Best Practices in CMCs Mimeograph Series 1

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Rural Development Best Practices in CIRDAP Member Countries 2013

CIRDAP

Centre on Integrated Rural Development for Asia and the Pacific

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Rural Development Best Practices in CIRDAP Member Countries

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Foreword

There are a number of issues adversely influencing directions of rural development in most of the CIRDAP Member Countries (CMCs), which includes, absence of appropriate structures; processes including globalisation are seen to be barriers; vulnerable to the effects of climate change; population pressure; access of information, markets, and credit facilities; proneness to natural calamities and land conversion, etc. Despite such constraints, a number of member countries have been able to demonstrate some good practices that led to the poor people survive in the face odd/vulnerable situation which could be good lessons for the nations.

Under this back drop, the EC-28 and GC-18 meeting held Iran in 2011 decided that the available best practices among member countries should be captured and shared with all member countries to link up and emulate these best practices in CIRDAP member countries. In commensurate with the mandates of CIRDAP such as (i) to assist national action, (ii) promote regional cooperation, and (iii) act as a servicing institution for its member countries for promotion of integrated rural development through research, action research, training and information, communication, dissemination and sharing of the best practices on rural development and poverty alleviation, CIRDAP since 2012 has been collecting the best practices and disseminating for the benefit of the Member Countries. This is second of its kind in the series attempted to compile the best practices presented in the International seminar on South-South Cooperation in May 2013 in Indonesia.

I hope the Report will be useful to the policy makers and rural development practitioners as well as researchers and professionals interested in rural development in the region. I would like to take this opportunity to thank the head of the CIRDAP Link Institutions for providing relevant materials for the report.

Dhaka, September 2013

Dr. Cecep Effendi
Director General
CIRDAP

Acronyms

AARDO	:	Afro Asian Rural Development Organisation
ANDS	:	Afghanistan National Development Strategy
APIB	:	Agro Climatic Planning and Information Bank
APMC	:	Agriculture Product Marketing Committee
ARDSS	:	Afghanistan Rural Development Sector Strategy
BAPARD	:	Bangabandhu Academy for Poverty Alleviation & Rural Development
BARD	:	Bangladesh Academy for Rural Development
BRDB	:	Bangladesh Rural Development Board
LGED	:	Local Government Engineering Department
BDT	:	Bangladesh Taka (Currency)
CAPSA	:	UN Centre for Alleviation of Poverty through Sustainable Agriculture
CARD	:	CIRDAP Approach of Rural Development
CBOs	:	Community Based Organisations
CDD	:	Community Driven Development
CGARD	:	Centre on Geoinformatics Application in Rural Development
CIRDAP	:	Centre on Integrated Rural Development for Asia and the Pacific
CLI	:	CIRDAP Linked Institute
CMCs	:	CIRDAP Member Countries
CVDCS	:	Comprehensive Village Development Cooperative Societies
CVDP	:	Comprehensive Village Development Programme
DAP	:	Department of Agriculture Planning
DDA	:	District Development Strategy
DDC	:	District Development Committee
DSS	:	Decision Support System
EC	:	Executive Committee
FRIEND	:	Foundation for Rural Integrated Enterprise
FWP	:	Food for Works Programme
GC	:	Governing Council
GIS	:	Geographic Information System
GoB	:	Government of Bangladesh
GPS	:	Global Positioning System
HDI	:	Human Development Index
ICT	:	Information Communication Technology
IDRC	:	International Development Research Centre
IGAs	:	Income Generating Activities
INDEP	:	Integrated National Poverty Eradication Programme
INFRA	:	Institute of Rural Advancement
INGOs	:	International Non-Governmental Organisations
IRS	:	Indian Remote Sensing
KDP	:	Kecamatan Poverty Programme
LDCP	:	Local Development Coordination Programme

LDTA	:	Local Development Training Academy
LGRD&C	:	Local Government Rural Development & Cooperatives
LLPMS	:	Local Level Poverty Monitoring System
MDGs	:	Millennium Development Goals
MFIs	:	Micro finance Institutes
MoLGRD&C	:	Ministry of Local Government Rural Development & Cooperatives
MRRD	:	Ministry of Rural and Regional Development
MRRD	:	Ministry of Rural Rehabilitation and Development
NABPD	:	National Area Based Development Programme
NBPs	:	Nation Building Departments
NGOs	:	Non-Governmental Organisations
NILG	:	National Institute of Local Government
NIRD	:	National Institute of Rural Development
NTFPs	:	Non-Timber Forest Products
PCM	:	Project Cycle Management
PDM	:	Project Design Matrix
PIC	:	Project Implementation Committee
PKSF	:	Palli Karma Sahayak foundation
PNPM	:	National Programme for Community Empowerment
POP	:	Plan of Operation
PRDP	:	Participatory Rural Development Project
PSC	:	Project Steering Committee
RCF	:	Regional Cooperation Fund
RDA	:	Rural Development Academy
SDSS	:	Spatial Decision Support System
SEARCA	:	Southeast Regional Centre for Agritl. Graduate Study & Research
SFDF	:	Small Farmer Development Foundation
SLGDF	:	Local Governance Development Fund Project
SSTC	:	South-South Technical Cooperation
SSWRDSP	:	Small Scale Water Resources Development Sector Project
TTDC	:	Thana Training and Development Centre
UCC	:	Union Coordination Committee
UCCA	:	Upazila Central Cooperative Association
UCCM	:	Union Coordination Committee Meeting
UDO	:	Union Development Officer
UNDP	:	United Nations Development Programme
UP	:	Union Parishad
UPCs	:	Union Parishad Complexes
UPP	:	Urban Poverty Programme
VC	:	Village Committee
VDC	:	Village Development Committee
VGD	:	Vulnerable Group Development

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Rural Development Best Practices in CIRDAP Member Countries 2013

Background

CIRDAP organised international workshop on **South-South Technical Cooperation (SSTC) for Sustainable Rural Development** on 20 May 2013 in Jakarta, Indonesia, followed by Annual Technical Committee Meeting. The purpose of the workshop were, (i) to develop closer cooperation between and among Country Link Institutes in CIRDAP member countries by knowing each other programmes and activities; (ii) to develop closer cooperation between CIRDAP Country's Link Institutes and other national/regional organisations which operate in CIRDAP member countries; and (iii) to ensure that the Technical Committee Meeting would be followed by exchange official visits by CIRDAP member countries officials or from Country Link Institutes to study best practices from other CIRDAP Member Countries.

In addition to international organisations operate in CIRDAP Member Countries, the International Workshop on South-South Technical Cooperation for Sustainable Rural Development also tried an effort to engage for the first time national organisations from CIRDAP Member Countries that have some relevant to the programmes and activities of CIRDAP. Apart from presentation from CIRDAP Member Countries (CMCs), there were other organisations who made their participations and presentations in SSTC workshop are like a) United Nations Center for Alleviation of Poverty Through Sustainable Agriculture (CAPSA) based in Bogor, Indonesia b) International Tropical Fruit Network based in Selangor, Malaysia c) Southeast Regional Centre for Agriculture Graduate Study and Research (SEARCA) based in Los Banos, the Philippines and d) African and Asian Rural Development Organisations (AARDO) based in New Delhi, India.

The success of International Workshop on South-South Technical Cooperation for Sustainable Rural Development would provide CIRDAP the opportunity to consider making certain important topics related to rural development agenda as annual activity along with CIRDAP Annual Technical Committee Meeting. Through this international workshop, there would opportunities to develop partnership with important international and national organisations and *Vice versa in light of win win situation among CIRDAP and CMCs.* The partnership would help CIRDAP to fulfill its mandate in the long run.

The South-South Technical Cooperation for Sustainable Rural Development focused on the best practices of Rural Development projects in CIRDAP Member Countries which can be replicated by CLIs, considering the country context are presented below.

Country Presentations on Best Practices

1. AFGHANISTAN

Rural Development in Afghanistan: National Area-based Development Programme (NABDP)
Ministry of Rural Rehabilitation & Development

In the year of 20002, NABDP was initiated with the joint effort of Ministry of Rural Rehabilitation and Development (MRRD), Afghanistan and United Nations Development Programme (UNDP). The aims of NABDP were (a) to contribute to a sustainable reduction of poverty and improvement of livelihoods in rural Afghanistan and (b) ensure the social and economic well-being of rural communities, especially the rural poor and vulnerable.

NABDP Strategically supports: a) Afghanistan National Development Strategy (ANDS) b) Agricultural Rural Development Sector Strategy (ARDSS) c) Based upon the third pillar of the ANDS (Social and Economic Development) and addresses like (i) Institutions strengthened at the district level to independently address priority local needs (ii) Improved Access to key services for the rural poor and (iii) Stabilisation in less secure regions and districts.

In NABDP Phase I (2002 – 2006) the Priority was recovery and economic regeneration programme in the complex emergency context of Afghanistan. The Phase-II (2006-2008) was to Support District Development Assembly (DDA) institutionalisation, poverty reduction and institutional capacity development.

NABDP Phase III (July 2009 – June 2014) at present supports AIRD to become the main center for Capacity Development of the District Development Assemblies. This phase focuses where higher degrees of vulnerability and disadvantage are prevalent, works to reduce disparities by investing in social organisation, infrastructure, local economic development and sub-national governance initiatives and Strives to advance progress toward achieving Millennium Development Goals (MDGs)

NABDP in Local Governance covers 388 district development assemblies and established in 34 provinces in Afghanistan with coverage of 8,281 male and 3,442 female.

NABDP in Education made progress of coverage of 85 schools constructed in 23 provinces which made possible of 42400 students gained access to education. The budget was Budget: US$10,476,219.

NABDP in Rural Energy made the activities like: (a) 17,322 households were provided electricity (b) produced 1,957 kilowatts of electricity (c) completed 108 Micro-Hydro power plants projects. The budget for this was Budget: US$ 6,150,161. Also, 38 Biogas projects were completed which made possible to benefit 457 families for cooking fuel facilities.

- The health coverage with NADP was for 44,244 families who were benefited from 40 health clinics in 16 provinces with a budget of US$ 2,580,894
- Regarding Peace and Security NABDP distributed 121 tractors to ex-combatants of 267,034 beneficiaries with a budget: US$2,228,584
- NABDP in Agriculture made the following activities: (a) 1622 projects completed (b) 9,040,858 beneficiaries (c) 38,801 jeribs of land irrigated with a budget of Budget: US$76,988,286
- NABDP in Transport sector has the following activities: (a) 1,440 kilometers of tertiary/secondary road was constructed (b) 33 bridges were constructed (c) 4,617 villages were connected (d) Benefited 4,123,719 with budget of US$ 34,154,433

With reference to Capacity Building NABDP made 71 vocational training projects completed (carpet weaving, tailoring, embroidery, fruit processing, bee keeping and polarity farms). The coverage of beneficiaries were 2,743 women trained in 24 provinces with a budget: US$ 1,760,612. Also, the project has done irrigation activities which are 212 kilometers of protection and Gabion wall constructed that made 122,517 jeribs of land protected for 8,557,097 beneficiaries with a Budget of US$ 72,953,676. Lastly, it made contribution in the essential field of water and sanitation which has the activities like (a) 571 water supply and sanitation projects completed (b) 192,182 families gained access to safe drinking water with a budget of Budget US$ 17,740,151.

2. BANGLADESH

Rural Development Best Practices in Bangladesh: Sharing of Experiences[1]

Country Profile

Bangladesh started its journey as an independent state on 16 December 1971. Many people sacrificed their lives for the great cause of independence. The total area of the country is 147,570 sq. km while the population density is 1007 persons per sq km. in 2010. Majority of the population are Muslims. Over 98% of people speak Bangla. People living in the rural areas are about 75%. The population growth rate is 1.36%. The total population is 148.6 million (2010). Per capita income is US$ 818 (2010-11), literacy rate is 56.8% (Adult) and 58.6% (7 years +) in 2010 (BBS, 2012). Based on the upper poverty line, in HIES-2010 the incidence of poverty is estimated at 31.5 percent at the national level, while it was 40% in 2005. It is interesting to note that poverty has declined by 8.5 percentage points (approximately 1.7 per cent per annum) during 2005-2010 (BBS, 2011). The economy of Bangladesh is predominantly agriculture based. But the contribution of agriculture in GDP reduced from 21.84% in 2005-06 to 19.29% in 2011-12, whereas the contribution of industry and service sector increased from 29.03% to 31.26% and 49.14% to 49.45% respectively in the same period. Yet almost half (47.3%) of the labour force still employed in the agriculture sector (GoB, 2012).

Some of the tangible achievements over the past few decades are: a) Bangladesh has already achieved two targets of UN Millennium Development b) Goals that include access to pure drinking water and removing gender inequality c) in enrolment at primary and secondary levels d) Income poverty has declined from 40% in 2005 to 31.5% in 2010, which means poverty has declined by 8.5 percentage points (approximately 1.7 per cent per annum) during 2005-2010 d) Besides, the country has also made significant progress in reducing infant and maternal mortality rates and ensuring food security e) Bangladesh has graduated from low human development group to medium human development group f) Besides, the country has also made significant progress in reducing infant and maternal mortality rates and ensuring food security and g) Bangladesh has graduated from low human development group to medium human development group.

Rural Development in Bangladesh

In Bangladesh context, rural development is treated synonymously with economic, agricultural and social development as they are mutually reinforcing due to low per capita income, large rural population base, low per capita land availability,

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[1] Paper presented in by Md. Mashiur Rahman, Director General, BARD, Kotbari, Comilla. The *Workshop on South and South Technical Co-operation for Sustainable Rural Development* held in Jakarta, Indonesia from 20-21 May 2013. For any clarification, the author can be contacted at: dgbard1959@gmail.com, Fax: +88 081 68406, website: www.bard.gov.bd.

unemployment and under employment (CIRDAP, 2005). Since the 1980s, "self-reliance" and "participatory endogenous development" became key elements of rural development in Asia. During the 1990s, a renewed emphasis on poverty reduction was emphasised through fostering growth-oriented programmes. In most countries, labour intensive growth and improved social services were considered to offer a powerful and viable route to poverty reduction. Consequently as depicted in following table, Asian countries have experienced changed focus on poverty as the development paradigms underwent changes, marked by new insights in rural development (CIRDAP, 2005). Rural development should be seen as part of national development, focusing on the particular needs of the population residing in the rural areas, but also keeping the linkages with urban areas in perspective; otherwise cohesive national development is not possible there is interdependence among rural and urban areas as well as among various segments of society (CIRDAP, 2005). Poverty reduction has been the center-piece of all development plans over the last six decades and this has been re-iterated in the latest Perspective Plan (2010-2021) and Sixth Five Year Plan (2011-2015) as well.

Table 1: Development Paradigms and Poverty Reduction Strategies

Period	*Dominant development paradigm*	*Poverty reduction strategies*
1950s	Growth through industrialisation	Community development
1960s	Agricultural intensification, human capital development	Trickle down benefit to the poor
1970s	Redistribution with growth	Basic needs, integrated rural development
1980s	Structural adjustments, private sector led development	Growth, human resource development, safety nets, NGO involvement
1990s	Human development growth	Labour intensive growth, human resource development of the poor, targeted programmes and safety nets.
2000s	Micro-finance, NGO/INGO, Civil society, private sector	Targeted programmes/MDGs

Source: CIRDAP, 2005:134.

The Ministry of Local Government, Rural Development and Cooperatives (LGRD & C) is the lead ministry for rural development in Bangladesh. Under this Ministry, Bangladesh Rural Development Board (BRDB) is the largest Government sector organisation for poverty alleviation throughout the country. The Local Government Engineering Department (LGED) under this Ministry is responsible for development of rural infrastructure including roads, culverts, bridges, drainage, growth center etc.

The Local Government Division looks after all kinds of Local Government Institutions including Municipalities and Union Parishads (lowest local government tier). On the human resource development and research front, Bangladesh Academy for Rural Development (BARD)[2], Rural Development Academy (RDA), National Institute of Local Government (NILG), Bangladesh Cooperative Deapartment, Bangabandhu Academy for Poverty Alleviation and Rural Development (BAPARD), etc. are executing rural development concept, projects and programmes through training, research and action research. Side by side with the M/o LGRD &C, several other ministries and their affiliated departments/agencies as well as hundreds of NGOs are directly involved in poverty alleviation and rural development. Even the banking sector institutions are increasingly participating in poverty alleviation mainly through micro credit support to poor people, farmers and small entrepreneurs. Over the years, services to the poor and vulnerable section have taken newer dimensions through expansion of safety net programmes and inclusion of more and more vulnerable sections and their special needs.

For illustration, the following special programmes may be mentioned: a) Food for Works Programme (FWP) b) Vulnerable Group Development Programme (VGD) c) Old-age Allowance for the Elderly People d) Allowance for the Widowed and Distressed Women e) Special Micro-credit Programme for the Acid-burnt and Physically Impaired f) Training and Self-employment Programme for Freedom Fighters and their Dependants g) Poverty Reduction and Goat Development Programme h) Housing Fund for the Homeless Poor i) Karma Sansthan Bank (Employment Generation Bank) for the Unemployed Youth j) Abashan (Rehabilitation) Project k) Primary Education Stipend Programme l) Stipend for Secondary Level Girl Students m) Rural Road Maintenance Programme n) Fund for Mitigating Natural Disaster Risks and o) One House One Farm (Ekti Bari Ekti Khamar)

The Government pursues a comprehensive rural development policy through formulating the **National Rural Development Policy** in the year 2001. The policy articulates that people are the prime movers of their development where government would facilitate development by creating a congenial atmosphere. The policy also emphasised on human resource development, improving standard of living of the rural people, strengthening local government and women's development. It also underlines a wide range of mutually supportive programmes for alleviating income and human poverty and suggests a strategy of concerted efforts of all agencies.

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[2] The Academy was established in 1959 basically as a training institute to train government officials and representatives of the local government and village organisations. It is an autonomous institution attached to the Ministry of Local Government, Rural Development and Cooperatives of Bangladesh. The main functions of the Academy are to conduct training and carry out research and action research programmes for the betterment of rural people of Bangladesh. The Academy is famous for its evolved model '*Comilla Approach to Rural Development*' in home and abroad and received 'National Award' in 1986 for its remarkable contribution in Rural Development.

People's Participation in Rural Development: The issue of people's participation in development started gaining attention since the introduction of the Comilla Approach to Rural Development during the 60s. It came into application through the Rural Works Programme and the Cooperatives Programme. The former was implemented through active participation of the local government functionaries (Union Council) while rural people planned and implemented their development through the village level cooperatives. The government channeled supports and services through the Thana Training and Development Centre (TTDC), which is another component of the Comilla Model. From 1970s onward, the issue of people's participation gained further momentum and new dimensions. Changes even occurred in the national planning process.

Participatory Practices in the Poverty Alleviation Field: While the country still undergoes the formative and campaigning stage of good governance, practical examples of participation and good governance are emerging through modest efforts. In the recent past, certain public sector programmes for rural development and poverty alleviation have expressively incorporated the governance and participation issue as either programme objective or strategy. The Ministry of Local Government, Rural Development and Cooperatives has launched a number of programmes with an articulated emphasis on good governance and people's participation. Followings are few rural development flagship programmes of Bangladesh in the application of participatory approaches:

Local Development Coordination Programme (LDCP) and Small Scale Water Resources Development Sector Project (SSWRDSP) of LGED: With the goal of promoting local good governance, LDCP, a project of Local Government Engineering Department (LGED) is constructing Union Parishad Complexes (UPCs) as a means of one-step service delivery to the Union level people. The center will accommodate different agencies at the field level in the same building as well as elected representatives of Union Parishad (UP). UPCs will ensure availability of all services of development–agencies at one point and enhance coordination and interaction among UP and officials of development agencies. The Small Scale Water Resources Development Sector Project (SSWRDSP) of LGED is a countrywide programme involving local stakeholders and Union Parishads in the planning, management and development of water resources for irrigation and other purposes.

It is showing promising results in terms of community empowerment, development of water infrastructure, local level planning and implementation, capacity building of local community, greater role of UPs, and above all, poverty alleviation through enhanced community participation and local resource mobilisation.

The Local Governance Development Fund Project, Serajgani (SLGDF) of Local Government Division: The project lays stress on many elements of good governance such as participatory decision making and monitoring, decentralised and performance based funding, open budget sessions, transparency and accountability etc. The open budget session is a unique concept in which UP budget is prepared through consultation with the community in their presence. The participatory performance assessment of UP activities with participation for 100-300 persons (20-30% women) from the community is another appreciable addition. Certain mechanisms including incentive provision, have been introduced to enhance local resource generation for UP.

PRDP of Bangladesh Rural Development Board (BRDB): The Participatory Rural Development Project (PRDP) under JICA assistance has yielded good results in promoting the causes of people's participation and local good governance in many ways. The project has been working for establishing an effective mechanism of coordination of activities of all concerned working for poverty alleviation and rural development through strengthening local governance at the union and village levels. The institutional implementation mechanism of PRDP is termed as Link Model since it aims at establishing linkages among UP, NBDs, NGOs and villages to promote rural development. There is provision for wider scope for participation through Union Coordination Committee (UCC) meetings. Village Committee (VC) meetings, improved rural service delivery through vertical and horizontal linkages, the introduction for Upazila Development Officer (UDO) as the link person between UP and service providers, provision for matching fund from the community against development schemes, obligation of clearing union tax by VCs for approval of schemes by Union Coordination Committee Meetings (UCCM), notice boards to keep community updated, and introduction for Union Parishad Development Complex (UPDC) to facilitate bringing all stakeholders in the same location essentially address the crucial need of participatory development and good governance at local level.

Micro-Credit

Bangladesh is the place where the seedbed of micro-credit was prepared, experimented and flourished with a recognised system to serve the poor. Micro-credit provides collateral free financial support to the very poor persons and mobilises savings for self-employment and income generation. In mid seventies, BARD introduced the concept of collateral free credit through an experimental project named *Small Farmers and Landless Labourer Development Project* where collateral free micro-credit distributed to landless farmers' groups through a commercial schedule Bank. This project turned to a Foundation as *Small Farmer Development Foundation* in July 2005. With the advent of Grameen Bank and other

such programmes micro-credit obtained a new identity, a new meaning and a place in development literature. Micro-credit revolution has happened in Bangladesh from the eighties onward. In the Government sector, Bangladesh Rural Development Board (BRDB), Palli Karma Sahayak Foundation (PKSF), Rural Employment Generation Foundation, Small Farmers Development Foundation (SFDF), Commercial Banks including Bangladesh Agriculture Bank and several Ministries through their various development programmes are investing huge amount as micro-credit for the poor and the vulnerable sections. Until August 2012 the Microcredit Regulatory Authority had approved licenses in favor of 651 NGOs for operating micro-credit programme in Bangladesh. Bangladesh microfinance sector is mature now and its assets constitute around 3 percent of GDP in 2011. Total outstanding loan of this sector (only licensed MFIs) has increased by 20.0 percent from BDT 145.0 billion in June 2010 to BDT 173.8 billion in June, 2011 disbursed among 20.7 million poor people, helping them to be self-employed and accelerating overall economic development process of the country. The total savings has also increased by 23.25 percent to BDT 63.3 billion in June 2011 compared to previous year from 26.1 million clients, over 93 percent of them are women (MRA 2012). For enormous contribution of micro-credit to poverty reduction as well as establishing peace among the people in Bangladesh, Dr. Mohammad Younus and Grameen Bank jointly received Nobel Prize in 2006.

LLPMS of Bangladesh Academy for Rural Development (BARD): The Local Level Poverty Monitoring System (LLPMS) is a most recent experiment of BARD to address the issue of good governance in poverty alleviation through involving the community in local level poverty monitoring. Implemented with the financial support of IDRC-Canada and CBMS Network, the Philippines, the project has come up with positive results in developing a database on local level poverty situation through active participation of community and Union Parishad. The database contains household level data as well as aggregate data offering a comprehensive picture of poverty at the local level. The active involvement of the community in the whole process of preparation of the database has created a strong sense of ownership of the data and opportunities for the development agencies to offer need based support services to the community.

Comprehensive Village Development Programme (CVDP) - An Acclaimed Success Story of Participatory Rural Development: BARD, Comilla through long term experimentation developed a new rural development model titled "Comprehensive Village Development Programme (CVDP)". The main objective of CVDP is to create self-employment and develop the standard of living to enhance income in a planned way according to the qualification and propensity of the youth, adolescents, women and men of all the families on the basis of self-effort and self-help after bringing them under a village-based cooperative society irrespective of

class and profession of each villagers. The model has been accepted by the Government of Bangladesh and is being replicated gradually throughout the country since 2005. At present, the programme is being implemented in 4275 villages of 66 Upazilas in 64 Districts by BARD, RDA, BRDB and Cooperatives Department under Ministry of LGRD&C. Major functions of CVDP are organising weekly meeting with members, collection of savings and shares, investment of capital, management of the cooperative societies, developing village development workers, preparing annual development plan in a participatory way and its implementation. The first implementation phase was completed in June 2009. The second implementation phase at national level started in July 2009 and expected to continue till December 2013. Initiatives are in place to extend the programme for few more years. The programme significantly contributed to increasing irrigation coverage, school enrollment of children, literacy rate, coverage of safe drinking water, use of sanitary latrine and coverage of EPI (Kabir, 2007) and generated more than half a billion (526.03 million Taka) taka as capital by the 4235 co-operative societies throughout the country till June 2012.

Process of Implementation-

One Village One Institution: The main approach of CVDP is one village one institution. In each village, there is a registered cooperative society called Comprehensive Village Development Cooperative Society (CVDCS), which covers all classes of villagers- male, female, children, rich and poor. The managing committee of each society is a democratically elected body.

Linkage with Service Providers: Each society establishes linkage with Union and Upazila level service providing agencies. It is federated to the Upazila Central Cooperative Association (UCCA) to receive the latter's services. The society utilises the services of UP, nation building departments (NBDs), NGOs, and private sector organisations through its trained activists. The activities number 13, each working in a different area of development.

Union and Upazila Level Cooperation: The participation for local government and local service providers is ensured through holding Union Coordination Committee Meetings and Upazila Coordination Committee Meetings. The committees are represented by all NBDs, NGOs and CBOs at the local level.

Participatory Planning, Implementation and Review: The CVDCS prepares a Household Resource Book for each house in the village. It contains an inventory of household resources to serve as a guide to identify the gap between the available resources and those required for the improvement of social and economic conditions of the household on the basis of its felt needs. The society then prepares a

Comprehensive Village Resource Book, to be used as the basis for the formulation of a Comprehensive Village Development Plan by the society, which contains the database of the household resources as well as an inventory of common village resources and facilities.

The Comprehensive Village Annual Development Plan is prepared by the society. It is prepared in two parts, one for economic activities, and the other for the development of the common village facilities and services. The two plans after discussion and approval by the general meeting of the society are consolidated into the Society's Annual Economic Plan. It is important that the villagers themselves collect data for the resource books and formulate annual plans in the weekly meetings. More innovative techniques have been adopted to generate greater participation for the community and other stakeholders. An Annual Review and Planning Workshop is held at the Upazila level where all cooperative societies present their previous year's performance and next year's plan. The performance is reviewed, criticized and plans are further improved jointly by the societies, participants from UPs, development agencies including Upazila administration and NGOs.

The Rotational Joint Meeting is another very successful innovative practice in CVDP. The village societies host the meeting on a rotational basis in their own premises. Invited cooperators of the remaining societies conduct village transact, visit houses (selected on a random sampling basis) as well as development activities, and later in the afternoon pass their remarks and suggestions in the joint meeting. In this way, the process of criticism and improvement goes on and on, and it forges accountability, transparency, community ownership and development that rolls on mutual support.

The Weekly meeting is the artery of CVDP: Expenditures and income receipts are informed, development problems are discussed and new knowledge is disseminated. The weekly meeting serves as the basic training forum of the villagers.

Table-2: The following presents a synopsis of outcome of different RD programmes

Programme/ Project	***Outcome***
Local Development Coordination Programme	• Promotion for local good government. • Construction for Union Parishad Complex as one stop service delivery to rural people.
Small Scale Water Resource Development Sector Project (SSWRDSP)	• Involving local people and Union Parishad in planning, management and development of water resources.

Programme/ Project	*Outcome*
Local Governance Development Fund Project, Serajgonj (LGDF)	• Introduced open budget session for UPs. • Participatory performance assessment of UP activities by community.
Participatory Rural Development Project (PRDP)	• Linking UP, nation building departments, NGOs and villages to strengthen local governance. • Introduction of Union Parishad Development Complex for coordinated development. • Increased tax collection at local level. • Keeping community updated with development information.
Local Level Poverty Monitoring System (LLPMS)	• Development of a participatory poverty monitoring data base.
Comprehensive Village Development Programme (CVDP)	• A model of integrated and coordinated service delivery through village level cooperative institution. • Participatory planning and evaluation on an annuals basis. • Development activists from among villagers work as link persons between NBDs and villagers. • Transparency and accountability ensured through weekly meeting at village level and coordination committee meetings at Union/Upazila levels.

BARD and other CLIs can offer to exchange learning:

BARD, BRDB, LGED and Local Government Division of MoLGRD&C have been continuously thriving for appropriate models of rural development for the greater benefit of the rural people of Bangladesh. The previous sections have already discussed few best practices in rural development sector in Bangladesh. Now, timely actions needed for the CMCs to reap the benefit of the programmes and utilise it to other areas as per their need and urgency. Following points are furnished for further consideration:

- Bangladesh has already gained sizeable amount of experience in micro credit operation and management. In this regard, BARD has developed an innovative training-cum-workshop programme on *Governance in Micro Credit Delivery System* and has been conducting *International Training Workshop on Governance in Micro Credit Delivery System* with the joint collaboration of African Asian Rural Development Organisation (AARDO) since 2009, where many Asian-African country participants have immensely been benefitted through the experience sharing. CIRDAP can explore this initiative to extend the learning to other CLIs.

- As per the decision of 15th GC meeting (2005), the operationalisation of Regional Cooperation Fund (RCF) has not yet been fully materialised at all CLI level. In this connection, BARD has already implemented a study conducted by one senior Faculty of NIRD, India in April-May 2012 with the co-operation of CIRDAP. Other CLIs can start the process and all CLI heads can make a consensus to find out a future strategy to operationalise the RCF fully.
- Comprehensive Village Development Programme (CVDP), basically the concept of *One Village One Society* has been operating in Bangladesh in different phases for long. Now it is being replicated throughout the country covering all districts as a national rural development model. It is evident that CVDP has been able to make significant contribution in institution building, capital accumulation, resource mobilisation leading to socio-economic development of the rural people through village based co-operative societies. The experiences can be shared with the countries having similar socio-political context.
- BARD is also willing to learn from other CLIs to expand its activities. If any other replicable models of other countries having similar socio-economic context of Bangladesh are found quite successful, in that case BARD can try to initiate the model in micro-scale form to assess its effectiveness.

Conclusion

As development is an on-going process, many initiatives have already been taken up by GO, NGOs, private organisations for poverty reduction and improvement of life of all citizens of Bangladesh. There are few noteworthy programmes that manifested quite good results in Bangladesh and experiences learnt from those initiatives like CVDP, LLPMS of BARD, SSWRDSP of LGED, PRDP of BRDB can be shared by all CMCs through CLIs. Now it is time for action for all CMCs to identify the appropriate model for sustainable rural development practices in order to achieve both the short term and long term objectives of national development goals. CIRDAP can take appropriate initiative to materialise the sharing the benefits to all member countries in a gainful manner with the active participation of respective CLI. BARD, as CLI in Bangladesh is ready to offer any assistance needed within its limited scope.

3. FIJI

A Country Paper: The Republic of FIJI Islands

Background: The Republic of FIJI Islands consisted of 330+ Islands with 18,333 sq.km. among which there are 2 main islands. Fiji has Population of 837,271 in 15v provinces got independence in 1970. The size of Fiji is 18,274 sq. km with GDP per capita ($US) - 4,349 and HDI ranking of 86. The Age Structure are: a) •0-14 years: 30.3% b) •15-64 years: 64.9% and c) •65 years and over: 4.8%. The ethnic groups consisted like Fijian 57.3%, Indian 37.6%, other 5.1% (European, other Pacific Islanders, and Chinese). The languages used are English (official), Fijian (official), Hindustani. The religions comprised of Christian 64.5%, Hindu 27.9%, Muslim 6.3%, other 1.3%. Among the 332 islands approximately 110 are inhabited Rural Development in Fiji was initiated since 1969 and mandated under the Ministry of Rural & Maritime Development and Disaster Management which has 4 divisions. The total rural population in Fiji is around 412,425.

With reference to demographic indicators Fiji has HDI – 85 (UNDP, 2010), Rural-Urban ratio – 40:60 percent. Rural Population – 49% of total population. Population Density is 42(1996). Percentage of Poverty ration are 31:43 (urban: rural); 2008-2009 estimates. The Basic Need Poverty Line indicates 41.15; (2008-2009 est.) and Rural share of Poverty Gap represents 70%; (2008-2009 est.).

The Integrated National Poverty Eradication Programme (INPEP) Core Policy Areas and Strategy Frame work: INPEP is focused on the areas like (a) economic growth (b) Increasing basic social service (c) improving participation and empowerment (d) targeted services for disadvantaged and poor.

Government Objective of Fiji are (a) Reduce Poverty to a Negligible Level by 2015 (Peoples Charter for Peace Change & Progress, 2008-2014); (b) Rural & Outer Island Development (Outcome 36 Roadmap for Democracy and Sustainable Socio-Economic Development, 2009-2014).

Ministry of Rural Maritime Development and Disaster Management: The programme are focused in the areas like **(a)** Rural Housing (b) Access Roads Self Help (c) Agricultural Programmes (d) Poverty Alleviation Housing Programme (e) Educational Building Grants and Boarding (f) Emergency Water and (g) Public Sector Investment Programmes.

NGO Initiatives

a) **Tutu Training Centre**

It is located in Northern Division of Fiji and the target beneficiaries are youth. The programme name is entitled "Agriculture Farming/Income Generating" which has 4 year duration

b) **Lutu Cooperative**

It is located in Central Division for which target beneficiaries are Community Groups The Programme name is Farmer to Market/Income Generating, Cooperative Scheme and activity is Taro Export to New Zeland.

c) **Saraswati Bee Keepers**

This programme is located in Central Division with target Group of Community Groups/Individuals. The name of the proramme is Bee Keeping Farmer to Market/Income Generating> the activity included raining and technical support to bee keepers

d) **Natures Way Cooperative:**

It is Located Western Division with a Target Group of Traders, Growers as members. The Programme is focused on Farmers to export Markets, Export, Packaging, Cooperative Scheme

e) **Foundation for Rural Integrated Enterprise (FRIEND)**

The programme is located in Western Division and target beneficiaries are Rural Poor. The programme addressed the areas of Governance, DESI, Sustainable Medicine. The activities included Action Plan Preparation, Backyard Gardening, Gourmet Food production, Crafts, Packaging

f) **Live & Learn**

This programme area is located in the Central Division Division with a target group of Rural Poor. The programmes are coverage the ares of Peace Building, Environmental Governance, Water & Sanitation Programme, Sustainable Use of Biodiversity, Climate Change, Sustainable energy, Waste Management, Disaster Preparedness.

Issues & Challenges in Fiji are consisted of Rural-Urban Migration, Access to basic infrastructures, Natural disasters, Isolation, Remoteness, Hugh Transport costs, Lack of market access, Strategies for crop/livestock alternatives, Tendencies for subsistence, Access to basic services Connectivity and Development disparity

Propositions:

Maximising Opportunities through: a) Replica of Best Practices b) Use of tried and tested Rural Development Tools c) CIRDAP organised workshop to design long term strategy for Rural Development (planned for 2011), Proposals at EC-29; GC-18 mtgs and CMC Exchange/Site Visit may include i) VIETNAM: 'Nong Thon Moi' – Diversified farming ii) INDONESIA: Programme National Pemberdayaan Masyarakat (PNPM) Mandiri Perdesaan iii) THAILAND: One Product, One Village iv) MALAYSIA: Rural Transformation Programme and iv) PHILIPPINES: Comprehensive and Integrated Delivery of Social Services Programme.

4. INDIA

Knowledge Management Initiative in Agriculture Sector through Agro Climatic Planning & Information Bank (APIB) in Developing Economies[1]

Introduction

Many developing countries in the South East Asia, like India, with a vast geographical area are bestowed with the bounties of natural resources, namely minerals, soils, water, flora and fauna, and marine resources. Over exploitation of available natural resources for meeting the increasing demand for food, fuel and fibre of ever-growing population has led to degradation of land by way of soil erosion by water and wind, salinisation and alkalinisation, water logging, shifting cultivation, netc. An estimated 175mha of land are subject to some kind of degradation. Soil erosion by water and wind alone accounts for an estimated 150 m ha. In addition, water logging, soil salinisation and alkalinisation, and shifting cultivation have affected an estimated 6mha, 7.16mha and 4.36mha of land, respectively. Degradation of land by deforestation, forest fire, frequent floods and drought, further compounds the problem. For optimal utilisation of available natural resources and for taking up any preventive or curative measures, timely and reliable information on natural resources with respect their nature, extent and spatial distribution; and nature, magnitude and temporal behaviour of various type degraded lands, is a pre-requisite. Hitherto, such information has been generated through conventional approach using topographical sheets or aerial photographs. Synoptic view of a fairly large area provided by multi-spectral measurements made from satellite platforms at regular intervals enable generating information on natural resources, degraded lands and environment in a timely and cost- effective manner.

Agriculture constitutes the backbone of the Indian economy. With rapidly rising population, already a billion plus, threatening to make India the most populated country in the world in next few decades, one has to look towards advanced technologies to help in meeting the needs of this burgeoning population for food, fibre and fuel. There is also need for utilisation of our natural resources in a sustainable manner. Remote sensing and Geomatics technologies have demonstrated the potential for assisting in the management of these precious resources. At the international level, ever since the launch of Landsat 1, the first civilian remote sensing satellite in July 1972, the indispensable role of satellite remote sensing in agriculture sector has been fully appreciated. In fact, the choice of spectral bands in most of the civilian remote sensing satellites launched by various countries, including India, to- date has been dictated by their use for efficacious management of resources related to agriculture. This capability has been further

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enhanced manifold by Geomatics during the last few years, especially with the availability of high resolution satellite images from IRS and Cartosat satellites.

Geomatics deals with the tools/techniques related to the measurement of geographical data, the data that has both spatial and non-spatial components. Most common among these tools are remote sensing, geographical information system (GIS) and Global Positioning System (GPS). While remote sensing data provides a synoptic, multi-spectral and repetitive information about any resource, the GIS helps in integrating the various spatial thematic layers (including remote sensing data) to arrive at an integrated decision. GPS enables the user to know the precise location of a target, which may be useful in identification, mapping or precise operation. Agriculture is a resource, which has got a large geographical extent. Especially in a country like India, where agriculture is the backbone of the country, there is great need of getting spatial information about this sector. The green revolution of 1960's has made the country's food production progress remarkable. The requirement has grown from less than 50 million tonnes in 1950's to more than 200 million tons at present. However, green revolution is also associated with many negative implications including the environmental degradation. Hence, in the twenty-first century, to steer the agricultural achievements towards the path of an 'evergreen revolution', there is a need to blend the traditional knowledge with frontier technologies. Information and communication technology; space technology; geographical information systems (GIS) are the tools of such frontier technologies which would help in creating agricultural management systems; making plans for sustainable agriculture; and bringing new areas (through development of wastelands) into productive agriculture. This present article tries to explore the role of Geoinformatics with special emphasis on remote sensing and GIS in agricultural development.

The role of remote sensing and GIS in agricultural applications can be broadly categorised into two groups – inventorying/mapping and management. While remote sensing data alone is mostly used for, inventorying (crop acreage estimation, crop condition assessment, crop yield forecasting, soil mapping, etc) purposes, the management (irrigation management, cropping system analysis, precision farming, etc.) needs various other types of spatial physical environmental information. The latter has to be integrated with remote sensing data, where the functionality of GIS is used effectively for governance and for decision support.

Agro Climatic Planning & Information Bank (APIB)

Agriculture is still the primary sector in Indian economy. While, Green revolution's food production of about 5.1 million tones in 1950 to over 205 million tones now, the higher economic growth and population pressure demands about 260 million tones

of food grains by 2030. It is therefore imperative that an accelerated pace of food production could be possible with modern biotechnology, information technology, space technology and judicious use of natural resources.

Further critical aspects of agriculture like seeds, financial support, fetiliser, marketing support, agro-processing and post harvest technologies etc are expected to improve the productivity of Indian agriculture.

Agriculture reform is the need of the hour to bring better productivity through utilisation of new technology. APIB initiated in 1998, initially by ISRO, at 1:50,000, on a pilot basis in Karnataka and subsequently in Meghalaya, for one district each, was seen as a promise by planners, nurtured by technologists and implemented by farmers. APIB with its concept of 'single window' access to knowledge base in the field of agriculture sector is eminently suitable to facilitate the reform process.

One of the important facilitating factors to enable more effective and participatory planning and decision making will be to create an access to what may be called knowledge base which has bearing on decision making and activities of various stakeholders/users.

The final decision in agriculture rests with the cultivator. Given the local agro-climatic and land-endowments, the farmer's decisions are largely influenced by factors like availability of water, inputs, credit and overall infrastructure situation including the access to the market. Yet he has a variety of options and he exercises his choice to the best of his knowledge and ability. Hence, the farmer is in need of being aided as to what are his best options by access to a comprehensive agro plans and assessment of potential which represents these options.

This activity will not be limited to handling over the plan printed on paper but also providing with back-up information and expert advice and should be constantly updated in the light of changes in the environment and technology to fulfill the requirements sustainable agricultural land use planning.

APIB requirement is multipronged approach to develop databases to contain information on both Spatial and Non-Spatial parameters. The linkages between non spatial and spatial databases will be facilitated through Geographical Information System (GIS). Decision Support System (DSS) provide a frame work for integrating databases management systems, analytical models and graphics in order to improve decision making process.

For Crop Planning based on watershed as a unit GIS is an ideal tool since Digital Elevation Model (DEM) created in GIS can be integrated with other spatial

information including land use pattern obtained from Remote Sensing Data from time to time is very important for optimising the use of limited water resources for maximising and sustaining the productivity under rainfed conditions.

This vision is reflected in Precision Farming aims to direct the application of Seed, Fertilisers, Pesticides and Water within fields in ways that optimise farm returns and minimise bio-pesticides and environmental hazards. Adption of this technology requires accurate natural resources maps showing physical and chemical properties are and the tools to apply the inputs as per the spatial variability.

Thus APIB is emerging as a Knowledge Management in Agriculture Practice, making economically viable, productivity and growth oriented and integrating with the enrichment in the progress and livelihood of commonmen.

Apib Objectives

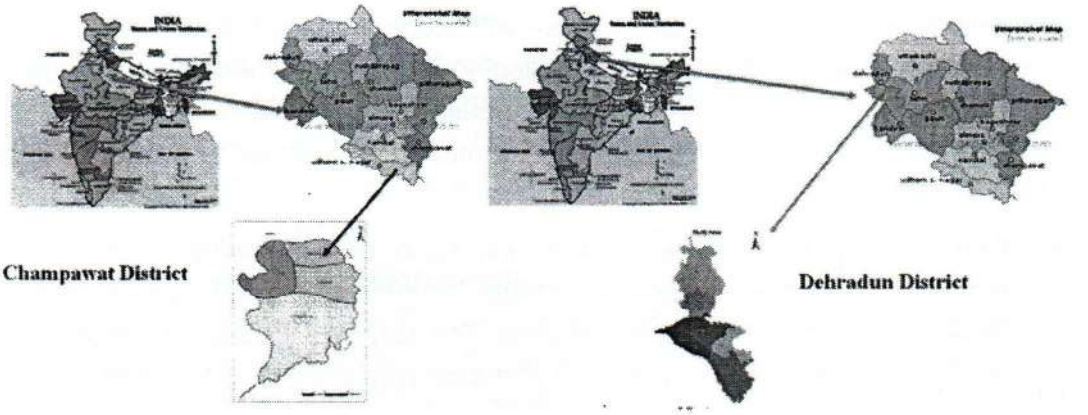
The APIB primarily aims at addressing the following objectives:

1. To prepare agriculture and natural resources inventories by analysis of temporal satellite data, including agricultural land use/land cover; cropping systems; irrigated crop land; soils; degraded land; geomorphology; ground water potential; drainage characteristics cultural; features etc.
2. To collect agro-climatic and agricultural data for agro-ecological characterisation and agri-climatic regional planning.
3. To develop a database for Agricultural Practices, Seeds, Fertilisers, Plan Protection, Agricultural Implements, Agricultural Credits, Insurance Schemes, Subsidy, Agriculture Market Infrastructure, Weather Information, Socio-economic Infrastructure etc., in GIS.
4. Development of Spatial Decision Support System (SDSS) for agro-climatic planning and information bank for agricultural reform process as well as the management of agricultural land and other agricultural allied activities.
5. Suggesting sustainable agricultural land use plan based on integration of land capability, land productivity, soil suitability, terrain characteristics and socio-economic etc. information using GIS.

Pilot Study Area

The study was demonstrated in two districts of Champawat and Dehradun District in the State of Uttarakhand, in the northern part of India and envisaged to be subsequently extended to other districts of the State. The information bank extends up to village level with soil profiling and mapping up to micro level applications, useful for decision making in agriculture sector, linking all related sectors of rural economy.

To carry out detailed study using ground truthing, maps, field observation, high resolution IRS multispectral and multitemporal images in GIS environment, in 1:10,000 scale large scale mapping for agriculture areas and 1:50,000 scale maps for forest and steep hilly areas, the study are chosen was the Champawat districts of Uttarakhand State, All spatial features are being carried out with a detailed study in the District of Champawat in Uttarakhand state at 1:10,000 scale, for agricultural areas and forestry/hilly terrain at 1:50,000 scale.



Process Methodology

APIB is expected to play an important role in the agricultural reform process and in developing agricultural planning and development. It established linkages with various organisations, efforts made in synthesising of data, dissemination of planning advise and information modules developed for serving the diverse user clientele in the agriculture sector. The Process Methodology integrates all aspects of Agro-climatic and natural resources database.

Agro-climatic and natural resources database

In order to achieve the various objectives envisaged under APIB, an assessment of its clientele's planning needs in the field of agriculture, viz., farmers, rural financial institutions, input / output traders, agricultural researchers, extension workers planners, etc., are required to be studied and analysed. Based on the needs expressed by the user clientele, APIB has followed a multipronged approach to develop databases. As a first step, APIB has designed a database structure to contain information on both spatial and non-spatial elements. For example, in the non-spatial domain, APIB information system contains modules on fertilisers, plan protection, seeds/seedlings, package of practices, agricultural implements, climatological data, credit/insurance schemes available, infrastructure for processing and marketing, demographic details, etc. Similarly, in the spatial domain, it has information on various resources like land use, groundwater, soils, slope etc.

(a) **Non-spatial Data Base:** Given below is a brief summary of APIB non-spatial database, which shall be generated for the four districts of Uttaranchal State:

i) **Package of Practices Module:** Package of practices collected for all major crops like cereals, pulses, cash crops; oil seeds, fodder crops, fruit crops, spices, vegetables, floriculture, medicinal and aromatic plants etc. Package of practices are also available for many high-yield hybrids produced by many private companies. Value addition in the form of recent market prices, support prices, inputs suppliers, etc are being developed.

ii) **Seeds/seedlings Module:** This will contain information on the special characteristics/salient features including information like yield, resistance to pests/diseases, quantity of seeds required, crop duration, crop suitability for different regions, packing & price information and dealer network in the priority districts.

iii) **Fertilisers Module:** The module will have detailed information on type of fertilisers, and their technical formula, commercial trade names, prices and dealers network in the priority districts. The software package for recommending fertiliser dosage based on soil test and crop type shall be developed.

iv) **Plant Protection Module:** Information content in this module will include the type of chemicals, their active ingredients, trade names, prices, applicability to different crops/pests, dealers/ suppliers etc. This module will also contain information regarding biological pest control as well as other conventional pest control agents. In addition to the information on integrated pest management practices for selected crops and the plant projection guide for horticultural crops.

v) **Agricultural Implements:** Under this module, APIB has information on various hand tools, bullock/tractor drawn implements, irrigation equipment, plant protection equipment, harvest and post-harvest equipment, their suppliers, price information, models, salient features etc.

vi) **Agricultural Credit:** Information readily available with the Banks will cover different credit schemes in agriculture and allied sectors, floated by different commercial rural banks in the districts. The details of each scheme covering information on interest rates, repayment terms, documents to be produced and other terms and conditions of schemes, location addresses of the branches of the different banks, specimen copies of applications (available for a few banks), etc will also be available.

vii) **Insurance for Agriculture and Allied Sectors:** This module has details of various insurance schemes for crops, plantation, agricultural implements and farm machinery, animal husbandry, including information on terms and conditions of the schemes, premium rates, eligibility criteria/procedure and benefits as well as the branch network of the insurance companies.

viii) **Subsidy Programmes for Agriculture:** The database under this module contain vast information on the various subsidy programmes available for farming sector beneficiaries in the four priority districts of Uttaranchal. Information on actual availability procedure with details of eligibility criteria, subsidy credit components, documentation, etc is available.

ix) **Agriculture Market Infrastructure:** APIB has synthesised information on market infrastructure facilities in its four priority districts of Uttaranchal. This data module provides information on the network of Agriculture Produce Marketing Committees (APMC) in these districts, market charges, godown and storage facilities available and their charges. APIB will has information on export policies applicable for selected farm products. The price information for selected commodities shall also available from Uttaranchal State Agricultural Marketing Board with whom APIB will establish a formal institutional contact for market related data exchange.

x) **Agricultural Weather Information System:** Weather is a very critical parameter for agriculture and allied sectors. Most of the farming activities are guided by weather conditions in an area. APIB shall develop a weather information system. Based on weekly and monthly rainfall data/movifing averages for rainfall and weekly probabilities of rainfall, long term climate change and trends in rainfall patterns shall be identified for these districts.

xi) **Training and Development:** The module has the details on types of training, periods of training, benefits as well as the locations of farmers' training centres.

xii) **Socio-Economic Infrastructure:** The village-wise census details on demography and amenities has been collected. In addition, also block-wise infrastructural details were collected. Computerisation of basic data addresses most of the information needs, accomplished. Additionally all the relevant socio-economic information for at least the past five years are also made available.

(b) **Spatial Database**

The strength of APIB is a powerful state-of-the art image analysis and GIS facilities to assess the natural resources endowments of any agro-climatic region in Uttaranchal, in spatial and temporal domain, for taking decision by farmers at plot level.

Data Products used were high resolution Satellite Imageries that of Cartosat-I and Resource Sat P5 LISS-IV and associated Topo Sheets from Survey of India at 1:25,000 scale. Detail Soil Survey were carried on at an interval of 200-500 meters interval based on soil variability covering all villages, of the Champawat and Dehradun Districts, for agricultural area. Spatial Agro-meteorological Characteristics Rainfall, Air temperature (Minimum & Maximum), Solar radiation (if available) monthly basis for past 30 year were collected from Indian Meteorological

Department, Pune. Socio-Economic Data Village wise, social group wise and gender data from Census were procured from Census Department and integrated. Revenue Maps were collected from Department of Agriculture, covering up to cadastre. Further GPS/DGPS data were collected to augment these maps for necessary corrections for reliability. These digital layers were integrated with the spatial data layers generated for the Champawat and Dehradun Districts, subsequently. Further location specific Packages of Agronomic Practices in vogue provided by the Department of Agriculture, were also integrated in the APIB System.

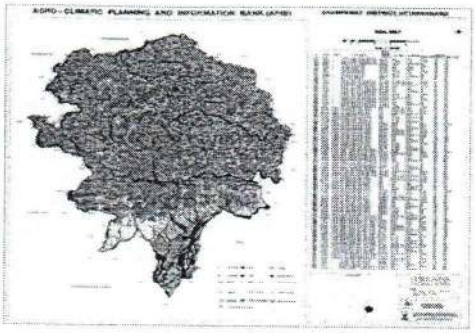
Parameters Studied

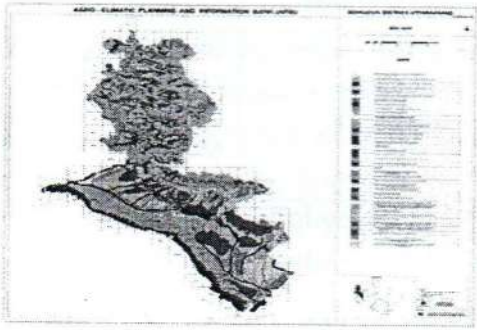
Sl. No.	*Parameters*	*Source*	*Period*	*Utilisation*
1	Soil Mapping	Satellite & detailed field survey data	March/ April	Land use Planning; Soil management
2.	Dominant Crop Types	Satellite data	Rabi & Kharif	Agriculture Management, Crop production forecasting
3.	Landuse	Satellite data	Rabi & Kharif	Landuse planning
4.	Land degradation	Satellite data	March	Land reclamation, planning control measures
5	Geomorphology	Satellite data	March	Geological hazard assessment & Ground water potential
6.	Ground water potential	Derived from geomorphology & other terrain information		Water resources planning; irrigation planning
7.	Irrigated / unirrigated land areas	Satellite data and irrigation command area information	Rabi & Kharif	Irrigation water management
8	Soil physico-chemical properties	Field survey & Lab. Analysis of soil samples	Any period	Soil classification & Soil management
9	Terrain characteristics (elevation, slope, aspect)	Derived from DEM (Toposheet)	Any period	Agricultural planning, agro ecological zonation
10	Agro-meteorological data	Meteorological station	Daily/ weekly /monthly	Agricultural planning; crop yield prediction
11	Cultural features (roads, canal, rail network, villages, towns etc.)	Satellite data, Topo sheet	Any period	Infrastructure planning
12	Drainage characteristics	Satellite data, Topo sheet	Any period	Watershed management

Sl. No.	Parameters	Source	Period	Utilisation
13	Soil loss	Soil map & soil properties data; climatic & terrain characteristics data; modeling	Any period	Soil erosion hazard assessment, soil conservation planning
14	Soil suitability for crops	Soil map & soil properties data; climatic & terrain characteristics data	Any period	Soil management, land use planning
15	Hydrological soil grouping	Soil map & soil properties data; climatic & terrain characteristics data	Any period	Watershed hydrology, run-off estimation
16	Land irrigability	Soil map & soil properties data; climatic & terrain	Any period	Irrigation development, irrigation water management
17	Land productivity	Soil map & soil properties data; climatic & terrain characteristics data	Any period	Soil management, landuse planning
18	Land capability	Soil map & soil properties data; climatic & terrain characteristics data	Any period	Soil management, land use planning

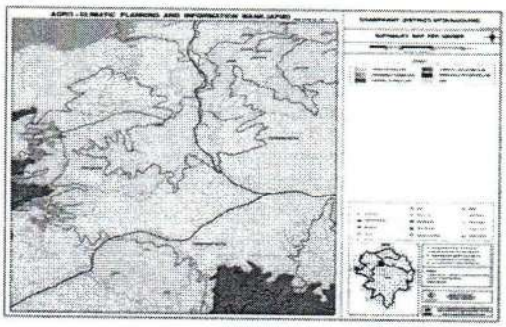
APIB (Agro Climatic Planning and Information Bank) is a single window Knowledge base for Agricultural and allied Sector. It will help the Government and farmers to make decisions for improving agricultural productivity. APIB has designed a database structure to contain information on both spatial and non- spatial elements namely mapping, GPS survey, soil survey, GIS and Image Processing analysis, fertilisers use, plant protection, seeds/seedlings, package of practices, agricultural implements, climatological data, credit/insurance schemes available, infrastructure for processing and marketing, demographic details, etc. The strength of APIB is a powerful state-of-the-art image analysis and GIS facilities to assess the natural resources endowments to any agro-climatic regions and would present them in the spatial and temporal domain. The Natural Resources databank are generated for the 18 themes at 1:10,000 scale. All the database are generated at 1:10,000 scale level, except in case of very steep and steep hilly areas under forest where the level of mapping will be reduced to 1:50,000 scale.

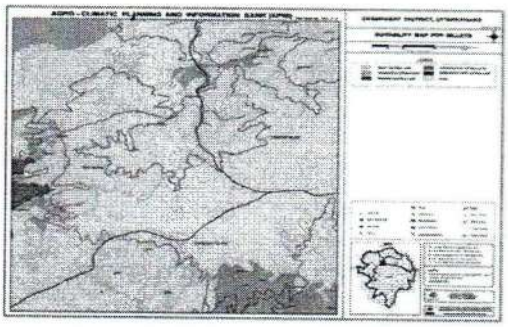
Soil Map of the Study Area

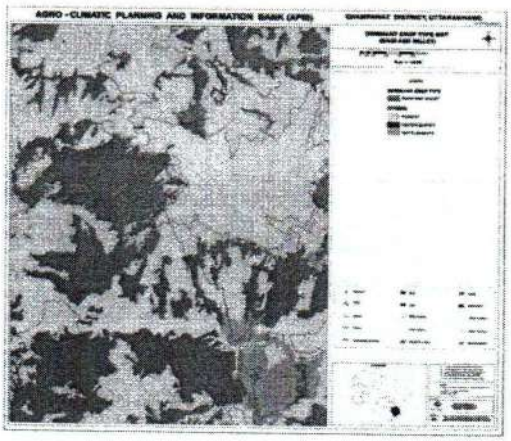


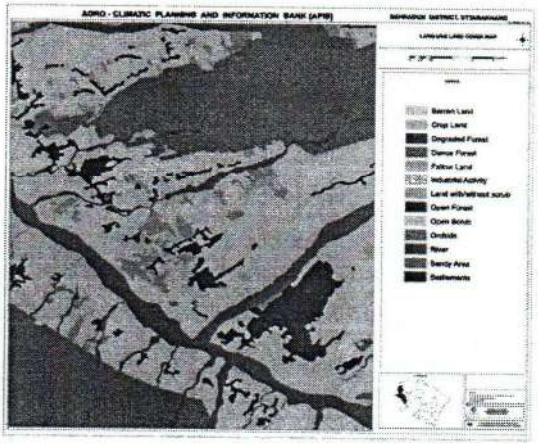


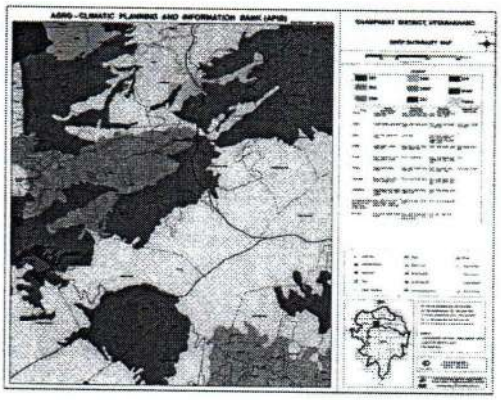
Agriculture Suitability Map of the Study Area

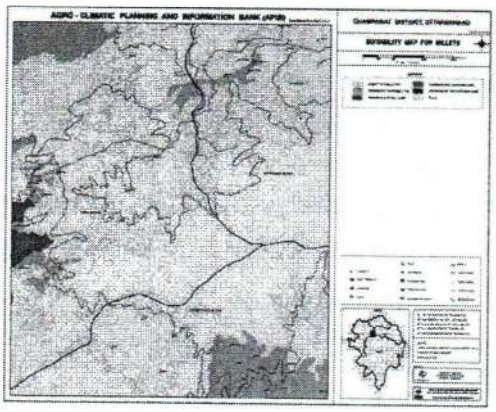












Conclusion

India is at the forefront of Geoinformatics technology, while agriculture in India, is under serious stress. Modern technologies like GIS, Remote Sensing, GPS and other emerging technologies like Sensor based technologies, complementing agriculture technologies namely biotechnology, precision agriculture and modern irrigation technologies, is expected to meet the growing demand of India in food security, by improving productivity in agriculture practice and optimum use of resources, which is emerging, as a knowledge management in agriculture sector.

GIS is a tool of power. Like all geographical information, GIS has the potential to reduce social inequities or to exacerbate them, within regions.. GIS can be subversive or it can empower techno-elite (Clark and Worobec 1996). But Yapa (1991, 52) argues that GIS may also be an instrument for 'discovering' local resources contextually and that the full implementation of appropriate technology is not possible without access to a GIS because it is the knowledge of the region (and the ability of the GIS to enhance this knowledge) that makes appropriate technology a viable alternative to the current modes of development.

In a global thinking and technology subservient to mankind in a global thinking and technology subservient to mankind, GIS could become a tool in the service of the poor rather than a technological instrument for their control. To that end, GIS and ICT and other spatial technology tools need to converge and emerge as powerful application tools for wider use at all levels, particularly at local or cadastral level, to take the benefit of technology to the door step of the poorest of the poor, to empower the people for making their lives better, livable and for leading a life with quality inputs for sustenance.

5. INDONESIA

National Programme for Community Empowerment – Rural (PNPM Mandiri Perdesaan)

by: Ir. Tarmizi A Karim, M.Sc, Director General for Village and Community Empowerment

The National Programme for Community Empowerment Mandiri (PNPM Mandiri) is a national programme[3] within the overall policy framework established to implement poverty alleviation programmes, such as PNPM Rural which began in 1998 as Kecamatan Development Programme (KDP) and PNPM Urban began in 1999 as the Urban Poverty Programme (UPP). PNPM Mandiri was launched by the Government of Indonesia in Palu, Central Sulawesi, on 30 April 2007. It is the Indonesian Government's flagship community-based poverty alleviation programme. PNPM Mandiri uses a **Community Driven Development (CDD) approach**, providing direct block grants (*Bantuan Langsung Masyarakat*/BLM) to local communities at the sub-district level to finance an **open menu of local development priorities** – typically small-scale social/economic infrastructure, education and health activities, and micro-loans to women's savings groups – implemented with mechanisms to ensure broad-based **participation and transparency**.

The objective of the programme is to improve economic and social welfare of the poor and expand their employment opportunities through community consultation, empowerment, and capacity building at the local level. Using the bottom up mechanism, the community is directly involved in the process. The central idea of the programme is empowering communities where they also have independent and collective authority in deciding, and managing development activities, and hold authorities accountable to ensure better development results.

PNPM is the world's largest CDD programme, with a nationwide coverage of more than 70,000 rural villages (covered through PNPM Rural) and urban wards (covered through PNPM Urban) in 32 of Indonesia's 33 provinces. As a "laboratory" of learning, PNPM has also been helpful to other countries in terms of offering lessons learned and innovative practices for adaptation to other contexts.

The GENERAL objective of the programme is to reduce numbers of the poor & improve prosperity where as the specific objectives of PNPM are: a) To create rural employment opportunities b) To increase role of community members in decision making process c) To institusionalise participatory development d) To improve capacity of local govornment to manage development e) To pprovide social &

[3] - See more at: http://www.pnpm-support.org/about-pnpm#sthash.wsgqkMXK.dpuf

economic infrastructure and f) To institutionalise management microcredit. The finacial resouces of the programme are derived from:

- Poor household, community organisation and local government officers and institutions in rural area are the target arears of PNPM. Community members contributions
- Local government budget (APBD)
- National budget (APBN)
- Private sector contributions

The activities of the programme are targeted with the develop or build basic infrastructure supporting economic activities, health and education services activities, capacity building for productive community group base on the local resources and revolving fund.

During the Implementation the Strategies are followed like: Participatory Planning, Transparent and Accountable Implementation, Alocate Budget in Sub District (Block Grant), Technical Assistance for Community and Local Government. With reference to controlling there are provisions of project Monitoring and supervision, Evaluation, Audit and Reporting.

Within implementation of PNPM Rural, undertaken by Communities, Control and Implementation of activities among communities are conducted through BKAD, BP-UPK, UPK, TPK and Community Ad-hoc Team (Proposal Writer Team, M&E Team, etc.) at Village level. There areConsultants and Facilitators at all levels: Subdistrict, District, Province/Regional and National, Independent NGO, Press (Journalist). Governments, conducted periodically internal government inspectors and external government inspectors.

Project has Implementing Control, Monitoring and Evaluation also accomplished through: a) Periodic and monthly reports from Subdistrict, District, Province, and National Facilitators and Consultants b) Handling and Complaint Reports which conducted periodicaly according to SOP PPM or HCU Protocols c) SAI reports for government's structural ladder (District, Province, and Central/National Task Force/Satker) on Budget/Financial and Activities reports. Project Implementing Control, Monitoring and Evaluation also accomplished through:

- National Coordination Meeting by Central and Provincial Task Force (Satker) every 6 months;
- National Coordination Meeting by Central Task Force, National Consultant, and Regional/Province Consultant periodicaly every 3 months;

- Coordination Meeting by District Facilitators and District Task Force through out the Province on monthly basis and 3 months (Joined Meeting); and
- Coordination Meeting on each District by Subdistrict Facilitators and Officials on monthly basis and 3 months (Joined Meeting).

With reference to Lessons Learned from the programme are consisted of: a) PNPM principles must be applied with discipline, including transparency, participation, and accountability b) Communities everywhere have been proven capable of building and managing and c) Our executing agency and facilitators must keep focused on the Core Business of community empowerment.

Characteristic Of Programme: PNPM is Partnership between Goverment and Community Groups. This programme addresses Participatory Process, Local Community Block Grant, Open menu and transparancy, Social Capital for community empowerment.

The impact of community empowerment programme adressed the ares of : a) Poverty Reduction, b) Inclusive Development c) Acountability Of Public Services and d) Strengthening Local Capacity.

PNPM Road map are consisted of: a) Empowerment Programme Consolidation and b) Development Planning Integration. There are 5 pillers with it which are: (i) Integration of Community Empowerment Programme, (ii) Ensuring the Sustainable of Assistance, (iii) Community Institution Strengthening, (iv) Local Government Institution Strengthening and v) Good Governance.

The Importance of PNPM Road Map can be descibed as the a) foundation for the community empowerment sustainibility b) direction for policies and strategies c) Strengthen the coordination among the institutions

6. LAO PDR

Approaches, Lessons and Innovations on the Bamboo Value Chain in Lao PDR, Department of Planning and Cooperation, Division on International Cooperation, Ministry of Agriculture and Forestry of Lao PDR

Background

Bamboo is the backbone of rural daily life in LAO PDR and Non Timber Forest Products (NTFPs) are the most important safety net or coping strategy for the rural poor in Laos. The *Example of use*: Handicraft, farm tools, fencing, chopsticks, skewers, fishing gear, edible bamboo shoots, cultural significance (medicine, musical instruments). In fact Bamboo is considered the most economically important NTFP in terms of scale.

With reference to **promising market opportunities** in the bamboo sector, the global bamboo industry is seeing a significant growth, which is expected to continue further. The world bamboo market is worth US$ 7 billion per year. The proximity to larger and growing economies (Vietnam, China, Thailand) is likely to create important growth opportunities for the bamboo sector in the country.

Also, with regards to **Environmental Properties Maintain** the soil stability / prevent erosion (important environmental regeneration and high water absorption capacity) and high carbon sequestration properties are there.

Programme Interventions and Impacts;

The Lao Government's interventions focused on a) Sensitisation of Local Governments to the Potential of the Bamboo Sector b) Promotion of a Supportive Business Environment and c) Building Capacity in Natural Resource Management

Where as the communities interventions included Bamboo Producer Group Formation and Product Development, Empowering Producers through the Emergence of Community Leaders and Building Capacity in Natural Resource Management

The Private Sector interventions aimed at Strengthening Links with Producers and Collectors, Business Skills Development and identification of New Markets and the Promotion of Networking

Approach and concepts: a) Pro-Poor Value Chain like Increase Productivity, Increase Value, Sustain or increase the share of the poorest actors in the sector and Increase the margins per product; b) **Inclusive Business:** *Advantages for the company*: Secure supply, Traceability and quality control, Lower transaction costs, Shared risk, Access to knowledge and local networks, Better relations with

government, Strategic positioning in new markets; c) **Advantages for the low income population:** Fair prices/conditions, Assured sales, Employment creation and expansion, Training and technical assistance, Technology/knowledge transfer, Access to financing, Participation in a business environment; d) **Capacity development;** and e) **Synergies with International Organisations**

Intervention on Government: Sensitisation of Local Governments to the Potential of the Bamboo Sector: To make raise Government awareness of development opportunities there were interventions like Technical workshops, Multi-stakeholder meetings and Study tours.

The Facilitate the creation of strong partnerships between government agencies at provincial and district level e.g. a) Province Agriculture and Forestry Office b) District Agriculture and Forestry Office c) District Land Management Authority d) Department of Industry and Commerce and e) Lao Women Union.

The scaling-up of the Bamboo Programme Activities in Other districts and other provinces.

Intervention on Government: Promotion of a Supportive Business Environment gets central and local government officers and decision makers awareness of development opportunities like a) Internal coordination among government agencies and regular dialogue with the private sector. b) Technical assistance for policy reforms and design of new regulations c) Taxes exemption for some of the bamboo value chain actors d) Improving Access to Finance and e) Public-private partnership

Intervention on Government and communities: Building Capacity in Natural Resource Management Land tenure includes a) Development of forest management plans and iii) Participatory Land Use Planning with as (Steps below):

1. Village meeting and Village Land Management Committee
2. Socioeconomic data collection
3. Building a 3D model map of the village
4. Village boundaries delineation and GPS points
5. Role playing game: "PLUP Fiction"
6. Participatory Land Zoning
7. Village Land management rules and PLUP agreement
8. Presentation of PLUP results to the whole village
9. Village Action Plan (VAP)
10. Data storage: the Village Monograph

Intervention on Communities: Bamboo Producer Group Formation and Product Development focus on Improving villagers' capacity to produce good quality and diverse bamboo products like Promotion of Group Formation, Technical training to producers and processors and Trainings on business development, Development of local services providers and Environmental Properties

Intervention on Communities: Empowering producers through the emergence of community leaders: This has coverage's of Capacity building on leadership, management, communication and negotiation skills, Improved access to market information, Improved links among the value chain (producers, processors, traders), Peer-to-Peer exchanges, promotion and development of farmers and farmers' organisations and networks

Intervention on the Private Sector include Strengthening Links with Producers and Collectors like Producers' representatives at village level, Links between collectors and factories, Encouraging factories to create financial incentives for collectors, Facilitate Producers' Access to Financial Services (Micro-credit). The Business Skills Development and Identification of New Markets include Producer group formation and strengthening, Dissemination of information and encouraging traders' participation in exhibitions and trade fairs. Lastly, the Promotion of Networking focused on Informal network promotion (information sharing among members) and Formation and strengthening of the Bamboo Traders Association (created in 2004)

Innovations/Way forwards: Towards a Revision of the Legal Status of NTFPs in Lao PDR are related with a) Consider the specificity of NTFPs (different from timber resource) b) Should bamboo be managed like an agricultural crop rather than a timber resource (like in China)? c) Should tax exemption be consider for poor communities as an effective poverty reduction tool? d) Encourage the Emergence of Associations and Cooperatives e) Bamboo Handicraft Product Certification and Export and f) Beyond Bamboo: REDD?

Please note here that Bamboo is not classified as a tree and as such it has to date not been recognised as a carbon sink under Reducing Emissions from Deforestation and Forest Degradation.

7. MALAYSIA

Rural and Regional Development in Malaysia: An Overview

Malaysia Development Policy:

To be a fully developed country by the year 2020, Malaysia has initiated to build a resilient and competitive nation and a united and just society to ensure solidarity and social stability. In 2011, Malaysia embarked on the Government Transformation Era, aiming to be a high income nation that is inclusive and sustainable by the year 2020.

Definition of Household: Household Defined as a person or group of related and/or unrelated persons who usually live together and make common provisions for food and other living essentials.

Household income: Refers to total income accrued to members of a household, both in cash and/or in kinds on a regular basis in one year or more often.

Average Household Income (2012) in Malaysia respectively in urban and rural are MYR 5,742 and MYR 3,080. An area of less than 10,000 residents outside of local authority zones are defined as rural area in Malaysia.. Malaysia's rural area comprises of 70% of its total size (231,180km2 / 23 mil ha) including agriculture areas, forests, villages, coastal areas and islands. Average household income has significantly increased from 1970s, whilst the income disparity between urban and rural population now stands at approx 2:1. The percentage of rural population has been decreasing since 1970, from 71.6% to only 29.0% of Malaysia's total population. Age demographic shows the biggest group is between 15 – 39 years old, similar between rural and urban population.

Eradicate Poverty is important for various reasons like: a) growth with balance distribution b) social harmony c) strengthening micro fundamental & entrepreneurs d) political stability and e) nation building & empowerment.

Ministry of Rural and Regional Development (MRRD)'s Role in Rural Development:

The national mission are comprised of certain thrusts like: a) Moving The Economy Up the Value Chain b) Raising the Capacity for knowledge and Innovation and Nurture 'First Class Mentality c) Addressing Persistant Socio-Economic Inequalities Constructively and Productively d) Improving the Standard and Sustainability of Quality of Life and e) Strengthening Institutional and Implementation.

MMRD related programmes compared to national programmes are related with thematic areas of rural economic development, land and regional development,

human capital development, poverty eradication and infrastructure and basic amenities development

Background: The establishment of the Institute for Rural Advancement (INFRA) in 1996 should be seen as the pinnacle and extension of the late Tun Haji Abdul Razak bin Hussein's grand vision and goals pursued since the early 1960s to help the rural communities through strategies such as the development of rural areas and empowering the rural population. The establishment of INFRA is said to be the highlight considering, after consistent efforts to develop the rural areas and communities over an extended period of time, they are now provided with a training facility as well as a research institution. INFRA also represents progress, as its establishment marked a new beginning in the development of a more meaningful management system for the rural communities.

Institute for Rural Advancement (INFRA) is an institution for training and research for Ministry of Rural and Regional Development which has been established since 1996. The present institute for rural advancement (INFRA) is known in the development sector which was earlier known as respectively: A) Institute For Rural Development Training (1970) And Institute for Socio-Economic Development and Attitudinal Re-Orientation (1980). The vision of infra is to be a centre of excellence in rural training and research by year 2020. The mission is strengthening rural institution and the communities through quality training and research with motto "leading rural community excellence".

INFRA has Objectives which are as follows:

1. To train rural development management trainers who will in turn, produce more initiators to spearhead development of rural areas and communities;
2. To support and improve the capacity of public agency staff, social activists and non-governmental organisations (NGOs) initiators as effective delivery agents;
3. To be a centre of reference and research, data bank and think tank for rural development programmes and non-formal education;
4. To steer the paradigm shift in the management of rural development to broaden the minds of rural populace; and
5. To provide technical assistance, advisory services and training to foreign countries and conduct studies related to rural issues in collaboration with international organisations.

INFRA has the divisions under Ministry of Rural and Regional Development (KKLW) like:

- Social Development and International Division
- Management Services Division
- Research and Development Division
- INFRA Sarawak
- INFRA Sabah
- Corporate Communications Unit

Rural development issues and challenges are related with various issues like a) mindset change of the rural people b) diminishing rural values c) lack of village leadership d) high dependence to government assistance, complacency and low effort e) unattractive job opportunities f) limited entrepreneurial opportunities g) lacking in market prospect and marketing skills h) land issues i) low value add to products j) dependency to foreign workers k) low productivity l) small and highly scattered rural settlements and low skills and education level.

Government Transformation Plan in Malaysia is a special initiative to improve the effectiveness of public service according to 6 major policy areas – the National Key Results Areas – with the objective of better service delivery to the people.

There are (with approximately 3.3 million rural youths) in villages in Malaysia. To retain this youth in rural areas and engage them to develop rural economy, government of Malaysia has taken some initiatives like a) Introduce modern machinery and modern farming techniques to reduce labour intensity and add value to agriculture activities b) Provide financial assistance and training to support youth in rural based agriculture business and c) Raise awareness of opportunities and potential that can be created in rural areas to attract youth to start business in villages.

GTP2.0 will have 2 components, an infrastructure component (RBI) and an economy component (21CV) which will focus on engaging youths to develop rural economy.

8. MYANMAR

"A Success Story: CIRDAP Project on Capacity Building and Empowerment"*

Introduction and background

CIRDAP had initiated a Pilot Project on 'Capacity Building and Empowerment of Women Self-Help Groups through Micro-Credit and Social Mobilisation' in Myanmar, Sri Lanka and Vietnam funded by the Government of Japan since 1999. It has been implemented by Department of Agricultural Planning (DAP), Ministry of Agriculture and Irrigation (MOAI) in Myanmar since July 1999. The three-year project was implemented in two villages namely '**Tuchaung**' in Ayeyerwaddy Division and '**Yintaikkwin**' in Yangon Division.

The success of a CIRDAP pilot project on Poverty Alleviation and Social Mobilisation in two villages in Myanmar motivated UNESCO Regional Office, situated in Bangkok, Thailand to fund a same type of project in another area of Myanmar nearby CIRDAP project village. The project for UNESCO fund was carried out in '**Kungyankhone**' village in Yangon Division in 2002. Therefore, the three-village project are being carried out and presented as the success story.

Objectives and Methodology of the Project

The methodology applied in the project is based on CIRDAP Approach to Rural Development (CARD), a participatory planning and management tool for integrated development at the grassroots level. According to the CARD methodology, baseline survey and a 10-day Project Cycle Management Workshop (PCM-bottom up process) were conducted in DAP and villages at the early stage of the project. As a result of the PCM workshop, Problem Tree, Objective Tree, Project Design Matrix (PDM) and Plan of Operation (POP) were formulated and agreed upon by the villagers.

The overall goal of the project was to improve the quality of life of the women in the village. The objectives of the project were to provide opportunities to generate additional income through better returns from animal husbandry and other non-farm activities, to increase employment opportunities by providing micro-credit to women self-help groups, to raise agricultural productivities, and to improve basic needs provision.

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* Presented by Ms. Mi Mi Maw, Deputy Project Director, Department of Agriculture, Ministry of Agriculture and Irrigation, Myanmar

Supervision and Implementation Committees

A Project Steering Committee (PSC) and two Project Implementation Committees (PIC) for the two villages were formed by the Minister's Office with a view to implement the project activities successfully, effectively and efficiently. The PSC **is responsible for making policy decisions, providing guidance and reviewing the progress of activities.**

Empowering the Village Women

At the very beginning of the implementation stage, the Project Cycle Management (PCM) workshop was conducted in the project villages by allowing the village women to participate in the workshop. As a result of the workshop which was bottom-up process, Proect Design Matrix (PDM) and Plan of Operation (POP) were developed with the information gained from brainstorming session using participatory analysis.

Criteria for selection of the group members were formulated with the help of the PSC and PIC. These were permanent resident of the village, no accessibility to any other credit institutions, poorer of the poorest having positive character. The self-help groups (SHGs) were formed in both villages with 5 women beneficiaries having joint responsibility of repaying the loan. Initial number of self-help groups was 23, comprising of 115 members from both villages. It increased to 61 groups in 2012 with 307 total members from three villages.

Project Components

In line with the overall goal and objectives of the project, the following project components were implemented during the course of the project.

a) Provision of micro-credit to the women beneficiaries;

b) Capacity building programme;

c) Infrastructure development activities;

d) Provision of basic social services.

Disbursement of Micro-credit among Beneficiaries

The project encouraged the members to select the income generation activities (IGAs) at their option in order to increase women's decision making ability. Members were motivated to decide interest rate and compulsory saving. Only 2 per cent per month interest was reasonable for them and project sustainability. Monthly interest rate was nothing to compare to the local money lenders' rate. The per capita loan size was 35,000 Kyat in 2000. It increased to 100,000 Kyat in 2012.

Various IGAs being taken up by the project beneficiaries are small trading, animal raising, agriculture and small-scale handicraft. All interest collected monthly and repayments were deposited at the nearest bank branch. Two members of the PIC have to sign to withdraw project money from the bank. Loan duration is one year. After repaying fully together with the set interest due, the members were given a new loan.

Table: Disbursement of Micro-Credit among Beneficiaries

Year	*Yintaikkwin village*		*Tuchaung village*		*Kungyankhone village*	
	Benefi-ciaries	*Total Loan (Million Kyats)*	*Benefi-ciaries*	*Total Loan (Million Kyats)*	*Benefi-ciaries*	*Total Loan (Million Kyats)*
2000	64	2.1	51	1.18	-	-
2001	76	2.6	60	1.57	111	3.5
2002	79	3.1	65	2.01	119	5.65
2003	67	3.8	63	2.56	104	5.51
2004	58	3.3	63	2.56	85	3.62
2005	55	4.0	63	2.66	98	6.55
2006	63	5.3	63	2.66	112	7.72
2007	77	6.5	62	2.79	141	9.25
2008	80	6.71	62	1.39	131	12.06
2009	89	7.82	65	4.10	131	15.16
2010	90	9.09	65	4.24	136	17.53
2011	92	9.56	67	6.06	142	20.80
2012	98	10.45	67	7.09	142	24.53

Capacity Building Programme

Capacity building plays pivotal role in poverty alleviation programme. Skills and abilities of poor people should be upgraded by providing skill development training and professional trainings. With the knowledge gained from training they can help themselves. Later the trainings were no longer needed for them. To empower the women of SHGs, different kinds of training- leadership training, health awareness camp, basic animal husbandry training, vegetable and mushroom cultivation training, tailoring training- were successfully carried out in the project villages. All departments concerned were keen to assist the project. Excursion tour to nursery and flower festival was organised for the beneficiaries.

These trainings would help them to improve the required skill for the chosen IGAs. They can justify what needs to be done for the betterment of their community and for the future of their children cause their decision-making capacity has also increased.

Department of Agricultural Planning (DAP) provided them with Agri-Business weekly news journal to further improve their knowledge and capacity.

Table: Capacity Building Programme

Sl. No	Training & study tour	No. of trainees	Times
1	Participatory Project Cycle Management Workshop (PPCM)	50	1
2	Leadership & accounting training	52	17
3	Health awareness workshop	200	1
4	Basic animal husbandry training	200	1
5	Participatory Monitoring and Evaluation Workshop (PME)	200	1
6	Village mapping & poverty assessment practice	200	1
7	Basic tailoring training	37	1
8	Vegetable growing training	195	1
9	Mushroom cultivation training	195	1
10	Excursion tour to nursery and flower festival, marine products exhibition, vegetable & fruit research centre	100	1

Infrastructure Development Activities

Small-scale infrastructure should be facilitated to achieve the goal of poverty alleviation indirectly. CIRDAP provided some amount of fund for community development activities as an entry point for the processes of project. Later 25 per cent of the yearly interest was allowed by the PSC for infrastructure development. In accordance with the needs of the project villages, the following small-scale infrastructures were facilitated. People's participation made cost minimisation in the construction.

Table: Infrastructure Development Activities in Tuchaung Village

Project Fund (Project period)	Project Interest (beyond the project)
Reconstruction of primary school	Flooring of the primary school
Construction of fly- proof latrine facilities (40 Nos)	Reconstruction of small bridge to school
Improving drinking water pond (4 Nos)	Purchase of small land for community hall
Small lane leading to the primary school	Expansion of drinking water pond
	Donation of 500,000 Kyat for primary school expansion

Table: Infrastructure Development Activities Yintaikkwin Villages

Project Fund (Project period)	Project Interest (beyond the project)
Reconstruction of primary school	Flooring and partition of the primary school
Installation of road lighting facilities	One new building for primary school
	Fencing and gate door for primary school
	access road construction

Table: Infrastructure Development Activities Kungyankhone Villages

Project Fund (Project period)	Project Interest (beyond the project)
Flooring and roofing of primary school	350 ft long rural road (gravel)
	300 ft long rural road (gravel)
	Construction of 3 tube wells

Provision of Basic Social Services

All SHGs decided to contribute certain amount of interest collected to community welfare and social activities. As social welfare contribution, a total of ten aged people, six disabled and ten poor school children from both project villages were supported with the fund set apart for these purposes.

As a nutrition promotion programme all school children of two villages were fed with boiled rice with milk. To improve the quality of health for the pregnant women, provision of iron tonic to all pregnant women in two villages was initiated in June 2000.

Impact Assessment

To study the impact of loan application, the selection of the target beneficiaries and the status of the role of women pilot project division from CIRDAP organised Participatory Monitoring and Evaluation (PME) workshop in 2000. Participatory mapping and poverty assessment were practiced in both project villages. Joint reflection meeting was held in DAP- the implementing agency - with the active participation of the representative from several international organisations and the Government of Japan.

During the whole project implementation period small questionnaire regarding loan utilisation and additional income from various IGAs were collected whenever the loans were repaid. From this survey the achievement of the project objectives was found and summarised in the following table.

Table: Achievement of the Project Objectives

Particular	Before project	After Project
SHGs	Nil	47
Members	Nil	307
Saving amount	Nil	>5000 K/capita
Micro-credit	Nil	36000 K/capita
Dependence on money lender	Continue	Reduce to 70 %
IGAs	Nil	Various

Table: Additional Income

Particular	Before project	After Project
Grocery shop	900 k/day	1200 K/day
Trishaw	Nil	500 K/day
Battery charging	Nil	30000 K/mth
Small trading	7000 K/mth	10000 K/mth
Paddy cultivation	10000 K/season/acre	15000 K/season/acre
Tailoring	Nil	400 K/day
Cattle rearing	Nil	30000 K/season (3mth)
Pig raising	Nil	35000 K/year

Table: Project Impact

Particular	Before project	After Project
Households (HH) having cattle	Nil	22%
HH bought piece of gold	Nil	14%
HH with private house	90%	93.65%
House repair	Nil	33.6%
HH changed wooden floor	Nil	20.4%
HH having trishaw	Nil	8%
HH having T.V	Nil	2.19%
HH bought homestead land	Nil	8%
HH having cultivable land	Nil	11%
HH installed tube well & hand pump	Nil	1.46%
HH changed corrugated iron roof	Nil	8%
HH bought / built small shop	Nil	3.65%
HH bought bicycle	Nil	16%
HH bought home appliances	Nil	23.4%
HH bought cassette	Nil	8.8%

Sustainability Issues

Since this project is highly beneficial to rural poor in Myanmar, it has been taken over by DAP – the implementing agency- to meet the financial liability beyond the pilot stage. The PSC had decided on payment of additional 6 per cent interest on saving mobilisation by the villagers and contributions of 25 per cent interest earned from the revolving fund to the community development activities.

After 5 years later, DAP handed over the project to the township level. Logistic support for project staff was born from the interest. It was very little amount. Negotiation with the members was made to hand over the project to the members. Although they could manage all activities, dealing with the government official makes them encouraged. That is why government is still participating in this project.

Major Factors Affecting the Success of the Project

- Using CARD method is highly beneficial to rural poor in Myanmar.
- The close coordination and supervision of the implementing agencies attributed to the success of the project.
- The self-help groups of poor households were empowered by the project to take charge of the development process.
- The project is really affected their lives. The post project sustainability of the organisations of the rural poor is of great importance.
- The capacity building and empowerment of women self-help groups was achieved through the process of sensitisation, conscientisation and social mobilisation.
- Bottom up process and active participation of the villagers is totally contributed to the project success.

9. NEPAL

Mainstreaming DRM in Institutions of Local Governance by Local Development Training Academy (LDTA)

Background:

LDTA was established in 1993 as an autonomous institution under LDTA Act 2049 as only one National Training Institute of its kind. This is a Local Development Training Academy (LDTA) – An institution for capacity development of local bodies namely DDC, VDC and Municipalities. The mandate of LDTA is under the LDTA Act 2049 and has mandate to promote local development by enhancing managerial and administrative capacities of local bodies and other local development organisations. The vision of LDTA may described as is to be an Autonomous, Professional Client Centered, Gender Responsive National Institute of Excellence in the area of Local – Self Governance. Also, the mission of the national institute is enable local bodies to effectively and efficiently serve needs and demands of citizen by strengthening their institutional and managerial capacities. The goals are as follows: a) Enhance functional service delivery at the local level (DDC, VDC, Municipalities) by providing relevant Training, Research and Consultancy services and b) Contribute to knowledge and experiences sharing on issues of local governance. The strategies followed by LDTA are: a) restructure LDTA in view of changed context b) develop HRD plan and review TOR of staff c) develop customised training packages d) assess and assure quality of training programmes e) align more closely with LGCDP, MoFALD and international partners (GIZ, UNDP, NORWAY, ADB etc.) and f) cooperate and network with key stakeholders.

Some of recent activities of LDTA are like a) mainstreaming disaster risk management and climate risk management in local planning b) introduction to good governance (Doti, Surkhet and Dhanusha districts) c) gender equality and social inclusion mainstreaming d) integrated planning committee – local planning process and e) local peace committee - roles and responsibilities

Mainstreaming DRM are consisted of the UNDP and LDTA agreed to implement the training courses for institutionalisation of DRM/CRM in local development process, institutional capacity development of LDTA, independent programme and in-built training programme.

Institutional Capacity Development of LDTA addresses issues like: a) DRM/CRM Expert b) Establishment of DRM desk c) Financial and technical support for MTOT and Piloting and d) Financial and technical support for preparing training packages and manuals

Training Steps for deliveries focused on: a) Master TOT for LDTA trainers by experts b) LDTA trainers will conduct pilot training with the backstopping from experts and c) LDTA training will conduct the training and expert will observe and provide feedback.

Various Prgrammes

a) The Independent Programme 1:

- Master TOT on Disaster Risk Management
- Target group: Trainers/Facilitators from LDTA and other training providers
- Objective: to enhance the knowledge and skills of LDTA and other trainers on DRM

b) Independent Programme 2:

- Pilot training on Disaster Risk Management
- Target group: LDOs, Planning Officers, staff from municipalities, DDCs, line-agencies, NGOs and other institutions which play an important role in district-level development programming
- Objectives are to improve the training manuals and also, to make participants understand the importance of DRM/CRM and integrate knowledge and skills learned during the training into their planning process and development activities at the district level

c) Independent Programme 3:

- Training on Disaster Risk Management in 25 districts
- Target group: Various stakeholders in local level planning process
- Objectives are to make participants know about the importance of DRM/CRM and to reflect knowledge and skills learned during the training into their planning process and development activities at the district and community level.

d) Independent Programme 4:

- Training on DRM/CRM plan preparation at the district level
- Target group: Various stakeholders in district level planning process
- Objectives are to enhance the capacity 25 DDC-level participants to reflect and integrate DRM/CRM related knowledge and skills in their own planning processes and development activities at the DDC and community level

e) Independent Programme 5:

- Training on DRM/CRM plan preparation at the community level
- Target group: Various stakeholders of community level planning process
- Objective is to make the 25 VDC-level participants know about the importance of DRM/CRM and to reflect knowledge and skills learned during the training into their planning process and development activities at the district and community level

f) Independent Programme 6:

- Training on Logical Framework Approach in DRM
- Target group: LDO, Planning Officers, representatives from Chambers of Commerce, NGOs and various stakeholders of DDC level planning processes
- Objective: to equip participants with DRM/CRM related knowledge and skills to be incorporated in their project planning and implementation process

g) Independent Programme 7:

- Capacity Development of LDTA
- Target group: LDTA DRM key personnel
- Objective are to enhance knowledge on disaster management processes and also, be able to apply gained knowledge to identify and assess the disaster risk, develop effective strategies and system for disaster risk reduction

h) Independent Programme 8:

- Case Study Research
- Objective: to focus on specific and relevant DRM cases, and collect lessons learned and good-practices regarding DRM, which can be published and used for future training purposes

Also, there are **<u>in-Built Programme 1</u> which may described shortly as:**

- VDC Secretary in-service training on DRM/CRM
- Target group: VDC Secretaries
- Objective: to make the VDC Secretaries aware of the importance of DRM/CRM and also, to reflect and integrate the knowledge and skills learned during the training into their planning process and development activities

In-Built Programme 2:

- DDC Planning Officers in-service training
- Target group: DDC Planning Officers
- Objective: to make the 25 planning officers aware about the importance of DRM/CRM and also, to reflect knowledge and skills learned during the training into their planning process and development activities at the district level.

With reference to Review and preparation for next phase it has objectives of to review the strengths and weaknesses of the DRM Programme, to identify good practices and to provide the basis for future planning

The funding source of projects are: a) NRs. 21,500,000 (Approximately US$ 245,000) b) Funding agency- CDRMP Project of UNDP Nepal and c) Comprehensive Disaster Risk Management Programme (CDRMP).

In last there are issue like sustainability of the programme which are intended to address a) **Establishment of** DRM desk comprising expert b) Seeking partnership with existing development partners and other organisations c) Marketing and promotion of DRM programme with local bodies (DDC, VDC and municipalities) and d) Increase and diversification of resources - multi-development partners for co-funding

10. PAKISTAN

Best Practices on Rural Development and Poverty Alleviation*

Introduction

Pakistan is predominantly an agriculture country and the agriculture sector remained the backbone of Pakistan's economy. The performance of agriculture is closely linked with the well being of rural population who are directly or indirectly dependant on agriculture for their livelihood. Agriculture accounts for almost 21% of the total GDP and 45% of the employment generation. The rural population constitutes about two-thirds of the total population while the share of urban population has been progressively increasing as a result of structural transformation of economy. People move to urban areas because of expectations that cities can provide better employment opportunities and higher incomes.

Pakistan is one of the most populous countries in the world. According to Pakistan Economic Survey 2011-12, population of Pakistan is estimated to be 180 million which is growing at an average rate of almost 2 percent presently. Total labour force comes to 59 million of which 41 million is in rural areas. Unemployment rate is estimated to be 6% which accounts for almost 3.5 million un-employed labour force. Agriculture is the largest source of employment (45%) followed by finance and social services (11%), trade (16%), manufacturing and mining (13.7%). Therefore, transformation of rural economy holds key for unleashing latent potential of the agriculture sector and accelerating pace of development.

The social indicators have shown improvement during the last few years. Overall literacy rate of population with age of 10 years and above has increased from 57% in 2009-10 to 58% in 2010-11. Gross enrolment rate at primary level has increased from 91% in 2009-10 to 92% in 2010-11. Health indicators also show improvement as the infant mortality rate decreased from 65 per 1000 in 2009-10 to 58 per 1000 in 2011-12. The child mortality rate decreased from 77 per 1000 in 2008-09 to 70 in 2009-10. Maternal mortality rate has also decreased from 240 per 100,000 in 2009-10 to 200 in 2011-12. Access to clean water has increased to 87% (84% Rural & 94% Urban) and coverage of sanitation has increased to 48% of the population.

Rural Development

Rural Development is conceived as a total and comprehensive approach to problems and backwardness of rural areas with the ultimate objectives of improving quality of life of rural people. It is a complex process involving the evolution of an

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intricate web of mutually supporting actions and activities leading to the common goal of eradicating rural poverty and providing a broad base for self-propelling growth and development. Pakistan has experimented with a number of models and strategies for rural development. These are elaborated as under:-

Village Aid Programme

After independence, Pakistan for initial period of five years did not have any specific programme of rural development and poverty alleviation. The first formal attempt at rural reconstruction and improvement was made in 1953 when the Village Agricultural and Industrial Development Programme (V-Aid programme) was introduced with the American assistance. The programme envisaged that under the guidance and support of V-Aid workers, villagers would be able to tackle all problems and improve quality of life themselves. The programme lasted for seven years and during this period it failed to create the desired "change". However, despite obvious weaknesses it was much better than the old rural reconstruction efforts. Positive aspects of the programme were its administrative scheme which was not only sound but essential as well, posting of multi-purpose village workers as educators, organisers, motivators and catalysts, and formation of all purpose village councils.

Rural Works Programme (RWP, 1963-72)

In view of the peculiar socio-economic conditions of Pakistan, Rural Works Programme was launched in 1963 as an instrument for utilising surplus labour to create capital infrastructure and to provide gainful employment to the rural people. Pakistan began to receive large quantities of food grains under PL 480 from USA. One of the conditions of the agreement with USA, donor country, was that a certain portion of that would be spent for the relief of rural unemployment. This particular provision of the agreement gave birth to the Rural Works Programme which had the following objectives:

i. to solve small urgent needs of the local population and to increase income of the local councils;

ii. to develop human resource base in the rural areas;

iii. to create economic and physical infrastructure in the rural areas;

iv. to increase the capability at the local councils level for planning small schemes and undertaking their execution;

v. to provide employment to surplus agricultural labour particularly during the slack seasons.

This programme was spread throughout the country. From 1963-64 till October, 1972 more than 1000 million rupees were spent on this programme. Major focus of

the programme was development of communication, education and water supply schemes etc.

People's Works Programme (PWP, 1972-77).

Rural Works Programme continued with IRDP but was captioned as the People's Works Programme (PWP) during the above period. People's Works Councils were created at the district and provincial levels for administering the PWP. The objectives included the restoration of initiative among the people, creation of self-confidence in them and make them conscious of improving their standard of living. The programme was so conceived that the schemes were to be identified by the local people and executed through locally available talent.

Prime Minister's Five Point Programme (1985-88)

The Prime Minister identified five points to promote welfare and prosperity of people during the period from 1985 to 1988. These five points covered political system, economic order, modern scientific development, removing illiteracy and social reforms. This programme supported rural development, Katchi Abadis (Shanty towns), and mass literacy programme. The concept of the programme was to improve economic condition of the people and effectively provide assistance for the prosperity of less developed areas.

People's Programme (1989 – 90 and 94 - 97)

The government initiated a programme called People's Programme in April, 1989 in order to improve and upgrade the physical and social infrastructure, mobilise local resources, motivate people for productive efforts, enhance investment in human capital and provide welfare to under privileged section of the population such as women, youth, disabled and aged and to provide employment opportunities for them.

Tameer-e-Watan Programme (1991 – 93 and 96 – 98)

Tameer-e-Watan programme was launched in July, 1991. With the participation of elected representatives (Senators and MNAs) for providing basic amenities such a drinking water, health, education, sanitation, roads, village electrification, supply of natural gas and establishment of pubic call offices in the country within their financial ceilings in their respective constituencies.

Social Action Programme (SAP)

The Social Action Programme was conceived in 1992-93, which was purely a domestic effort from own resources. The main focus of SAP was on the four priority areas of social sectors namely, the elementary education, (ii) the Primary Health, (iii)

Rural Water Supply and Sanitation, and (iv) Population Welfare and Cross Sectoral Strategies.

Khushhal Pakistan Programme

This programme was conceived in the late 1999 and its aims were similar to such earlier programmes but an element of Army monitoring was added to safeguard the investments and to check its proper use. An amount of approx Rs.36 billion was spent on this programme in two years time. The results have been very encouraging.

Tameer-e-Pakistan Programme

In the years from 2001 a new programme called Tameer-e-Pakistan was launched in the country. The parameters of the programme were similar in nature to the earlier Tameer-e-Watan programme and People's Programme. The funds in this programme were distributed and used through elected representatives by proposing development schemes. Each elected legislator was allocated a sum of Rs.10 million yearly for the development work of his or her constituency. The Sectors covered were rural roads, rural electrification, provision of gas and Public Call Offices (PCOs), sanitation, education, etc. On this basis approximately Rs. 5.0 billion were spent yearly under these programmes.

Peoples' Works Programme (PWP-I & II, 2008- Continue)

People's Works Programme I & II cover small development schemes for provision of electricity, gas, farm to market roads, telephone, education, health, water supply, sanitation and bulldozers hour's facilities to the rural poor. PWP-I & II incurred expenditure of Rs. 5.049 billion and Rs. 21.30 billion during 2010-11 where as Rs. 2.222 billion and 2.902 billion expenditure on PWP-I & II respectively during July-December 2011-12. The highest number of schemes approved under PWP I& II, were Roads followed by followed by schemes related to Water Supply and electrification schemes.

Development Undertaken by Parliamentarians

Special development funds at the rate of Rs. 20 million were allocated to each Senator and Member of National Assembly and Rs. 10 million to each member of Provincial Assembly annually for undertaking development work in their respective constituencies. This resulted in development at the grass root level in a big way through provision of electricity, gas, water supply and farm to market roads.

Construction of Farm to Market Roads/ Rural Access Roads in the Country under Foreign Assistance

The government launched the programme to construct farm to market roads in order to provide access to the rural areas and provide dependable and all weather roads to the farmers of the country to enable them to bring their agricultural produce in the markets on time. This programme was launched with the assistance of Asian Development Bank, USAID, and Government of Japan. The aim was to construct 11000 km. road in two decades with total outlay of Rs.35 billion. The programme met with success and covered eighty districts of Pakistan. The roads are now effectively contributing to the national economy.

Conclusion

By launching the above programmes, the endeavours of successive governments for rural development and poverty alleviation of the rural people and promoting broad based and sustainable socio economic progress have met with partial success. Substantial experience has been gained in the design and implementation of rural development projects but conceptual approaches to rural development are still evolving. The public sector initiatives in the rural areas were hampered due to lack of strong and broad institutional base at the local level, and absence of participatory process in local development. With the implementation of the devolution plan, these issues are beginning to be addressed but considerable capacity building is required. Restoration of Local Government System will certainly provide a strong base for undertaking development works effectively through participation of local community.

Rural development is a multidimensional phenomenal which requires an integrated approach to bring the rural people in the mainstream of development and enhance the lives of rural people by enhancing the economic capabilities through exploiting the financial, natural and physical resources as well as improving the human capital and the provision of social services in the rural areas. The Government has been treating Rural Development and Poverty Alleviation as important components of developmental process in the country.

Poverty Alleviation

Reducing poverty has always been the declared goal of all development plans in Pakistan. There is a general consensus that poverty in Pakistan has increased in the 1990s which is mainly attributed to declining economic growth, persistence of severe macro economic imbalances, and reduction in the flow of remittances from overseas Pakistani workers, lack of social safety nets etc. Some economic reform initiatives, like privatisation of state owned enterprises and subsequent shedding of surplus labour as well as withdrawl/reduction of subsidies, particularly on wheat, may have affected the economic position of low income groups in the transition phase. The

grave poverty situation compelled the government to pay attention to poverty alleviation by launching Poverty Reduction Strategy and identifying areas of focus and make the public expenditure more pro-poor.

Efforts in Poverty Alleviation

Like many other developing countries, Pakistan has also made significant efforts to integrate its economy with rest of the world through foreign trade and investment. The Government of Pakistan adopted a strategy for poverty reduction in 2001, focusing on five areas which include;

i) Accelerating economic growth and maintaining macroeconomic stability;
ii) Investing in human capital;
iii) Augmenting targeted interventions;
iv) Expanding social safely nets and;
v) Improving governance.

Government's macroeconomic policies and implementation of structural reforms in almost all sectors of the economy have transformed Pakistan into a stable and resurgent economy in recent years. Agriculture, small and medium enterprises (SMEs), and housing & construction have been prioritised in accordance with their potential to provide employment to the poor segments of the society. SMEs are an important conduit for labour absorption and thereby reducing unemployment and poverty.

Poverty is wide spread in the rural areas as compared to urban areas, where the people are in a state of human deprivation with regard to incomes, clothing, housing, health care, education, and sanitary facilities. Due to rapid population growth natural resources are gradually depleting posing major challenges to reduce poverty. The Government has taken and launched so many programmes to alleviate poverty in the country ranging from employment generation to providing social safety to the poor. Some of the initiatives taken by the Government of Pakistan for poverty alleviation are:

Flagship Programme for Poverty Alleviation

I. Pakistan Poverty Alleviation Fund (PPAF)

The Pakistan Poverty Alleviation Fund (PPAF) is a flagship element of country's poverty reduction strategy. It is sponsored and supported by the government with an endowment of Rs. 1,000 million and funded by the multilateral and bilateral donors like World Bank, International Fund for Agricultural Development, etc. The funding provided to PPAF is dedicated for micro credit, enterprise development, community

based infrastructure and energy projects, livelihood enhancement and protection, social mobilisation, and capacity building institutional assistance for the partner organisations of PPAF. Total disbursements for core operations during the period were Rs. 8,490 million. Loan (micro credit and enterprise development facility) disbursements were Rs.6,766 million; water and infrastructure disbursements were Rs. 365 million; disbursements for education and health were Rs. 361 million; capacity building disbursements were Rs. 438 million; social mobilisation disbursement were Rs. 220 million; and disbursements for livelihood enhancement and protection were Rs. 339 million. In addition to disbursement for core operations, Rs. 576 million was disbursed for project and flood relief activities. By the end of December 2011, the total cumulative disbursements were Rs. 100 billion. Credit and enterprise development accounted for 59 percent of total disbursements followed by relief, rehabilitation and reconstruction activities (20 percent).

II. Pakistan Bait-Ul-Mal (PBM)

Pakistan Bait-ul-Mal is making a significant contribution towards poverty reduction through its various poorest of the poor focused services. PBM provide assistance to the destitute, needy, widows, orphans, invalids and infirm irrespective of their gender, caste, creed or race. PBM provides assistance under different programmes and schemes such as:

a) **Individual Financial Assistance (IFA):**

It is one of its major social dispensation programme to provide financial assistance to destitute and needy widows, orphans, invalid, infirm and other needy persons, to provide for free medical treatment for indigent sick persons, to provide stipend and financial assistance to brilliant but poor students. Under this head PBM has provided financial assistance of Rs. 734.901 million up to February 2012 and 13,171 beneficiaries from all over the country have benefitted from this scheme.

b) **Child Support Programme (CSP):**

This is a cash transfer programme, in which cash incentive is provided to the parents for sending their children to schools. Rs. 300 per month is paid to the families with one child and Rs.600 per month to the families with two or more children of school age. Currently the programme is running in 12 districts. An amount of Rs. 66.754 million has been disbursed up to February 2012.

c) **National Centres for Rehabilitation of Child Labour (NCsRCL):**

PBM has a proactive child labour rehabilitation policy and number of initiatives has been taken for the betterment of working children. Efforts have been made to withdraw them from work places with a view to their mainstreaming into education by undertaking programmes for non-formal education. 159 centres

have been established throughout the country on which Rs. 248.681 million has been spent up till February 2012.

d) **Vocational/Diversified Vocational Dastkari Schools (V/DVDS):**

PBM has established Vocational/Diversified Vocational Dastkari Schools (VDS/DVDS) where poor widows, orphans and needy girls are given training in a variety of skills to make them self-sufficient to earn their livelihoods in a respectable manner. PBM has established 144 VDS and 15 DVDS throughout the country on which Rs. 93.876 million has been spent up till February 2012.

e) **Pakistan Sweet Homes (PSHs):**

PBM has established Sweet Homes for Orphans having accommodation for 100 children in each home. A total of 28 Pakistan Sweet Homes (Orphanages) have been established so far on which Rs.133.475 million has been spent up till February 2012.

f) **Langer Programme:**

PBM is also working for provision of assistance to needy persons. It provided ration bags to those affected by natural disasters such as the floods of of Sindh and of KPK. In this regard an amount of Rs. 185.306 million expenditures were incurred up to February 2012.

g) **Institutional Rehabilitation through NGOs:**

It provides grant-in-aid to registered nongovernmental organisation (NGOs) for their projects aimed at institutional rehabilitation of the poor and deserving persons of the society. PBM has disbursed an amount of Rs. 24.383 million in this regard up to February 2012.

III. Employees' Old Age Benefits Institution (EOBI)

Employees' Old Age Benefits Institution (EOBI) provides monetary benefits to the old age workers through different programmes including Old Age Pension, Invalidity Pension, Survivors Pension and Old Age Grants.

IV. Zakat

Zakat provides financial assistance such as Guzara Allowance, Educational Stipends, Health Care, Social Welfare/rehabilitation, Eid grants, and Marriage assistance through Regular Zakat Programme and other Zakat Programme and National Level Schemes. A total of Rs.768.7 million was disbursed under different programmes of Zakat during July-March FY 2009-10 as compared to Rs. 1,421 million during the same period, FY 2008/09 registering a decrease of 46 percent. Number of beneficiaries recorded a decrease of 25 percent, from 538,050 during July-March in the previous financial year to 404,124 in the same period of current

financial year. Of the total Zakat disbursements, 52.7 percent was disbursed under Regular Zakat Programmes, 17.25 percent under Other Zakat Programmes and 30 percent under National Level Schemes during July-March, FY 2009-10.

V. Microfinance

Microfinance is recognised as an effective tool to pull the poor and vulnerable out of poverty and vulnerability. It enables the poor to enhance their income earning capacity and empower them, especially women. Microfinance comprises Microcredit, Micro savings and Micro Insurance. It is provided as package through Microfinance Banks (MFBs), Microfinance Institutions (MFIs), Rural Support Programmes (RSPs), and Others including Commercial Financial Institutions (CFIs) and Non-government Organisations (NGOs). Credit disbursements under Microcredit, amounting to Rs 21.7 billion were made during July-December, FY 2009-10 as compared to Rs 18.7 billion during the same period, FY 2008-09 showing an improvement of 16.04 percent. The number of active borrowers increased by 5.38 percent during July-December, FY 2009-10, from 1,732,879 to 1,826,045 numbers of beneficiaries during the corresponding period of the current financial year.

VI. Watan Cards

Pakistan experienced a devastating flood in July 2010 which damaged agricultural assets i.e. crops and livestock and displaced thousands of families. The affected people are mostly rural poor who are not able to restart their normal life by constructing their houses and meeting other needs of day to day life. The government is trying hard to help them in rehabilitation and bring them to normal life.

For this purpose the government launched "Watan Card" through National Database and Registration Authority (NADRA) to distribute twenty thousand rupees per family as relief cash grant to flood affected people. National Disaster Management Authority and Federal Government will provide strategic support with overall coordination while provincial governments will be responsible for selection and establishment of enrollment sites. NADRA will provide consolidation of registered population list, on site biometric verification and registration of unregistered beneficiaries. The money will be transferred to partner banks of this scheme which will enable recipients to get the cash the same day after verification of their particulars.

The government has reached out to 1.2 million flood affected families and has distributed 21 Billion rupees so far through 115 Watan Card distribution centers established countrywide equipped with technology, resources and issue cash assistance cards. More than 90,000 Watan cards to flood effected widows and 3123 Watan cards to disabled persons who heads one of family have been issued.The

Programme is one of the largest cash assistance programme in post disaster relief, as far as catering to such a huge mass is concerned. It will go a long way for the poverty alleviation in the flood affected areas.

VII. Benazir Income Support Programme (BISP) for Reducing Poverty in Pakistan

Unfortunately the poor and underprivileged people of Pakistan have been suffering due to lack of a comprehensive social protection system. The Government launched BISP as a tool for enacting a comprehensive social safety net catering to the needs of the 'poorest of the poor' of the society not only in terms of cash assistance for day to day subsistence but also enabling them to graduate from the vicious cycle of poverty.

Benazir Income Support Programme (BISP) was established by the Government of Pakistan in July 2008 with the primary objective of providing immediate relief to the poor enabling them to absorb the shock of rising prices of food and fuel. BISP has evolved over the past few years into the country's main social safety net. It is committed to the fulfillment of the dream of making Pakistan a welfare state through poverty alleviation and women empowerment. It has made remarkable progress by providing much needed relief to over 4 million recipients including flood and bomb blast victims all across Pakistan. An amount of over Rs 122 billion up to March, 2012 has been disbursed to its recipients. The number of recipients is expected to increase to 7 million once the on-going processing of data collected during the nation-wide poverty scorecard targeting survey is completed. The enrolled families are paid cash assistance of Rs.1000 per month at their doorsteps. A monthly payment of Rs.1000/ per family would enhance the income of a family earning Rs.5000 by 20%. BISP is being implemented in all four provinces (Punjab, Sindh, Baluchistan and Khyber-Pakhtoonkhwa) including Federally Administered Tribal Areas (FATA), Azad Jammu and Kashmir (AJK) and Islamabad Capital Territory (ICT).

Graduation Initiatives:

Besides cash transfers of Rs. 1000/-, BISP has also launched various graduation programmes for its recipients to enable them to exit from the poverty trap. During 2011-12, the following progress has been made by these programmes:

a) Waseela-E-Haq:

Under this programme, microfinance in the form of returnable soft loans up to Rs. 300,000 are provided to recipients, selected through a monthly computerised random draw, for setting up small businesses. During the reporting period, 29 draws were held and a total of 34,807 recipients were pre-qualified. An amount of Rs. 943

million was disbursed to 6,281 recipients while 2,680 new recipients started their own businesses.

b) Waseela-E-Rozgar:

Under this programme, BISP provides technical and vocational training to one member per recipient family to help them to secure their livelihood. BISP signed MOUs with several public sector training organisations and initiated training for the recipients and their nominees. On the other hand, a large number of private sector training institutions were also selected all across Pakistan through a competitive process. Training has commenced in the first quarter of 2012 in most of these institutions and so far 964 persons have been trained while 4,044 persons are currently enrolled. It is expected that by June 30, 2012 the total number of trained persons will be approximately 20,000. In addition, BISP organised vocational trainings for a batch of 173 recipients from Rawalpindi division during the 1st quarter of 2012 through the funds provided by a Chinese civil society organisation.

c) Waseela-E-Sehat:

Life insurance cover of Rs. 100,000 for the bread winners of BISP beneficiary families was launched from January 1, 2011. Over 3.5 million beneficiary families now have their bread earners covered under life insurance scheme launched by BISP in collaboration with State Life Insurance Corporation of Pakistan (SLIC). Over 900 cases have already been processed by SLIC during 2011-12. A comprehensive Health Insurance Scheme covering entire family of BISP beneficiary has also been piloted in District Faisalabad in April 2012. The same is planned to be extended in other districts of Pakistan in coming years.

d) Waseela-E-Taleem:

BISP designed a coresponsibility cash transfer programme titled "Waseela-e-Taleem" for the primary education of the children of its recipients whereby 3 million children will be imparted education during 2012- 2016. The programme is scheduled to be launched in 5 districts during the current fiscal year.

Government of Pakistan is making every effort to achieve Universal primary Education as part of its commitment to the Millennium Development Goals (MDGs). BISP's data – based on the recently concluded poverty scorecard survey shows that over 71% children of BISP beneficiaries have never been to school which accounts for almost 8.5 million children out of school. It is in this context that BISP plans to launch a Co-responsibility Cash Transfer (CCT) programme for the primary education of children of its beneficiary families. CCTs aim at "long term" poverty alleviation through sustained "human capital development" thus enabling the marginalised and vulnerable segments of society to "graduate" out of abject poverty. The term "co-responsibility" refers to joint responsibility of BISP and participating

families to comply with their responsibilities. BISP will provide cash transfers while families will agree to retain as well as send their out of school children between the age group of 5-12 years to primary schools

Conclusion

Sustained growth on a consistent basis is needed to reduce poverty in the country. Macroeconomic stability is, of course, a pre-requisite for the sustained economic growth but it is not sufficient to reduce poverty. Rather, it is the foundation on which to build a thriving economy. No single policy can completely address the needs of poverty reduction. A multi-pronged approach is needed, which includes interventions to enhance incomes and ensure growth combined with safety nets programmes to cater to the marginalised and those that cannot be included directly. This requires interventions in the production system, transfer of resources and employment programmes as well as effective safety net programmes.

The new growth strategy introduced by the Planning Commission focuses on enhanced growth through increase in productivity in a regulatory environment that enhances competition and promotes innovation. It focuses on markets, competition and youth and on vibrant cities that maximise the efficiency of production and commerce by taking advantage of all growth linkages. Furthermore, successfully targeted social safety net programmes, fair and broad based fiscal regimes, efficient labour markets that promote job creation, and high quality education opportunities for the youth are also interventions undertaken by the government to reduce poverty on a permanent basis. Government at all level is highly committed to poverty alleviation programmes and all efforts are being made to ensure continuity of these programme

Benazir Income Support Programme is efficiently addressing the needs of the poorest of the poor to bring them out of vicious circle of poverty and enable them to earn their livelihoods in a respectable manner. BISP has a potential to be replicated in CMCs. It has been organised through MIS data base. It can serve as a role model and replicable programme in CMCs. BISP staff is prepared to assist launching of the programme in the CMCs.

11. PHILIPPINES

Clustering Approach for Agro enterprise Development
Orientation for the SWG/JIT & the ARB Coop: Farming Profitably through Agroenterprise (Linking ARBs to Corporate Supply Chains)

New Approach in Farmer's Development Support

Production focus on production plus market approach (agro enterprise) as thoughts to ponder. If farmers cannot sell all their production, potential profit goes down a lot. This highlights the danger of increasing production without being confident that the additional supply can be sold. An increase in price has a significant effect on improving profit because production and marketing costs are generally fixed. The opposite is true of low prices, where a small decline in price can lead to a large decline in profitability. This shows the importance of helping farmers to sell at high prices. Ways of doing this include growing crops that are in demand, producing better quality and negotiating more effectively with traders.

AGROENTERPRISE Empower organised farmers with knowledge & skills to participate in the marketplace and also, assist them to build their own businesses (agro enterprises), capture more "value" in the value chain, increase incomes and improve farming livelihoods.

Production Focus should (yields, surplus) on Value Chain Approach (sales, income, investment)

Ways to get Farmers Included in the Value Chain:

- New mindset – from production oriented to market oriented
- Partners to help create the supporting environment - promote changes at the farmer and community level (technology, infra gaps, capital, trainings)
- Organising farmers for business – from individual to collective marketing; with business partnerships
- Building knowledge & skills in AE
- There are New mindset – from production oriented to market oriented
- Partners to help create the supporting environment - promote changes at the farmer and community level (technology, infra gaps, capital, trainings)
- Organising farmers for business – from individual to collective marketing; with business partnerships
- Building knowledge & skills in AE

Site Qualification Criteria include: *For the AR area:*

- LAD Free municipalities in low LAD provinces
- An Agrarian Reform Community within the Agrarian Reform Area
- Specific areas to be covered should have at least 50% of the total ARBs (or ARB household member/s) are still tilling/managing the land
- Presence of functional Pos/Cooperatives
- Supportive Regional and Provincial DAR Staff
- With updated list of ARBs and have identified at least 100 ARBs prior to project start up

For the ARB:

- Recipient of Comprehensive Agrarian Reform Programme whether Leasehold, Emancipation Patent or CLOA
- Land had not yet been either sold or pawned to other individuals
- Actual tiller or manager of the production farm that is identified in the selected AR areas
- Spouse, child or child-in-law who actually tills or manages the production farm of the orginal ARB

Clustering Approach:

The Farmers' Process for Market Preparation and Engagement requires (a) Site Selection, Partnership Building and Formation of Working Group; b) Product Supply Assessment and Product Selection (c) Market Chain Study (d) Cluster Organisation (e) Business Planning & Mobilisation (f) Production /Product Supply Organising g) Test Marketing and (g) Sustained Enterprises

The innovative method of organising farmers into small groups called "clusters" where the enabling process for market preparedness & engagement takes place. In clusters there are special structure for product consolidation and marketing.

Necessary to form a New Organisation:

If the existing ARB coop is beset with serious problems of governance, particularly at the time when there are: (a) Poor leadership (b) Weak rules (c) Lack of recordkeeping (d) Financial mismanagement and (e) Dominance of a few "influential" individuals or groups.

Agro Enterprise is a Farmers' Process:

Our role is to be facilitators in the agro enterprise development process, walking the farmers through the 8 step clustering approach where farmers learn how the market works to be effectively organised for business and to use basic financial and business skills for success

For success, farmers must be willing to also commit to their responsibilities to attend meetings and trainings, to be organised and to consolidate their products for the collective marketing and use their own resources to improve their product and markets.

Networks: SEARCA Direction: Towards K-sharing ARD Communities

This include (a) University Consortium (5 in SEA + 3 associate) b) Graduate Fellows (total of 1,515 scholarships) (c) Asian Association of Agric Colleges and Universities (d) Food Security Center (UHOH, Germany) (e) Exchange for the Promotion of Education, Research and Training in South and Southeast Asia (EXPERTS) (f) Biotechnology Information Center (g) Asia-Pacific Adaptation Network (APAN) and h) Asia Pacific Islands Rural Advisory Services Network (APIRAS) of Global Forum on Rural Advisory Services (GFRAS)

12. SRI LANKA

Post Harvest Practices and Rural Development in Sri Lanka*

1. Country at a Glance

Sri Lanka is a traditionally agro-based country, where rice is the major crop cultivated among many food crops. According to Census -2011, population was 20.277 million and it is one of the most densely populated countries in South Asia with about 323 persons per square kilometer (Department of Census and Statistics, 2012). Country's average annual population growth rate was reported as 0.7 percent during the period 2002-2011. Of the total population, around 72 percent live in the rural sector. Agriculture is a main livelihood in rural areas and it provides employment for approximately 33 percent of the labour force. Around 30 percent of the total land surface is used for agriculture while a greater portion of the farmers in the smallholdings sector has less than an acre. In terms of the Gross Domestic Product, agriculture contributes to 11.2 percent, industry 29.3 percent and service 59.5 percent (Central Bank of Sri Lanka, 2012).

In 2011, paddy production was reported as 3,875,000 metric tons while overall vegetable production was 981,703 metric tons. However, of the total vegetable production, only less than 1 percent (13,447 metric tons valued at Rs. 1,871 million) was exported while of the total fruit production of 20,006 metric tons valued at Rs. 1,890 million was exported (Central Bank,2012).

Poverty level of the country had declined remarkably from 22.7 percent in 2002 to 8.9 percent in 2009/10. Of the total poor 84.7 percent (1.53 million) from the rural sector; 6.5 percent and 8.8 percent from the estate sector and the urban sectors respectively (Department of Census and Statistics, 2011). Sri Lanka Prosperity Index (SLPI) was reported as 60.6 percent in 2011. Its sub indexes viz Economy and Business Climate, Well-Being of the People and Socio-Economic Infrastructure were reported as 70.1, 56.4 and 55.4 percent respectively (www.Central Bank of Sri Lanka).

2. Post Harvest Losses

2.1 Paddy

According to available data, around 10 to 17 percent of paddy (420,000 metric tons of paddy annually) are lost or wasted due to improper post harvest practices. Estimated value of the loss is Rs. 3,780 million (Palipane, n.d.). The major reasons for post harvest losses in rice are: immature harvesting, inadequate techniques used for cleaning (example: farmers use only winnowing techniques which remove only light impurities but not heavy impurities such as stones and sand), improper drying

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techniques, lack of proper storage facilities and problems related to rice mills such as non adoption of modern technologies. Post harvest losses by various means are shown in table 1.

Table 1: Post harvest losses in paddy by operations

Type of post harvest operation	*Loss (percentage)*
Harvesting	1.0-3.0
Threshing	1.0-2.0
Cleaning	0.0-0.2
Drying	0.0-0.3
Storage	4.0-6.0
Parboiling	1.0-2.0
Milling	2.5-4.0
Total	9.5-17.5

Source: Palipane, K.B.,n.d.

Due to the above mentioned reasons qualitatively as well as quantitatively losses occur in paddy at various stages. These are discoloured produce, unfilled or partially filled grain, high level of broken rice, low milling recovery, spillage and incomplete separation of grains from the rest of the plant, contamination of grains, mixed with sand and stones, consumption by birds, grain cracking, mould damage due to inadequate drying and improper storage and damage due to insects. As revealed by the Institute of Post Harvest Technology (IPHT), the highest losses occur at the storage level due to lack of suitable storage facilities and adoption of improper storage techniques. These losses vary from 3 percent at commercial levels to 5 percent at farmer level. However, paddy milling sector in the island has developed over the years and 40 percent and 25 percent of the total mills are modern and semi-modern. Therefore, the majority of mills have separate specialised machine for pre-cleaners, de-stoners, rubber roll shellers, paddy separators, rice polishers and graders (Palipane, n.d.). Therefore, it helps to reduce post harvest losses in milling practices.

2.2 Vegetable and Fruits Sub-Sectors

Post harvest losses are high from 16 percent to 41 percent for fresh vegetables and 30 percent to 40 percent for fruits from farm to retail market (Cyril, 2006, Fernando, 2006). The losses vary by crop and stages of the market chain are shown in the table 2. Due to improper post harvesting practices county loses approximately 270,000 metric tons of vegetables and fruits valued at USD 90,000 on an annual basis (Fernando, 2006).

Pre harvest diseases and infections cause post harvest losses in some fruits and vegetables at considerable level. Other major reasons for post harvest losses are harvesting at an incorrect maturity stage, damage due to harvesting devices, vibration during transportation and collection, exposure to sun and rain, rough handling at the harvesting, loading and unloading, tight packing and overloading, heat build up during transportation, transportation in poly sack bags and compression damage during packing and stacking. According to the Institute of Post Harvest Technology, 20 percent of the post harvest losses of fruits and vegetables occur during transportation (Warushamana, 2011).

Table 2: Average levels of post harvest losses in vegetables and fruits at steps of the marketing chain

Crop	*Post harvest losses (%)*				
	Farmer	*Collector*	*Wholesaler*	*Retailer*	*Total*
Brinjal	10.99	8.96	2.22	10.75	34.76
Beet-roots	7.21	9.12	2.13	8.56	27.02
Cabbage	8.36	13.11	6.17	13.23	40.87
Carrots	6.47	9.32	2.83	9.78	28.40
Leeks	9.77	14.47	5.20	11.44	40.88
Tomato	7.25	10.25	4.59	13.33	35.42
Beans	6.07	7.93	1.54	9.50	25.04
Bitter gourd	5.13	5.13	1.86	10.25	22.37
Okra	4.50	4.55	2.38	4.64	16.02
Banana	5.27	7.58	3.25	14.13	30.23
Pineapple	7.21	8.53	2.89	12.53	31.16
Papaya	5.78	10.12	4.95	15.28	36.12

Adopted from Cyril,2006

3. Importance of Post Harvesting Practices in Development

As discussed in the early section, the country loses huge amounts of food due to improper post harvest practices. These losses directly affect national economy, farmers as well as consumers through price increases resulting in high cost of living, less income for farmers and creation of obstacles to achieve sufficient nutrition levels. The end results are high incidence of poverty and malnutrition, as explained below.

Present Official Poverty Line (OPL) was introduced in 2002 with the basis of per capita expenditure required by person to meet 2030 kilo calories and other essential

non-food items. OPL of Sri Lanka was Rs. 3,028 per person per month in 2009/10. Accordingly, Poverty Head Count Ratio was 8.9 percent for Sri Lanka while it varied from 5.3 percent for urban areas to 11.4 percent for estate sector. Further, poverty head count ratio differed from 2.3 percent in Vavuniya district to 20.3 percent for Batticaloa district in 2009/10 [Central Bank of Sri Lanka, 2012 (c)]. Though, all island poverty level decreased to one digit, almost all the agricultural districts show two digit (10 to 20 percent) poverty levels. In other words, poverty in Sri Lanka can be identified as an agrarian phenomena. Among many other factors, improper post harvest practices, low farm gate prices for crops, seasonal unemployment/under employment are major factors which cause poverty in agricultural areas. Therefore, adoption of proper post harvesting practices including food processing will help to reduce agrarian poverty considerably, making employment opportunities and offering good price for graded quality products at the farm gate and for processed foods.

Though percentage of under five years of age children who are underweight for their age has declined progressively during the last decades, 1/5 of children under five years of age are reported to be underweight. On the other hand, half of the Sri Lankan population is deprived of adequate dietary energy [Department of Census and Statistics, 2009 (a)]. This phenomenon remains unchanged since 1990 but the situation is different by sectors. For example, as revealed by the Department of Census and Statistics (2009) in its' work of midterm review of Millennium Development Goals, 65 percent of the urban population was deprived of adequate dietary energy while it was reported as 33 percent for the estate sector.

Further, food ratio [proportion expenditure on food and drink (non-alcoholic) to total expenditure] is 63.1 percent for the poor households in Sri Lanka while it is reported as 36.3 percent for the non-poor households [Department of Census and Statistics,2009 (b)]. In other words, higher proportion of the income of poor families is spent on food and drinks. As revealed by the Household Income and Expenditure Survey (2009/10), poor households spent around 61 percent of their expenditure for food items. However, for all income groups, food ratio was 42 percent in 2009/10 while it varied from 36 percent in the urban sector to 51 percent in the estate sector. Most of the agricultural districts' food ratio was higher than 50 percent. The lowest food ratio was reported from the Colombo district (36 percent) while the highest was reported from Jaffna (65 percent).

Though poor households spend more than half of their expenditure on food items, their calorie intakes are far behind than required calorie intakes per persons (2030 Kilo calories). For example, poor households' average per capita energy consumption for Sri Lanka was 1472 Kilocalories in 2009/10 while it was reported as 1139, 1497 and 1596 Kilo calories for urban, rural and estate sector poor households. Urban area non poor household's energy consumption is also less than

required energy consumption. It was reported as 1922 Kilo calories in 2009/10 (Department of Census and Statistics, 2011). Regarding districts, poor households in the Colombo district intakes the lowest average per capita energy consumption (1,054 Kilo calories) while the highest average per capita energy consumption was reported from the Vavuniya district (2,022 Kilo calories). Even non poor households' average per capita energy consumption in the Colombo and Gampha districts is also less than required energy consumption. Though a number of reasons may have influenced the less per capita energy consumption, relatively high price of vegetables and fruits due to post harvest losses, existence of a large number of intermediaries between producer and consumer and higher market margins may be one of the major reasons.

As revealed by Vidanapathirana *etal* (2011), due to direct purchase of vegetables from farmers, gross price margins for super markets for low country vegetables is significantly low compared with conventional market channels. As they revealed, gross price margin of the super markets varied from 42.22 percent for ash plantain to 124.17 percent for pumpkin while gross price margin of conventional markets varied from 101.89 percent for tomato to 751.98 percent for cucumber. These figures show that producers receive low prices for their produce while consumers are forced to pay high prices for food items at the conventional markets channels. Therefore, conventional market channels coupled with improper post harvest practices cause extra burden for consumers and negatively affect their food habits.

On the other hand the Household Income and Expenditure Survey (200/10) data explains that there is high demand for prepared foods in urban areas. Urban population spent 15.2 percent of food expenditure for prepared foods. It varied from 5.3 percent in the Nuwara Eliya district to 15.5 percent in the Colombo district. Therefore, post harvest practices including food processing will help to cater to the current demand as well as remedy less energy consumption, decrease poverty head count ratio and poverty gap in the country.

4. Institutional Mechanism and Legal Procedures

Two institutions are responsible for development and disseminating knowledge on post harvest technologies on food crops namely The Institute of Post Harvest Technology (IPHT) and Department of Agriculture. The IPHT was established in 2000, by the Extra Ordinary Gazette Number 1137/10 of the Democratic Socialist Republic of Sri Lanka under the provisions of the State Agricultural Corporations Act No.11 of 1972. The major functions of the IPHT are improving the post harvest technology of rice/other grains, field crops, fruits and vegetables, spices through research, training and extension, consultancy and advisory services. Accordingly, IPHT is involved in minimising the post harvest losses by introducing improved and

cost effective technologies, minimise the quality deterioration and nutritional losses in grains, field crops, fruits, vegetables and spice crops. Further IPHT is involved in increasing farm income through improvement of farm level storage and preservation facilities to provide opportunity to sell their production at attractive prices in off seasons and develop and transfer workable agro-based industries at rural level. The IPHT has been disseminating their knowledge to farmers, traders, processors and other relevant persons involved in post harvest practices through head office and six field centres located in different parts of the country. The IPHT conducts around 200 courses per year and train around 5,000 people annually (www.ipht.gov.lk).

The Department of Agriculture is involved in improving and disseminating knowledge of post harvest and processing technologies related to horticultural crops through Food Research Unit of Horticultural Crop Research and Development Centre (HORDI) by conducting research and extension works. They conduct their research with the aiming of food security and safety, quality and nutrition level.

5. Policy Directions Towards Better Post Harvest Technologies

In addition to the established research institutions for the post harvest and food processing technologies, successive governments have taken some steps towards popularising proper post harvest technology among relevant stakeholders. As mentioned in the *Mahinda Chinthana* (a policy document of the government of Sri Lanka), government expects to grow agriculture sector at 10 percent during the period of 2010-2020 Therefore, government gives high priority to modernise agricultural practices and improve the productivity while enhancing value addition and product diversification. The government's agricultural policy aims at realising multiple goals including achieving food security, ensuring higher and sustainable income for farmers and reducing wastage in transit. Further, *Mahinda Chinthana* document mentions that the government takes action to introduce packing crates to reduce post harvest losses of vegetables and fruits. Other major policy directions toward post harvest technology are encouragement of food processing including fruits (natural drinks), rice flour products and bottled tropical fruits and vegetables. Accordingly, government hopes to establish modern fruit processing factories in eight locations. Rice flour processing factories will be established in several districts.

The government has taken action to implement policy on reducing wastage of fresh vegetables and fruits in transit with the enacting of law by Extra Ordinary Gazette Number 1728/5 on 17th October 2011. This law directed all producers, transporters, distributors and traders of selected 31 fresh fruits and vegetables (however, later on it was reduced to 21 crops- tomatoes, *tibbatu*, carrot, bitter guard, *thumba karavila*, cabbage, bell pepper, lettuce, spinach, cucumber, capsicum, papaw, guava,

avocado, pomegranate, pears, oranges, grapes, mangoes, strawberry and passion fruits) to use plastic, wooden or hard paper crates to collect, store and transport. Further, government has provided over 150,000 of plastic crates to relevant stakeholders spending a sum of LKR 103 million at the end of March 2011 (Srimanna, 2011). However, due to massive protests by farmers, traders, collectors and other stakeholders against the law, government has taken steps repress the implementation of the law.

6. Technologies Introduced for Post Harvest Problems

6.1 Paddy

With the aim of reducing post harvest losses of paddy the government introduced many practices at various stages of post harvesting. Accordingly, almost all the farmers in agricultural areas adopted mechanical threshers instead of tractors and buffaloes. Farmers tend to produce paddy without stones and sands and the government encourages the farmers to establish sun drying yards paved with cement in dry zone areas. Further, IPHT introduced cost effective paddy storage techniques (such as clay *bissa*, gunney *bissa*) and facilities to safeguard the quality of paddy (use of plant leaves such as Maduruthala (*Ocsimum sanctum*), Neem, citrus etc for insect/pest control) for small and medium scale farmers. Of the total paddy production, 70 percent was subjected to the process of parboiling. Therefore, IPHT developed and introduced the steaming vessel for domestic use. For the commercial purpose IPHT introduced a number of parboiling and drying systems such as Goviya system, steaming boiling system and flu dice bed dryer.

Further, IPHT has developed rice based products such as instant rice, rice noodles, cake (100 percent of rice flour), bread (30 percent of rice flour), instant string hoppers, infants and weaning foods (60 percent of rice flour) rice ice-cream, rice flakes, breakfast cereals, rice soup, short eats and other bakery products (20-50 percent of rice flour). Some of them are produced on large scale by the private sector.

6.2 Fruits and Vegetables

The "Fresh Produce Concept" was introduced by the IPHT to reduce handling and transport losses of fruits and vegetables. Under this concept, maturity indices of each fruit and vegetable and making of farmer awareness of the time of harvest, sorting and grading of production, suitable packing materials have been introduced. Some harvesting equipment have been developed and introduced for farmers to reduce damage and post harvest losses of fruits such as mango. Furthermore, the IPHT has developed and introduced returnable plastic crates with the objective of reducing post harvest losses during handling and transporting. Further, the low cost evaporate cooler has been developed and modified by the IPHT and the University

of Peradeniya to minimise post harvest losses and improve the quality and safety of fruits and vegetables at retail outlets. Using this evaporative cooler, one can reduce losses of vegetables and fruits from 5 percent to 20 percent (Fernando, 2006). After introducing proper post harvest practices, post hárvest losses of some fruits and vegetables have been reduced significantly. For example post harvest losses of okra declined from 46 percent in 1998 to 16 percent in 2002 (Cyril, 2006). Due to use of plastic crates post harvest losses of mangoes and avocados were reduced from 6 percent to 30 percent (Fernando, 2006) and post harvest losses of tomatoes, carrot and capsicum reduced from 7.5 percent to 0.8 percent, from 4.9 percent to 0.0 percent, from 3.6 percent to 0.0 respectively (Chandrasiri and Epasinghe, 2011). Further, the IPHT and HORDI developed and introduced a number of food processing techniques for various fruits and vegetables such as dehydrates, instant drink, cordial, pulp, jam, lime juice, dehydrated tomato powder and leather.

7. Problems and Issues

Though successive governments have taken steps towards reducing post harvest losses through new technology, still achievement is far behind the expectations. A number of socio economic and policy issues influence the situation. Some of them are as follows:

1. Lack of knowledge of farmers on proper post harvest practices, relatively little consideration given to the post harvest quality and its benefits.
2. Lack of extension services on post harvest and food processing technology.
3. Low income level of farmers and other stakeholders.
4. Lack of infrastructure facilities such as proper packing houses and well designed trucks with cooling facilities.
5. Regulation and implementation of law without considering/studying ground situation.
6. Absence of organised food marketing system with backward and forward linkages.

8. A Way Forward

After doing a comprehensive research on post harvest losses, its effects, impacts and factors for not adopting proper technologies, the government should take decision on policy direction. Meanwhile, it should implement stakeholder awareness programmes on the benefits of practices of post harvest technology.

13. THAILAND

New Theory of Agriculture

A great deal has been written about the Sufficiency Economy. It has been widely referred to as a philosophy, a theory, as well as a concept of Thai society. It is now taught in Thai universities. It also has been written about in academic journals, newspapers and magazines, and has been the subject of conferences and symposia. Numerous institutions have been set up to promote it and it is now beginning to attract interest from countries in Asia and Africa.

Long before the Asian financial crisis, His Majesty's rural development activities have always emphasised self-reliance and sustainability. But the activities were practical and carried out according to scientific principles and his development discourse was essentially scientific. In 2001, the philosophy of sufficiency was overtly articulated as a marriage of science and right living and as having universal applicability rather than being confined to the realm of rural development.

The concept "sufficiency economy" appeared over 20 years later in His Majesty King Bhumibol's birthday on 4 December 1997, a few months after the financial crisis. It came after a decade in which GDP growth per year sometimes reached 10 percent and was never less that 4 percent and all predictions were for another decade of the same. However, the gap between rich and poor was widening and large segments of society, such as rural farmers, were not benefiting from economic development.

"Sufficiency economy" is a philosophy that emphasises the middle path as the overriding principle for appropriate conduct by the populace at all levels. This applies to conduct starting from the level of the families, communities, as well as the level of the nation in development and administration so as to modernise in line with the forces of globalisation.

"Sufficiency" means moderation and reasonableness and the need of a self-immunity mechanism for sufficient protection from adverse impacts arising from internal and external changes. To achieve this, an application of knowledge with due consideration and prudence is essential. In particular great care is needed in the utilisation of theories and methodologies for planning and implementation in every step. At the same time, it is essential to strengthen the moral fibre of the nation, so that everyone, particularly public officials, academics and businessmen at all levels adheres first and foremost to the principles of honesty and integrity. In addition, a way of life based on patience, perseverance, diligence, wisdom and prudence is indispensable to create balance and cope appropriately with critical challenges arising from extensive and rapid socioeconomic, environmental, and cultural changes in the world.

The essence of the sufficiency economy philosophy is thus moderation due consideration and self-immunity based on knowledge and right living. Rather than being opposed to globalisation and development based on neoclassical economic theories, the sufficiency economy is portrayed as a way of meeting the challenge of globalisation and a way of laying a foundation for economic growth.

One way to consider the application of the sufficiency economy philosophy to the agriculture sector is to apply the essential elements or principles of the sufficiency economy philosophy, namely moderation, due consideration and self-immunity to the practice of farming. Thus, adopting the principle of moderation would lead farmers to forsake concentrating all of their resources on a single monocrop in favour of crop diversification. If they acted with due consideration based on knowledge of past price fluctuation of agricultural commodities they would see how risky it is to concentrate all one's resources in such commodities expecting large profits. If they adopted the principle of self-immunity they would plan for price changes in the market by producing enough to eat as a priority and only then think of selling any surplus. A strong sense of community would see farmers engage in mutual help and this would further strengthen community ties.

Apart from this general application of the philosophy of sufficiency economy in the agricultural sector, His Majesty developed a quite specific application consisting of a system of integrated and sustainable agriculture, usually referred to as New Theory Agriculture or simply as the New theory, which encourages self-reliance and addresses food security issues. It is the culmination of His Majesty's thoughts and efforts in water resource development and conservation, soil rehabilitation and conservation, sustainable agriculture and self-reliant community development. His Majesty fully explained the New Theory in a speech on 4 December 1994.

New Theory Agriculture is initially at the level of the household with the aim being self-reliance, poverty reduction and food security; then at the level of community; and finally going beyond the community (Phase 3). It was based on the fact that an average farmers owns about 15 rai (2.4 ha) of farm land, this total amount of land should be divided into 3 parts for the following functions:

Part 1: 30%of the total farm area (~3 rai or 0.48 ha) is used for a reservoir. The pond should be dug to a depth of 4 metres for a capacity of 19,000 cubic metres of water collected from rainfall, which will be enough to irrigate the crops throughout the year. On his many visit to his people in the rural areas, the King has always stressed the importance of water to agriculture, especially to the rice crop which thrives on water. Since building large reservoirs is becoming more and more difficult due to the expanding population and the decrease in the amount of land available. The King

advocates the building of household reservoirs. These, apart from providing water for the crops, can also be used to raise fish and aquatic plants, thus adding to the household income.

Part 2: 30% of the total farm area (~3 rai or 0.48 ha) is devoted to rice cultivation which will produce enough rice for the household consumes.

Part 3: Another 30 % of the land (~3 rai or 0.48 ha) may be used for growing more or horticultural crops, depending on the local conditions and the market demand.

Part 4: The remaining 10% of the land (~1 rai or 0.16 ha) is used for building a house, paths and ditches and also for growing household vegetables and raising livestock.

The 30-30-30-10 formula suggested by His Majesty became the "**New Theory**" of principle agricultural land management as follows:

1. It is practical to be used at small farm not larger than 15 rai size (which is an average farm size in Thailand).
2. The land management of this type would result in self sufficiency of the farmers. Each family would be able to live comfortably while community co-operation and participation are the main elements for success.
3. The remaining objective is to produce enough rice for the family to consume all year.

His Majesty also has observed that water loss through vaporisation could occur at the rate of 1 cm. each day in the dry season. If there are 60 raining days in a year, the level of water in the pond would remain only 1 meter deep from the bottom which is not enough for year-round agriculture. Therefore, a supply of water from a large reservoir is needed to fill up the small ponds and make this theory implementable. He has tested his theory at Wat Mongkol Chai Pattana and has proven to be quite practical. The farmers are also to increase their farm yield with enough water each year.

However, His Majesty made an emphasis that management of this kind must be gradually done and should never rush into it. An immediate problem arising from digging a pond on farmland is a large quantity of earth left around which amount from 10,000 cubic metres to 19,000 cubic metres. His Majesty has suggested the farmer to use this surplus to build a dike around the pond and construct the cultivation rows for vegetables or fruit trees. To make it easier for the farmers to use the "New Theory", step – by – step procedure is formulated.

First Step:

1. This is the formulation for a small-scale farm of about 15 rai.
2. The most important objective is enable the farmers to be self-sufficient while creating unity and fostering harmony in the community.
3. Assuming that one family is cultivating 5 rai of paddy field, there would be enough rice to consume for the whole year.
4. Each farm (15 rai or 2.4 ha) is divided into 4 parts:
   - Paddy field (5 rai)
   - Field crops or fruit tress (5 rai)
   - Farm pond (3 rai). The 1,000 cubic metres of water is needed for 1 rai of cultivated land. Each farm must have 10,000 cubic metres of water annually for 5 rai of paddy field and 5 rai of field crops or fruit trees. A pond with 4 metres deep on the 3 rai area is capable to hold 19,000 cubic metres of water.
5. The average of water vaporisation in the dry season (~ 300 days) is 1 cm/day. 3 metre deep of the water in the pond is lost which is amounted to 15,250 of the 19,000 cubic metres. The remaining 3,750 cubic metres of water is not enough for cultivation and refillment is needed.
6. It is necessary to have a large reservoir for water refill.
7. A large reservoir (800,000 cubic metres) alone without the supplement of small ponds would provide water for only 800 rai. The complementary use of large reservoir and small ponds will compensate the need of annual requirement of water.
8. One big problem is the high investment cost to build a large reservoir. Funding from the government, private sectors, and foundation is necessary. The operation cost, however, is low and the farmers would be able to manage by themselves.

Step Two: A group of farmers should work together to form a co-operative for the following operations:

1. Production (plant strains, land preparation, irrigation, etc.)
2. Marketing (harvesting plain, storage, mill, sale)
3. Living necessity (food, clothing, etc.)
4. Welfare (health, capital investment, loan)
5. Education (school, scholarship)
6. Social and religion

Help and contribution for the government, foundation, and private sectors are necessary to make it work.

Step Three: The 6 operations in the second step could be achieved by requesting the assistance and co-operation from the funding institutes (bank), energy resources (gasoline company) to establish and operate the community mill (2), set up a co-operative store (1,3), find an investment capital (1,2), and develop a better living standard (4,5,6). Both farmers and private sectors would mutually benefit in the following manners:

1. Farmers could sell their cultivation products (rice) at a reasonably high price.
2. The banks and the funding companies could buy the consuming products (rice) at the lower price (directly buy the grain from farmers to mill)
3. Farmers could buy the consumer products at a lower price (co-operative store at a wholesale price).
4. The banks and the funding companies could distribute their employees to the rural area and community.

The New theory offers a foundation of self-reliance and a way to gradually improve a farmer's standard of living while providing immunity against the fluctuations of the market or unpredictable natural disasters, but implementation requires patience and perseverance to overcome any problem that may arise.

In a Royal Speech on 4 December 1996, His Majesty offered some insights into the implementation problems one might expect:

"..... The implementation of the New Theory is not simple. It has to depend on the area, opportunity as well as budget. Since a wide range of people has learned of the benefits of the New Theory, they want to implement it on their own land by requesting assistance from the government to dig a pond and other matters. But it is not easy. In some areas, when a pond is dug. It is found to be lacking water completely. In other areas, despite abundant rainfall, the water cannot be retained because there is a leakage. Moreover, in worst cases, the New Theory cannot be implemented at all because the land is not situated in a catchments area, thus disabling storages of water. Importantly, the new theory also requires a suitable area. Therefore, the adoption of the New Theory or, in other words, the provision of water supply for farmers is not simple, but it needs mutual assistance....."

New Theory Agriculture has enriched sustainable agricultural systems practiced in Thailand. These systems have to date consisted of integrated farming systems, organic farming, natural farming and agro-forestry are generally seen as having played important roles in achieving overall sustainability of the agricultural system in Thailand.

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