COMMUNITY BASED MICRO-PLANNING IN PIM: ENTRY POINT ACTIVITIES FOR SUSTAINABILITY

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ABSTRACT

The necessity of devolution of certain management responsibility of irrigation system to the farmers' organization is now widely accepted as an effective tool for sustainable irrigated agriculture. In India during 1990s systematic institutional and organizational changes have been undertaken to increase farmers' participation in irrigation management through formation of Water Users' Association (WUA) or Pani Panchayats under different externally assisted economic restructuring and irrigation infrastructure development programmes of World Bank, European Commission, Japan Bank for International Cooperation etc. or through Central or State government initiative. Today, Participatory Irrigation Management (PIM) or Irrigation Management Transfer (IMT) at various levels is being implemented in different types of irrigation systems. For this programme, appropriate institutional arrangements and mechanisms to bring about efficient utilization, equitable distribution and sustainable irrigation service are framed by different states of India. Further steps are being taken continuously for improvement in the strategies to achieve the goals of PIM. This paper, apart from highlighting some lessons from PIM experiences in Orissa, the poorest state in the dominion of republic of India, narrates a strategic micro level planning along with identified entry point implementation programme that are undertaken for sustainable irrigated agriculture simultaneously aiming at upliftment of livelihood of small and marginal poor farmers.

The study concludes that the objective of poverty reduction by way of promoting schemes for agricultural productivity improvement through irrigation can be achieved by adopting community based participatory approaches that support agricultural development like improving irrigation performance, the use of new production technologies, enhancing access to markets, promoting environmentally sustainable production activities, having gender perspective, measures to improve income and livelihood through micro-finance, rural infrastructure up-gradation, participatory processes to empower the rural poor with core skills to process agri-products for value addition.

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INTRODUCTION

India is the second largest populated country in the world with nearly 1.1 billion people. Out of this around 26.1 per cent are poor, living with less than a dollar a day (ADB 2004; UNDP 2003). The country is thus home to more than one fourth of the world's poor. Further the degree of poverty varies from state to state, the poverty estimate in percent of population below poverty line is as high as 47.15% for Orissa and 42.6% for Bihar to lower percentage of 3.5% for Jammu and Kasmir and 4.4% for Goa during 1999-2000 as reported in National Human Development Report 2001 of Govt. of India (2002, Planning Commission). Poverty alleviation is the most important objective of Indian planning through creation of employment opportunities, income generation activities and growth promotion. However, underdeveloped infrastructure such as power, transport, irrigation, water supply, sewerage and lack of accessibility to health facilities have impaired economic growth and the poverty eradication drive. In the 10th Five-Year Plan (April 2002-March 2007), the Government of India has called for equitable and sustainable growth, and to achieve this goal, it has designated the following as the priority development issues: not only eradication of the existing poverty but long-term poverty reduction through economic growth and environmental conservation to make these efforts sustainable.

Water resources management and development are central to sustainable agricultural growth and poverty reduction. Currently, integrated water resources management is highly emphasized for enhancing food security, poverty eradication, economic growth and rural upliftment in the developing countries including India. Further, most of the developing countries have insufficient hydraulic infrastructure and hence, the governments, international funding agencies need to assist these countries in developing and maintaining adequate number of well-performing hydraulic structures and in mobilizing public and private financing, while meeting environmental and social standards. Moreover, the below-optimal performance of the existing irrigation systems is of serious concern to farmers who depend on them for their crops and livelihoods and to governments as well as funding agencies that have made massive investment in their development. The most severe problems encountered by irrigation systems in the developing countries are the increasing costs of new schemes, the huge backlog of incomplete schemes, and the increasing neglect of existing systems. Large-scale canal irrigation systems, in particular, are in poor condition: they are not properly maintained, operations are inadequate, water supplies do not reach the tail end of systems, and the timing of water supply is unreliable. The wide gap between actual and desirable performance threatens the sustainability of irrigated agriculture. These state of affairs warrants proper investment strategies with institutional reforms and comprehensive plans for implementation starting from Micro-level (Grass-root level).

It is established that in democratic and developing countries like India, genuinely participatory governance of a common property resource like irrigation at the micro level can yield benefits in terms of both efficiency and equity, by giving the water users a sense of ownership, by allocating resources according to people’s demand and need and by utilising their skills and knowledge. The reform or decentralisation of governance of irrigation infrastructure or Irrigation Management Transfer to Farmers' Organisatins is now widely accepted and used as an effective tool for improving management efficiency, accountability, agricultural and economic productivity and cost recovery and finally sustainable irrigated agriculture. As a result, it is now observed that

an increasing number of governments around the world are adopting programmes to devolve responsibility for irrigation management to farmers organisations or to Water Users Associations (WUAs) in their reform process, which is known as Participatory Irrigation Management (PIM) and is found place in their national policies. Indian irrigation sector in recent years is also in the same PIM trail where attempts are being made to increase farmers' direct participation in decision-making and investment.

Further, conventionally Indian economy is largely based on rural villages, as it draws most of its inputs from farms and village industries. Consequently, it establishes the fact that transforming agriculture to effective enterprise or industrialization of agriculture has potential to provide the rural poor with on-farm and off-farm employment, induce economic growth and promote food security. On the other hand, studies of De Boer et. al. (1997), Simons and Supri (1999), White (1999) and Grossmann and Poston (2003) reveal that India's agriculture extension system has missing links to secondary or primary education and is not reaching effectively to the women and the rural poor including the lower castes. Though India is one of the potential producers of large number of agricultural researchers and scientists but it lacks in providing basic skills required to improve farming methods or job opportunities in the rural off- farm sector. Now high priority should be given to equip the rural poor with appropriate skills by improving the currently inadequate agriculture extension system. The situation altogether warrants a comprehensive micro plan with reforms in irrigation governance.

PIM IN INDIA

Participatory Irrigation Management is being implemented in irrigation projects in most of the countries of world including India. Since 1985 Ministry of Water Resources has been inspiring farmers' participation in water distribution and management of tertiary system in the projects covered under the Centrally Sponsored Command Area Development Programme. The concept of involvement of farmers in management of the irrigation system has been accepted as a policy of the Government of India and has been included in the National Water Policy adopted in 1987. Provisions made in the National Water Policy of 1987 were as follows:

"Efforts should be made to involve farmers progressively in various aspects of management of irrigation systems, particularly in water distribution and collection of water rates. Assistance of voluntary agencies should be enlisted in educating the farmers in efficient water-use and water management."

PROVISION IN NATIONAL WATER POLICY (2002)

Following modifications were made in the National Water Policy (2002) regarding the participatory approach to water resources management:

"Management of the water resources for diverse uses should incorporate a participatory approach: by involving not only the various governmental agencies but also the users' and other stakeholders, in an effective and decisive manner, in various aspects of planning, design, development and management of the water resources schemes. Necessary legal and institutional changes should be made at various levels for the purpose, duly ensuring appropriate role for. women. Water Users' Association and local bodies such as municipalities and Gram-Panchayats should particularly be involved in the operation,

maintenance and management of water infrastructures/facilities at appropriate levels progressively, with a view to eventually transfer the management of such facilities to the user groups/ local bodies."

PROCESS OF IMPLEMENTATION

Different states of India followed different routes for implementation of PIM. While PIM in Andhra pradesh followed the Big Bang Approach, the state of Orissa implemented PIM through a gradual approach in phased manner.

PROVISIONS IN PIM ACTS

Recognising the need for sound legal framework for PIM in the country, the Ministry of Water Resources, Government of India brought out a model act to be adopted by the State Legislatures for enacting new irrigation acts/amending the existing irrigation acts for facilitating PIM. In accordance with the model act and as a result of various conferences/ seminars organised by the Ministry, there has been an increased consciousness in States about the need for actively involving farmers in management of irrigation systems. Nine State Governments, namely, Andhra Pradesh, Goa, Madhya Pradesh, Karnataka, Orissa, Rajsthan, Tamil Nadu, Kerala and Maharastra have enacted exclusive legislation for involvement of farmers in irrigation management. Other states are in the trail of enacting either exclusive legislation for PIM, or are exploring scope to exercise power for PIM through existing laws like Government of Bihar has issued a notification "The Bihar Irrigation, Flood Management and Drainage Rules, 2003", in exercise of the powers conferred by The Bihar Irrigation Act, 1997. Gujarat had experimented with the idea of farmers' co-operative movement in irrigation management. The Stale of Gujarat had also a PIM Resolution during the year 1995 based on experiences from its pilot projects. In general the legal framework provides for creation of farmers organisations at different levels of irrigation system as under

1. Water Users' Association (WUA): will have a delineated command area on hydraulic basis, which shall be administratively viable. Generally a WUA would cover a group of outlets or a minor.
2. Distributary Committee: will comprise 5 or more WUAs. All the presidents of WUAs will comprise general body of the distributary committee.
3. Project Committee: will be an apex committee of an irrigation system and presidents of the Distributary committees in the project area shall constitute general body of this committee.

The Associations at different levels are expected to be actively involved in:

i. maintenance of irrigation system in their area of operation;
ii. distribution of irrigation water to the beneficiary farmers as per the warabandi schedule
iii. assisting the irrigation department in the preparation of water demand and collection of water charges

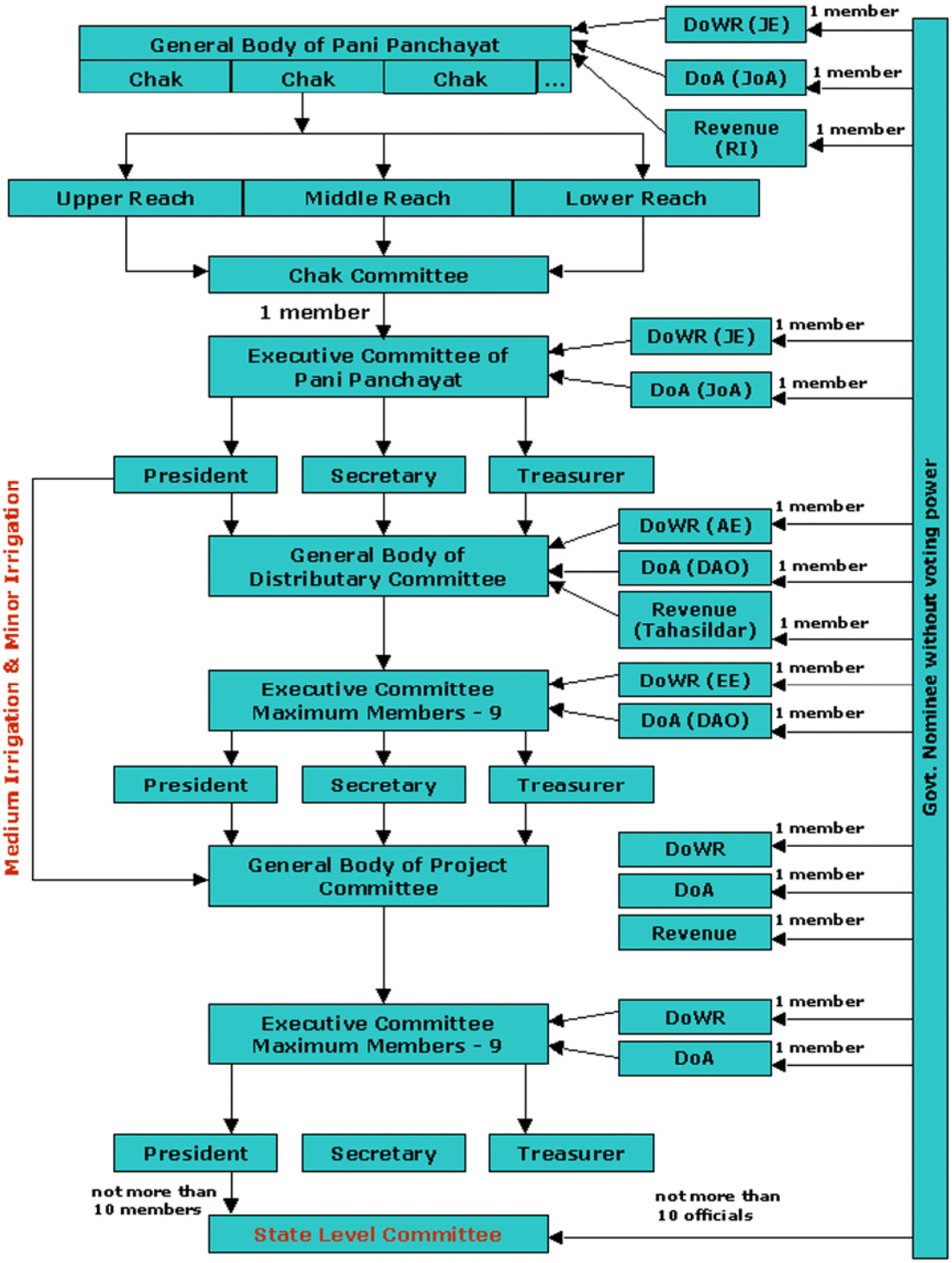
iv. resolve disputes among the members and WUA

v. monitoring flow of water in the irrigation system etc.

PIM IN ORISSA

Orissa is a state in the dominion of India. In Orissa PIM approach has been put into practice through formation of Water Users Association (WUA), which is known as Pani Panchayat (PP). PP is the primary level farmer organization (Das et.al.2004). The structural arrangement of farmer organization is three tiers for Medium and four tiers for Major Irrigation Projects as shown in Fig. 1.

A Pani Panchayat/WUA is an association of all persons owning land within a hydrologically delineated portion of the command area ranging in size approximately from 300-600 ha in case of major/medium / minor irrigation project. It may be in respect of minor or sub-minor or direct outlets from the main or branch distributary of the project. In case of minor flow or lift irrigation, the area is limited to project command area when the project command area is less than 300 ha. The WUA/Pani Panchayat is a part of the farmers' organisation recognized by Orissa Pani Panchayat Act 2002, also all farmers organizations are body corporate as defined therein.



(DoWR: Department of Water Resources, DoA: Department of Agriculture, JE: Junior Engineer, A.E: Assistant Engineer, EE: Executive Engineer, JAO: Junior Agriculture Officer, DAO: District Agriculture Officer, RI: Revenue Officer)

Fig. 1 Structure of Farmers' Organisation under PIM Programme in Orissa, India

In Orissa the state government is implementing the Pani Panchayat Programme with a great zeal. The area under PP has expanded rapidly as shown in Table 1. Data on progress of PIM in Orissa indicate that by June 2006, 13435 PPs have been formed covering an area of 10.55 lakh ha. Irrigation management has been transferred to 12218 PPs covering 8.60 lakh ha out of total command area of 21.15 lakh ha. Thus, the data reveal that the PIM programme in Orissa is intensifying and very soon the entire irrigation command of the state will be farmer managed.

Table 1: Progress of Pani Panchayat Programme in Orissa as on June 2006

Types of Irrigation Project	Irrigation Potential Created* '000 ha.	No. of Pani Panchayats Formed	Area ' 000 ha.	Irrigation management transferred	
				No. of PPs	Area ' 000 ha.
Major and Medium	1234	1426	623	1122	494
Minor (Surface)	497	976	189	719	136
Minor (Lift)	384	11033	243	10377	230
Total	2115	13435	1055	12218	860

* Irrigation potential from other sources are not included

COMMUNITY BASED MICRO PLANNING AND ENTRY POINT ACTIVITIES

Preliminary studies conducted in various irrigation projects in Orissa show that rice-rice is the dominant cropping pattern followed by the farmers. The main rice crop is raised from June to December and the summer rice crop is grown from January to May. The water in canal is supplied accordingly from July to November and January to May to support this cropping pattern. The present agriculture production system in these projects has the following shortcomings:

1. Irrigation water is available round the year in reservoirs or from the hydro-power generation units which can support 3 crop sequences. At present, the rabi season (November-February) does not exist and is overlapped by kharif and summer season crops. As a result, the irrigation potentials are not fully utilized.
2. Rice is the dominant crop grown in summer season. Since the outlet size is designed to provide supplemental irrigation to the kharif rice crop @ 6-7 mm/ha/day, it fails to irrigate entire command area below each outlet and 30-40% area remains unirrigated. There is again social inequity in water distribution between head reach and tail end farmers.
3. Rice-rice cropping pattern over years leads to problems like waterlogging and reduction in soil productivity of command area.

4. Due to distress sale of paddy in recent years, the present cropping pattern gives low returns to the farmers.
5. Besides inefficient use of water and land resources, the prospect of present irrigated agriculture in these projects is limited as the farmer has been facing rising input costs, declining returns from the inputs, uncertain market, increasing integration of domestic market with the international market, inadequate storage infrastructure, exploitation of farmers by middle men and private money lenders, low awareness level, risk in production due to occurrence of natural calamities, plant disease and pest attack etc.

In order to increase the performance of the irrigation projects, main thrust under micro-plan is to undertake software and hardware activities to transform the present rice-rice mono-culture system to diversified agriculture production system. Technical and socio-economic constraints experienced for agriculture diversification in these projects will be removed through establishing proper co-operation among the farmers and line departments. To meet this challenge the micro plan implementation objectives through PIM are:

a) To inculcate the feeling of the self-help among the farmers and to develop a mechanism meeting challenges through group action;
b) To build the capacity of PPs to make use of services from Government and non-Government agencies;
c) To develop software measures for efficient use of water, land, labor and other available resources;
d) To diversify the agriculture production system to produce variety of cash and commercial crops to make agriculture profitable;
e) To identify and promote market linkages for ready availability of inputs/ services and quick disposal of agricultural and non-agricultural products;
f) To bring out Entry Point Activities (EPAs) through Participatory Rural Appraisal (PRA) that are required by the members of PPs aiming at improving livelihood and sustainable irrigated agriculture.

Since December, 2005, in Orissa, a community based micro plan as well as identification and implementation of Entry Point Activities with the strategy for overcoming the key problems faced by the farmers has been launched on pilot basis for the sustainability of irrigated agriculture in Upper Indravati Irrigation Project and Upper Kolab Irrigation projects and will be replicated in other projects after observing the pilot studies.

Upper Indravati and Upper Kolab are two multipurpose major irrigation projects situated in the less developed, tribal and backward caste dominated region of Orissa, where majority of the farmers are poor and practise subsistence farming. These projects are funded for not only development of irrigation infrastructure as sole objective, but also it aims at proper management, operation, maintenance and sustainability irrigation system.

The post evaluation of completed portion of this project shows that the project provides the farmers in the region an opportunity for dry season farming, enhanced employment opportunities to landless laborers, tenant farmers and small-scale farmers and arrested migration. This would not have been possible without irrigation. It has significantly increased the income and living standards of the farmers of the region, of course majority of them are Scheduled Castes and Scheduled Tribes. The coverage of area under different crop and production of different crops, particularly rice has increased significantly after the implementation of the scheme. Due to the impact of irrigation the farm households' income shows an increasing trend. Increased income has made it possible for the children to go to school and the family to buy consumer durable (JBIC 2003a). Though the process of formation of WUAs/ PPs, is slow in these projects at the beginning due to absence of proper policy and act supporting legal and institutional environment, now gaining momentum due to present PIM policy and appropriate legislation by the state (Das, 2005a & 2005b).

In these projects, it has been observed that though there is improvement in soci-economic condition of the farmers in general, inequitable distribution of water and poverty persists in the project area. The key problems faced by the farmers include unequal water allocation, inefficient water use, shortage of funds, inadequate institutional capacity, lack of integrated water resources management, dilapidated existing irrigation facilities and soil degradation, information gap in agricultural diversification and technologies, deficient distribution network and market place, low technological level of food processing and low value addition, rural usury, inaccessibility to different schemes of government like health, sanitation, input supply etc.

Particularly for the first time implementation of Micro-plan and EPAs have been initiated in these two projects assisted by Japan Bank for International Cooperation (JBIC). In these projects JBIC, Department of Water Resources (DOWR), Government of Orissa and Water and Land Management Institute (WALMI, Orissa) are working together for development of Micro Plan and identify Entry Point Activities (EPAs) in consultation with the local farming community. Whenever required, assistance of NGOs is being sought. WALMI, Orissa is engaged as implementing agency for a period of two crop seasons and will gradually withdraw as the community learn and adopt the required practices for sustainable agriculture. In these pilot irrigation projects Self Help Groups (SHG)s have been formed within the WUAs or PPs to play vital role in improving irrigation efficiency, agricultural productivity and improvement of livelihood. One of the important feature of micro level plan is identification of EPAs. The identified EPAs consist of a broad array of activities such as facilitation of Micro-credit with revolving fund for undertaking rural farming, non-farming activities, empowering rural women, rural micro-enterprise development and facility for farm mechanization. The other options for micro level plan considered are effective packages of technological and management practices, adoption of commercial farming using market forces and mechanism to enhance efficiency, awareness and capacity building of the stakeholders and other livelihood enhancing measures. Assessment and incorporation of all local specific characteristics for providing effective service delivery, increased productivity, protection of environment and improved socio-economic condition for sustainability of the irrigation projects in the planning process have been considered for implementation. The structural arrangement for sustainable and productive irrigated agriculture for Socio-economic development is given in Fig.2. The results of this strategic plan are

under study and proposed to be adopted in other irrigation projects which are being considered for modernisation. In many irrigation project, Pani Panchayat programme has already been implemented and in these projects, it is observed that the PPs need more capacity building, training and guidance to carry out the activities related to their rights and responsibilities properly (Das 2005a, 2005b).

Irrigated agriculture will be sustainable, if Pani Panchayats orient their agriculture production towards the market economy and are able to convert their traditional agriculture to a profitable enterprise (Das et al., 2003 & 2004). It is necessary to identify and develop marketing network for the farming community, which will provide input supply and required services and facilitate trading of agricultural products. For overcoming these foreseeable problems and concurrent difficulties, currently the PPs are being trained and guided by WALMI, Orissa. As soon as the farmers gain sufficient experience on the recent technology on agriculture production system and networks for marketing are developed and established, WALMI will withdraw from the project. Thereafter the PPs can run independently and can cater to the needs of the farmers.

MICRO PLANNING AND EPA STRATEGIES FOR SUSTAINABILITY

Currently the following strategic plans are followed for development and implementation of Micro Plan and identification of EPAs in the Pilot Projects. The same will be replicated in other irrigation projects as irrigation projects nowadays attract high priority for sustainable agriculture. This pilot implementation is assisted by JBIC and being implemented with the help of experienced multidisciplinary faculty members and action research personnel of WALMI (Orissa). The activities are

PARTICIPATORY RURAL APPRAISAL (PRA)

PRA techniques have been applied by WALMI Faculty Members and Facilitators (Action Research Personnel) to identify EPAs for the PP/WUA.

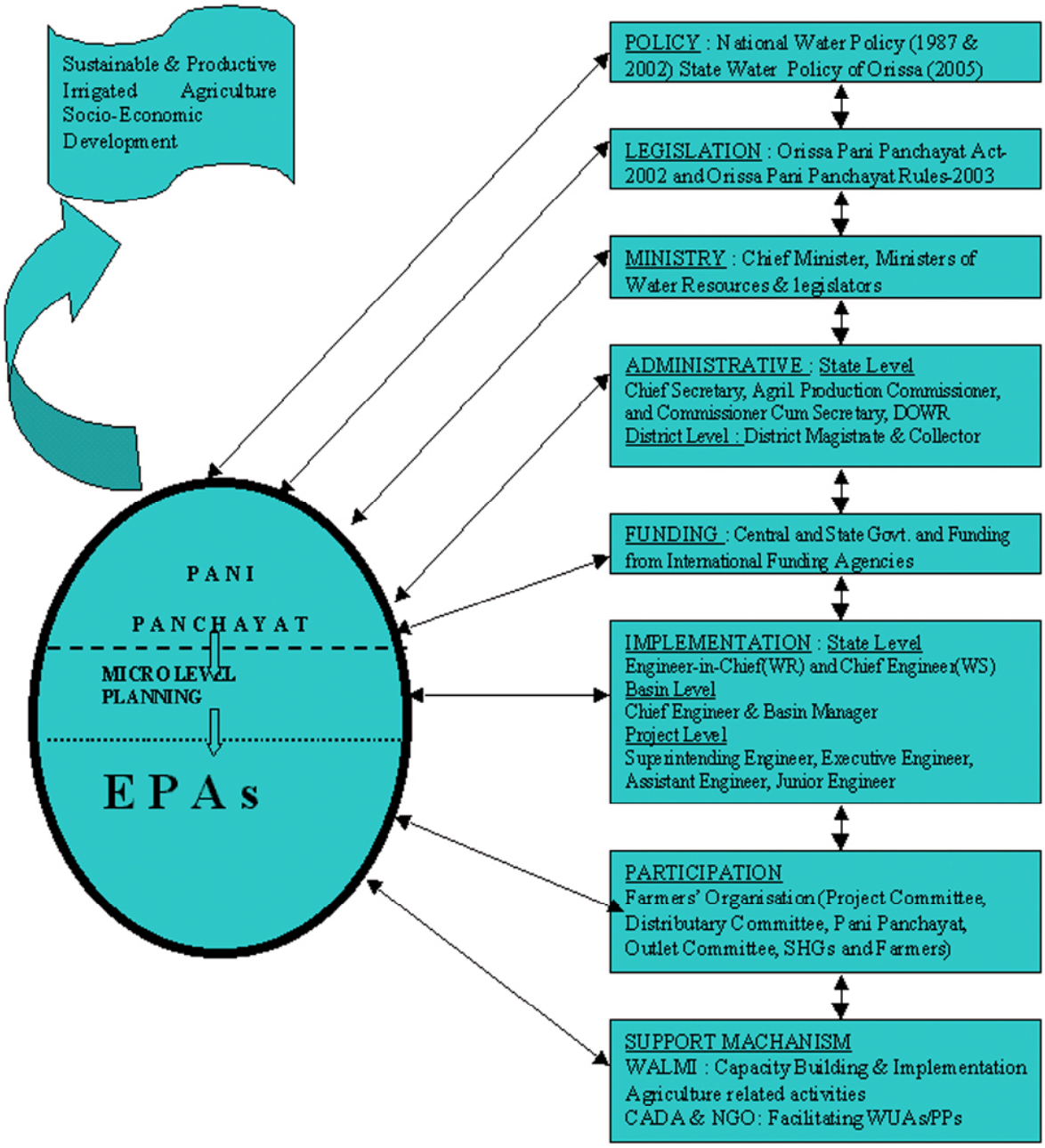


Fig. 2 Structural Support Arrangement for Sustainable and productive Irrigated Agriculture for Socio-economic Development

PARTICIPATORY WALKTHROUGH *(PWT)*

i) Participatory walkthrough for testing the hydraulic structures and to know the canal conveyance, controlling mechanism and water measuring aspects and taking up necessary steps in restoration or rehabilitation.

ii) Audit of existing micro-distribution system and suggestion of improvement.

MOTIVATION AND FORMATION OF SHG

i) Motivation and Formation of Self Help Group (SHGs) explaining the benefits to the members of the SHGs. This includes various stages i.e. group formation, group stabilization etc. For EPAs the chak committees are also taken as a self help group.

ii) Encouraging SHGs for community farming, input supply service, marketing service, and transport service, service for packaging and value addition.

iii) Encouraging private entrepreneurs/ SHGs for agriculture processing industries and small warehouses to store produce scientifically.

iv) Farmers training on chak/outlet basis to discuss the soil, climate, canal conveyance and supply, feasible cropping pattern for the outlet.

SOIL SURVEY

Available soil survey data will be utilized for crop planning and recommending appropriate package of practice.

IMPORTANT AGRICULTURE PROMOTION ACTIVITIES

i) Conducting exposure visits to advanced areas in practice.

ii) Demonstration on crop diversification and package of practices for irrigated dry (ID) crops, vegetables, fruits, maize, sugarcane, medicinal plants, spices etc. to be identified after PRA.

iii) Market mapping, Demand survey for products, identification of Buyers, Establishing marketing network

iv) Streamlining credit facilities and crop insurance, acquisition of micro-finance skills such as internal lending, fixation of interest rate and loan recovery schedule and building of corpus funds.

v) Identified training for Farmers and stakeholders

1. Training on capacity building for office maintenance for PP executive members and self help groups. Role and responsibilities of PPs/WUAs.
2. Irrigation system, Water Availability, Water Requirement, Irrigation Scheduling, Canal operation, Irrigation Water Management etc.
3. Crop diversification, package of practices for cash crops
4. Diversification for Kharif Paddy and Water Management including package of Practices.
5. Farm machinery and implements, and their maintenance
6. Effects of disasters and adverse climatic situation and mitigation plans
7. Assessment of additional training needs during EPA Period

8. Workshop on Government schemes, input supply, incentives, credits, subsidies, insurance, produce storing, processing, value addition, marketing, education, health etc.
9. Selection and motivation of large buyers and service providers.

DOCUMENTATION AND VIDEO MODULE PREPARATION

Documentation of all the activities in the process of implementation and video module production are in process for replication purpose.

MONITORING AND EVALUATION

Periodic Monitoring and Evaluation of implementation of micro-plan and EPAs for strengthening the Programme are being carried out to ensure that the objectives are fulfilled. Various indicators based on approved EPAs and income generation activities as well as indicators like Crop Diversification, Productivity, Water Distribution Indices etc. are also being monitored constantly.

PROGRAMME IMPLEMENTATION

a) Structure of programme implementation

The programme is being implemented by implementation teams (IT), comprising multi disciplinary action research staff of WALMI. A multi disciplinary team consisting of engineering, agriculture and sociology faculty of WALMI will act as the supervising expert team (SET).

b) Operation of corpus fund

Shifting from traditional rain-fed rice farming to intensive multiple cropping under irrigation, requires capital expenditure for various activities. Very often, due to non-availability of adequate and timely credit from formal financing institutions, the farmers depend on money lenders and borrow at exorbitant interest rates. Most of the resource poor farmers fail to apply recommended technology leading to poor production. Easy access to soft loans through micro-credit finance will help the poor farmers to purchase good quality inputs for application at right time. The grant component to be used as the corpus fund for providing micro-credits to SHGs will be utilised as follows.

1. Credit will be provided to SHGs, not to the individuals, for undertaking rural farming, non-farming activities, rural woman development and rural micro-enterprise development. The farming system includes manufacturing bio-fertilisers, vermi compost, commercial crop nursery, seed production, soil testing, crop protection, horticulture (vegetable production), floriculture etc. The non-farming activities include dairy, poultry, intermediate processing of fruits and vegetables for value addition etc. The credit may be extended for self-employment for rural women and micro enterprise development.

2. Credits may be extended for improving rural living condition, such as sanitation, cooking gas connection and other activities.
3. The activities will also take care of persons engaged in selling firewood to undertake micro-enterprise based on minor forest produces and rural enterprises.

For sustainable micro-credit or rural credit delivery, appropriate system has been designed for micro enterprise development to reduce the finance problem and risk of small and marginal farmers. This includes multiple dose of credit over a period of time with second and subsequent dose(s), enabling them to access higher amount of credit. They should have confidence that so long as they prove their credit worthiness by way of proper utilization of the asset and prompt repayment, the created corpus fund will stand by them and will grow to provide additional credit. The SHGs are allowed to stabilize and improve their credit absorption capacity and to increase their fund as well as increase their credit intake over the years either for the same activity or a new activity. The credit system has in-built mechanism for easy installments and incentive to members making regular repayments etc.

IMPLEMENTATION OF EPAS IN PILOT PANI PANCHAYATS

1. Since December 2005, EPAs have been taken up in Pilot PPs having micro distribution network or field channels. If a Pilot PP does not have micro-distribution network then in the Entry Point Activity, it is given priority to develop micro distribution system, which is necessary for scientific on-farm water management.
2. Entry point activities have been carried out with the maximum limit of Rs.0.6 million per PP. The activities taken up are decided by the farming community based on PRA carried out by implementing agency. In the presence of competent officers of DOWR, and in consultation with the implementing agency the PPs have approved the EPAs.
3. The entry point activities include Community welfare, Micro-credit or Rural credit disbursement through SHG, development of micro-enterprise to improve livelihood in command area, input supply, farm mechanisation activity for sustainable agriculture and income generation activities for improvement of livelihood of farmers in the command area. An agreement has been signed by PP and the Executive Engineer on behalf of the Project authority as well as PP with SHGs for this purpose. The project authority (DOWR) has transferred the entire amount of Rs. 0.6 million to the pilot PPs for taking up approved activities
4. The chak committees are treated as SHGs for crop diversification and other income generation activities. Scope for additional SHGs are open if needed for taking up different agricultural support services duly approved by respective PP. The amount identified for the purpose are earmarked and the pilot PP are sanctioning loan to SHGs from this amount. The PPs are authorized to utilise this amount along with accrued interest for the purpose of income generation through Micro Credit mechanism.
5. SHGs are encouraged for taking up community farming.

6. For community welfare as one of EPA, the PPs are authorized for selection of items such as procurement of machinery/ farm equipment for farm-mechanization to be used by the general members of PP. The equipments include tractor, cultivator, ploughs, threshers, seed drills etc. The running and maintenance are being borne by farmers by charging rentals.

7. Loans for income generation activities shall be provided to SHGs. Loans to individuals shall not be encouraged as the recovery pattern from individual borrowers has been observed very low in other similar projects. As regards, the rate of interest on loans, PP shall have the discretion to decide the same. However, some rate of interest necessarily needs to be charged in order to offset the bad debts (which may occur) and also to increase the corpus fund.

8. In the EPAs, it is taken care of that there will not be any effort to duplicate the activity that the other departments have already taken up. The convergence of the activities of various departments is emphasized. In case of inadequacy, the convergence and co-ordination will be strengthened.

9. The DOWR is facilitating the augmentation of institutional capacity of the PP for maintaining services, facilities and works undertaken through EPAs. PPs are also given scope for taking up resources generation activities. For this purpose PPs would be encouraged to take-up small scale work contracts pertaining to improvement works in their jurisdiction. As per the provisions of Pani Panchayat Act, DOWR is also making efforts to mobilize other government departments to extend their schemes in the project area so as to enhance the developmental works in these selected area and also maintain the assets created under entry point activities in the PP area. Such schemes may include health, sanitation, education, Swarna Jayanti Gramya Swarozargar Yajana (SGSY) and other new schemes.

10. The DOWR shall maintain proper accounts PP wise of all the entry point activities undertaken in the project area. This will be subjected to audit checks by the state audit department as per the procedure laid down.

11. A mechanism for monitoring of the implementation of EPAs has been established under the chairmanship of Engineer in Chief for effective implementation and providing timely suggestions.

12. Display boards are kept in each Pani Panchayat by the Water Resources Department clearly specifying the EPAs carried out in that Pani Panchayat along with the amount spent by the DOWR.

CONCLUSION

In irrigation projects, active participation of the farmers who are the ultimate beneficiaries is indispensable, with Water Users Associations/Pani Panchayat as the center of activity. In order to strengthen the Water Users Associations/Pani Panchayats and promote participation by farmers, first a study should be made to ascertain the social and economic conditions of the beneficiaries, such as caste/tribes, land ownership of existing inhabitants, social and cultural institutions and organizations, etc. The study needs to indicate problems in irrigation, markets, technology, and capital, etc. in detail. Once the socio-economic survey is done, an action plan clarifying the rights and

responsibilities of different stakeholders should be prepared at a stage sufficiently ahead of the launching of irrigation water supply.

The executing agency or Government Department of Water Resources needs to promote early transfer of operation and maintenance of manageable portion of irrigation system to Water Users Associations/Pani Panchayat. Also it is necessary to build the capacity of Water Users Associations and provide full support for technological upgradations in order to promote self-reliance and the realization of sustainability.

It is evident from the study that the objective of providing assistance for alleviation of poverty and rural upliftment through micro-planning and entry point activities as adopted in JBIC assisted irrigation projects in Orissa is significantly different from the strategy of other international funding agencies and quite comprehensive for achieving the goal of sustainable agriculture. Assisting for poverty reduction by way of promoting schemes for agricultural productivity improvement through irrigation is not only the motto but it integrates community based participatory approaches to support agricultural development like improving access to markets or the use of new production technologies, promote environmentally sustainable production activities, facilitates education about alternative routes for employment, gender issues, measures to improve income and livelihood through micro-finance; rural infrastructure upgradation, to improve access to markets and product distribution, participatory processes to empower the rural poor with core skills (such as producing local food products), while helping them to set up a business plan, obtain market information and comply with health measures. In fact, external assistance for mega projects also needs more careful planning at micro level, so that the intended benefits of the projects are realised on sustainable basis.

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