
12				Nalla Bund (With provision of Slab Culvert)	8500 Rm	444	30.18000	
13				Afforestation				
14				Road side plantation				
15				Shallow Tube Well				
16				Block plantation				
17				Farm pond				
18				Reclamation of Community pond	2400 cum	134	9.07000	
19				Vegitative cover				
20				Land Development (Earthe Field bund)				

21				Brickling drainage channel				
22				Bamboo screen with sand field bags				
23				Dredging				
24				Earthen check dam				
25				Wood/Bamboo Procupine				
26				Horticulture <i>Plantation</i>	36 Ha	767	52.09000	
27				Fishery dev. Work				
28				Bamboo bank protection				
29				Diversion channel				
30				<i>RCC Check dam</i>	15 Sqm	109	7.26000	
31				<i>Slab culvert</i>				
				Sub Total		3960	268.8000	
				Tengkhat Block Grand Total		12879	879.4798	

Tingkhong Block

NAME OF THE BLOCK	CONCERNED MINISTRY/DEPARTMENT	COMPONENT	ACTIVITY	TOTAL NUMBER/CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
TINGKHONG	MOA & FWDAC & FW	Per drop more crop (Micro irrigation) New Scheme	DPAP Drip	30	60	5-7Yrs	9.00
			DPAP Sprinkler	60	30	5-7Yrs	30.00
			Shallow Tube Well (Diesel)	1000	2000	5-7Yrs	600.00
			Shallow Tube Well (Electrical)	600	1200	5-7Yrs	90.00
			Shallow Tube Well (Solar)	200	400	5-7Yrs	1000.00
			Low Lift Pump (5HP)	600	1200	5-7Yrs	300.00
			Training & Extension activities (for 5 yrs)	26	10	5-7Yrs	13.00
		Total	2022 Nos	13029.5 Ha		2042.00	
TINGKHONG	MOA & FWDAC & FW	Convergence with MGNREGA	Water conservation	300	600	5-7Yrs	1500.00
			Water Harvesting	325	1625	5-7Yrs	1625.00
			Renovation of Water Bodies	130	650	5-7Yrs	650.00
		Per drop more crop (Topping up of MGNREGA)	Lining inlet,outlet, silt traps,distribution system	200	200	5-7Yrs	2000.00
TOTAL					4550 Ha		5775.00

NAME OF THE BLOCK	CONCERNED MINISTRY/ DEPARTMENT	COMPONENT	ACTIVITY	NAME OF GP	TOTAL NUMBER/ CAPACITY (CUM)	COMMAND AREA/IRRIGATION POTENTIAL (HA)	PERIOD OF IMPLEMENTATION (5-7 YRS)	ESTIMATED COST (RS IN LAKH)
TINGKHONG	MOWR	Har Khat Ko Pani	LIS	BORBAM	4	80	5-7 Yrs	176.00
				Dhman	1	20	5-7 Yrs	44.00
				Kekuri GP	1	20	5-7 Yrs	44.00
				Rajgarh	1	20	5-7 Yrs	44.00
				Mohmora	2	40	5-7 Yrs	88.00
				Tingkhong	1	20	5-7 Yrs	44.00
			DTW	Dillibari	3	300	5-7 Yrs	660.00
				Dhman	1	100	5-7 Yrs	220.00
				Knoworigaon	2	200	5-7 Yrs	440.00

			Sologuri	1	100	5-7 Yrs	220.00
			Mohmora	1	100	5-7 Yrs	220.00
			Tingkhong	1	100	5-7 Yrs	220.00
			Ouphalia	2	200	5-7 Yrs	440.00
			Pithagooti	1	100	5-7 Yrs	220.00
			Kenduguri	2	200	5-7 Yrs	440.00
			Nachani GP	2	200	5-7 Yrs	440.00
			Kekuri GP	1	100	5-7 Yrs	220.00
			61No Salmari	1	100	5-7 Yrs	220.00
			Rajgarh	2	200	5-7 Yrs	440.00
			GRAND TOTAL	30	2200		4840.00 L

TINGKHONG						
Sl.No.	Name of Scheme	G.P.	Area	Proposed amount (In Rs. Crore)	Population benefited	Remarks
1	Bossagaon DTW i/s (1Points)	Dellibari	30	0.5	525	-----
2	2 No. Rongsowal DTW i/s (2 Points)	Borbam	60	1.00	300	-----
3	LIS from river Desang in Chapatoli pathar	Borbam	300	4.00	1087	Defunct scheme
4	LIS from river Desang in Rongsowal	Borbam	66	3.50	376	Defunct scheme
5	Deorigrant & Gohain Gaon DTW Scheme – (1Pts.)	Deori grant and gohain gon	30	0.5	3508	-----
6	Hukani Village STWS (20 pts)	Hukanigaon	40	0.15	974	-----
7	LIS from river Desang in Joypur area	Borbam	100	4.00	2436	Defunct Schemes

DIP, PMKSY
Component wise Budget Estimation for Tingkhong development Block
Period 2015-16 to 2020-21

Rs. In lacs

Sl. No.	Project Component	Name of IWMP				Total Fund
		Dibrugarh-V (Ouphalia)	Dibrugarh-VII (Deroi)	Dibrugarh-IX (Bosagaon)	Dibrugarh-XI (Diksam)	
1	Administrative cost	40.9700	45.8400	60.0000	54.0000	200.8100
2	Institutional & Capacity Building	17.2200	19.3500	30.0000	27.0000	93.5700
3	DPR Preparation	0.0000	0.0000	0.0000	0.0000	0.0000
4	Eanry Point Activities	0.0000	0.0000	24.0000	21.6000	45.6000
5	Evaluation	4.8000	4.8000	6.0000	5.4000	21.0000
6	Monitoring	4.8000	4.8000	6.0000	5.4000	21.0000
7	Work Phase (NRM)	242.2621	268.8000	336.0100	302.4000	1149.4721

8	Livelihood	43.2000	43.2000	54.0000	48.6000	189.0000
9	Production System	48.0000	48.0000	60.0000	54.0000	210.0000
10	Consolidation	14.4000	14.4000	18.0000	16.2000	63.0000
	Total	415.6521	449.1900	594.0100	534.6000	1993.4521

Sl. No.	Name of the Block	Concerned Ministry/ Department	Component	Activity	Total Number/ Capacity (Cum)	Compo-nent Area/ Irrigation Potential (Ha)	Estimated Cost (Rs in Lakh)	Period of Implementation (5/7 Yrs)		
1	Tingkhong	DOLR	Dibrugarh-V(Ouphulia) IWMP	Land Development Project	6600 Rm	341	23.76000	5 Years		
2				Earthen Channel/Drainage line Treatment	52143 Rm	1678	116.80056			
3				Field Bund						
4				W.D. Project						
5				Reclamation of Swampy Land						
6				Desiltation						
7				Percolation Tank						
8				Boulder Spur						
9				Sluice gate						
10				Graded bund (With provision of Hume Pipe)						
11				Boulder Pitching						
12				Nalla Bund (With provision of Slab Culvert)						
13				Masonary Stop Dam						
14				Afforestation (<i>Nursery</i>)		1 No.	29		2.00000	
15				Road side plantation						
16				Shallow Tube Well						
17				Block plantation			14.38 Ha		94	6.55700
18				Farm pond			10Nos(41494m ²)		816	58.87232
19				Vegitative cover						
20				Land Development (Earthe Field bund)						
21				Brickling drainage channel						
22				Bamboo screen with sand field bags						
23				Dredging						
24				Earthen check dam						
25				Wood/Bamboo Procupine						
26				Horticulture (<i>Nursery</i>)			4.3 Ha		90	9.26200
27				Boulder Gabion						
28				Fishery dev. Work						
29				Bamboo bank protection						
30				Diversion channel						
31				<i>Ipomea eradication</i>			6.0 Ha		106	7.36026
32				<i>Culvert</i>			23 Nos.		172	12.65000

33				RCC Check dam(Water Harvesting)	1 No.	64	5.00000	
				Total		3390	242.2621	
1	Tingkhong	DOLR	Dibrugarh-VII (Deroi) IWMP	Land Development Project	7000 Rm	306	22.00000	5 Years
2				Earthen Channel/Drainage line Treatment	40300 Rm	1700	122.20000	
3				Field Bund	3500 Rm	153	11.00000	
4				W.D. Project				
5				Reclamation of Swampy Land				
6				Desiltation				
7				Percolation Tank				
8				Boulder Spur	600 Rm	320	23.00000	
9				Sluice gate				
10				Graded bund (With provision of Hume Pipe)				
11				Boulder Pitching				
12				Nalla Bund (With provision of Slab Culvert)				
13				Masonry Stop Dam				
14				Afforestation	6.5 Ha	90	6.50000	
15				Tea Nursery	1 No.	63	4.50000	
16				Road side plantation				
17				Fuel Wood				
18				Shallow Tube Well				
19				Block plantation				
20				Farm pond	9 Nos(31784m ²)	619	44.50000	
21				Vegitative cover				
22				Land Development (Earthe Field bund)				
23				Brickling drainage channel				
24				Bamboo screen with sand field bags				
25				Dredging				
26				Earthen check dam				
27				Wood/Bamboo Procupine				
28				Horticulture (<i>Nursery</i>)	2.65 Ha	157	11.30000	
29				Boulder Gabion				
30				Fishery dev. Work				
31				Bamboo bank protection	500 Rm	102	7.30000	
32				Diversion channel				
33				GCP	1 No.	93	6.50000	
34				Ipomea eradication	2000 Rm	97	7.00000	
35				Culvert	4 Nos.	43	3.00000	
				Total		3743	268.8000	
1	Tingkhong	DOLR	Dibrugarh-IX (Bosagaon) IWMP	Land Development Project				5 Years
2				Earthen Channel/Drainage line Treatment	40900 Rm	1824	123.92000	
3				Field Bund	6900 Rm	222	15.11000	
4				Periphery bund	1500 Rm	48	3.29000	

5				<i>Agril bund</i>	27400 rm	884	60.01000	
6				W.D. Project				
7				Reclamation of Marshy Land	5100 Cum	284	19.28000	
8				Desiltation				
9				Percolation Tank				
10				Boulder Spur				
11				Sluice gate				
12				Graded bund				
13				Boulder Pitching	1300 Sqm	319	21.65000	
14				Nalla Bund (With provision of Slab Culvert)				
15				Masonry Stop Dam				
16				Afforestation				
17				Road side plantation				
18				Shallow Tube Well				
19				Block plantation				
20				Farm pond	13500 cum	278	18.90000	
21				Reclamation of Community pond	2800 cum	156	10.59000	
22				Vegitative cover				
23				Land Development (Earthe Field bund)				
24				Brickling drainage channel				
25				Bamboo screen with sand field bags				
26				Dredging				
27				Earthen check dam				
28				Wood/Bamboo Procupine				
29				Horticulture <i>Plantation</i>	18.68 Ha	397	26.99000	
30				Fishery dev. Work				
31				Bamboo bank protection				
32				Diversion channel				
33				RCC Check dam	27.5 Sqm	199	13.30000	
34				Slab culvert	23 Nos.	338	22.97000	
				Total		4950	336.0100	
1	Tingkhong	DOLR	Dibrugarh-XI (Diksam) IWMP	Land Development Project				5 Years
2				Earthen Channel/Drainage line Treatment	36100 Rm	1887	128.16000	
3				Field Bund				
4				<i>Periphery bund</i>	4700 Rm	152	10.29000	
5				<i>Agril bund</i>	3800 Rm	122	8.32000	
6				W.D. Project				
7				Reclamation of Marshy Land	7000 Cum	390	26.46000	
8				Desiltation				
9				Boulder Spur				
10				Sluice gate				
11				Graded bund				

12			Boulder Pitching	600 Sqm	147	9.99000
13			Nalla Bund (With provision of Slab Culvert)	10800 Rm	564	38.34000
14			Masonry Stop Dam			
15			Afforestation			
16			Road side plantation			
17			Shallow Tube Well			
18			Block plantation			
19			Farm pond	7500 Cum	158	10.63000
20			Reclamation of Community pond	800 Cum	46	3.02000
21			Vegitative cover			
22			Land Development (Earthe Field bund)			
23			Brickling drainage channel			
24			Bamboo screen with sand field bags			
25			Dredging			
26			Earthen check dam			
27			Wood/Bamboo Procupine			
28			Horticulture <i>Plantation</i>	46.49 Ha	989	67.18000
29			Fishery dev. Work			
30			Bamboo bank protection			
31			Diversion channel			
32			RCC Check dam			
33			Slab culvert			
			Total		4455	302.4000
			Tingkhong Block Grand Total		16538	1149.4721

Annexure VI : List of Defunct Schemes which can be revived (irrigation Department)

Sl. No.	Name of Schemes	LAC	Block	G.P.	Amount required for revival (Rs. In Lakhs)	Irrigation potential revived
1	LIS from river Desang in Chapatoli Pathar	Tingkhong	Tingkhong	Borbam	500.00	108
2	LIS from river Desang in Rongsowal area	Tingkhong	Tingkhong	Borbam	350.00	66
3	LIS from river Merbeel in Bhumuk Pathar	Naharkatia	Joypur	Merbeel	350.00	60
4	LIS from river Demow in Khowang area					
	Azarguri Point (Old)	Moran	Khowang	Athabari	60.00	30
	Azarguri Point (New)	Moran	Khowang	Azarguri	60.00	30
5	MDTW Scheme at Rongsongi Pathar (2 Points)	Lahowal	Lahowal	Duliajan	90.00	60
6	MDTW Scheme at Kapuhuwa (3 Points)	Duliajan	Tengakhat	Nakhangia Hatibandha	90.00	90
7	MDTW Scheme at Uriamguri (2 Points)	Duliajan	Tengakhat	Nakhangia Hatibandha	90.00	60
8	MDTW Scheme at Singhebeel (2 Points)	Duliajan	Tengakhat	Merbeel	90.00	60

Annexure VI : List of irrigation schemes proposed for remodelling/ extension /improvement (irrigation Department)

SL. No.	Name of scheme	LAC	Block	G.P.	Amount required	Potential to be created
1	MDTW Scheme at Dinjoy Satra (4 Pts.)	Chabua	Panitola	Naduwa, Dinjay	150.00	120
2	MDTW Scheme at Chiringkhat (14 Pts.)	Duliajan	Tengakhat	Duliajan	300.00	420
3	LIS from river Tokowbeel in Tokowbeel area	Naharkatia	Joypur	Merbeel	150.00	65
4	LIS from Dighalibeel in Dighalibeel area	Naharkatia	Joypur	Merbeel	150.00	65
5	LIS from river Buridehing in Tipling Fakial Mouza	Naharkatia	Joypur	Tipam Fakial	1500.00	815
6	LIS from Singahutibeel under Kheremia Mouza	Duliajan	Tengakhat	Amguri	150.00	70
7	LIS from river Buridehing in Sessoni Mouza	Naharkatia	Joypur	Borbam	1200.00	1000
8	LIS from river Demow in Khowang area					
	Borbeel Point	Moran	Khowang	Khownag	60.00	30
	Bahanipathar Point	Moran	Khowang	Khowang	60.00	30
9	MDTW Scheme at Rongsongi Pathar	Duliajan	Tengakhat	Purani Rongsongi	90.00	70
10	MDTW scheme at Kapahuwa	Duliajan	Tengakhat	Kopuwa	60.00	70
11	MDTW scheme at Uriamguri	Duliajan	Tengakahat	Nakhangia hatibandha	60.00	60
12	MDTW scheme at Singibill	Naharkatia	Joypur	Merbeel	60.00	30
13	MDTW scheme at Ginichuk Pathar	Lahowal	Lahowal	Ginichuk	90.00	90
14	MDTW scheme at Sikasubam	Naharkatia	Joypur	Merbeel	60.00	50
15	MDTW scheme at Rongpuria Romai, Phutahulla, Nagaon	Lahowal	Lahowal	Romai, Modarkhat	100.00	60
16	MDTW scheme at Garukhunda	Lahowal	Lahowal	Kowaripathar	60.00	60
17	DTW scheme at Dewanbari Mottok Koibortta Gaon	Barbaruah	Barbaruah	Dewanbari	80.00	90
18	MDTW scheme at Dighalia Ph-II	Duliajan	Tengakhat	Dharia Dighalia	250.00	150