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Institutional Innovation: A Driver For Rural Prosperity

A study of Field Management Committees (FMC) in Assam

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with Technical Assistance from
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This paper reports the findings of a study entitled Institutional Innovation: A driver for rural prosperity. The study invested on an in-depth understanding of a rural institution known as Field Management Committees (FMC) in Assam. Such an understanding has become relevant particularly in the wake of the general feeling on emerging agrarian crisis due to distorted delivery mechanism and institutional failure in rural areas (National Commission on Farmers 2005).

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The views expressed in the paper do not pertain to that of the organizations.

The usual disclaimers apply.

Institutional Innovation: A driver for rural prosperity

A study of Field Management Committees (FMC) in Assam[1]

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Acronyms

ARIASP: Assam Rural Infrastructure and Agriculture Services Project
AEO: Agriculture Extension Officer
AIM: Assam Institute of Management
AI: After Implementation of FMC
BI: Before Implementation of FMC
BDO: Block Development Officer
BAO: Block Agriculture Officer
BPL: Below Poverty Line
CAPART: Council for Advancement of Peoples' Action and Rural Technology
CMLIS: Community Managed Lift Irrigation System
CB: Commercial Bank
DHQ : District Headquarter
DAP : Di Ammonium Phosphate
DTW: Deep Tube well
DEO : District Extension Officer
DAO: Department of Agriculture Officer
ETC: Extension Training Centre
FFM: Farmers Federation of Marketing
FMC: Field Management Committee
FYM : Farmyard Manure
F: Female
FBPL: Far Below Poverty Line
GCA : Gross Cropped Area
GEN: General
HYV: High Yielding Variety
IIM: Indian Institute of Management
IPM: Integrated Pest Management
ITB: Indian Tea Board
KVK: Krishi Vigyan Kendra
KCC: Kisan Credit Card
KGC: Khadi and Village Industries Commission
M: Male
MV: Modern Variety
md: Maund (Equivalent to 40kg)
MSP: Minimum Support Price
MOP: Muriate of Potash
NCAP: National Centre for Agricultural Economics and Policy Research
NERWALMI: North Eastern Regional water and Land Management Institute
NEC: North Eastern Council
NGO: Non Governmental Organization
NABARD: National Bank for Agricultural and Rural Development
NEDFI: North Eastern Development Finance Institution
OBC: Other Backward Classes
O & M: Operational and Management
PPS : Pathar Parichalana Samitis
RRP : River Pump System
RRB : Regional Rural Bank
RRC: Reinforce Cement Concretes
SC : Scheduled Caste
ST : Scheduled Tribe
SBI: State Bank of India
SKY : Samridhi Kisan Yojana
SHG : Self Help Group
STW : Shallow Tubewell
SSP: Single Super Phosphate
SAPPS: Sadou Asom Pathar Parichalana Samiti
SDR : State Development Report
TPS: True Potato Seeds
VLW: Village level Worker
WTP : Willingness To Pay

Executive Summary

There has been increasing realization in recent years that economic growth without "human face" leads to the paradox of growth without development. In a developing country like India, the issues on rural development are critical as well as complex too. Because, the rural poor, which, is in majority, hardly appreciate the benefits of economic growth presently underway, as it has not yet seen much change as desired. The contemporary development process rarely treats the rural poor and their institutions as asset and partners, although, the poor communities not only have greater capacity than generally recognized. In order to translate this into opportunity, community approach and collective action is essential, which is a driver of rural development. Because given clear rules and regulations of group formation, appropriate support services and access to information, the poor men and women can be effectively organized to enable to meet their basic needs. Effective rural institution therefore, is an important factor of production, which is often ignored in the agricultural production function analysis. Hence, there is urgent need for reforms in rural institution, which may release the productive forces trapped in the garb of poverty. The present study aims at gaining insights into the "rules of the game" of a rural institution in Assam, popularly known as the field management committees (FMC). A detailed documentation, more insights into the mechanics of FMC, to derive accurate policy parameters, and to draw meaningful inferences on the salient features will be attempted.

The field management committee (FMC); locally known as *Pathar Parichalana Samiti*, is a giant and unique organization, which is unparallel in the country. This non-government organization (NGO) of rural people at the grass root level, earned the recognition as a village intermediary and a project delivery instrument. Actually, the FMC is a bold step in reaching out to the farmers (target groups), as organised on sound theoretical principle of collective action.

At present, this huge super-structure consists of nearly 26000 FMCs, having an estimated membership of 1.8 million farmers in Assam. This has strengthened the public-private partnership through the village-government-corporate sector interface. An efficient management and good governance is however, necessary to make durable livelihood impact among the farming community.

The World Bank aided project ARIASP has recognized and used the FMC platform to implement several projects such as STW, CMLI, power tillers, fisheries, poultry and dairy etc. The financial institution like NABARD, NEDFi has treated it as the grass root level project implementation media. The non governmental agencies such as CAPART, ITB, Gramin Bank and others have effectively collaborated with the FMC in various schemes.

Some of the important accomplishments of the FMC are reported as following

- The FMC has demonstrated an extra-ordinary achievement in "reaching out" to the targeted groups while implementing water resource management schemes such as the million well scheme, SKY programme, CMLI, STW programme of ARIASP.
- The low cost irrigation schemes like STW and CMLI is particularly suitable in areas without electricity and undependable power supply. As these schemes are designed on the principle of "user pay", FMC ensures members participation, community involvement and sustainability whereby the farmers derived positive impacts.
- The members have benefited from the capacity building trainings on the frontier areas in agriculture, mechanization by sharing of power tillers and other equipments, collective labour sharing (*Howri* system) and marketing facility for agricultural produce.

- The capacity building training also enabled the members to learn general management techniques such as book keeping, budgeting and project design, rural innovations, to contact public officials in the developmental departments and enhanced their overall awareness. Acquiring the facility of KCC (kisan credit card) and participation at the agricultural insurance programme has become easier.
- It also made some durable impacts, viz., cropping intensity has increased to the tune of 176 percent, gain in yield of paddy at least by 20 percent to 38 percent, improved crop diversification, changed cropping pattern and thereby improved income generation. The members of the FMC also adopted newer crops and innovative practices in cultivation of important staple crop of paddy.
- It is amazing that within a very short period, the FMC made significant impact on the rural livelihood as demonstrated by the following instance. The FMC induced-innovative practices changed the status of feeding the family with two-meals a week to two-meals a day from their own production

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However, such a giant organization is bound to confront problems of sustainability, if due care is not taken. The members often suffer due to lack of access to information, hesitation and inability to accept newer opportunities and lack of marketing infrastructure necessary to convert physical production into income. In the changing situation, a large number of rural youth and woman groups are found to be eager to adopt newer methods and learn more of innovative practices. Therefore, the government needs to continue giving more support services and encourage to further strengthen this rural innovation.

The multiple constraints that the FMCs confronts, required to be tackled efficiently. Based on the members' responses, the constraints are classified into technological, organizational, financial and socio economic constraints as

1. Technological constraint arises due to lack of appropriate technology, capacity building, technical skill and problem of access to information.
2. Lack of cooperation of member, non payment of fee, lack of common goal setting, leadership and transparency are the organizational constraints.
3. Financial constraints included lack of common fund, government support, problems of bank credits and lack of common property, and the fourth groups of
4. Socio economic constraints included low product prices, poor economic condition, malpractices of middlemen, poor roads and transport facilities, costly inputs and lack of social interaction.

The size of FMC is often a hindrance to proper management and extension services and to enforce accountability. A FMC with more than 200 members is an impediment to spread knowledge and information communication among the members. Therefore, amendment of the constitution and the by-laws suitably in favour of optimal size of the FMC is necessary.

The analysis of the impact of FMC and innovative practices raised specific issues and identified the factors affecting proper functioning of FMC.

Innovative practices and strategies:

- Flood-escaping *boro* rice cultivation in rabi season
- Innovative Low cost water lift mechanism: The Kisan Bandhu, developed from local materials, a bamboo pump-set has the capacity to irrigate about 2 bighas per day. The specific characteristic of the pump is less capital cost and almost negligible operating cost.

- Introduction and improvement of cultivation of vegetables, citrus, mushroom and horticultural plantation crops
- Introduction of newer crops and multiple season crops increased cropping intensity, improved crop diversification and productivity. Innovative practices such as flood escaping *boro* rice has provided adequate safety net to household food security.
- Capacity building training on modern methods in agriculture yielded high dividend, enhanced awareness and knowledge sharing among the members (as observed in Pragatisil PPS).
- The performance based classification the FMCs into best performing, medium, average and non starter could be used to facilitate priority setting in project allocation and developmental strategies.
- FMC as an efficient public good, has demonstrated that mechanism to equitably distribute public benefits among the stakeholder and maximize the private profit and income.
- However, in order to achieve wider impact, there is also need to publicize FMC progress and achievements widely in mass media, TV programmes, leaflets for knowledge sharing and practicing good practices. Induction of the youth and women in the FMC should be encouraged.
- The All Assam Pathar Parichalana Samiti, the lead central coordination and policy body of the FMC should endeavour to utilize the services of professional, technical and policy experts by developing necessary interface. It should facilitate and encourage the members to take advantages of newer facilities such as kisan credit cards, crop and income insurance, and arrange hand-on training on use of kisan call centers and other ICTs. The lead FMC should conduct regular orientation programmes on technology forecast, disseminate market signals and issue disaster warning from time to time.

A 20-factor 10-point scoring method is used to derive indicator of the performance of the FMC and classified them into various categories, which required differential intervention strategies, as designed below:

Intervention strategies for various categories of FMC

		Level of prosperity	
		Low	High
Institution	Efficient	**Medium/average (70-80%):** Incentives to promising FMC	**Best/successful** (>80%): Model to emulate
	Non efficient	**Poor (<70%):** Requires push through further reform	

Constraining factors and policy perspectives:

- The study reveals that bureaucratic procedure complicate the functioning of the FMC. Therefore, such interferences should be minimized. Because, the interference-free FMC has exemplified efficiency, good governance and farmer-friendly system.
- FMC should be free from political high handedness, as it affects its sustainability. The central FMC at the State level should be properly equipped to play the role as efficient advisor and coordination body. But, at present, lack of efficient leadership has been a critical constraint to sustainability. The leadership training should be a part of the capacity building initiatives from time to time.
- The existing practice of dual registration of FMC creates confusion and contradictions, and should be done away with. At present, an individual FMC required to register with the registrar of societies and/or a separate registration with the Department of Agriculture, Government of Assam, in addition to register with the State level FMC authority. As a result, the members confront with a numerous conditions and rule and regulation, which is counter productive for the organization. Hence a simplified and uniform policy for the registration of FMC with the recognized registering authority is necessary.

- Loss of income due to perishable nature of most agricultural commodities is a perennial problem. Therefore, adequate policy interventions are required to address the problem of lack of efficient post-harvest agro-processing facility, markets and remunerative prices.
- The FMC, which has wider roots at the village level, poised to kick off to bring about desirable change. While the FMC has larger holistic goals of overall village development and rural livelihood, the self help groups (SHG) is relatively narrower in scope because of its activity specificity nature. Therefore, a well balanced FMC-SHG harmonization is necessary. Intrinsically, the SHG is a sub-set within a FMC, as observed in the Dakshim Bhirgaon and Rangachakua Pragatisil PPS. The synergistic way the Lakhimi Mahila Atmo Sahayak Got, an women SHG, formed under the aegis of Dakshim Bhirgaon, is an excellent example of the FMC-SHG coordination. A strong FMC is capable of solving the common problems, such as marketing of agricultural produce and other rural infrastructure through collective involvement and interface. Because, the conflict between farmer's interest and vested interest and lobbying among the marketing intermediaries deprives them to reap the benefits of the existing market. The market institution must be insulated against the influence of commission-agent-like intermediaries.
- There is also urgent need to replicate the successful life stories and multiply the good practices for wider impact. Carefully disseminated success model would be an important step in restructuring the non-performing FMC. It may be noted that instead of recreating and re-inventing newer model, existing successful FMCs (at least 5-10 such FMCs already exists in each district), should be encouraged and supported to play role of lead model for reviving or reforming the institution. If this goal is achieved then the FMC will attain the fame of a unique model of rural institution in the country.

The analysis clearly brings out that the sustainability of rural institution mainly depends on the continued public support and patronages. Therefore, a long term intervention is necessary to develop a sustainable partnership with the government departments in promoting the FMC. The government, corporate and NGO support should play more pro-active role in accelerating the prospects for growth of prosperity in rural areas.

It may be reiterated that the FMC needs to maintain its identity as democratic institution, transparency and tidy financial system. To be more durable, the reform should provide provision of strong mechanism of internal income generation through membership fee, donation and gift, profit sharing, contract farming, water selling and income from common property resources

Periodical assessment of the gains from developmental schemes, strong linkages with financial institutions and strategy could potentially improve the "non-performing" FMC. It will provide required inputs to lime light the importance of FMC, enhance confidence, and ensure transparency and good governance.

It may be concluded that there is ample scope for more analytical research on FMC. Methodology for impact assessment and evaluation of FMC is necessary to provide stream of desirable information and more accurate analytical diagnosis.

The study however, provides supportive evidence that the *Samridhi Kisan through Samridhi PPS* is realizable, which is the most sought after. That is, the prosperous institution is the root of rural prosperity. If this happens then the reformed FMC can be the agent of change in the rural areas.

Institutional Innovation: a driver for rural prosperity

A study of Field Management Committee (FMC) in Assam

> *"Whether they live on the plains or in the valleys, whether they live in slums or isolated villages, whether they speak Hindi, Swahili, or Uzbek, people have one thing in common: They do not want charity. They want a chance. They do not want solutions imposed from without. They want the opportunity to build from within. They do not want my culture or yours. They want their own. They want a future enriched by the inheritance of their past."*
>
> **James D. Wolfensohn, President, The World Bank**: Action 2015

1 Preamble

Economic growth vis-a-vis development has been a debatable subject in the developing countries, where the issues of poverty, malnutrition, access to information ("reaching out"), technology and empowerment loom large. Specifically, the issues on agricultural development in India, are more critical as well as complex in nature. Although growth has taken place in various sectors, the developmental gains in agricultural economy far lag behind the targets. Thus be hypothesized that notwithstanding economic growth, the problem of development remains unabated and the growth without a "human face". The rural development issues are particularly more complex as compared to other sectors in the economy. Therefore, there is urgent need for careful reform in rural development so that it helps to release productive forces that are trapped in chronic poverty.

Why rural Institutional reform ?

Insecurity and unsustainability is fundamentally a rural economic phenomenon, which encounter tremendous cost to the society. This cost is of various kind - economic, social, technological, political, geophysical, ecological, public health and hygiene amongst others. An understanding of the economic vulnerability of the rural poor has great relevance as they are increasingly deprived of livelihood, entitlement and

victims of the fragility of growth process. These are important distorting elements of the public good.

Poor and marginalized people are often viewed as the target of poverty reduction programmes. However, they and their institutions are rarely treated as assets and partners in the development process. In fact, by involving them as initiators, collaborators and as resources for development programmes, the poor men and women can be effectively organized to enable them to meet their basic needs. The rural poor, not only has greater capacity than generally recognized, but there is also greater chance to gain from optimal use of resources targeted at poverty reduction strategy. What is perhaps needed the institutional reform to impart management training and resources to community groups to improve community management of resources and enabling good governance. The community group formed through the principle of participatory governance provides adequate empowerment and greater accountability, which is demonstrated in the manifestation of the dialectic of transition from “we” (the top) to “they”(grass root) in the development architecture. This has already acquired global dimension, which is being debated in the present time (Wolfensohn 2005, Jim Ryan 2004). Several newer programmes initiated by the World Bank, Food and Agriculture Organisation of the United Nations and other agencies indicate the importance of institutional reform and global realisation of the problems of understanding the nature and complexities of low-income economies and less endowed areas. Further, the following strategies are indicated to achieve the triple goals of security, opportunity and empowerment to the community driven developmental initiative:

- Strengthening accountability, inclusion of community groups;
- Supporting broad-based participation by the poor in the strategies and decisions that affect them;
- Facilitating access to information and linkages to the market; and
- Improving governance, institutions and policies

It was also shown that by ensuring empowerment and entitlement, the rural communities can find their own solutions to improve service delivery, increase their decision making power through social accountability, resolve local problems and rebuild poverty-ravaged societies[1].

Community-Driven Development Approaches

Evidence suggests that when community based-organizations are responsible for project design, implementation and the assessment of project delivery, then the project is more efficient and cost effective and the outcomes sustainable. As the basic service delivery improves, the community involvement and investment also catalyze the efficiency and returns and thereby the poor is benefited.

If people have

- Organizations of their own, they can negotiate with government, traders, and NGOs;
- Direct assistance through community-driven programs, they can shape their own destinies; and
- Local ownership of funds, they can reduce corruption.

The present study attempts to gain insights into the "rules of the game" of a rural institution in Assam, which is known as the field management committees (FMC), to draw inferences and document the salient features of the existing FMCs. It is most ironical that though a giant super structure of peoples' organization is already in existence, no attempt has been made to understand and objectively assess their impact on rural societies. The strengths and weaknesses of the institution will be analyzed and intervention strategies will be identified.

[1] For more, World Bank 2005; Community-driven Development: Action 2015, Washington DC

2 Rural Economy in Assam

The economy of Assam is predominantly agriculture based. Over three-fourths of the population is directly dependent on agriculture for their livelihood. Yet, the agricultural productivity is the lowest in the country and growth stunted. It exhibits the characteristics of underdevelopment, namely, a high dependence on agriculture for livelihood, widespread traditional and subsistence farming, low usage of modern inputs, low growth in productivity and income, poor/inadequate agricultural infrastructure, and so on. As per the 2001 census, about 87 percent of the population in Assam lives in rural areas and about 69 percent of the workforce is actually engaged in agricultural activities. Over the decades, the contribution of agriculture to the State's income has declined from nearly 50 percent in early 1980s to 35 percent at the end of 1990s. Although, declining share of agriculture vis-à-vis other sectors is a common phenomenon as economic development takes place, but in Assam, this has occurred despite the sluggish economic growth. It thus raises the issues of economic insecurity and sustainability [2].

Farmers in Assam have been confronting enumerable problems in managing their household economy. Multiple production risks (biophysical as well as socio economic), lack of market for farm produce, and fluctuating price coexist with the problems of delivery institutions. In addition, inadequate access to modern methods, inputs and technology, also denied farmers the benefits of technical progress. The government has been implementing several development schemes from time to time, but their benefits rarely trickle down to the targeted groups. A grass root level farmers' organization is necessary to drive the benefits of the schemes.

[2] Planning Commission 2004, Assam: State Development Report, New Delhi

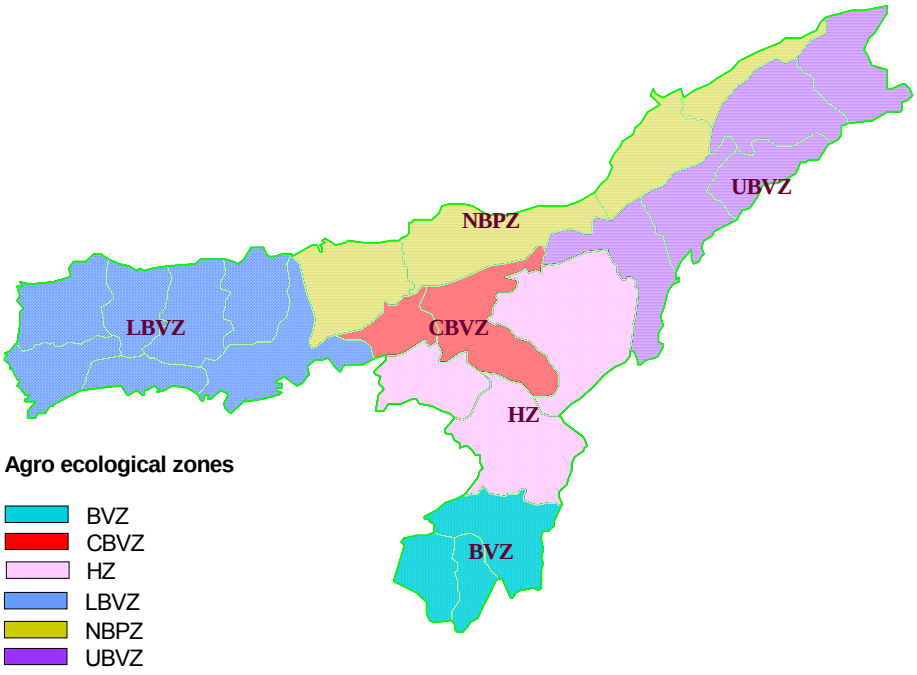


Fig 1: Agro ecological zones in Assam

In order to sensitize the farmers to raise their voice and improve the delivery mechanisms at the grass root level, the field management committees (FMC) need to be rejuvenated to usher agricultural renaissance in the State.

3 Major goals of the FMC

The goal of the FMC is to accomplish the following:

- Improve socio-economic equity and alleviate poverty by offering better opportunities for poorer farmers and women.
- Contribute towards the economic growth and income generation of the faming community.
- Improve the nutritional intake of the rural poor and livelihood.
- Accelerate agricultural growth through efficient use of resources, removing infrastructure and technical bottleneck and providing enabling environment to facilitate the growth of the private sector investments.
- Sustainable resource uses in order to maintain the quality of environment.

4 Institutional Interface

The FMC has broader canvas in accommodating various developmental programs of agriculture and allied sectors including crop production, horticulture and forestry, besides developing interface with several government and corporate bodies like the Department of Agriculture and Government of Assam, World Bank, NABARD, Indian Tea Board, Khadi and Village Industries Commission and Rural Gramin Bank. FMC also ventured in the field infrastructure support services, which include rural infrastructure, rural roads, markets, agro-processing facilities and development of small-scale irrigation to support overall growth of agriculture by interfacing with the concerned departments.

Problem identification:

The poverty scenario is a major worrisome aspect in Assam. The phenomenon of so-called "hidden poverty" has been conspicuous. Approximately 40 percent of the rural population is below the poverty line of income of less than Rs. 7800 per household per year. The State is endowed with rich untapped potential of natural resources and bio-diversity and agro-ecological diversity, yet the resources are not properly utilized to benefit the population effectively[3]. In this context, there is need for a rejuvenated rural institution such as the field management committees. While committing to promote rural institution and taking the advantages of existing village structure, the World Bank aided project known as ARIASP (Assam Rural Infrastructure and Agriculture System Project) has recognized FMC as media of implementation of developmental schemes and good governance. The utilizing the strong foundation of

[3] Fertile land and abundant water resource endow the state: Assam Receives over 2000 mm rainfall per year, favourable for double cropping in majority of the areas. But the state suffers from frequent flood, soil erosion, drought at the same time and low cropping intensity. Despite the availability of adequate water resources, the average yield of the most dominant crop rice is far below the national average. But in areas where assured water is provided, very high yield is achieved easily and cropping intensity has increased substantially. The natural conditions also highly congenial to, in addition to rice, other high potential activities include horticulture crops, fisheries and dairying along with plantation crop such as tea, rubber and timber.

the FMC was considered an alternative to accelerate the rural development. The success of the ARIASP programmes has demonstrated the value of such a rural set up in accelerating the pace of project implementation. Subsequently, the Government of Assam recognized the FMC to carry forward the shallow tube wells (STW) and other agricultural modernization schemes etc. However, there is no systematic attempt to objectively evaluate the FMC to derive necessary information and relevant data to support future strategy. The NABARD and Government of Assam conducted few adhoc evaluation studies recently, which are primarily issue based studies. A study by NABARD (2002) looked at the functioning of the STWs in four districts. While drawing the roadmap of agrarian prosperity in Assam, NABARD (2004) also recommended policy intervention to strengthen the FMC[4]. The Govt. of Assam (2003) conducted a quick study on evaluation of the impact of capacity building in the FMC. The corporate bodies such as Indian Tea Board, Khadi and Village Industries Commission, and the national NGOs like CAPART also sponsored few projects to the FMC. Yet the role and significance of FMCs are not properly highlighted in a holistic manner. Therefore, more in-depth and objective evaluation of the FMC is required to understand the dynamic functioning and management issues.

[4] NABARD, 2004, Roadmap of Agrarian Prosperity in Assam, Guwahati

5 Objectives

The main objectives of the present study are:

1 To review the performances, practices and functioning of collective institutions in rural areas in Assam and examine the postulates behind group formation.

2 To understand, inventorise and scrutinize the framework and progress of the FMC

3 To assess the impact and achievements of the Farm Management Committees.

4 To identify and classify the constraints to FMC and relate its performance with the system governance.

5 To spell out appropriate strategies and policy interventions.

6 To suggest a basic model of rural institution for agricultural development in Assam.

6 Methods and Analysis

FMC is an innovative institution of the rural people envisaged as a vehicle of change to achieve sustainable livelihood. The mega institution has already formed as many as 26000 units covering all the villages in Assam. Apparently some of these may have performed well while the others either failed to make any impact or doing business as usual. In order to have a true representative FMC members are carefully selected using simple random sampling, broadly from three groups, viz., the active, average and poor groups. The local officials and others concerned are also consulted in sample selection and survey. Five out of total 23 districts in the State was selected namely, Kamrup, Morigaon, Nagaon, Sonitpur and Jorhat. From each of the selected district, a sample of five FMC was selected at random. From the selected FMC, five members and 2 non-members were studied in-depth. The selected districts in the study coincide with the ARIASP districts, which provided certain logistic advantages. The sampled FMCs consists of total of 2291 members, of which 120 members and 42 non-members were selected for in-depth study (Table 1). The more details of FMC wise sampling scheme is given in appendix Table 2.

Table 1: List of selected FMC for the survey

District	Names of the selected FMC	
Nagaon	1) Barpathari, 2) Seuji Patharijan PPS, 3) Saruhisa Bardrawa sundarpur PPS	4) Raidongia PPS, 5) Panigaon Pathari, PPS
Sonitpur	1) Pragatisil PPS, Rangachakua, 2) Shyamala PPS Pub Katarati, 3) Mornai Patiagaon CMLI PPS	4) Dagaon Chapari PPS, 5) Dakhin Bhirgaon PPS
Kamrup	1) Ulani Darbham, Khetri PPS, 2) Lakhimi PPS, 3) Singimari PPS,	4) Bongora PPS and 5) Helagog PPS
Jorhat.	1) Sewali PPS, 2) Nowbaisa PPS, 3) Puthinadi PPS,	4) Pragati Jorhat PPS 5) Jyoti pam PPS
Morigoan	1) Mandhubi PPS, 2) Khanajan PPS, 3) Lohitparia PPS,	4) Belimaria PPS, 5) Nasatra PPS

Information were elicited with the help of the method of participant observation by involving local persons. Basic manual on conceptual framework, study guide and other technical inputs have been prepared. A structured questionnaire was designed to

elicit information from various groups to achieve the set goals. A separate set of questionnaire was prepared for the non-members.

The views of the FMC functionaries were recorded particularly on the management related issues. State level officials and central FMC officials were also interviewed to understand the overall management problems and governance.

Apart from various tabular and graphical methods, a 10 point 20 factors scoring method was used to classify the FMC as successful, medium, average and poor (factors are listed in the appendix)

7 Genesis of Field Management Committee in Assam

Agricultural productivity in Assam has been low and the average farm size is the smallest in the country. Problem of technology adoption is one of the several problems confronting the small farmers. Food production, not only failed to keep pace with growing demand for food, but the production system is also highly vulnerable to erratic climate. This endangers sustainability and threatens household food security. The sustainability demands effective symbiotic relationship between technology, society and natural resources. In other words, the policy strategy should take cognition of the complexities of the interface between socio economic and institutional factors in the technology policy.

It is widely acclaimed that the technology knowledge generated by the agricultural research system failed to reach-out to the actual users[5]. An effective rural institution has the potential to close the gaps in knowledge, provided adequate support of the public system is guaranteed.

FMC is a non-government voluntary organization of the farmers and for the farmers having contiguous agricultural fields by and large within a village. It has a long history, when the government of Assam realized the need for promoting FMC and adopted a resolution to this effect in 1958 (Goswami PC 2003). But it had only lukewarm response at the initial years. This collective forum, has subsequently grown hugely, whose number at present is nearly 26000 units in the State, implying that every village has a FMC. Each unit consists of 50-80 farmer members voluntarily forming the group. At present, average size of holding of the FMC member is 7.5 bighas[6] (1 ha. approximately). FMC aims at creating enabling environment to take up rural developmental activities for enhancing household income as well as improving the rural livelihood. FMC undertakes activities such as multiple cropping, adopting modern technology, use of organic manures (vermi compost) home stead garden crop,

[5] For more on institutional impact on agriculture, see Pal S et al (ed), 2003, Institutional change in Indian agriculture, NCAP, New Delhi

[6] Bigha is a local measure of land holdings, approximately 7.5 bigha= 1 hectare

fisheries, livestock, creating irrigation facility, minimum use of insecticides and pesticide, natural resource management and social forestry, land reform measures, promoting non conventional energy, specific training and capacity building, forming target specific SHG and increase participation of women groups etc.

FMC undertakes development schemes as per the local needs. It is designed to serve as village (farmer)-government link as a project implementing agency at the grass root level, for the projects such as STW scheme, power tiller etc. This is a three tier organizational setting where the State level committee to oversee and coordinate the activities of the district level committees as well as the village level FMC. The FMC is a registered body under the government of Assam Act XXI register of 1860. The growth in number of FMC accelerated in recent years partly due to the realization of the government the need for "reaching out" to the targeted stakeholders, particularly in implementation of the developmental schemes.

A well-laid constitutional guideline and bye-laws was formulated for forming a FMC at the village level[7]. But as the FMCs have grown enormously, there is urgent need to develop an efficient management strategy too for their sustainability. The State level FMC at the apex level (called All Assam FMC or *Sadau Asom Pathar Parichalana Samiti:* SAPPS) is instrumental in developing the interface between the implementing agencies and the FMC. In this mission, there is some successful FMCs, although majority of them are not able to function efficiently or remain laggard. While the successful FMCs is fewer in number, the mushrooming of numerous "*non-performing* FMC" or "*over night* FMC" is a matter of concern. Why is the *bad* FMCs are multiplying as free-rider and *goods* are not replicated in the required pace, is a question. An answer to this require and objective assessment of the FMCs, to emulate the merits and correct the demerits.

[7] details of the FMC constitution and terms of reference is give in the box # 1 &2

The core activities of the organization are as follows

1 To motivate and guide the members to increase the productivity of crops through adoption of improved varieties and scientific crop management practices.

2 To encourage the member to increase the cropping intensity and to utilize the vast area as rabi fallow to enhance land productivity.

3 To prepare annual production plan based on available resources and its execution.

4 To motivate and guide its members to undertake technically feasible and economically viable schemes in order to optimize the potentialities of farm returns and income.

5 To mobilize resources and increase resource use efficiency.

5. To facilitate exchange of ideas, information and technology.

6. To provide basic information on infrastructure such as rural godowns, cold storage, marketing yard etc to members.

7. To train the members to maintain and update records of land holdings and various production system.

8. To utilize available irrigation sources either surface or ground- water for increasing crop production.

9. To take measures to control stray cattle nuisance.

10. To motivate the members to adopt improved seed multiplication system.

11. To encourage the members to undertake agro-processing and business, ensure availability of agricultural inputs like seeds, fertilizer, pesticides, tractors, power tillers, pump sets within easy reach of the farmers.

12. To improve availability of institutional credit to the members and credit use efficiency.

The present generation of the FMC is the outcome of continuous efforts of the past two decades. At present, the number of FMC has already reached an enormous height having strong participation of approximately 1.8 million members (Table 2). Having achieved such a level, this institution could be a driver to modern technology

dissemination and agricultural development. There is thus a need to identify the institutional issues and the parameters affecting production system at the farmer's level. An innovative institution helps up scaling and replicating good practices.

In order to involve every farming family, the Field Management Committee promotes scientific agricultural production and increase productivity. By reaching the remote corners of the State, the mission gave a new dimension to developmental initiatives and more significantly made a durable impact among the farmers. The farmers voluntarily participated in this reform movement to derive benefits of the organized production systems. At present, there are total 25,710 FMC in Assam of which 74 are model FMCs. Table 2 shows the districts wise distribution of the FMC in Assam. The highest number of 3262 FMC has been formed in Dhubri district and the lowest number is in Jorhat district. Col 5 in the table shows the number of FMC per lac rural population, which reflected the identical trends.

There are ten districts having more than 1000 FMC and on average, for every 1036 persons there is one FMC at present.

Table 2: List of existing FMC in various districts in Assam 2003

S/N	Name of District	Density per sq mile	Total No. of FMC	No. of FMC per lac rural population
(1)	(2)	(3)	(4)	(5)
1	Barpeta	508	1918	126
2	Bongaigaon	360	1533	193
4	Cachar	382	1067	75
5	Darrang	432	804	151
6	Dhemaji	177	643	45
7	Dhubri	585	3262	341
8	Dibrugarh	351	1283	170
9	Goalpara	451	1185	137
10	Golaghat	270	875	175
11	Hailakandi	409	1233	149
12	Jorhat	350	308	19
13	K.Anglong	78	674	93
14	Kamrup	581	1812	194
15	Karimganj	557	1258	149
16	Kokrajhar	286	698	85
17	Lakhimpur	390	836	113
18	Morigoan	456	1197	59
19	Nagaon	604	1835	90
20	Nalbari	509	898	80
21	Sibsagar	394	766	80
22	Sonitpur	316	903	60
23	Tinsukia	303	722	78
Assam	**Total**	340	**25710**	111

Rural population as per census 2001
Source: SAPPS 2004

8 FMC as implementing agency for STW schemes of ARIASP and NABARD:

Water management is an important component of agriculture, to which the Government of Assam has accorded top priority in recent years. Two agencies viz., the ARIASP and NABARD had implemented the STW (shallow tubewell) programme under the SKY (Samridhi Kisan Yojana) and million-well schemes for this purpose. The ARIASP programme could achieve success as it relied on the participation of the FMC in its implementation. Under the scheme as against the target of 62250 STW, about 48584 STWs were commissioned and operationalised by June 2002, which increased to a total number of 51059 STWs in September 2002 (Table 3).

District wise distribution of the STW shows that Nagaon has the highest number of 6002 STWs under the ARIASP scheme, next is that of Kamrup (5830 STWs), followed by Barpeta (5728 STWs) and Dhubri (4946). Sibsagar has 966 STW while Karimganj has the lowest number of only 20 STW in 2002.

On an average, a single STW irrigates a command area of about 2 hectares efficiently. The average operating cost of a STW is estimated at around Rs.27 per hour and the irrigation cost at Rs.334/ha/irrigation in the year 2001, which increased to Rs.35 per hour in 2003 as the fuel price increased. On the whole, the farmers were satisfied with the performance of STW, as reflected in the high value of satisfaction index of 6.19[8].

Table 3: Distribution of Shallow Tube Wells (STW) across the districts

District	No. of STW installed		
	Upto June'2002	Increment during June – Sept '2002	Up to Sept'2002
Kamrup	5389	441	5830
Nalbari	3108	6	3114
Barpeta	5728	-	5728
Bongaigaon	2805	-	2805
Kokrajhar	1234	154	1388
Dhubri	4946	-	4946
Goalpara	2942	-	2942
Darrang	2500	635	3135
Sonitpur	2833	-	2833
Lakhimpur	951	400	1351
Dhemaji	890	400	1290
Tinsukia	1130	25	1155
Dibrugarh	1295	400	1695
Sibsagar	966	-	966
Jorhat	1322	-	1322
Golaghat	2041	-	2041
Nagaon	6002	-	6002
Morigaon	2496	-	2496
Karimganj	6	14	20
Total	***48584***	***2475***	***51059***

Source: Indian Institute of Management, 2002, Impact Assessment Report of ARIASP, Lucknow.

[8] IIM & AIM 2002; Impact Assessment Report of ARIASP, Guwahati Assam

In this survey area, there were a total number of 253 STWs as shown in Table 4. The highest number of STWs (126 out of 253) were installed in Nagaon, followed by Morigaon, then Kamrup and Sonitpur. While no STW from public source was found in the sample FMC in Jorhat. A single STW irrigates about 7-10 bighas of paddy. The system of water charge in kind prevailed in the villages. Usually about 2 mound of rice was charged for irrigating one bigha of paddy by the STW (which worked out to about 5.6 quintal rice per hectare). This when converted to value term may prove cash charge better than the charge in kind.

Table 4: Number of STW in the selected FMC and water sharing methods

District	Name of PPS	No. of STW	Operating Cost (Rs./hour)	Water charge in kind
Nagaon	Geruamukh PPS	29	30-40	On hire basis
	Bar Pathar Sutargaon PPS	8	35	Rice 2 md/bigha
	Raidongia Lakhimi PPS	24	35	On hire basis
	Bar Pathar Panigaon PPS	14	35-40	Hire basis Rice 2 md
	Jengani PPS	22	30-35	-
	Batadrava Sundarpur PPS	29	30-35	-
Sonitpur	Biswanath Dagaon PPS	8	35	-
	Dakhin Bhirgaon PPS	2	-	-
	Mornai Patiagaon Milanpur	1	35	Rice 2 md
	Pub Katarati Pani Upobhokta Santha	1	35	2 md
	Pragatisil PPS	2	35	2 md
Kamrup	Bongara Adarsha PPS	10HP	35	Rice 2 md
	Lakhami PPS	2	35	2 md
	Singmari Pukhuripar PPS	10	35-40	2 md
	Uttar Helagog PPS	11	35	2 md
	Ulani Dharbam PPS	8 HP	35	Rice 2 md
Morigaon	Mandubi Deusal PPS	20	30	Per hour
	Khanajan PPS	16	35	Rice 2 md
	Lohit Poria PPS	5	35	Rice 2 md
	Bilimara Somguti PPS	25	25-30	Flood irrigation
	Manaha Nasatra Lakhimi PPS	24	30-35	Yes
Jorhat	Puthi Nadi PPS :	Canal Irrigation in Jorhat		
	Pragati PPS			
	Jyoti Pam PPS			
	Sewali PPS			
	1 No.Nowboisa Bahumukhi PPS			
Total		253		

9 Public-private interface-Role of FMC and good governance

As mentioned above, a FMC is an important instrument in strengthening the interface between government agencies and farmers. Recognizing the role of the rural institution, various agencies utilized the FMC platform to implement a number of development schemes, which proved beneficial to the people. The FMC derived several benefits through private-public partnership of corporate sector, rural financial institutions and the NGOs:

Apart from the Government of Assam, the following agencies have been patronizing the FMC through various developmental schemes.

1. World Bank / NABARD: on STW scheme
2. NABARD: Mechanisation of agriculture
3. Indian Tea Board: Promotion of Ahu Rice cultivation
4. CAPART: Milch cattle Scheme in Karbi Anglong district
5. Khadi and Village Industries Commission: Rehabilitation of unemployed youth
6. NEDFI: Unemployed youth: Margin Money Scheme. (Micro Finance SHG)
7. Gramin Bank: Dehangi, Karbi Anlong RRB
8. Mumai Tamuli Barbaruah work culture Chamta Block in Kamrup.

10 Partnership: Institutional Linkages:

i The assessment of the impact of ARIASP on FMC indicated that[9]

- **o** FMC directly benefited 300,000 rural families in raising annual income by 60 percent from Rs 2950 to Rs 4720 per capita.
- **o** Provided 75 mandays seasonal and rural non-farm employment through the activities on road construction, irrigation and market infrastructure.
- **o** Created sustainable assets: 14 thousand km rural road, new road, up grade and maintenance of existing roads.
- **o** Provided irrigation to additional 49000 ha and increasing cropping intensity substantially.
- **o** Rice production increased due to improved quality seeds. Increase in marketable surplus was also observed.
- **o** A plan for improved integrated marketing systems is also envisaged

ii. **<u>NABARD/World Bank assisted Scheme on STW:</u>**

The major and medium irrigation projects as well as deep tube-well scheme failed in Assam due to various socio-politico factors. In their place, the shallow tube wells

[9] ARIASP 2002; Achievements; Lessons learnt and major initiatives, Assam Rural Infrastructure and Agriculture Services project, Govt. of Assam, Guwahati, Assam,

(STW) scheme has gained importance of late. Its impact on crop production has already proved to be substantial. The farmers owning a STW could produce upto 25-30 md/bigha (ie. 7.0 ton/ha to 8.4 ton/ha of paddy. Table below shows the installation of STWs during 1997-98 and 2000-01.

Year	Number of STW
1997-98	5750
1998-99	1500
1999-00	15000
2000-01	15000

In addition, under the special Scheme on "*100000 STW scheme"* of the central government, about 80,000 STWs installed in 18 districts of Assam. It is expected to create additional irrigation to about 12 lakh hectare of cropped area. The scheme was entirely implemented through FMC, which made substatial impact on cultivation of Ahu and *boro* paddy. In particular, the impact was more visible in Pasaria, Dimoria, Chameria and Goroimari blocks of Kamrup district and in Dhubri, Mancachar, Morigaon, Nagaon and Darrang district

NABARD also planned to provide credit to 2500 mechanized tractors, 10000 power tillers to the farmers to facilitate improving the productivity of paddy.

iii. <u>Indian Tea Board:</u> Agriculture development scheme :

The Assam branch of ITB provided credit to alleviate the problem of credit supply. Initially, the scheme intended to provide 50 percent. credit to cover 3000 bighas of paddy areas, 2000 bighas of mustard in No. 3 Mandal of Tezpur subdivision of Sonitpur district. FMC forum was benefited from the scheme. ITB has already opened branch offices in Paneri, Balipara, Biswanath Chariali, Mazbat, Kaliabor, Moran, Chatia, Namrip and Sonari. They will operate through the respective FMCs.

iv. <u>CAPART financial assistance for cattle rearing</u>

At the instance of the All Assam FMC (apex body of FMC), the CAPART launched a milch cattle scheme in Karbi Anglong district (under Langhui, Manikpur FMC), which was in operation since 25.5.2000.

v. <u>Rural Banking services</u>

The Dehangi Gramin Bank provides credit to the FMC farmers in Karbi Anglong district. Its performance was indicated below:

Year	Beneficiary farmers	Amount of loan
1988	32	Rs 213800
1999	98	Rs 682000
2000	176	Rs 870000

The All Assam FMC was instrumental in accelerating the repayment of the above loan from the year 2001, which was a success story.

vi. Khadi and Village Industries Commission:

KVIC started a margin money scheme in collaboration with the FMC with the aim to help rehabilitation of the unemployed people. It aimed at rehabilitating about 10000 unemployed people in the first instance.

vii. North Eastern Development Finance Institution (NEDFi)'s margin money scheme.

NEDFi provided margin money in collaboration with the FMC under its margin money scheme. The SHGs are also formed as a part of the micro finance Scheme.

viii. Momai Tamuli Barbaruah work culture:

In view of growing numbers of involuntary unemployed youth, the above mentioned model scheme of Momai Tamuli work culture (a tradition of commitment and devotion to collective work) was started in 1998. The FMC spearheaded the promotion of work culture among the youth at Chamta area under Dimoria block in Kamrup district, which flagged off on 23.12.1999 in a 4-day workshop.

ix. Promoting SHG Formation:

The All Assam FMC appealed to the district level FMCs from time to time to form at least one SHG in each district. Sonitpur district FMC under the guidance of Napam Krishi Vigyan Kendra (KVK) formed a SHG on 2.11.2000. Subsequently, about 10 women SHGs participated at the Krishi Mela at Udamari gaon in Sonitpur district. They exhibited hand woven Gamocha (towel), hand made ladoo (local sweets), handkerchiefs and flowers.

x. Development of Non–conventional Energy:

Gobar gas and improved chula scheme is under way at the auspices of the Ministry of Non–conventional Energy, Government of India and Khadi & Village Industries Commission. The scheme envisaged to improve rural livelihood particularly at the far flung areas.

xi. Addressing Marketing problem:

Marketing of agricultural produce has been a critical perennial constraint to the farmers in Assam. In the year 2001, the production of rice, vegetable, fruits and oilseeds have exceeded the annual target. In 2001-02, Assam produced about 4.0

million tons of rice generating a surplus production of about 2.0 lakh tons. But as the farmers did not get even the minimum support price, hence compelled them to distress sale rice. The distress sale of their main produce has been a frustrating experience to the farmers. Therefore, there is need for improving the marketing infrastructure and pricing incentives to the farmers.

xii. Capacity Building:

A study conducted by the Government of Assam (2003) shows that the capacity building training benefited the FMCs to carry forward their activities smoothly. Altogether 30 State level master trainers were trained for the entire State under the initiatives of the State government. The master trainer groups composed of one-third members from Department of Agriculture, one-third members from the FMCs and the remaining one-third members from the NGOs. The State level master trainers trained about 300 district level trainers to further train 3780 FMC members

11 Primary survey of the FMC

a) Community Managed Lift Irrigation system (CMLIS):

In order to involve the farmers collectively in water management, the ARIASP decided to implement small-scale lift irrigation scheme using the local water bodies, which entail comparatively low capital cost, using local materials where ever possible These local water bodies were often neglected in the conventional irrigation planning. For this purpose, assistance from the ARIASP scheme was made available to the FMC. This has helped the needy cultivators in the rural Assam and also increased the agricultural production.

The model of CMLI was tailored to suit the small farmers through collective management common resources. The scheme was particularly suitable in areas, where electricity has been either scarce or uncertain. It assumed collective responsibility of the FMC in the installation, operation and maintenance of the scheme. The irrigation equipments were designed in such a way that they can be maintained by the users themselves, which could be free from bureaucratic interferences. Moreover, it assumed the availability of spare parts at local markets as well as minimum operating cost. Minimum gestation period, reduced capital cost as well as operating cost of the equipments were the important characteristics of the system. Considering the above factors, the best choice was the pump-set of about 8 HP operated by diesel engine. The system consists of under ground pipe line of maximum length 750 meters. Among the advantages of CMLI, the underground pipeline system offered the ease of laying the line uphill or downhill terrain to overcome the problem of open field channel. A number of outlet points were provided to ensure uniform distribution of water. A single CMLI has the potential to irrigate efficiently a command area of about 10 to 12 hectares. As the local community takes over its maintenance through collective responsibility, it ensured the sustainability of the CMLI. Necessary training and input use planning, innovative cropping pattern, book keeping, market linkage, water sharing etc. are also provided to the user groups.

The other advantages of CMLIs include

1. Minimum head loss of water
2. Both evaporation and seepage loss is eliminated
3. No clogging and congestion of field channel due to vegetation and silting
4. Eliminate the scope of illicit tapping of water.
5. Efficient distribution and better water control and labour saving

The introduction of the CMLI however, faced certain initial difficulties as convincing the villagers to involve in the irrigation system was a tough proposition. Because, considering the failure of several government projects in the past, the cultivators in general feel that the CMLI may also follow the suit, yet another case of ineffective investment. This fear however, was overcome to some extent due to constant social interaction by the NGOs involvement in the scheme.

The ARIASP provided the assistance to about 23 CMLIs at a total unit cost ranging from Rs. 185640 to Rs. 237590. The members contributed 30 percent of the cost and the remaining 70 percent as subsidy was provided by the project. The average capital cost was estimated at Rs.18,000 per hectare for a 8 HP engine[10]. The average fuel consumption is 1.3 litre/hour of diesel.

Introduction of the CMLIs has benefited the farmers in increasing the cropping intensity, adoption of newer crops and practices and reduced risk of flood damage in kharif season. This also facilitated crop diversification substantially particularly in the rabi season. On the whole, FMC managed irrigation system has increased household income and food production considerably.

Two CMLIs were selected for in-depth study; one in Pub Katarati Shyamal PPS and the other was in Mornai Patiagoan PPS. More details of the CMLIs are provided in the appendix life stories. It was clearly observed that the availability of dependable

[10] Total capital investment of Rs.2.1 lakh (approx) per CMLI having an irrigation potential of 12 hectares.

irrigation helped the farmers in undertaking innovation of *boro* rice cultivation, which has increased productivity of rice upto 3.5 ton/ha[11]. After harvesting *boro* rice, the farmers grow vegetables and other cash crops. The survey shows that a pump-set irrigated of 32.5 bighas of *boro* rice area in about 512 hours in the rabi season of 2003. Usually, by irrigating once in every three days, the pump required 16 hours to irrigate one bigha of *boro* rice. The coupon was issued by FMC management to the users on payment of the amount to cover the operating cost. The coupon system was introduced to ensure efficient water sharing and allocation of pump time.

Impact of CMLI: The introduction of CMLI has proven to be a boon in several respects. Usually, the kharif crop happened to be uncertain in cropped areas submerged in excess rainfall and run-off water. Ironically, same areas also suffer from drought and scarcity of drinking water in rabi season. But, the village water bodies remained idle and water resource unexploited in the past. The CMLI helped utilizing the local water bodies and provided irrigation for *boro* rice in rabi season. Therefore, CMLI enabled *boro* rice cultivation made significant impact on household food security. Apparently, this innovation helped regained confidence of the villagers on agriculture and open up new avenues of income generation and safety. It was reported that in the past, the farmers could feed the family only for 8 to 9 months a year from their own production, but the new *boro* rice cultivation provided food for the entire year and some surplus paddy for sale, which made an impact on increase in household income. In addition, the crop diversification increased the cropping intensity to 176 percent (see appendix table for Pub Katarati). Another impact of the FMC was the innovative learning to keep meticulous book keeping, maintaining crop register, asset register, log book of the pump-set operation and contour map of the command area by the members. The income and expenditure accounts were presented at the general committee of the FMC to ensure transparency among the members. According to the members, if remunerative pricing of agricultural produce assured, the changing production pattern would certainly improve the income flow at household level and

[11] based on views of Dr. A Deka, former Director of Agriculture, Govt. of Assam, Guwahati, 2003

enhance the rural livelihood. To make this happens, it however, requires radical change in government pricing policy and market reform.

b) Organizational set up of sample FMCs

In the present study, a sample of 26 FMC was selected from 5 districts ere selected to evaluate the impact assessment (Table 5). According to the constitution and bye-laws, an executive committee manages the village FMC, its members being elected at the general committee. In the sample FMCs, the number of members of the executive committee varied from minimum of 7 members in Mandubi Deushal and Khanajan PPS in Marigoan to maximum 23 members in Jyoti Pam FMC in Jorhat. In the case of general committee, a minimum of 14 members were found in Mornai Patiagoan, Sonitpur and a maximum of 440 members in Singimari Pukhuripar PPS, Kamrup.

Table 5: **Organizational set up of FMC**

Sl.	District	Name of the FMC	Executive Committee							General Committee						
			M	F	Total	SC	ST	OBC	GEN	M	F	Total	SC	ST	OBC	GEN
1	Nagaon	Geruamukh	11	0	11	0	0	3	8	50	0	50	0	0	20	30
2		Bar Pathar Sutargaon	11	0	11	0	0	0	11	70	0	70	0	0	0	70
3		Raidongia Lakhimi	11	0	11	0	4	7	0	185	0	185	0	50	135	0
4		Bar Pathar Panigaon	9	2	11	0	0	1	10	100	20	120	0	0	30	90
6		Batadrava Sundarpur	11	0	11	0	0	5	5	151	0	151	0	0	75	76
7	Sonitpur	Biswanath Dagaon	11	0	11	0	0	10	1	85	0	85	0	0	85	85
8		Dakhin Bhirgaon	11	0	11	11	0	0	0	110	0	110	110	0	0	0
9		Mornai Patiagaon	14	0	14	0	0	0	14	14	0	14	0	0	0	14
10		Pub Katarati	11	-	11	-	-	-	11	120	0	120	0	0	0	120
11		Pragatisil PPS	15	0	15	0	0	6	9	15	0	15	0	0	6	9
12	Kamrup	Bongara Adarsha	10	1	11	0	1	10	0	50	5	55	0	3	41	9
13		Lakhami PPS	9	0	9	5	0	3	1	32	0	32	10	8	6	8
14		Singmari Pukhuripar	7	0	7	5	1	1	0	440	2	442	140	70	232	0
15		Uttar Helagog	11	0	11	1	0	10	1	38	0	38	10	0	27	0
16		Ulani Dharbam	9	0	9	0	2	7	0	98	2	100	0	40	60	0
17	Morigaon	Mandubi Deusal	7	0	7	0	0	0	0	40	0	40	6	0	0	0
18		Khanajan PPS	7	0	7	1	0	4	2	14	0	14	1	0	5	8
19		Lohit Poria PPS	12	3	15	0	0	15	0	93	3	96	26	4	66	0
20		Bilimara Somguti PPS	11	0	11	0	0	11	0	71	0	71	0	0	71	0
21		Mahana Nasatra PPS	11	0	11	0	0	0	11	69	0	69	0	0	0	69
22	Jorhat	Puthi Nadi PPS	9	2	11					44	20	64				
24		Jyoti Pam PPS	11	12	23					64	0	64				
25		Sewali PPS	12	0	12					70	0	70				
26		No.1Nowboisa Bahumukhi	13	2	15					138	0	138				

Note:
M=male, F=female, SC= Scheduled caste, ST=Scheduled tribe, OBC=other backward caste, GEN=general caste

12 Socio-economic profile

a) Average size of FMC:

The socio-economic indicators of FMC farmers in the study area are given in Table 6. The analysis of age profile of the FMC shows the oldest 26 years FMC was in Kamrup followed by 14 years in Sonitpur and of 11 years in Morigaon and Jorhat. On average the, the level of education of the farmers was upto middle class although few are of postgraduate level. The average age of the members varied from 22 to 80 years,

however the age of decision makers (usually the head of the household) ranged from 38 to 49 years. The average size of family was found to be the smallest in Jorhat with 5.6 members and the same was 7.8 in Kamrup. The size of family varied from minimum of 1 in Sonitpur to maximum of 15 members in Nagaon. In the district wise analysis, the lowest number of 68 was found in Sonitpur district, while the highest was recorded at 147 in Kamrup.

Table 6: Social attributes of FMC member in different districts of Assam

District	Variable	Mean	Min.	Max.	Std. Dev.
Nagaon	Year of FMC	6.2	2.0	17.0	5.3
	Distance to DHQ	13.9	5.0	52.0	11.4
	Age (Yrs.) of members	43.9	25.0	60.0	11.8
	Education of members (years of schooling)	10.7	6.0	15.0	3.1
	Family size	6.8	3.0	15.0	3.1
	No.of school going Children	0.9	0.0	4.0	1.2
Sonitpur	Year of FMC	11.9	2.0	34.0	31.3
	Distance to DHQ	55	50.0	61.0	11.2
	Age (Yrs.) of members	41	22.0	70.0	12.6
	Education of members	8.9	0.0	15.0	4.0
	Family size	6.1	1.0	11.0	2.2
	No.of school going Children	1.5	0.0	4.0	1.4
Kamrup	Year of FMC	20.1	10.0	34.0	21.0
	Distance to DHQ	43.7	23.0	80.0	17.3
	Age (Yrs.) of members	49.0	35.0	71.0	12.7
	Education of members	8.1	5.0	12.0	1.9
	Family size	7.8	5.0	10.0	1.6
	No.of school going Children	1.5	0.0	4.0	1.3
Morigaon	Year of FMC	11.4	9.0	14.0	6.8
	Distance to DHQ	23.53	18.0	28.0	11.1
	Age (Yrs.) of members	41.65	28.0	56.0	7.9
	Education of members	9.88	3.0	15.0	3.5
	Family size	6.81	3.0	10.0	1.9
	No. of school going Children	1.12	0.0	3.0	1.3
Jorhat	Year of FMC	10.6	2.0	14.0	9.0
	Distance to DHQ	20.6	6.0	34.0	14.6
	Age (Yrs.) of members	38.5	22.0	70.0	13.1
	Education of members	11.1	0.0	17.0	4.4
	Family size	5.6	2.0	10.0	2.1
	No.of school going children	0.8	0.0	3.0	1.1

b) Land distribution by land type across districts

According to farmers' perception, land type is defined as it situated in the topo-sequence. On the whole, Nagaon recorded the highest total cropped areas of 1365 bighas followed by 1290 bighas in Sonitpur and the lowest of 538 bighas in Jorhat. The distribution by land type as shown in Table 7 indicated that Nagaon also figured in the highest of 383 bighas of upland area under followed by 244 bighas in Sonitpur and 163 bighas in Kamrup and the lowest in Jorhat at 48 bighas. The highest area of 765 bighas of medium land was observed in Nagaon followed by 510 bighas in Kamrup and 352 bighas in Jorhat. In case of low land, Kamrup recorded the highest with a total of 498 bighas followed by Morigaon (269 bighas) and 216 bighas in Nagaon. Morigaon is highly susceptible to chronic flood prone district.

Table 7: Basic information at FMC level and distribution of land type

District	Average no. of Members		Distribution of av. Area by land type (bigha)				Total Area
	General committee	Executive committee	High	Medium	Low	Flood affected	
Nagaon	116	11	383.3	765.0	216.7	0	1365.0
Sonitpur	68	12	243.7	250.5	53.3	0	547.5
Kamrup	147	12	162.7	510.1	498.1	120	1290.9
Morigaon	87	13	56.5	272.0	268.6	504	1101.2
Jorhat	100	17	47.5	351.6	210.7	-	538.2

Source; FMC survey

Thus, Upland accounted for 33 percent, 31 percent and 20 percent in Kamrup, Nagaon and Jorhat respectively (Table 8), whereas the share of medium land was 74 percent, 37 percent, and 36 percent in Sonitpur , Nagaon and Jorhat respectively . In the case of low land share, Kamrup has as large as 63 percent followed by Jorhat at 44 percent. Morigaon is a chronic flood-prone district accounting as high as 63 percent of cropped flood affected land.

Table 8: Distribution of area under various land type for the sample members (ha)

District		Upland	Medium land	Low Land	Flood affected .area	Total
Nagaon	**Area**	23.43	28.14	19.29	4.71	75.57
	% Area	31.00	37.24	25.52	6.24	100.00
Sonitpur	**Area**	12.00	54.50	5.64	1.43	73.57
	% Area	16.31	74.08	7.67	1.94	100.00
Kamrup	**Area**	10.29	0.00	20.21	1.14	31.65
	% Area	32.51	0.00	63.87	3.61	100.00
Morigaon	**Area**	0.29	6.46	9.64	27.43	43.82
	% Area	0.66	14.74	22.01	62.60	100.00
Jorhat	**Area**	5.88	11.00	13.36	0.00	30.24
	% Area	19.45	36.38	44.17	0.00	100.00

13 Crop Diversification:

The practice of crop diversification in the homestead gardens has been in existence for ages, although its contribution to income has been marginal due to market imperfection. The study shows that the introduction of STWs through FMC has improved crop diversification and increased the cropping intensity. The Simpson index was calculated by land type as given in Table 9. The value of the index shows that crop diversification is more in assured irrigation in upland and less in rainfed lowland. The value of the index varies from 0.982 to 0.997 in upland in Kamrup and Sonitpur. The diversification is generally more in upland as compared to low and medium land. Farmers grow several crops such as wheat, mustard, gram, potato, variety of vegetables and horticultural crops like arecanut, cocoanut, black pepper and mango in rabi season. The paddy however, dominates the cropping pattern particularly in lowland and the medium land.

Table 9: Crop Diversification index (Simpson index)

Land type	Nagaon	Sonitpur	Kamrup	Morigaon	Jorhat
Upland	0.988	0.997	0.982	Neg	0.992
Lowland	0.935	0.998	0.776	0.989	0.925
Mediumland	0.873	0.873	Negligible	0.997	0.949

14 Cropping Pattern

Although paddy dominated the cropping pattern, the share of other crops varied depending upon the land type. The paddy was grown extensively in low and medium land and rarely in upland, whereas, vegetables and other cash crops like betelnut, cocoanut, banana etc were grown primarily in highland. Therefore, cropping pattern is analysed separately for different land type.

a) Cropping pattern: Upland

The vegetables were grown extensively in highland, accounting for 68 percent area share in Jorhat, followed by 50 percent in Morigaon, and 38 percent in Sonitpur. Arecanut is the second major crop occupying 50 percent of area share in Morigaon, and then the next sugarcane 33 percent in Sonitpur (Table 10). However, in order to

escape the floods, paddy was also grown to the extent of 47 percent in highland in Kamrup.

Table 10: Cropping pattern in upland in selected districts of Assam (% GCA)

Crops grown	Nagaon	Sonitpur	Kamrup	Morigaon	Jorhat
Paddy	17.1	4.2	47.2	0.0	31.7
Pulses	19.8	0.0	2.8	0.0	0.0
Mustard	23.2	0.0	15.3	0.0	0.0
Sugarcane	6.1	32.7	0.0	0.0	0.0
Potato	3.7	14.0	0.0	0.0	0.0
Wheat	0.0	3.6	22.2	0.0	0.0
Horticulture	0.0	0.0	9.7	0.0	0.0
Vegetables	12.8	37.0	0.7	50.0	68.3
Arecanut	11.3	0.6	2.1	50.0	0.0
Jute	6.1	7.7	0.0	0.0	0.0
Total (ha)	100.0	100.0	100.0	100.0	100.0

b) Medium land

In the case of, Paddy occupied a major share medium land, for example 100 percent in Jorhat, 95 percent in Nagaon and 77 percent in Sonitpur. As in highland, the arecanut occupied a high share of 66 percent area in Morigaon in this land type also. But vegetables occupied 23 percent area in Sonitpur (Table 11).

Table 11: Cropping pattern in medium land in selected districts (in percent)

Crops grown	Nagaon	Sonitpur	Kamrup	Morigaon	Jorhat
Paddy	95.4	77.4	0.0	34.3	100.0
Jute	4.5	0.0	0.0	0.0	0.0
Vegetables	0.0	22.5	0.0	0.0	0.0
Arecanut, coconut	0.0	0.0	0.0	65.7	0.0
Total	100.0	100.0	0.0	100.0	100.0

c) Lowland and flood affected areas:

In lowland and flood affected areas paddy invariably dominated cropping pattern occupying 100 percent area each in Nagaon, Kamrup and Jorhat, followed by 98 percent in Morigaon and 96 percent in Sonitpur (Table 12).

Table 12: Cropping pattern in low land in selected districts of Assam (%)

Crops grown	Nagaon	Sonitpur	Kamrup	Morigaon	Jorhat
Paddy	100.0	96.0	100.0	98.3	100.0

Arecanut, lemon	0.0	0.0	0.0	1.2	0.0
Vegetables	0.0	0.0	0.0	0.6	0.0
Sugarcane	0.0	4.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	1100.0	100.0

d) Overall cropping pattern of different district

Table 13 shows that on the whole, paddy occupied maximum area of 77 percent in the sampled districts, followed by vegetables around 10 percent area and oilseeds in 3 percent of total area. The remaining area was allocated to several other crops. At the district level, paddy was the most important crop in Morigaon, Jorhat, Kamrup and Nagaon, which occupied 88 percent, 87 percent, 83 percent and 73 percent area respectively. The second important crop was vegetable having its area share at 23 percent and 13 percent in Sonitpur and Jorhat respectively.

Table 13: Overall cropping pattern in the sample districts

Crops grown	Nagaon	Sonitpur	Kamrup	Morigaon	Jorhat	Total
Paddy	72.6	67.3	82.8	88.47	86.8	76.7
Pulses	6.1	0.0	0.9	0.00	0	1.9
Mustard	7.2	0.0	4.9	0.00	0	2.7
Potato	1.1	2.2	0.0	0.00	0	0.9
Wheat	0.0	0.6	7.2	0.00	0	1.1
Sugarcane	1.8	5.7	0.0	0.00	0	2.2
Vegetables	3.9	22.8	0.2	0.82	13.2	9.5
Jute	3.6	1.3	0.0	0.00	0	1.4
Arecanut	3.5	0.1	3.8	10.71	0	3.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

15 Financial Management and Fund Raising Prospects:

Efficient financial management and fund raising mechanism are essential for a sustainable FMC. The survey reveals that the selected FMC resorted to various means of fund raising for its sustainability, which are as under:

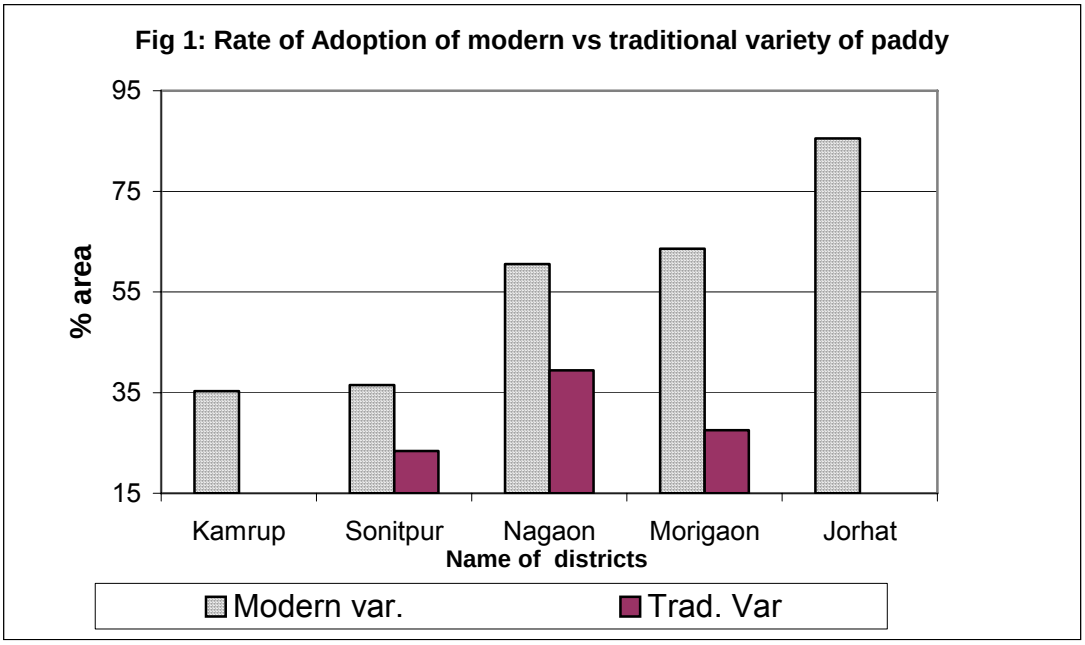
- **Membership fees**: It was observed that a nominal fee is charged for the membership of FMC. It is usually Rs.11 per member (Rs. ten as annual donation fee and one rupee membership fee). But some FMC also charge Rs.20 as membership fee. The time of survey, total collection of membership fee varied from Rs.165 in Pragatisil PPS in Sonitpur to Rs.6400 in Lakshmi PPS in Kamrup.
- **Return from common property and collective farming**: Most FMC utilize the common property land for collective activities of farming system. Typically, the total income generation of a FMC is found to be in the range of Rs.20000 to Rs.60000. Dagaon PPS was found to be one of the successful FMC, which attained the reputation for adopting the best cooperative initiatives. It has a comfortable common fund of Rs.353133, which comprised of crop income Rs.8872 (sale proceed of the surplus production of paddy, moong, Arhar, sugarcane (gur)), Rs.78398 from interest free loan acquired from the trader against future sale of produce, Rs.31350 from other savings, Rs.3644 from sugarcane crushing and paddy threshing by the common tractor and Rs.29765 from fishery income and tractor hiring charge.
- **Project overhead** charge, where ever applicable.
- **Charges for community labour, fines, rental charge** etc. The fine is imposed to the absentees in community works. FMC in Dagaon makes a nominal payment of Rs.15 per day per person participating at the community activity for offered free labour.
- **Income from water selling** from the STW, CMLI etc. Currently, the rental charge is Rs.35 per hour of STW pump when hired among the members. Non members also hire the STW with slightly higher hiring charge.
- **Machine income**: Charges for tractor use for transportation of agricultural produce, ploughing, threshing, charge of pump-set (sugarcane crushing, hauling of paddy, draining of excess water). The ploughing charge is Rs.60 per bigha and that of threshing Rs.150 per day. The Lakshmi Mahila Atmo Sahayak group earned Rs.6000 from tractor hiring in a month during 2003-04.
- **Income from common assets** such as fish pond, timber, library collection, charity shows, mela etc. Dagaon PPS, for example earned Rs.13262 from the common fishery.
- **Interest Income** from lending common fund, charges for use of village common property such as musical instruments. Some FMC lend money from common fund upto Rs.5000 per members at the onset of agricultural season. The interest rate and service charge used to Rs.2 per hundred per month for the loan. A thrift habit is also built-in in the system as a useful source of self financing facility.
- **Occasional Grants** from Government and other public institutions
- **Social functions**, pooja and other festivals: Rs. 3000 for a cultural function and Rs. 214 for Viswakarma pooja in Dagaon PPS.

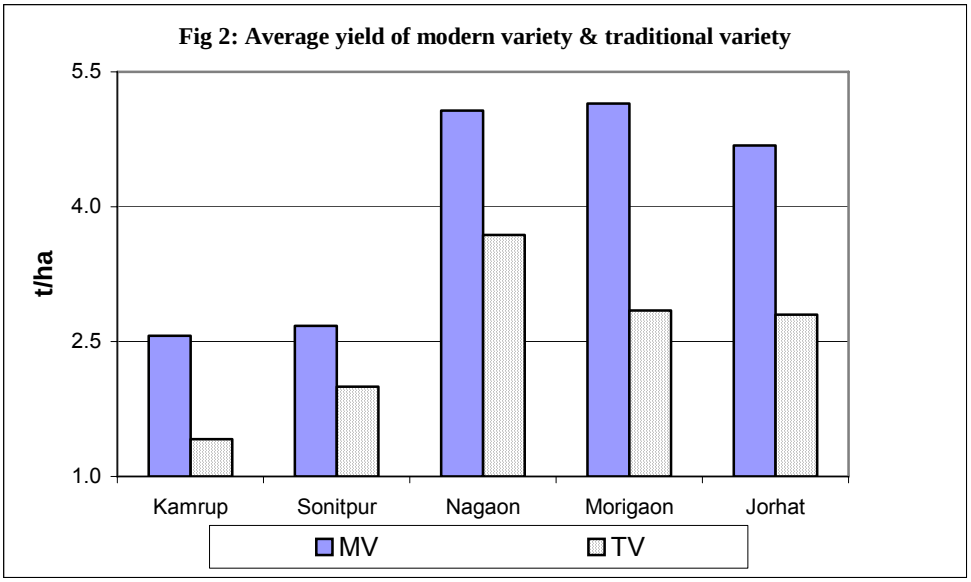
16 Impact of Improved varieties of paddy in FMC

The analysis shows that the adoption of modern varieties increased the yield of paddy by 38 percent over the traditional varieties in Nagaon district. The adoption rate of modern paddy varieties was 61 percent and remaining 39 percent traditional varieties. In Kamrup, the increase in yield was 29 percent with 71 percent area under modern variety (Table 14). Jorhat showed the highest rate of adoption of 86 percent under modem variety, which resulted in 21 percent yield increased in paddy at the members' field. The highest yield of modern variety of 5.15 ton/ha was recorded in Morigaon followed by 5.07 ton/ha in Nagaon and the lowest was in Kamrup. Whereas, in the case of traditional varieties, yield was 3.69 ton/ha in Nagaon, and the lowest was 1.42 ton/ha in Kamrup. Thus the gain in yield has been in the range of 20-38 percent, which could be attributed to be the FMC achievement. The bar diagram at figures 2 clearly depict the differences in yield across the district.

Table 14: Impact of Improved varieties of paddy

	Average percent area of adoption		Average Productivity (t/ha.)		% yield increase in MV over TV
District	Modern variety	Traditional Variety	Modern variety	Traditional Variety	
Kamrup	70.55	29.44	2.57	1.42	28.80
Sonitpur	59.72	40.27	2.68	2.00	20.57
Nagaon	60.56	39.44	5.07	3.69	38.01
Morigaon	63.61	27.50	5.15	2.85	26.15
Jorhat	85.50	14.28	4.68	2.80	21.16





17 Impact of FMC on agriculture

Realising the urgency of need for FMC, the government recognized it as village intermediaries for implementation of schemes like million well programme (shallow tubewell schemes), SKY (Samridhi Kisan Yojana of the Government of Assam), and several NABARD schemes. It was clear that FMC helped the farmers in capacity building, ensure access to information and forming cohesive groups. In the process, it improved technology knowledge, marketing facility and processing infrastructure, which are essential for increasing crop production, enhancing adoption of modern technology and adopting crop diversification. The study reveals number of instances of positive impact of the FMC on livelihood, which are also validated by the views of the respondents. As for example, it was stated that the FMC benefited people by transforming a desperate situation of having two-meals in a week before the formation, to a self-sufficiency of two-meals in a day from own food production after ward due to the FMC. In another instance, it was stated that in the past, access to technology information was difficult and the farmers were even unaware of the existence of a agricultural research center in the area, but the FMC sensitized the members and facilitated their participation in various fora of the agricultural university and government departments to derive benefits of modern innovations. The compilation of a few life stories of FMCs shows interestingly a contrasting picture of

both successes and failures. Such a picture also helps in objective evaluation of the merits and demerits of FMC.

To gauge the impact of FMC, the analysis of relevant data, collected from members as well as non-members, shows that the difference in paddy area between the member and non-member was significantly high (Table 15).

Table 15: Impact of FMC on area and yield of paddy by land type

District	Land Type		Av. Area (bigha)			Yield t/ha		
			Member	Non member	% Difference	Member	Non member	% Yield Difference
Nagaon	Upland	Paddy	14	5	180	5.88	3.36	71
	Medium land	Paddy	38	11	245	4.76	4.2	14
	Low Land	Paddy	18	5	251	3.64	4.2	-11
	Flood affected area	Paddy	33	0	0	2.42	0	0
Sonitpur	Upland	Paddy	3.5	0	0	2.1	0	0
	Medium land	Paddy	49	9	479	3.92	5.04	-21
	Low Land	*Boro*	9	0	0	5.32	0	0
	Flood affected area	Ahu	10	0	0	2.70	0	0
Kamrup	Upland	Paddy	34	28	21	6.08	2.52	141
	Low Land	Paddy	14	15	-5	4.76	3.64	31
	Medium land	*Boro*	18	10	75	4.76	4.48	8
	Flood affected area	*Boro*	0	4	-100	0	2.8	-100
Morigaon	Low Land	Paddy	11	17	-35	3.92	4.2	-9
	Medium land	*Boro*	15	11	36	4.9	5.6	-12
	Flood affected area	*Boro*	40	18	129	5.6	5.6	-2
Jorhat	Upland	Paddy	4	0	0	3.92	0	0
	Low Land	Paddy	19	5	301	4.2	3.92	9
	Medium land	Paddy	26	0	0	4.2	0	0
	Low Land	Paddy	11.38	2.75	314	4.34	1.93	125
	Medium land	Paddy	12.75	7.75	65	0	0	0

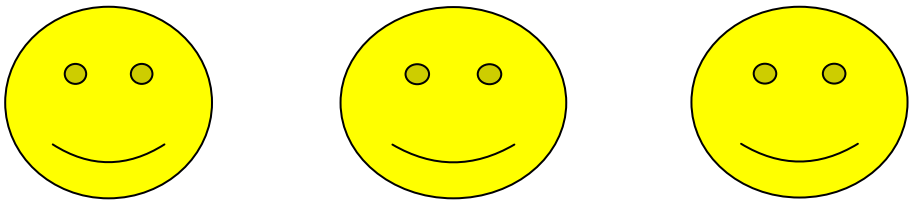
While the members possess more land in the sample districts, the non members cultivate a smaller area. The estimated difference in yield of paddy by land type shows that it was 141 percent, 31 percent and 8 percent higher in upland, medium land and low land respectively as compare to same at non members' field in Kamrup district. The same was of 71 percent and 14 percent higher in high and medium land respectively in Nagaon. In Jorhat, the picture was identical in the case of lowland paddy. However, no significant difference was observed in Sonitpur and Morigaon. Apparently, the farmers having access to better land are also socially more active,

therefore the participation of the well to do farmers in the FMC was higher as compared to poorly endowed ones. This indicates that FMC is size biased; ie. large farmers gain more as compared to the smaller farmers.

On the whole, it may be concluded that the rural collective institution is a potential alternative to poverty alleviation, if managed properly. Figure 1 shows a path of the impact of collective action with two sets of human faces; the gloomy/sorrowful faces of the family members at the bottom row, while the top row shows the state of happiness and prosperity of the members. The in between rows represent the steps or ways necessary for converting sorrows of poverty/scarcity/flood fury etc. to happiness and prosperity. Actually, the FMC is design to facilitate and guide the members to climb through the steps in the path way of goal achievement.

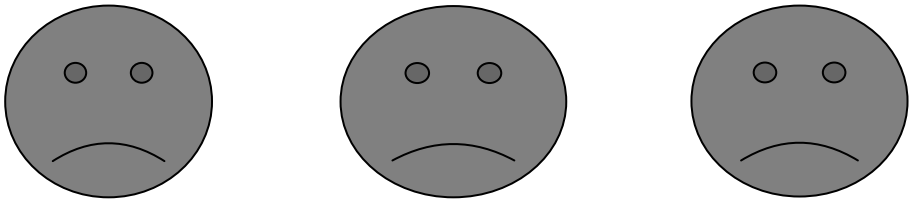
Fig 3: Changing faces of family members after formation of FMC

Happy faces due to the intervention of FMC (Yellow face)



Step 3 so on	Increase in production, income and improve livelihood
Step 2	To undertake innovative rural activities as per the FMC plan
Step 1:	To become member, actively participate and gain from FMC

Gloomy/Sorrow state of family members in the absence of FMC (grey face)



Source: The concept is borrowed from a note produced by the ARIASP 2004

a) A Measure of Overall Achievement due to FMC:

The overall achievement is measured in this paper by using a 10-point 20 factor scoring method, which classifies the FMC into successful, medium, average and poor category.

It has been observed that sample FMCs belong to a mix of successful, medium, average and poor category. The performance of a FMC varies depending on a number of factors related to geo-location specific factors, diversity of production condition, biophysical factors and management related factors. An attempt is made to quantify the performance indicator of the selected FMC, aggregates the individual factor scores into a single value to indicate the level of overall achievement. A 20 factor 10 point scaling technique assigns score to individual factors as applicable to the FMC (factors are listed in the appendix table). The score of 0 to 10 is assigned to individual factors. The aggregated score (expressed in percentage) classifies the FMC into best/successful group having more than 80 percent of the total score, medium (75-80 percent), average (70-75 percent) and poor performer (<70 percent). This classification is validated at the members' colloquium. The analysis shows the performance-based classification of the FMC into various categories. It was observed that five FMCs viz., Jyoti Pam PPS in Jorhat, Bar Pathari Panigaon, Batadrava Sundarpur and Geruamukh in Nagaon and Ulani Dharbam in Kamrup districts fall in the best performing group (Table 16). Jyoti pam PPS emerged the best FMC as it had excellent cooperation of the members (*Howri* system of work culture) under the leadership of an efficient and qualified president. The members in this FMC could derive more benefits of access to modern technology and information due to farmers-research institutional interface. Similarly Bar Pathari Panigoan PPS also performed well due to efficient and active leadership of the president, who happened to be an ex-army personnel. This FMC experimented several innovative ideas and newer methods of cultivation. Batadrava Sundarpur was another elite village having excellent inter-personal relation among the members. The adoption of modern agriculture was high in the Geruamukh PPS, while the Ulani Dharbam PPS was considered an example of excellence in overall management planning and innovations in agriculture.

There are seven FMC in the medium category. The FMCs in this category demonstrated the potential for improvement. For example, the Pragatsil PPS followed systematic approach to development and arranged as many as 21 capacity building trainings for the members. These trainings were arranged in collaboration with the Government Officials of the concerned departments. The members applied newly acquired knowledge into practices, which resulted in high level of crop diversification in the village. The innovative crops such as groundnut cultivation, citrus and mushroom cultivation etc. were also adopted. But the village continued to suffer from inadequate marketing facility besides being highly vulnerable to floods and soil erosion.

Next is the average group consisting of six FMCs. Lastly, the poor performing group consists of eight FMCs, namely Khanajan, Manaha Nasatra Lakhimi, Bilimara Somguti and Mandubi Deusal in Morigaon district, Sewali in Jorhat, Bongara Adarsha and Singmari Pukhuripar in Kamrup and Dashkin Bhirgaon in Sonitpur. Most poor FMC was found in Morigoan as the district was vulnerable to floods and submergence regularly. The floods and resultant poverty has frustrated the people in the district. Similarly the other FMCs of the group were also subjected to unfavourable production environment and poverty.

This measure is an indicator of achievement in spreading the public benefits to the farmers of this unique and giant organization.

It may be inferred that reform in rural institution is a *sin qua non* to carry forward innovations and implementation of agricultural development policy. It is well known that the village institutions such as *Goan Sabha, Village Council*, G*oan Burha (village headman)* in North East India rendered invaluable common goods in the past. But, over time, their efficiency deteriorated and reached a situation of their existence at stake. Success of these traditional rural organizations in Assam was the symbol of rural well being which was primarily due to the strict adherence of the dictum *"of the farmers, for the farmers and by the farmers"*.

Table 16: Performance ranking of the selected FMCs

Classes	Name of the FMC	Score (%)
Best (>80% score)	Jyoti Pam PPS (in Jorhat),	87
	Bar Pathari Panigaon (Nagaon),	86
	Batadrava Sundarpur (Nagaon),	85
	Geruamukh in Nagaon (Nagaon) and	83
	Ulani Dharbam in Kamrup	83
Medium (75-80%)	Raidongia Lakhimi (Nagaon:)	79
	Pragatisil (Sonitpur)	79
	Jangani (Nagaon)	79
	Puthi Nadi (Jorhat)	78
	1No. Nowboisa Bahumukhi (Jorhat:)	77
	Uttar Helagog (Kamrup:)	77
	Lohit Poria (Jorhat)	76
Average (70-75%)	Mornai Patiagaon Milanpur (Sonitpur)	75
	Pragati (Jorhat:)	75
	Biswanath Dagaon (Sonitpur:)	73
	Bar Pathar Sutargaon (Nagaon)	72
	Pub Katarati (Sonitpur)	72
	Lakshmi (Kamrup)	72
Poor (<70%)	Khanajan(Morigaon:)	72
	Manaha Nasatra Lakhimi (Morigaon)	70
	Sewali (Jorhat)	69
	Bongara Adarsha (Kamrup)	68
	Dashkin Bhirgaon (Sonitpur)	66
	Singmari Pukhuripar (Kamrup)	66
	Mandubi Deusal (Morogan)	66
	Bilimara Somguti (Morigaon)	62

Experience showed that these rural groups (in various forms and affiliations) have performed satisfactorily to bring out modest social change. But, of late, the vested interest groups seemed to have damaged the age-old system of collective action and hindered implementation of many developmental schemes. As a result the process failed to ”reach out” to the stakeholders. These little known institutions, if revived and improvised, could be potential project implementing intermediaries in rural areas. The necessary interventions strategies should be designed as shown below:

The intervention strategies can be designed as shown below:

Intervention strategies for reforms

Institution		Level of prosperity	
		Low	High
	Efficient	**Medium/average (70-80%):** Incentives to promising FMC	**Best/successful** (>80%): Model to emulate
	Non efficient	**Poor (<70%):** Requires push through further reform	

18 Constraints to FMC functioning:

To gain deeper insight into the functioning and role of FMCs, it is essential to understand the circumstances leading to the formation of FMC. Since the FMC has been a need-based community organization, therefore, the motivation to form the groups depends on the nature of constraints to production and the need for household income security. The nature and significance of constraints vary depending on vulnerability and diversity of the socio economic as well as ecological settings of the FMC. Hence, an in-depth understanding of micro level organization is more relevant.

FMC confronts many constraints, which is an obstacle to their progress. The constraints to agricultural development are broadly categorized as agronomic/environmental constraints, technological constraint (constraints to adoption of modern methods) and the socio economic/institutional constraints[12].

Soil conditions, sunshine hours, humidity and frequent floods are the major agronomic/environmental constraints to agriculture in Assam.

- Assam has a wide variety of soils. Soil in the Central and Lower Brahmaputra valley varies from alluvial to sandy loam. The Upper Brahmaputra valley and Barak valley consist of clayey loam, alluvial and red alluvial soils, while in the hill districts it is laterite. The soil condition in most parts of the State is acidic. Highly acidic conditions combined with poor nutrient status, particularly in the Upper Brahmaputra valley, limits the crop varieties that can be cultivated.
- The overcast sky in most months of the year results in short sunshine (bright) hours, which reduces the photosynthetic efficiency of the high yielding varieties. Assam receives abundant rainfall during the kharif season as a result humidity level is very high. Incidence of pests and disease is highly susceptible to hot and humid conditions during kharif season, which result in crop losses. The excessive humidity condition also affects grain quality.
- More importantly, frequent floods and extensive water logging has been a big drag factor. Frequent floods in the kharif season expose the farmers to severe risk of crop and severe loss of property. Besides, the floods affects the length of crop duration.

[12] Planning Commission, 2004, State Development Report: Assam, Govt. of India, Delhi

- In view of the above, the farmers are reluctant to invest heavily on HYV seeds, fertilizers, pesticides, etc. Therefore, the kharif crop in Assam has become more of a subsistence nature.

- Alternative cropping system and production technologies is necessary that enable to escape the vagaries of natural calamities effectively. Development of short duration varieties of rice with high photosynthetic efficiency and pest/disease resistance capability is another possibility to minimize production risk. The synergy between crop and animal farming (fisheries, livestock, poultry, silk worm breeding, and the like) is essential for income generation and increase land productivity[13].
- The price as well as non-price factors play important role in determining farmers' income and technology adoption decisions. Because, profitability of cultivating a particular crop/variety depends on both the output and input prices.
- Favourable socio economic factors in conjunction with technology and infrastructure support system (irrigation, road, markets) is likely to improve and stabilize production and thereby enhance the scope of sustainable livelihood.

Vulnerability to natural disaster:

Agriculture is highly vulnerable to frequent floods and other natural calamities in Assam. It is unfortunate that the unprecedented flood of July 2004 broke the 60 years. Apart from loss of human lives, animals and inundation of forest, there were huge un-recoverable damage to cultivable land due to heavy siltation, incurred loss of crops, delay in transplanting of paddy. Damages to road and bridges, irrigation dams, houses and other properties were also enormous. This flood submerged many villages in Kamrup, and destroyed several on going developmental schemes. Ulani Dharbam FMC was the worst sufferer of the flood. The fishery project implemented at the initiative of the FMC with financial assistance of Rs.8.00 lakh from ARIASP, got submerged and its embankments destroyed by the floods. Fish fingerlings also spoiled.

Morigaon is also another severely flood affected district, where road communication including the national highway got eroded. Since the villages are situated in low-lying

[13] see, for example, the Jain Committee Report on Economic Development of Assam, and also the Shukla Commission Report on Transforming the North-East, Planning Commission, New Delhi.

areas, the damage was extensive. This perpetuated the frustration among the farmers and also shattered the confidence.

Most agricultural land and inhabited area were also submerged under water for nearly a month in Nagaon. Here also Flood delayed paddy transplanting, moreover the farmers faced the problem of supply of seed.

The Rangachakua Pragatisil PPS, one of the selected FMCs in Sonitpur district also another severely affected district. This sudden flood sunk that a large cultivated areas due to silt deposit upto 6 to 8 feet of depth. Hence, these cultivated fields are permanently damaged. As a result, the farmers lost their cultivating land and crop production.

In order to elicit the in-situ assessment of the constraints, the specific questions were framed and posed to the members for their opinion. A total of sixty members responded and expressed their views. Based on the survey response, the constraints are grouped into organizational constraints, technological, and socio-economic constraints.

It was found that the respondents assigned the highest priority to technological constraints. Lack of technology and technology information appeared to be major constraint to improve production as per 58 percent respondents (Table 17). Training and knowledge acquisition for newer cultivation practices was another notable constraint. In order of importance, the next set of important constraints related to the fund raising and management of the FMC. Lack of fund severely affected the functioning of the FMC. Among the organizational constraints, lack of transparency and sharing of information on project benefits also distort the overall management of the FMC. The farmers sincerely feel that lack of support services and remunerative pricing perpetuated the poverty in the rural areas, which has been an important drag factor.

Table 17: Constraints to FMC

	No of respondents	% of 60 respondents
Organizational constraints		
Lack of cooperation of member	17	28
Non payment of fee	6	10
No common goal	5	8
Irregular meeting	4	7
Lack of leadership	3	5
Lack of transparency	3	5
Technological constraints		
Lack of appropriate Technology	35	58
Lack of capacity building	17	28
lack of required skill	9	15
Problem to access Information	7	12
Financial constraints		
Lack of common fund	22	37
Poor economic condition of farmers	12	20
Lack of government support	12	20
Bank credits problems	6	10
Lack of common property	5	8
Socio economic constraints		
Low price of produce in the market	10	17
Malpractices of middlemen	8	13
Poor roads and transport facilities	3	5
Costly inputs in the markets	3	5
Lack of social interaction	2	3

Note: 60 members responded to a set of questions on constraints posed to them

19 Summary Remarks and Policy Perspectives:

The field management committee (FMC) as popularly known as *Pathar Parichalana Samiti*, is a giant and unique organization, which is unparallel in the country. An important landmark of this special non-government organization (NGO) of rural people at the grass root level, is the recognition of the government as a village intermediary and a project delivery instrument. Based on sound theoretical principle of collective action, the FMC is a bold step in reaching out to the farmers (target groups). It has drawn therefore the popularity and thus been adopted rapidly by the rural community. The urgency of reform in rural institution can be gauged from increasing global realization of the need for a shift in emphasis of "we to they" syndrome in rural development.

The FMC is a non-government voluntary organization of the farmers having contiguous agricultural fields preferably within a village. It aims at creating enabling environment for rural developmental activities for enhancing household income and rural livelihood. It undertakes a large array of activities, which include multiple cropping, adoption of modern technologies, use of organic manures (vermi compost, FYM), home stead garden development, fisheries, dairy, livestock, development of minor irrigation, minimum use of insecticides and pesticide, natural resource management and social forestry, land reform measures, promotion of non conventional energy source, arranging farmers' training on identified areas of their importance and capacity building, forming target specific SHG and increase participation of women groups etc.

Presently, this huge super-structure is already consisting of nearly 26000 FMCs, having an estimated membership of 1.8 million farmers. Obviously this is a great advantage in strengthening the public-private partnership through the village-government-corporate sector interface. The existence of remarkable super-structure, already built in colossal size and extensive participation, which has emanated several successful life stories, is a great strength to the FMC. Therefore an in-depth understanding of the organizational set up and its performances is necessary. It has

been felt that an efficient management and sustainable good governance is necessary to make durable livelihood impact among the farming community as a whole.

The government of Assam has involved the FMC as a media for implementation of developmental schemes such as STW schemes, DTW, Organic farming, Technology Mission for Horticulture etc. This has strengthened the linkage between the FMC and government, which is desirable for an efficient delivery mechanism. One of the important milestone of FMC is that the World Bank aided project ARIASP recognized and used the FMC platform to implement several projects such as STW, CMLI, power tillers, fisheries, poultry and dairy etc.

Thus the wider canvas of FMC, which is based on sound principle of community action, has the potential to become a unique model of rural institutional reform. It gathers further strength, as it is a registered body under the Act of the Government of Assam and governed by recognized constitution and bye-laws. The financial institution like NABARD, NEDFi also treated it as media of grass root level project implementation. The non governmental agencies such as CAPART, ITB, Gramin Bank etc. also collaborated in various schemes.

The most important accomplishments of the FMC are reported as following

- The FMC has demonstrated an extra-ordinary achievement in “reaching out” to the targeted groups while implementing water resource management schemes such as the million well scheme, SKY programme, CMLI, STW programme of ARIASP.
- The low cost irrigation schemes like STW and CMLI is particularly suitable in areas without electricity and undependable power supply. As these schemes are designed on the principle of “user pay”, FMC ensures members participation, community involvement and sustainability whereby the farmers derived positive impacts.
- The members have benefited from the capacity building trainings on the frontier areas in agriculture, mechanization by sharing of power tillers and other equipments, collective labour sharing (*Howri* system) and marketing facility for agricultural produce.
- The capacity building training also enabled the members to learn general management techniques such as book keeping, budgeting and project design, rural innovations, to contact public officials in the developmental departments and enhanced their overall awareness. Acquiring the facility of KCC (kisan credit card) and participation at the agricultural insurance programme has become easier.

- It also made some durable impacts, viz., cropping intensity has increased to the tune of 176 percent, gain in yield of paddy at least by 20 percent to 38 percent, improved crop diversification, changed cropping pattern and thereby improved income generation. The members of the FMC also adopted newer crops and innovative practices in cultivation of important staple crop of paddy.
- It is amazing that within a very short period, the FMC made significant impact on the rural livelihood as demonstrated by the following instance. The FMC induced-innovative practices changed the status of feeding the family with two-meals a week to two-meals a day from their own production

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However, such a giant organization is bound to confront problems of sustainability, if due care is not taken. The members often suffer due to lack of access to information, hesitation and inability to accept newer opportunities and lack of marketing infrastructure necessary to convert physical production into income. In the changing situation, a large number of rural youth and woman groups are found to be eager to adopt newer methods and learn more of innovative practices. Therefore, the government needs to continue giving more support services and encourage to further strengthen this rural innovation.

The multiple constraints that the FMCs confronts, required to be tackled efficiently. Based on the members' responses, the constraints are classified into technological, organizational, financial and socio economic constraints as

5. Technological constraint arises due to lack of appropriate technology, capacity building, technical skill and problem of access to information.
6. Lack of cooperation of member, non payment of fee, lack of common goal setting, leadership and transparency are the organizational constraints.
7. Financial constraints included lack of common fund, government support, problems of bank credits and lack of common property, and the fourth groups of
8. Socio economic constraints included low product prices, poor economic condition, malpractices of middlemen, poor roads and transport facilities, costly inputs and lack of social interaction.

The size of FMC is often a hindrance to proper management and extension services and to enforce accountability. A FMC with more than 200 members is an impediment to spread knowledge and information communication among the members. Therefore, amendment of the constitution and the by-laws suitably in favour of optimal size of the FMC is necessary.

The analysis of the impact of FMC and innovative practices raised specific issues and identified the factors affecting proper functioning of FMC.

Innovative practices and strategies:

- Flood-escaping *boro* rice cultivation in rabi season
- Innovative Low cost water lift mechanism: The Kisan Bandhu, developed from local materials, a bamboo pump-set has the capacity to irrigate about 2 bighas per day. The specific characteristic of the pump is less capital cost and almost negligible operating cost.

- Growing vegetables, citrus, mushroom and horticultural plantation crops
- Introduction of newer crops and multiple season crops increased cropping intensity, improved crop diversification and productivity. Innovative practices such as flood escaping *boro* rice has provided adequate safety net to household food security.
- Capacity building training on modern methods in agriculture yielded high dividend, enhanced awareness and knowledge sharing among the members (as observed in Pragatisil PPS).
- The performance based classification the FMCs into best performing, medium, average and non starter could be used to facilitate priority setting in project allocation and developmental strategies.

The intervention strategies can be designed as shown below:

Intervention strategies for various categories of FMC

Institution		Level of prosperity	
		Low	High
	Efficient	**Medium/average (70-80%):** Incentives to promising FMC	**Best/successful** (>80%): Model to emulate
	Non efficient	**Poor (<70%):** Requires push through further reform	

- FMC as an efficient public good, has demonstrated that mechanism to equitably distribute public benefits among the stakeholder and maximize the private profit and income.
- However, in order to achieve wider impact, there is also need to publicize FMC progress and achievements widely in mass media, TV programmes, leaflets for knowledge sharing and practicing good practices. Induction of the youth and women in the FMC should be encouraged.
- The All Assam Pathar Parichalana Samiti, the lead central coordination and policy body of the FMC should endeavour to utilize the services of professional, technical and policy experts by developing necessary interface. It should facilitate and encourage the members to take advantages of newer facilities such as kisan credit cards, crop and income insurance, and arrange hand-on training on use of kisan call centers and other ICTs. The lead FMC should conduct regular orientation programmes on technology forecast, disseminate market signals and issue disaster warning from time to time.

Constraining factors and policy perspectives:

- The study reveals that bureaucratic procedure complicate the functioning of the FMC. Therefore, such interferences should be minimized. Because, the interference-free FMC has exemplified efficiency, good governance and farmer-friendly system.

- FMC should be free from political high handedness, as it affects its sustainability. The central FMC at the State level should be properly equipped to play the role as efficient advisor and coordination body. But, at present, lack of efficient leadership has been a critical constraint to sustainability. The leadership training should be a part of the capacity building initiatives from time to time.
- The existing practice of dual registration of FMC creates confusion and contradictions, and should be done away with. At present, an individual FMC required to register with the registrar of societies and/or a separate registration with the Department of Agriculture, Government of Assam, in addition to register with the State level FMC authority. As a result, the members confront with a numerous conditions and rule and regulation, which is counter productive for the organization. Hence a simplified and uniform policy for the registration of FMC with the recognized registering authority is necessary.
- Loss of income due to perishable nature of most agricultural commodities is a perennial problem. Therefore, adequate policy interventions are required to address the problem of lack of efficient post-harvest agro-processing facility, markets and remunerative prices.
- The FMC, which has wider roots at the village level, poised to kick off to bring about desirable change. While the FMC has larger holistic goals of overall village development and rural livelihood, the self help groups (SHG) is relatively narrower in scope because of its activity specificity nature. Therefore, a well balanced FMC-SHG harmonization is necessary. Intrinsically, the SHG is a sub-set within a FMC, as observed in the Dakshim Bhirgaon and Rangachakua Pragatisil PPS. The synergistic way the Lakhimi Mahila Atmo Sahayak Got, an women SHG, formed under the aegis of Dakshim Bhirgaon, is an excellent example of the FMC-SHG coordination. A strong FMC is capable of solving the common problems, such as marketing of agricultural produce and other rural infrastructure through collective involvement and interface. Because, the conflict between farmer's interest and vested interest and lobbying among the marketing intermediaries deprives them to reap the benefits of the existing market. The market institution must be insulated against the influence of commission-agent-like intermediaries.
- There is also urgent need to replicate the successful life stories and multiply the good practices for wider impact. Carefully disseminated success model would be an important step in restructuring the non-performing FMC. It may be noted that instead of recreating and re-inventing newer model, existing successful FMCs (at least 5-10 such FMCs already exists in each district), should be encouraged and supported to play role of lead model for reviving or reforming the institution. If this goal is achieved then the FMC will attain the fame of a unique model of rural institution in the country.

The analysis clearly brings out that the sustainability of rural institution mainly depends on the continued public support and patronages. Therefore, a long term intervention is necessary to develop a sustainable partnership with the government departments in promoting the FMC. The government, corporate and NGO support should play more pro-active role in accelerating the prospects for growth of prosperity in rural areas.

It may be reiterated that the FMC needs to maintain its identity as democratic institution, transparency and tidy financial system. To be more durable, the reform should provide provision of strong mechanism of internal income generation through membership fee, donation and gift, profit sharing, contract farming, water selling and income from common property resources

Periodical assessment of the gains from developmental schemes, strong linkages with financial institutions and strategy could potentially improve the “non-performing” FMC. It will provide required inputs to lime light the importance of FMC, enhance confidence, and ensure transparency and good governance.

It may be concluded that there is ample scope for more analytical research on FMC. Methodology for impact assessment and evaluation of FMC is necessary to provide stream of desirable information and more accurate analytical diagnosis.

The study however, provides supportive evidence that the *Samridhi Kisan through Samridhi PPS* is realizable, which is the most sought after. That is, the prosperous institution is the root of rural prosperity. If this happens then the reformed FMC can be the agent of change in the rural areas.

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Appendix: Interactive Dialogues: Life Stories

Important observation and lessons derived from a series of colloquium and discussions with the members, Government officials and the FMC functionaries are presented here along with a few life stories of the FMC, which depict the instances of organisational excellence as well as of laggardness. Designed in accordance with the theory of collective action, the government's recognition and promotion of the FMC is an important step in reaching out to the farmers in the real sense. But, without understanding its basic foundation and fuctioning, the fate of the FMC would remain an untold story of an institution of peoples' participation dovetailing for village development in rural Assam. These life stories present interesting flair of success of the FMC as well as instances of failures due to lack of efficient management and other incentives. The instances of laggards are really the cause of concern.

Illustrated below the achievements of some of the FMCs, which have been functioning most efficiently and thus worth emulating. The selected life stories are as follows

Life story 1:
Dagaon Cooperative Krishi Pam Samiti;
Biswanath Chariali circle, Sonitpur District

Dagaon cooperative *krishi pam samiti* is a unique example of success of cooperative movement, which is one of the oldest village institution in the Sonitpur district. The *Krishi pam samaiti* was formed initially in mid 1960s with 27 members having 300 bighas of common land. Over the years, it expanded its membership to 42 and expanded its activities, which contributed significantly to the general well being of the members. The administration and the management of cooperative has been very efficient. Attendance is compulsory for all the members (100 percent attendance even by widows), indicating total involvement of the members. While at community *shram dan* (voluntary labour service), payment of a nominal wage @ Rs.15 was made to the members. As a penalty, the non participating/absentee member was deprived of the wage as well as the share of community land, which used to be distributed among the members on leased basis. The absentees were deprived of the share of agricultural produce also. A portion of agri-produce was saved for future common needs, seeds and a small portion was distributed equally among the members for home consumption. The sale proceeds of the portion of produce was used for building rural infrastructure such as *Namghar* (religious community place of worship and prayer in each village), a library, community hall, village roads, a primary school. All of these were managed from its own common fund/resource raised from collective farming. Usually, a major portion of income of the cooperative used to be re-invested in

1 Building community facility as and when needed.
2 A part of total income is saved as a common fund
3 Small portion of agricultural produce is kept as seed
4 Supply the agricultural produce such as rice, moong, gram etc. for village function celebration such as Guru tithi, pooja, picnic etc. The non members also are permitted to share benefits from these functions.
5 The remaining portion of the return used to be distributed equally among the members either in monetary term or in kind (say distribution of CI iron sheet for house roof construction).

Agricultural marketing was performed through a contract dealer in the nearby town. Under the contract, the dealer provided interest free fund against assured supply of produce. This is unusual of a non formal loan facility at zero interest.

The organizational unity and cooperation was remarkable for which the *pam* has been popular in the region. Management and administration of the coop. is the responsibility of the president and the secretary, who provided free services. Moto was to serve the common resource efficiently and share the benefits equally among the members. According to the coop. bye laws, every member is equally entitled to render the management responsibility and liable to serve as office bearer of the organization. Annual general body meetings discussed and deliberated on the problems faced by the cooperative, future prospects and production planning for next year. The management used to encourage the members, if any body proposes new idea for experimentation. For example, some members proposed that common land be given to individuals for cultivation on lease basis so that they improve productivity and income for livelihood. General body accepted the idea and distributed the land according to demand of the members. In order to imbibe more faith on the organisation and its management, the records and accounts of the cooperative were kept meticulously (as appended)

Expression of major problems: Situated on an ecologically fragile riverine areas in the north bank of the river Brahmaputra, the village confronts various degree of adversity from time to time. For example, due to construction of dykes and embankment on the bank of Brahmaputra as flood control measure, the rain water in the tail-end create water logging, which resulted in regular floods. While, the flood control measures are implemented, the problem of submergence aggravated. Moreover, marginalisation of farm size had become serious problem over and above the regular flood damages. People become poorer as the productivity of crops declined. The growing population has increased demand for food and income with limited land and water endowment. In 1965, there were 37 households in the village, which increased to 62 household families. If the support services improved and participatory collective activities continue, then the village has the potential to enhance income.

Appendix:

A sample of systematic upkeep of Income and Expenditure

Income: 2002-2003	Expenditure:2002-2003
(1) Crop Income 1 Paddy Rs. 41503 2 Moong Rs.80+ own consumption 3 Arhar (P. pea) 150.00 + own cons 4 Sugarcane (Gur) Rs47039 Total crop income Rs.88772	Loan repayment Rs. 70398 Bank saving fixed deposit Rs.155701 (from sale of tractor) Thrift fund saving Rs.15973 POL for tractor Rs.9056.99 POL (Sugarcane crusher) Rs.1323.13
(2) Loan from the trader Rs.78398 (interest free)	Dividend bonus to members Rs.62505
(3) Saving from sale proceed Rs.31350	Cost of cultivation of paddy Rs.14598
(4) Fishery Income Rs.13262	Audit fee Rs.1000
(5) Tractor hiring service Rs.16503	Land revenue Rs.1613.76
(6) Sugarcane crushing income Rs.3644	Vishwa karma pooja exp. Rs.214 Land settlemnt exp. Rs.700 Donation for cultural function Rs. 3000 Others Rs.611.50
(7) Other income Rs.903	Salary of workers (drivers, cleaners) Rs.9680 President exp. Rs.2224 Office exp. Rs.578 TA (office bearers) Rs.4146
(8) Total Income: Rs.353133	**Total Exp. Rs. 353326.98** Balance: Rs.88.43

Life story 2:

Dakshin Bhirgaon PPS, Biswanath Chariali, Sonitpur District:

Dakshin Bhirgaon village is situated at a distance about 5 km from the subdivional head quarter at Biswanath Chariali, on the way to famous shrine of Biswanth Temple. Despite its proximity to the Brahmaputra river, the village suffers from scarcity of drinking water as well as water for agriculture. The location of the village has been such that the rain water run off creates problem of soil erosion. As a result, despite being the primary occupation, agriculture failed to satisfy the basic needs of the population. The farmers in the village felt that certain developmental works require collective effort, which are necessary for improving the agricultural productivity. Therefore, the Dakshin Bhirgaon PPS was formed with 95 members in 1987. Mr. Keshavdhar Das, secretary of the PPS first took training on newer practices of agricultural production system under Indo-British training schemes in 1982. About 1000-1500 bighas of cultivated area benefited from the FMC, which also rendered services to help improving agricultural production in a large area of 2500 bighas of land belonging to the neighboring villages.

However, all was not well in the FMC. The members of the FMC described the tale-tale story of the management of a public supported irrigation facility, which brought rapid change due to implementation of the project DTW (deep tube well), at least 15 years ago. But the withdrawal of government support in irrigation management later brought back their past agony of poverty. It was a big DTW project with a 20 HP irrigation pump, which became defunct due to lack of technical maintenance and the dilapidated condition of irrigation channel. But due to apparent advantage of the irrigation system, the farmers determined unitedly to find a way out to improvise their lot through the FMC.

The impact of the FMC was remarkable. The farmers adopted modern varieties of rice for last 10-15 years. In 1985, the rice variety Ranjit was adopted, having its best yield of 22 md/bigha (about 6 ton/ha). Next Laxmi and Aijong variety had potential yield of 27 md/bigha each. Subsequently Prasadbhog and Bahadur was also adopted. But except Ranjit other varieties were discontinued due to declining productivity and problem of seeds. Mr. Gama, a Nepali farmer is cultivating sugarcane in 14 bighas land. Mr. Das regularly guided him and suggested innovative practices in crop production. There were 10 STWs (called NABARD STW) in the FMC, which were also used for cultivating rabi crops. The FMC recently acquired 32 bighas of land for cultivation.

Adoption of Modern Varieties by the FMC members

Name	Year	Yield potential	
Ranjit	1985	22 md/bigha	
Aijong	NA	27 md/bigha	Discontinued
Laxmi	NA	NA	Discontinued
Prasad bhog	NA	NA	Discontinued
Bahadur	NA	NA	Discontinued

Currently, about 30 Members contribute Rs.30/month towards the common fund. Loan was regularly provided from the common fund to the members with an interest @ Rs.2/month. However, the members are not satisfied with the way the management run the FMC affairs. They also felt the need for an efficient and publicly managed advisory services of extension system, to ensure access to adequate and timely agricultural information.

Life story 3
Lakhimi Mahila Atmo Shayak Got (SHG):
President Mrs. Barthakur, Secy: Ms. Runu Das

This SHG was formed as a part of Dakshin Bhirgaon PPS, consisting of 20 members. A group of 15 women members took a one-month training on tractor driving and repair at Farm Machinery and Tractor Training Institute, B. Chariali. This technical training gave more confidence to the members to build up their own capability.

Having the requisite technical training, the members decided to embark on a path-breaking enterprise. They chose to mechanize agriculture in their own way and earn livelihood. The group acquired an old mini Mitshubishi tractor from the Block Development Office on lease for a year and used it for various agricultural operations with direct involvement of the members. It has thus exemplified a case of transformation traditional practices into modern knowledge in use of technology. It has pave the path for coming out of age-old conservatism of the village folk. Following are the regular activities of the SHG undertaken to maximise the benefits of the hired tractor:

1 Rice cultivation
2 Cultivation of potato.
3 Ginger and turmeric cultivation
4 Tractor hiring services:
   a. ploughing @ Rs.80/bigha
   b. Threshing @ Rs.150 for piece contract
   c. Transport of FYM and cowdung to crop field
   d. Transportation of sugarcane cutting to sugarcane field
   e. Transportation of agricultural produce
   f. The SHG earned Rs.6000 from tractor hiring service in a month

The members felt that as this particular leased tractor happened to be old and was lying in a dilapidated condition, the servicing charge was high and the maintenance (O&M) expensive. Therefore, they decided to terminate the lease contract and return the tractor to the Block Dev. Office and planned to procure a new tractor in its place. Since the members saw income opportunities from the tractor, they collected Rs.60,000 for purchasing a new tractor. The members, however, expressed helplessness in the procedural matters in getting public sector helps and benefits, and lack of relevant information. They also felt the need for proper guidance to go about.

The group used to provides short term loans to members out of their saving: It decided to give loan of Rs.5000 for betelnut business (Rs.4000 returned immediately after sale of betelnut), and Rs.1000 for weaving work. The repayment was satisfactory. The enthusiasm and willing to work for common cause by the group

member was very high. It is thus felt that given proper guidance and access to adequate information on modern technology and other methods, the group demonstrated the potential to perform even better.

Life story 4:
Pragatisil PPS, Rangachakua, Sonitpur district:
President: Shri Kulprasad Neyar,
Secy: Shri Golap Bardoloi, Advisor: Shri Bimal Thapa

The Pragatisil PPS in Rangachakua, Sonitpur district is one of the well-managed FMC in terms of capacity building. The village is situated in a far-flung area at a distance of nearly 40 km from the district head quarter. Having tremendous interest in improving their agriculture, being the primary source of livelihood, the farmers in the village felt the need for collective action and cooperative enterprises in the village and appreciated the advantages of FMC. Thus they decided to form the FMC and carry forward collective works. The availability of developmental schemes initiated by the World Bank aided project ARIASP, has speeded up the formation of the FMC. The members of this FMC were extremely cooperative and very receptive to take any challenge in agriculture (risk takers).

Total Cropped Area of the village was nearly 800 bighas, total number of the FMC was 81. FMC was formed in 1984 and registered with DOA, Government of Assam in 1995.

Requisite capacity building trainings were imparted to the members of the FMC. Department of Agriculture, Government of Assam organized necessary demonstrations at farmers' fields on new activities and methods in the village. About 120 total members were trained on various aspects on a rotational basis. Farmers got immense benefits from these demonstration trials, improved crop productivity and diversified their agriculture. However, they were unable to get remunerative price, besides poor delivery of produce, which adversely affected income generation. The un-remunerative produce price and lack of access to critical input services, seemed deterred further improvement in production. The village used to suffer from lack of basic infrastructure; Good road connectivity, agricultural input supply and efficient output disposal.

Benefits from the training and the Training schedule			
Year of training	**Name of training programme**	**Participation**	**Organizer**
1995	Groundnut cultivation	21 members	DOA, Assam
1997	Carrot seed	14 members	DOA, Assam
1998	Pigeon pea cultivation and rice seed use		DOA, Assam
	Rice variety: Bahadur Ranjit 19 members 1 quintal of Bahadur seed distributed to 50 members	 20 md/bigha 24 md/bigha	DOA, Assam
1998	Training on fruit & Vegetables production: Banana, Pomegranate, Lemon. Papaya	Seed supplied Banana 380 saplings Pomegranate 154 Lemon 154 Papaya 154	
1999	Mustard & Rapeseed cultivation	24 members participated. ITB supplied seed, Urea, Potash and Borax at 50% subsidy	Organised by Indian Tea Board
1997-98 1999-00	STW 2 acquired STW 5 acquired	To group of 3 members	ARIASP
2000-01	STW 11 acquired		NABARD
27-1-2004	Acquired one M&M 35 hp Tractor with less than 50% margin money and the rest is subsidy	11 members contributed Rs.112244 for cash payment to release the tractor	ARIASP
2001	Power tiller		ARIASP
8-11-95	Training on mushroom cultivation	18 members	Produced upto 200 gram per mushroom
30-5-1998	Textile dying	10 women members	KVK Napam
15-7-1998	Groundnut cultivation training	16 members	KVK Napam
	Training on Organic fertilizers	Agro-induries supplied organic fertilizer on payment basis	Agro-industries Ltd, Tezpur
29-30 March 1999	Training & workshop on IPM	12 members participated	ETC, Naltoli, Nagaon
	3 day workshop on fertilizer, water and seed management	9 members participated	NERIWALMI, Tezpur
16-3-2002	Capacity building training	5 members participated	At Chariduar
12-9-2002	IPM training	24 members particpated	Organised by DOA, Assam

There were 11 SHGs formed under the FMC for identified tasks.

INITIAL IMPACT OF THE FMC AT THE VILLAGE:

1 The modern rice varieties were adopted in almost the entire cropped area, except a little land allotted to traditional varieties for the special consumption purpose rice for pooja, auspicious occasion and other social needs. The rice yield increased from 8-10 md/bigha to 25 md/bigha

2 Number of training programmes (more than 11 trainings so far) were undertaken by the members, which also made a lot of impact on general cropping practices, farmers' knowledge and awareness.

3 A change in cropping pattern was witnessed whereby cultivation of non rice (mushroom, beans, potato, cabbage, tomato, tea etc.) were introduced.
4 Members availed the facility of Kisan Credit Card (KCC) issued by SBI. But, they encountered difficulties to acquire the KCC due to prevailing land inheritance system. KCC was to some members denied due to lack of permanent settlement of ancestral land property. Therefore, in order to address the problem of land rights, the members resorted to formation of SHGs.
5 A very nominal membership fee of Rs. 12 (10+2) was collected from the members along with a first time annual fee of Rs.10 only. This FMC did not face problem in fees collection.
6 Income expenditure Accounts used to be audited regularly, vouchers were kept meticulously and presented at the annual meeting.
7 Members felt that impact could be further improved if the problem of access to information addressed and role of the market maximized.

CONSTRAINTS

1 Infrastructure problems such as office space remained. Meetings were held in member's residence turn by turn, which was often inconvenient.
2 Fruits and vegetables were grown abundantly (mushroom, beans, potato, cabbage, tomato, tea plantation, brinjal, arecanut, guard, cucumber etc). But the problem of market for the produce frequently resulted in distress sale. As a result, the farmers got disinterested to grow these crops in future.
3 Modern varieties of rice were adopted, which increased production over 2-3 times the level of traditional varieties. Several traditional varieties were abandoned, except some a few were grown for special requirement for social functions, pooja and worshiping and for special guests.
4 Getting remunerative prices was a problem. Incidence of sale of rice below the minimum support price (MSP) was common (say Rs.400-450as against of MSP of Rs.550). Thus, not to speak of profit, even the cost of cultivation was also not covered: a frustrating circumstance.
5 In the absence of public procurement agency and mechanism of granting remunerative pricing, farmers became the victims of tyranny of private traders. Such a market distortion was also a disincentive to the producers.
6 Lobbyist and commission agents also distorted implementation of pricing policy and markets, which created desperation.
7 The farmers suggested the possibility of establishment of Farmers' Advisory Board at the village level, to enable to reap the benefits of modern development and technology.
8 It was stated that the existing Government extension machinery failed to reach out to the farmers in this front, as expressed by the members.
9 Another suggestion was to initiate the Farmers' Federation of Marketing of Agricultural Produce (FFM) through networking of retailers and producers.
10 Construction of functional mini cold storage was also a felt need in the area.

Life story 5:
Patharijan Development Initiative: Reviving a dead river, Patharijan

The name of Pathari area is synonymous with the rivulet Patharijan flowing across 18 villages surrounding them. Pathari area consists of 18 villages consisting of about 3600 households covering a vast area of 50 square kilometer (10 km long and 5 km wide). The region is comfortably accessible to business town of Nagaon at a distance of 6 km. The National Highway 36 passes through the area. Village roads are fairly good and motorable.

Situated at the banks of the dead river called Patharijan, Bar Pathari Panigaon PPS is an average FMC. Most farmers in the village are poor, but a few innovative farmers performed exceedingly well due to own initiatives and drive. It was generally observed that lack of irrigation, low agricultural productivity primarily due to lack of awareness about improved technology or limited access to input services, discouraged adoption of modern technology. Lack of rural leadership was a notable constraint.

The story of Pathari river is pathetic, an example of killing of a river which once upon a time served the area as a hub of trade and commerce. It provided prosperity to the region and was the life line of the 18 villages. The river had two branches one from Kolong river and the other originates at the Champawati water fall at a distance of 10 kilometers. It then merges with a main water body called Jalah. According to history, cultivated areas in both sides of the river were extremely fertile and the people around the river not only enjoyed bountiful harvest but also engaged in many non farm activities and traded weaving textile (trade was intense in the past), bamboo and cane handicrafts and iron implements.

In the year 1934, the area was completely washed way by the great flood, damaged properties and land due to excessive sedimentation, erosion, which thereafter precipitated the growth of water hyacinth. A big earthquake occurred in 1950, which raised the river bed and reduce its water carrying capacity. The situation worsened in the recent time, when the people started converting the river into fishery, which blocked the passage of water and disturbed the natural drainage system. This resulted in water stagnation, which made water transportation impossible. These natural calamities, increased the worries of poverty, land became uncultivable and floods frequented. Thus a long stress of fertile land (measuring 4000-5000 bighas) converted to fallow land. Rice has been the prominent crop in the area, whose productivity reduced to as low as 5-8 md/bigha (about 1.4 t/ha). As the river bed was heavily infested by water hyacinth, it also perpetuated the floods and created a fear psychosis in the mind of the people. The farmers, not only lost production, also employment and investment. Unfortunately, the vested interest groups have resorted to unwanted activities such as encroachment, unscientific fisheries on the middle of the river. This might have benefited few but the people in general became the victim. All these above factors together portray a case of negative externality on the death river.

Of late, people of 18 villages were found to have realized deteriorating situation and got united to explore the possibility of cleaning the river and regain the past glory.

Five FMC were formed in the region and registered with the Government of Assam. As a first step, a 5-day sensitization farmers fair called Pathari Kisan Mela was organized in 2004, which made greater impact of creating awareness. The moto of the Mela was ***the Prosperous Pathari and Prosperous people***. The region is naturally beautiful and has great potential for horticultural plantation, fisheries, utilizing the fallow land. Therefore, converting the enormous untapped opportunities has been a great challenge. In order to unleash the area from the dead lock, the first initiative of the Pathari Kisan Mela, was a great success in the right direction. It attempted to sensitize the people with a slogan "A DEAD RIVER IS ON REVIVAL COURSE" *(why has the MAN AND NATURE CONSPIRE TO REDUCE PATHARI TO HYACINTH POND ?).* But, nonetheless, there was hardly any visible impact due to lack of efficient leadership, access to information and awareness. It was truly a daunting challenge, which needed a visionary leader and planner to convert the vision to a durable mission. But, the area seemed to get stuck at this.

Life story 6

Jyoti Pam (Boloma) Pathar Parichalan Samiti (PPS), Teok, Jorhat:

The flood of July 2004, affected the crop, infrastructure and residential areas in Jorhat to a great extent. The village was situated at a distance of about 8 km. cutting across a small township of Teok , which is nearly 30 km away from the district head quarter at Jorhat. Boloma was a flood victim, as the PWD road washed away, which totally cut off the village from the rest. The most encouraging feature was that even though the farmers suffered due to flood, they did not loose heart and determined to face the flood unitedly. The village community decided to carry on agricultural activities on collective basis even though rice transplanting was delayed due to the havoc. Villagers successfully engaged in cultivation through collective works (locally called *Howri* system) in cultivation. FMC played an important role in the collective works in the village. This was possible due to the promising Secretary of the FMC, who was a capable leader, having combined entrepreneurial skill and the leadership quality. Under his leadership, the farmers were fully committed to follow the principle of the FMC both in production management and marketing. The increased crop productivity, primarily due to various initiatives of the FMC, improved the livelihood and subsequently many positive changes took place. Modern farming system approach was followed and adopted integrated system of paddy-piggary-duckery-fisheries and vegetables (ridge guard, torai, cucumber, spinach and mint) along with mango and betelnut trees at homestead upland areas. Such innovative and entrepreneurship transformed food insecure houshold to a highly self-sufficient one. There were innovations in irrigation methods (a well within a fishery cum irrigation pond), sprinkler irrigation and use of power tillers. The land lease rate increased to Rs.5000-8000/bigha. The fresh vegetable of large quantity was sold in the local market at least twice a week. Since, the price of vegetables was low (Rs.5 per kg of cucumber, bitter guard, torai and brinjal), the villagers took an initiative to organize and transport the produce to the bigger market at Jorhat town. But, unfortunately they experienced that the local traders (lobbyist) at Jorhat market short circuited the effort by suppressing the prices to a level as low as half the market price. Therefore, the access to proper market remained a constraint.

FMC undertook the following procedures:

Meeting of the members at the onset of crop season to discuss crop planning, matters relating to integrated pest management (IPM), village road repair (due to flood damage), collective land preparation (at a charge of Rs. 150/bigha for FMC members, Rs.200/bigha for non members), on need-basis, arranging *Howri* system of collective labour, cattle vaccination, use of developmental grant for rabi crops, problem of stray cattle, popularization of National Horticulture Mission for cultivation of black pepper, distribution of cocoanut seed (about 180 seedling received from the Cocoanut Board), Hybrid 6201 seed received from the Department of Agriculture, Government of Assam, arrange visit to Kisan Mela at the Assam Agricultural University, Jorhat etc. This signified the source of success that the FMC has served the best interest of the members for the overall development and enhancing the livelihood.

Impact of the FMC: The FMC benefited the members and the farming community by spreading knowledge and information equally among the members and also served as departmental contact point for implementation of developmental scheme of the Government. At the village level the FMC acted as a source of information for on going events like Farmers' day, innovation of newer crops and vegetables such as brocolii, TPS (potato), newer variety of paddy developed by the university (collecting seed on experimental basis before spreading it widely in the village) etc. Members also collectively discuss the mechanism of disaster management and mode of distribution of flood relief measures, distribution of emergency seedling for paddy etc.

Not only the information flow improved due to FMC, but also self-confidence of the members on agriculture enhanced. Those who opposed the formation FMC and felt un-necessary, also realized the merits. After achieving success in collective action as social good, the FMC convinced the members for more cooperation and reap the benefits of change

Life story 7

Shyamala PPS, Pub KATARATI: Chatia

Two FMCs in Chatia block, in Sonitpur district showed a contrasting picture. Both Pub Katarati and Patiagaon Mornai PPS had CMLI (community managed micro lift irrigation) and benefited from it. Having assured source of irrigation from the CMLI, the farmers started growing variety of diversified crops including paddy, jute, potato, torai, peas, cucumber. Pub Katarati is a Muslim dominated village while Patiagaon a caste Hindu village. The members in Katarati is relatively more cooperative as compared to that of Patiagoan Mornai PPS. The irrigation development (CMLI) in the FMC is a source of innovative cropping practices such as *boro* cultivation and other cash crops in rabi season.

Basic information on Shyamala PPS, Pub Katarati:

VLW Eleka: Uppar Garpal, AEO: Chatia, DAO: Tezpur

Total members in the FMC:	120 (Male) + 0 (Female)
President:	Md. Azizur Rahman
Secretary:	Md. Abdul Warish
Total cultivable area in the FMC:	450 bighas

FMC displayed the basic information and record keeping at the FMC office premise as

Demonstration of record keeping in the FMC office

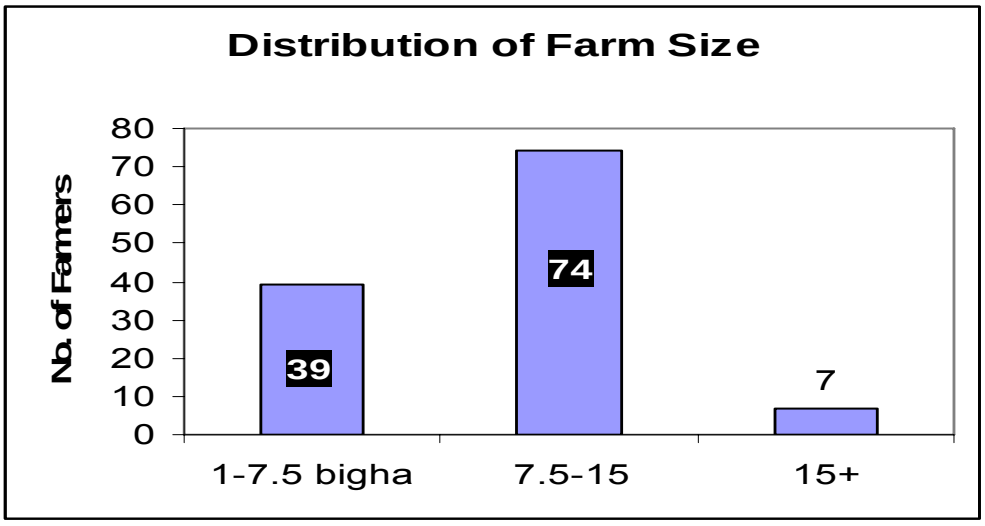
Name of members	Crops grown	Area (bigha)	Cost Rs.	Aprox. Return	Net profit
Md. Nur Islam	Pea	2.5	200	3750	3550
	Wheat	1	826	3200	2378
	Boro paddy	1.5	4065	7500	3835
Md Nur Kasim	Pea	0.5	60	1000	4580
	Wheat	0.5	413	1600	
	Boro paddy	2	5820	10000	
Md. Bux Ali	Chilli	1	1500	5850	3950
	Carot	.40	550	1500	950
	Boro	3	8130	15000	6870
Abdul Wahid	Carot	0.5	400	2000	1600
	Boro	1.5	4065	7500	3835
Saheb Ali	Carot	.80	1100	3000	1900
	Potato	0.5	2000	4000	2000
	Brinjal	0.5	500	2000	1500
	Boro	4	10840	20000	9160
Tola Pesh	*Boro*	2.5	6775	12500	5725
	Bitter guard	0.5	500	5000	4500
Rabiulla	*Boro*	4	10840	20000	9160
Taz Ali	*Boro*	1	2710	5000	2290
	Garlic	0.2	280	1000	760

The land holding analysis shows that nearly 95 percent farmers were small and marginal farmers in the village. The annual income distribution was similar to landholding distribution

Land distribution in Katarati FMC	
Farm size	# farmers
1-7.5 bighas (< 1 ha)	39 (33%)
7.5-15 (1-2 ha)	74 (62%)
15+ (>2 ha)	7 (6%)
	120

Annual Income distribution

<Rs.12000	39
12000-30000	74
30000+	7



The introduction of the irrigation infrastructure through CMLI, had changed the cropping pattern and improved production in the village. Certain innovations were also introduced in the village. The performance of *boro* rice, wheat and vegetables was impressive.

Life story:

The members benefited from the FMC, which provided risk free alternative cropping practices and innovations. particularly in kharif season. A typical case of a farmer, Md. Abdul Azad, a member of the FMC was revealing:

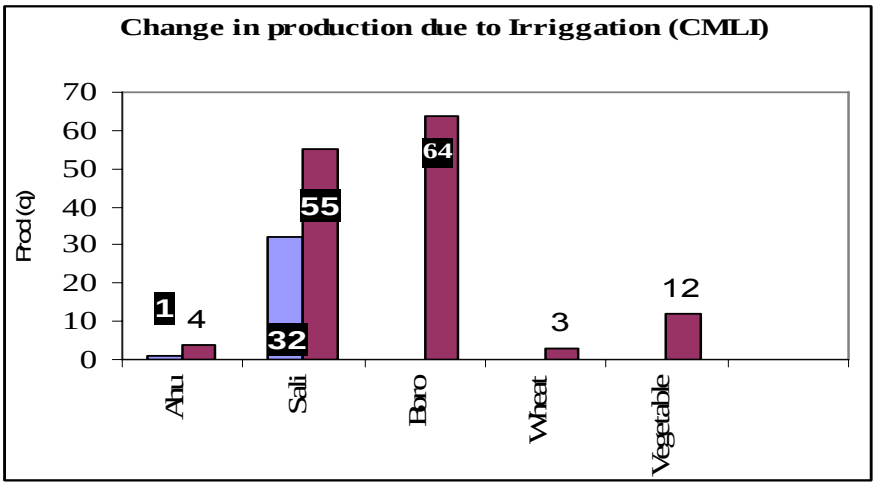
Md. Abdul Azad,	Age 45 years
Farm size	17 bighas (rainfed only)
Education:	Primary level
Major source of income:	Cultivation
New Source of irrigation:	CMLI

Cost of Irrigation

Crops	Area	Cost
Ahu rice	2 bighas	Rs.500/bigha=Rs.1000
Sali rice	15 bighas	Rs.200/bigha=Rs.3000
Boro rice	8 bighas	Rs.800/bigha=Rs.6400
Wheat	1 bigha	Rs.300/bigha=Rs.300
Total	**26 bighas**	**Rs.10700**

Md. Azad increased his cropping intensity from a single kharif paddy to 176 percent after the FMC came into existence. The *boro* rice was cultivated for the first time with the irrigation provided by the CMLI. It gave high dividend.

The yield of *boro* rice was substantial as compared to that of the traditional sali and ahu rice.



Production change

Crops	Area		Production (q)	
	BI	AI	BI	AI
Ahu	1	2	1	4
Sali	15	17	32	55
Boro		8		64
Wheat		1		3
Vegetable		4		12
Cropping intensity		176%		
Before irrigation=BI, After irrigation=AI				

Cost of production and return:

There was slight increase in the cost of production under the new cultivation practice, but yielded satisfactory total return. In the past, while he used to earn barely Rs.3000 per year from his farm, which increased to Rs.22600 after the formation of FMC. This many fold increase in return came from increased input use.

Changes in the cost of cultivation

	Area	Cost (Rs.)			Return (RS.)		
		Before Implementation	After Implementation		BI	AI	
Ahu	2	900	1700		1300	3200	
Sali	17	1000	1600		1700	4000	
Boro	8	-	2000		-	4400	
Wheat	1	-	1000		-	1000	
Vegetable	4	-	2000		-	10000	
Total		1900	8300		3000	22600	

The FMC induced changes in cost of production as well as noticeable input uses, however, the gain in net return at the household level was also quite substantial.

Impact of FMC on input use (per bigha)

Input use per bigha	Before Implementation	After Implementation
HYV paddy seed (kg)	5	6
Urea (kg)	6	12
SSP (kg)	9	18
DAP (kg)	3	6
MOP (kg)	2	4
FYM (ton)	1	1

Life story 8

Ulani Dharbam FMC (Nizora beel project);
A case of an organizational excellence

The Ulani Darbham PPS in the Khetri Block Kamrup is a case of excellence in rural institution and success. The village until 5 years ago, used to face the vicious circle of poverty, extreme vulnerability, biophysical constraints, and regular natural calamities such as floods, drought and submergence. More than 1000 bighas of cropped land suffered simultaneously from flood from nearby Brahmputra river, run off from nearby foothills of Khasi Hills and rain water, all three together caused kharif production stagnant or decelerated. Floods and poverty were the two sides of the same coin for the rural people in the chronically flood affected areas, which dragged the farmers to pauperisation.

The Ulani Dharbam FMC is an interesting case of a rural reconstruction and transition evolving from own initiative of the farmers. Ulani is a small village situated at a distance of 40 km from the State capital Dispur, Assam. It is well connected with various important places. But due to unfavourable topography, the village was traditionally exposed to multi-pronged risks. The apprehension of floods in the main cropping season (kharif) as well as risk of drought in rabi season severely affected the village life. It has a sprawling area of nearly 2000 hectares of low land in bowl shaped cultivated fields. In the middle two opposite ecosystems viz, hills ecosystem and riverine ecosystem, the village has been more vulnerable to floods during the monsoon period. Thus the major staple crop of rice was damaged regularly. For years, the non-stop flood ravages destroyed the fabric of the village economy. The impact was so immense that the people were unable to get even two meals a week from their own production.

Formation of Ulani Darbham FMC:

Unable to utilise the cultivable land for their livelihood and having gone through the misery and agony of poverty, the farmers now decided to form a FMC with 151 members to bring about a change. They approached the on-going World-bank aided ARIASP project for a improved irrigation facility viz, a CMLI (community managed lift irrigation system) for which, the members planned an excellent resource management strategy. ARIASP provided a financial assistance to the tune of Rs.8 lakh (with margin money of Rs. 1.2 lakh collected from the members and the remaining as project subsidy) for 4 community managed micro lift irrigation (CMLI) systems. CMLI was used to lift water from the village Beel (Swamp) for cultivation in the rabi season. Owing to floods in kharif season and lack of irrigation facility in rabi season, traditionally, the entire cultivable area were kept fallow in rabi season. Each CMLI irrigates 120 bighas of land in rabi season, having total capacity to irrigate 500 bighas. Compared with an existing government failed lift irrigation system, the CMLI with 8 HP pump irrigates 120 bighas, where as the government system with 10 HP pump and concrete channels irrigated only 80 bighas. This new irrigation facility encouraged the farmers to engage in brisk cultivation of *boro* rice (No.9 variety) in the entire 500 bighas. It increased the yield to about 20-25 maund per bigha (ie. upto 7 ton/ha). Thus the farmers could not only save themselves from the starvation but also

created a permanent source of enhanced income through diversified farming system (paddy-fish system). The shifting of crop season from a risky kharif to a safe rabi season was remarkable step. On the whole, the way the farmers participated in collective initiative and prepared their future plan, there seemed to be little doubt on the sustainability of the system and income security of the farmers. The management of FMC affairs and the resource generation plan of the FMC were worth emulating by others. The well-designed plan of the FMC enabled the organisation to proceed further in the matter of overall development of the village.

The villagers discovered a big opportunity in a huge *Beel* (125 bighas swamp land), situated in the middle of their cultivated area, which was converted to a modern fishery. About Rs.8.5 lakh was invested with 30 percent margin money and 70 percent subsidy from ARIASP. Apart of creating favourable physical environment, FMC felt the need for capacity building. Therefore, the trainings programmes were arranged for various groups in the village on fish nursery, fish harvesting, storage and post-harvest processing of fish, network marketing and general management techniques. In situ raising of the fingerlings was also planned.

The changing scenario provided solution to some of the problems, which is quite revealing and example to emulate by other villages also.

The demographic composition of the village is a follows:

The village consisted of 400 families having nearly 2000 population. Nearly 80 percent of the population was found to be Hindu and 20 percent Christian. The caste composition was as follows:

Social Class composition in the Ulani Dharbam village	
Caste	**% population**
ST	49%.
ST	1%
OBC	25% and
General category	25%

About 62 percent population was found to be literate and 38 percent uneducated. Agriculture was the main occupation engaging 84 percent of the population, fisheries 5 percent, daily labour 5 percent, petty traders 4 percent, services 1 percent and business 1 percent.

Land Endowment of the village:

Total geographical area = 3500 bighas (500 hectares)
Total cultivable area = 2000 bighas
Permanent Fallow/uncultivable land = 1500 bighas

Sources of Irrigation:

Rainfed areas accounted for 65 percent, and the remaining 35 percent having seasonal irrigation facility. The coverage of irrigation under different sources were as under:

Irrigation	Crop pattern:	Livestock
Shallow Tube wells = 5% Open source =30%	Paddy (Sali) = 98% Paddy (*Boro*) = 95% Others = 5%	Cattle = 72% Goat = 21% Poultry= 7%

Socio economic Infrastructure:

The village had a favourable means of communication, and connected to the National Highway 39. The interior road network was katcha and people repair roads by themselves with their voluntary labour, whenever necessary.

Housing:	Electricity:
Pucca/RCC house =10% Semi pucca house =24% Katcha (mud & thatched) house=66%	Electricity connection = 52% Others = 48% (incl. Kerosene lamp/chaki and hurricane)

INNOVATIVE PRACTICES IN THE FMC:

Two types of innovations occurred in the villages due to the FMC, viz:

1) Irrigation led innovations:

- **o** Due to policy interventions and research supports, the farmers resorted to assured production in rabi season rather than in risky kharif season, the introduction of CMLI, facilitated this shift. The new *boro* paddy was grown under the newly created irrigation facility. Relatively risk-free, the productivity of *boro* rice was as high as 25 md/bigha (over 7.0 ton/ha rough rice). This guaranteed production of staple food had durable impact on food security in the village. This is the case of converting the situation of barely two meals a week from their own production to have enough rice for two meals a day.

Institutional Credit led innovations:

- **o** Started a huge fishery in the un-used swamped area covering about 125 bighas area. The expected fish output is about 50 ton per year.
- **o** Created irrigation infrastructure and cooperative stores.

Capacity building training:

Capacity building training is essential to sustain innovations in rural areas, as many of them are knowledge-intensive. Ulani FMC realized the need for capacity building and opted for requisite training progammes.

1 Capacity building in general management (4 members of the FMC was trained)
2 Capacity of building in fisheries

a. Fish rearing & management training (6 members was trained)
b. Training for fish harvesting (8 members was trained)
c. Training on fish processing and packaging (10 members was trained)
d. Training on network marketing (6 members was trained)
e. Training on credit cooperative, micro-finance and thrift practices are also imparted to the members.

Appendix: Colloquium with FMC members

During the FMC survey, research team conducted a series of discussions meetings with the members. The following are the few instances of the colloquium with the functionaries of the selected FMCs on matters related to performance assessment of the FMC. The members expressed free and frank views on the functioning of the FMC.

(a.) In the first encounter, the president of Bongora Adarsh PPS, Mirza block Kamrup, critical about the definition of below poverty line (BPL). According to him, the BPL is not relevant for those people who are landless and no source of income other than wage labour if available. Because, these people have lost their crop output year after year due to floods and ultimately sold their tiny plot of land to purchase food. The proportion of such people has been growing over time. Therefore, instead of BPL, the actual situation is that of Far Below Poverty Line (FBPL). More than 80 percent of the population in this FMC lives below the FBPL. Agricultural fields were simultaneously subjected to floods and water stagnation due to lack of natural drainage. Almost all the cultivable area remained knee deep under water through out the year. The cropped area, thus remain fallow in most part of the year. Since there is no alternative option, the villagers were gradually dragged from bad to worst. Lack of water in the upland caused low agricultural productivity. The irrigation facility in the village was totally absent.

(b). The Manaha Nasatra PPS in the district of Morigaon depicted another contrast picture. Although formation of FMC made some impact, the condition of the household had not improved to the desired extent. The low lying water bodies and the Beels have become the cause of poverty and low productivity, rather than a source of opportunity. Agricultural productivity has been low and most of households live in thatched earthen houses. Lack of leadership and awareness seemed to be the stumbling block for backwardness.

(c). Situated in the close vicinity of a famous shrine of Shri Shri Sankar Dev, the hard working farmers of the village Saru hisa Sundarpur in Batadraba block in Nagaon demonstrated a success story of improved agriculture. The modern varieties of rice adopted in both the crop seasons, which increased the household income. Relatively better off farmers maintained reasonable standard of living (many of them maintain car and others the motor vehicles). The FMC was serving satisfactorily although the members complained of mal practices of district level officials.

(d). In Kaliabor block of Nagaon, two FMCs viz, Jomkhola PPS and Jengani PPS were studied. The Jomkhola PPS is one of the largest FMC having 900 members from the nearby villages around the agricultural field. In the initial years under the leadership of an elderly President, the FMC delivered its functions successfully. But the current President failed to keep the members united and in recent time, FMC tend to fell out of past performance. Jnegani FMC could be classified in the medium performer. A few innovative farmers demonstrated extra ordinary talent by resorting to profitable diversified cropping system by using scientific method. A farmer grew a popular vegetable “Parwal” in 7 bighas of medium land, which gave a good income of Rs.1.5 lakh in a season. In addition, other seasonal vegetables such as torai, cucumber, bitter guard and banana were also mostly grown in the homestead garden.

(e). **Kisan Bandhu**: It is a rural innovation of low-cost local material based water lift pump developed by a farmer in the Raidongia PPS. The pump system was found to use bamboo in all the parts of the well, viz, in drilling the well, conduit pipe, lift rotary motor and water lifting handle. The cylindrical pipe was made of the local material. The irrigation potential of the system was about 2 bighas and the total cost was barely Rs.500-600 only. The farmer used this lift irrigation system to irrigate vegetable crops. The system was not only inexpensive but also every member of the family including women could easily operate the pump.

On the whole, FMC emerged as desirable institution and a fruitful milestone for project implementation in the journey of rural development.

Appendix Table 1: Modified Scoring method: 10-point 20 factors

SN.	Factor	Criteria	Scores
1	Ratio of Actual area cultivated to target area	>100% 75-100% <75%	10 score 5 1
2	Occupation of the respondent	Farmer Non farmer	10 2
	Proportion of high & medium land	High low	10 4
3	Yield major crop	>2ton/ha 1-2 ton/ha <1 ton/ha	10 5 2
4	Value of crop diversification index	High Medium Low	10 6 3
5	Adoption of modern variety	High Medium Low	10 6 2
6	Yield difference	High Medium Low	10 6 4
7	Impact of FMC	Good Fair poor	10 6 2
8	Gender participation	Male Female	6 10
	Capability building training	Frequently Occasionally Not at all	10 6 2
9	Current average income level	High Medium Low	10 5 2
10	Cropping intensity	>100% 50-100% <50%	10 score 5 2
11	WTP a portion of cost/ fees	Yes No	10 2
12	Presence of other farmers organization	Present Absent	10 2
13	FMC's over dues to CB/RRB/Coops	More Less No	2 6 10
14	# of STW/Tube well in the village	More Less	10 2
15	Extent of farm mechanization	High Medium low	10 6 3
16	Ongoing programme on STW	Yes NO	2 10
17	Whether the farmer is a member of FMC	Yes NO	2 10
18	Average performance of the STW	>90% satisfactory 70-90% <70%	10 score 5 2
19	Constraints affecting the members of the FMC	Severe Mild NO	2 6 10
20	Functioning of the FMC	Satisfactory Average poor	10 5 2

Appendix Table 2: **Sampling of the FMC**

District	Name of FMC	Number of FMC		Total member
		Member	Non Member	
Nagaon	Geruamukh PPS	5	2	7
	Bar Pathar Sutargaon PPS	6	2	8
	Raidongia Lakhimi PPS	6	0	6
	Bar Pathar Panigaon PPS	4	0	4
	Jangani PPS	2	0	2
	Batadrava Sundarpur PPS	4	2	6
Sonitpur	Biswanath Dagaon PPS	8	2	10
	Dakhin Bhirgaon PPS	5	0	5
	Mornai Patiagaon Milanpur	7	2	9
	Pub Katarati Pani Upobhokta Santha	5	2	7
	Pragatisil PPS	6	0	6
Kamrup	Bongara Adarsha PPS	3	2	5
	Lakhami PPS	3	2	5
	Singmari Pukhuripar PPS	3	2	5
	Uttar Helagog PPS	2	2	4
	Ulani Dharbam PPS	4	2	6
Morigaon	Mandubi Deusal PPS	4	2	6
	Khanajan PPS	4	2	6
	Lohit Poria PPS	4	2	6
	Bilimara Somguti PPS	4	2	6
	Manaha Nasatra Lakhimi PPS	6	2	8
Jorhat	Puthi Nadi PPS	4	2	6
	Pragati PPS	5	2	7
	Jyoti Pam PPS	6	2	8
	Sewali PPS	5	2	7
	1 Nowboisa Bahumukhi PPS	5	2	7
Total member		**120**	**42**	**162**

BOX 1

What is an FMC ?

A Field Management Committee (FMC), otherwise also known as Pathar Parichalana Samity (PPS), is an organization of a group of farmers actively engaged in one or more land-based activities carried out on a contiguous plot of land (identified as Pathar) which organization has been recognized and duly registered by the registering authority. The average size of a Pathar is 500 bighas, except in those cases where the contiguity of the land (Pathar) is limited by geographical barrier like rivers, hills, terrain etc., which in no case be less than 300 bighas. No land belonging to the Government or Public Institutions shall form part of the Pathar.

The group of farmers forming the Field Management Committee shall consist of 70-80 farmers but no fewer than 20 farmers.

Objective :

The objective of organizing an FMC is to optimize the potentialities of the Pathar through collective efforts by its member-farmers with the aim of enhancing the yield of various production systems relating to Agriculture, Fishery, Veterinary, Sericulture and others

Nomenclature :

The committee formed by the farmers of a contiguous plot of land (identified as "Pathar") shall be named as "Pathar Parichalana Samity" prefixing either by the name of the Pathar or the name of the village or by any name as the member of the committee so desires.

The name of the Gram Panchayat level co-ordination body shall be named as "Panchayat Pathar Parichalana Samannay Samity" prefixing the name of the Gaon Panchayat.

The name of the Block Level Co-ordination body shall be named as "Khanda Pathar Parichalana Samannay Samity" prefixing the name of the Development Block.

The name of the district Level Co-ordination body shall be named as "Jilla Pathar Parichalana Samannay Samity" prefixing the name of the district.

The name of the State Level Co-ordination Body of FMC shall be named as "Sodou Ashom Pathar Parichalana Samannay Samity"

Function of an FMC :

The main function of an FMC is to identify the activities that would enhance the production and productivity of different production systems of the Pathar be it in the field of Agriculture, Fishery, Animal Husbandry, Sericulture, Handloom and others. In particular, an FMC should at least undertake the following core activities, besides others, in consonance with its objectives:

1. to motivate and guide the members in increasing the productivity of crops grown by cultivation of improved varieties and scientific crop management practices.
2. to motivate the members to increase the intensity of crop production, and not to allow the land to lie unutilized and
3. to prepare annual production plan based on available resources and its execution.
4. to motivate and guide its member-farmers to undertake other technical feasible and economically viable schemes like fishery, veterinary, sericulture etc. in order to optimize the potentialities of the Pathar and increase the returns to the farmer(s) and generate surplus production in the process.to take such steps as would increase the flow of credit from banks and other financing agencies, and also to ensure repayment of dues by its members in time.
5. to mobilize resources for Welfare of the members.to maintain a record of production of the different production systems of the Pathar be it in terms of food-grains, fish, milk, eggs and others.
6. to arrange a forum for exchange of ideas, information and technology between the member-farmers, the officials of the line departments and the AAU and other research institutions.

7. to take steps to provide basic infrastructures to its members like godowns, cold storage marketing yard etc.
8. to maintain and update record of the land holdings and the different crops grown on it by the member-farmers.
9. to tap the available irrigation sources either surface or ground-water for increasing crop production.
10. to take measures to ensure that stray cattles shall not be a cause for hindering utilization of land for cultivation at any season of the year
11. to motivate the members to produce improved variety of seeds for use by its members and also for sale of the excess quantity to other farmers.
12. to make arrangements by itself or encourage its member(s) to undertake agro-business activities for providing agricultural inputs like seeds, fertilizer, pesticides, tractors, power tillers, pumpsets within easy accessibility of the farmers.

Co-ordination Body at the Gaon Panchayat Level :

In order to co-ordinate, monitor, evaluate & guide the FMC at the field level, and in order to ensure uniformity of development, it is necessary to constitute a Co-ordination body at the Gaon Panchayat level. This body shall have a general committee which shall consists of all the Presidents and Secretaries of the field level FMCs under its territorial jurisdiction. Besides an executive committee of 15 members shall be constituted consisting of a President, a Secretary, a Treasurer, two women representatives & 10 others as members. The President and Secretary of Gaon Panchayat, VLEWs, concerned AEO and other Gaon Panchayat level officers of the development departments shall be the ex-officio members of the Gaon Panchayat level Executive Committee. The members of the executive committee shall be elected by the members of the General Committee. The terms of the Executive Committee shall be for a period of 3 years from its first sitting.

- Every FMC shall be affiliated to the Gaon Panchayat Level Co-ordination Body under whose territorial jurisdiction the FMC falls.
- For affiliation to the Gaon Panchayat Level Co-ordination Body each FMC shall pay a fee at the rate to be prescribed by the Block Level Co-ordination Body. In addition, other contributions and the rate to be paid by each FMC to the Gaon Panchayat Level Co-ordination Body shall be prescribed by the State-Level Co-ordination Body.
- The General Committee shall meet once every six months while the Executive Committee at least once in every month. One third (⅓) of the total members (of General Committee / Executive Committee) will form the quorum for any meeting (of the GC/ EC). The meeting of the General Committee / Executive Committee shall be notified at least 7 days in advance.
- The accounts of the Gaon Panchayat Level Co-ordination Body shall be an audited by an official duly authorized by the Director of Agriculture in the month of April in each year.

Box 2:

Dissolution of the Gaon Panchayat Level Executive Committee and removal of its members(s):

The Executive Committee as a whole or a particular member or members of the Executive Committee except the ex-officio members shall be removed from office by a vote of no-confidence which shall be approved by a simple majority of the members present in the meeting of the General Committee especially convened for the purpose where the member present and voting has a strength of two-thirds (⅔) or more of the total members of the General Committee ; or, by a two-thirds majority of the members present and voting in the meeting where the member present and voting is less than two-thirds (⅔) of the total members of the General Body. But the Executive Committee as a whole or a particular member or members of the EC shall not be removed in a meeting where the number of member present is less than half of the total members of the General Body.

Powers to Collect Fees etc :

The General Committee of the Gaon Panchayat Level Co-ordination Body shall by a resolution empower the Executive Committee to collect fees or any other contribution from its members which is required to defray the charges in pursuant of its objectives.

Provided that no fee or any other charges, and the rates thereof, shall be collected from the FMC without the prior approval of the State-level Coordination Body. The fees so collected by the Executive Body shall be deposited in the nearest Bank by opening a Bank Account. The Bank Account shall be jointly operated by the President and Secretary of the Gaon Panchayat Level Coordination Committee (Panchayat Pathar Parichalana Samity).

Individual and Collective responsibility of Gaon Panchayat Level FMC :

Each member of the Gaon Panchayat Level Coordination Body shall be singly and collectively responsible for any act of omission and commission brought about while pursuing its functions.

Co-ordination Body at the Block Level :

In order to co-ordinate, monitor, evaluate and guide the FMC at the field level, and in order to ensure uniformity of development, it is necessary to constitute a Co-ordination Body at the Block level. This body shall have a General Committee which shall consist of all the President and the Secretaries of the Gaon Panchayat level FMCs under its territorial jurisdiction. Besides an Executive Committee of 15 members shall be constituted consisting of a President, a Secretary, a Treasurer, two women representatives and 10 others as members. The Circle Officers, BDO / Sr. BDO, BAO and other sub-divisional rank officers of the development departments shall be the Ex-officio members of the Block-Level Executive Committee. The members of the Executive Committee shall be elected by the members of the General Committee. The terms of the Executive Committee shall be for a period of 3 years from its first sitting .

Every Gaon Panchayat level FMC shall be affiliated to the Block-Level Co-ordination Body under whose territorial jurisdiction the Gaon Panchayat level FMC falls.

For affiliation to the Block-Level Co-ordination Body each Gaon Panchayat level FMC shall pay a fee at the rate to be prescribed by the State-Level Co-ordination Body. In addition, other contributions and the rate to be paid by each Gaon Panchayat level FMC to the Block-Level Co-ordination Body shall be prescribed by the State-Level Co-ordination Body.

The General Committee shall meet once every six months while the Executive Committee at least once every quarter of the year. One third (⅓) of the total members (of General Committee / Executive Committee) will form the quorum for any meeting (of the GC/ EC). The meeting of the General Committee / Executive Committee shall be notified at least 15 days in advance.

The accounts of the Block-Level Co-ordination Body shall be an audited by an official of the Government duly authorized by the Director of Agriculture in the month of April in each year.

Box 2 cont…

Dissolution of the Block-Level Executive Committee and removal of its members(s) :

The Executive Committee as a whole or a particular member or members of the Executive Committee except the ex-officio members shall be removed from office by a vote of no-confidence which shall be approved by a simple majority of the members present in the meeting of the General Committee especially convened for the purpose where the member present and voting has a strength of two-thirds (⅔) or more of the total members of the General Committee ; or, by a two-thirds majority of the members present and voting in the meeting where the member present and voting is less than two-thirds (⅔) of the total members of the General Body. But the Executive Committee as a whole or a particular member or members of the EC shall not be removed in a meeting where the number of member present is less than half of the total members of the General Body.

Powers to Collect Fees etc :

The General Committee of the Block-Level Co-ordination Body shall by a resolution empower the Executive Committee to collect fees or any other contribution from its members which is required to defray the charges in pursuant of its objectives.

Provided that no fee or any other charges, and the rates thereof , shall be collected from the Gaon Panchayat level FMC / FMC without the prior approval of the State-level Coordination Body. The fees so collected by the Executive Body shall be deposited in the nearest Bank by opening a Bank Account. The Bank Account shall be jointly operated by Box 2 cont…the President and Secretary of the Block Level Coordination Committee (Panchayat Pathar Parichalana Samity).

Individual and Collective responsibility of the FMC :

Each member of the Block-level Coordination Body shall be singly and collectively responsible for any act of omission and commission brought about while pursuing its functions.

Appendix 2:

Discussion meetings with the Officials, FMC functioneries and Experts:

1	Dr. A Deka, Former Director of Agricultue and Advisor, ARIASP, Guwahati
2	Professor Tapan Dutta, Advisor, Chief Minister, Assam, Guwahati
3	Dr. Ravi Kota, Project Director, ARIASP, Guwahati
4	Dr. Malay Bora, Director, Directorate of Dairy Development, Guwahati , Assam
5	Dr. M Ariz Ahmed, Deputy Commissioner, Sonitpur District, Assam
6	Dr. Harin Baishya, Economist, ARIASP, Guwahati
7	Md. M Ahmed, former President, SAPPS, Rehabari, Guwahati
8	Mr. Promod Gogoi, Secretary, SAPPS Guwahati
9	Ms Sukyana Goswami, ARIASP, Guwahati
10	Dr. Pradip Sarma, Director, Centre for Rural Development, Guwahati
11	Shri Mani Das, District President, Sonitpur FMC, Balipara, Sonitpur
12	Shri Rambahadur Thapa, President, Naduar Block FMC, Sonitpur.
13	Dr. Siba Prasad Borah, Jt. Director, Directorate of Extension, Govt. of India, New Delhi
14	Dr. A K Neog, Senior member of the Indian Economic Service, New Delhi
15	Shri BN Hazarika, District Agricultural Officer, Jorhat, Assam
16	Shri Sekhar Jyoti Bhuyan, District Extension Officer, Nagaon, Assam
17	Mr. A K Barah, Chairman, CADET, B. Chariali, Sonitpur
18	Mr. A Rajkhowa, Extenstion Officer, B. Chariali, Sonitpur
19	Prof. Chandan Hazarika, Department of Agricultural Economics, Assam Agricultural University, Jorhat, Assam
20	Dr. P Gogoi, Directorate of Extension, Assam Agricultural University, Jorhat, Assam
21	Dr. Shantikam Hazarika, Director, Assam Institute of Management, Guwahati
22	Dr. R P Singh, Indian Institute of Management, Lucknow, Uttar Pradesh
23	Dr. Arun Bandopadhyaya, Chief Geral Manager, NABARD, Guwahati
24	Mr. JK Kanojia, General Manager, NABARD, Guwahati
25	Dr. K V Raghavulu, Chief General Manager, NABARD, Guwahati
26	Dr. J P Saikia, Managing Director and Chairman, North Eastern Development Finance Institute (NEDFi), Guwahati
27	Dr. M M Kalita, Director Agriculture, Govt. of Assam, Guwahati
28	Mr. Rana Sarma, Deputy Director Agriculture, Govt. of Assam, Guwahati

Chairman, Publication Committee
NCAP
Feb 20 2006

Subject: Research Report on Institutional Innovation- A driver for rural prosperity: A study of Field Management Committees (FMC) in Assam

Please find enclosed the report of the research project undertaken at the centre. The findings of the research have been presented in the SRC .

I would request you to please arrange bring out the document as centre's research report.

B C Barah

[1] Draft on 5/31/2006 (file name: Final Report FMC Aug 2005 New)