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Foreword

This issue of 'The Administrator' touches upon the area of sustainable development. We are privileged to bring you a series of articles which touch upon various aspects of this broad area of endeavour. Readers would be familiar with the Millennium Development Goals (MDGs) ennunciated by the United Nations and accepted by the World Community at large. However, beyond the appreciation of these laudable objectives, the practicing administrator, as well as the academician would be keen to know about the existing practices of translating there objectives into reality on a sustainable basis. In this context, the articles in this issue, many of which describe real experiences of initiatives for sustainable development taken in various part of the country, would be of deep interest to readers.

The first article, sets the background introducing the subject of sustainable development and examining its basic definition, as evolved by various development organizations, both national and international. The 'Brundtland Commission's definition of sustainable development has been cited and explained. It points out that there are some ecological constraints to the process, and these have to be taken into account while designing programmes and strategies. The goals of sustainable development in India have also been discussed. A detailed analysis has been done on sustainable development issues in the area of population, agriculture and forestry. This article has been prepared from secondary sources, by a group in the Lal Bahadur Shastri National Academy of Administration, Mussoorie, working under the supervision of Shri Chiranjiv Choudhary, a Senior Deputy Director. It sets the stage for the ensuing pieces which are based largely upon the field experiences of their contributors.

In the second article, Sanjeev Ranjan tells about a new framework for environmental impact assessment (EIA) for individual river valley projects, with a view to promote sustainability, by comparing alternative options in an integrated way. A mathematical model has been developed for this purpose. Ultimately sustainable development has to translate itself into the economic wellbeing of the poorest members of society. Sameer Sharma touches on this aspect in his article on forming clusters of wearers, outside the fold of cooperative societies, in the Pochampalli area of Andhra Pradesh. He describes the existing network of producers, financiers, and of traders in the area, and the strategies adopted to provide inputs to the weakest producers to get them better returns on a sustainable basis.

Another article, which is of direct relevance is that by M. Naga Raju, who outlines the efforts taken in the South Tripura district to achieve the MDGs through the existing development programmes of the Government. He advocates a clear strategy based upon the involvement of local self government bodies and civil society groups.

Another experience from the districts has been documented by Mihir Kumar Singh, who has dealt with the seminal activity of education, which most theorists now maintain provides the key to development. Mihir Kumar Singh's goal is to provide education for all. He follows a route of providing necessary infrastructure and involving the community. He introduces incentives for teachers and taps funds from non-conventional sources such as MP's and MLA's local area development funds. Perhaps both these pieces offer further scope of enquiry into the various factors that go into making sustainable development initiatives succeed at the district level.

Traditional practices often come in the way of growth and sustainable development. Two of our articles focus upon this aspect and describe interventions to do away with age old practices. In a study on Van Dhan, a project to market non-timber forest produce (NTFP) collected by tribal communities in the Bastar District, the write up examines the condition obtaining prior to the projects, the results of the intervention. More important, the article also focuses on sustainability and poses questions about how the fruits of the efforts made can be retained, in the face of vested interests who want a return to Status quo. Similarly, RCM Reddy has contributed a piece on substantiating the obviously non-sustainable Jhoom pattern of cultivation in Tripura, with Rubber plantation. The article focuses, once again on the strategies used, the key players In the project, methods of resource mobilization and sustainability.

It is hoped that the current volume of "The Administrator" will provide readers with not only theoretical perspectives in development, but also with rich material on initiatives being done by practitioners in the field in this regard. It would be an interesting exercise for the reader to analyse as to how the practice compares with the theory. They may like to examine for themselves as to how the experiences described can be improved upon from the point of view of sustainability. In any case, we hope that this issue brings to your attention, a whole gamut of issues concerning sustainable development and some interesting initiatives being taken in this regard in various parts of the country.

T.K. Manoj Kumar

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Email : tkmanojkumar@lbsnaa.ernet.in
softrain@lbsnaa.ernet.in
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Lal Bahadur Shastri National Academy of Administration, Mussoorie.

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Sustainable Development – An Introduction

*- Chiranjiv Choudhary et al.**

Abstract

This paper introduces the subject of sustainable development. It examines the various definitions of the term as ennunciated by international and national development organizations. It posits that there are some basic ecological constraints governing the process of development. The goals of sustainable development in India are discussed. The paper then proceeds to discuss the scenario in the population, agriculture and forestry sectors in detail.

Introduction

The paper discusses major themes and perspectives in the ongoing debate over 'sustainable development'. The aim is to contribute a conceptual framework that will assist academic and professional planners to assess how emerging ideas in sustainable development could facilitate in planning theory and practice in the decades ahead. This task is not as simple as it sounds. Interpretations of sustainable development and its implications for planning vary as widely as the ideologies of its various proponents. However, rather than dwell on ideological differences per se, we focus on certain ecological realities that must be accommodated by any realistic approach to sustainable development. We also assume a global perspective on the grounds that if the basic argument is correct, the success of sustainable development initiatives anywhere is dependent on sustainable development everywhere.

*Shri Chiranjiv Choudhary belongs to the 1989 batch of the Indian Forest Service. This article was prepared by a group of Officer trainees working under his supervision.

Some of the most substantive challenges to conventional thinking come from recent efforts to specify the limiting ecological conditions for sustainable development. Historically, the development debate in liberal democracies has been dominated by social and economic considerations. From this perspective, there are no absolutes – what constitutes sustainable development is largely a matter of subjective opinion and expressed public preference. Within a broadly utilitarian framework, a pluralistic society will ultimately arrive a politically expedient interpretation of the concept through the usual power-brokering, negotiation and compromise among competing interests and values. The acceptance of ecological constants obviously places unaccustomed boundaries on this debate. This is not to deny that many dimensions of development remain subject to socio-political negotiation and control. For example, society might achieve sustainable development in ways that reduce economic disparities between the rich and poor, or in ways that exacerbate existing relative poverty (Boothroyd:1991). However, the point here is that the basic ecological requirements for sustainability are not negotiable. Industrial society is now constrained by bio-physical realities which, if heeded, provide objective criteria for sustainability. Satisfaction of these ecological criteria is a necessary if not sufficient condition for sustainable development, whatever its political and socio-economic character.

Defining Sustainable Development

The Brundtland Commission defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". It contains within it two key concepts:

- The concept of 'needs', in particular the essential needs of the world's poor, to which over-riding priority should be given; and
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

Thus, the goals of economic and social development must be defined in terms of sustainability in all countries – developed or developing, market-oriented or centrally-planned. Interpretations will vary, but must share certain general features

and must flow from a consensus on the basic concept of sustainable development and on a broad strategic framework for achieving it. (WCED:1987)

This innocuously skeletal definition give something to everyone, and academia, government, and non-government organisations have been striving ever since to flush it out. As global ecological trends worsen, any concept that implies we can eat our development cake and have the environment to naturally inspires enthusiasm on all sides of the debate. (Hamm & Muttagi:1998). Daly and Cobb (1989) suggests that the Brundtland Commission's vague definition of sustainable development may have been purposeful and politically astute. It generated serious debate of a full spectrum of a possible interpretations. Similarly, Brooks (1990) notes that 'Our Common Future' is important "not so much for what it states, but for the reaction it has generated. It has had a galvanizing effect on international development at a crucial time.

General concurrence on the need for sustainable development obscures equally widespread disagreement over the practical meaning of the concept. Environmentalists of all stripes and groups on the political left emphasized the "sustainable" part. They see a need to put earth first, limit material growth, return to community values, and devise ways to share the world's wealth more equitably. Economic planners, the political centre and also those to the right lay stress on the "development" component. From this perspective, there are no limits, growth comes first, the present system works, and the global expansion of market economies will create all the wealth needed for world ecological and social security.

While proponents of sustainable development occupy the entire political spectrum, the debate is becoming polarized around two distinctive world views, each with its own normative assumptions and distinctive vision of humankind's role in the scheme of things. Milbrath (1989) labels these poles the "dominant social paradigm' and the 'new environmental paradigm'. Taylor (1991) calls them the 'expansionist world view' and the 'ecological world view'.

In effect, the Brundtland Commission equated sustainable development with "more rapid economic growth in both industrial and developing countries" on grounds that "economic growth and diversification will help developing countries

mitigate the strains on the rural environment. Consistent with this interpretation, the Commission observed that "a five to ten fold increase in world industrial output can be anticipated by the time world population stabilizes sometime in the next Century. In recognition of the additional stress this implies for the environment, the Commission cast sustainable development in terms of more material and energy-efficient resource use, new ecologically benign technologies, and "a production system that respects the obligation to preserve the technological base for development.

Goal of Sustainability in India

The Central Government has adopted the goal of sustainability. The 'Preamble' of 'The National Conservation Strategy and Policy Statement on Environment and development' begins with the following declaration {MoEF, 1992]

"The survival and well-being of a nation depend on sustainable development. It is a process of social and economic betterment that satisfies the needs and values of all interest groups without foreclosing future options. To this end, we must ensure that the demand on the environment from which we derive our sustenance, does not exceed its carrying capacity for the present as well as future generations".

In 1972, then Prime Minister of India, Mrs. Indira Gandhi emphasized, at the UN Conference on Human Environment at Stockholm, that the removal of poverty is an integral part of the Goal of an Environmental Strategy for the world. The concepts of inter-relatedness, of shared planet, of global citizenship and of 'Spaceship Earth' can not be restricted to environmental issues alone. They apply equally to the shared and interlinked responsibilities of environmental protection and human development. History has led to vast inequalities living almost ¾th of the World's people living in less developed countries and 1/5th below the poverty line. The long term impact of past industrialization, exploitation and environmental damage can not be wished away. It is only right that development in this new century be even more conscious of its long term impact. The problems are complex and the choices difficult. Our common future can only be achieved with a better understanding of our common concerns and shared responsibilities.

Some Questions

Reid (1995) pointed out that the concept of sustainable development raised a number of questions. There is an argument that it is meaningless to talk about 'inter-generational equity' when 'intra-generational equity' is hardly a reality. He pointed out that there was a need to find out answers to the following questions:

- ✓ Is it meaningful to talk of sustainable development when we may not be able to tell with certainty what the needs of future generations may be, which particular ecological, social and economic conditions represent the 'sustainable state' and how close to such conditions we may be?
- ✓ Is it possible to devise a set of operational guidelines which would, if implemented, satisfy the twin criteria of "meeting the needs of the present" and "not compromising the ability of future generations to meet theirs"?
- ✓ Is any national or international programme for sustainable development likely to win political approval? Or is sustainable development merely an idea, which provides a basis for many theoretical studies but which cannot survive in the world of economic realities, short-term political priorities, North-South suspicions, growing inequities, political oppression, and the prevalence of corruption, which in more or less blatant forms afflict both North and South?
- ✓ Is the concept of sustainable development so open to misinterpretations that established interests can ignore its radical implications and be content with minor adjustments to their practices to allow them to claim they are following a sustainable path?
- ✓ Is it possible that the more radical implications of any set of operational guidelines can survive their mediation through the institutional machinery of mainstream development, staffed by an international desk-bound elite who have failed to arrest either the continuing degradation of the ecological systems of the planet or the deterioration in the welfare of many people throughout the world?

The most obvious obstacles to sustainable development are lack of awareness of the issues, the political unacceptability of obvious steps forward, the

opposition of entrenched interests, and the inadequacy of institutional mechanism for integrating environment and development.

The paper deals with the issues of sustainable development with regard to human population, agriculture and forestry sectors.

Population and Sustainable Development

"*Human beings are at the centre of concern for sustainable development."*

[United Nations Conference on Environment and Development: Rio de Janeiro, 1992]

'Sustainable development' connotes the processes by which people satisfy their needs and improve their quality of life in the present while safeguarding the ability of future generations to meet their own needs. For most people, a better quality of life means a higher standard of living, usually measured in terms of income level and uses of resources and technology. Inherent in the concept of sustainable development is the principle of equity: in order to achieve economic and environmental goals, social goals – such as universal access to education, health care and economic opportunity – must also be achieved. It is the human population and its individual members that ultimately will suffer the consequences of unsustainable paths of development. If we do not put the human population at the core of the sustainable development agenda, our efforts to improve human well-being and preserve the quality of the environment will fail.

Sustainable development aims at improving human well-being, particularly by alleviating poverty, increasing gender equality, and improving health, human resources, and stewardship of the natural environment. Because demographic factors are closely linked to these goals, strategies that consider population have a better chance of success. The International Conference on Population and Development in Cairo in 1994 recognized that population policy should be oriented toward improving social conditions and expanding choices for individuals.

The human population matters for sustainable development in two critical ways:

- It is an agent of change, inducing many of the environmental, economic, and social changes in the world that give rise to our concern about the sustainability of our current development paths.
- The human population and its living conditions are the ultimate objects of development, with long-term human health, wellbeing, and survival serving as criteria for judging whether development is sustainable or not.

The key recognition was that focusing on people—their rights, capabilities, and opportunities—would have multiple benefits for individuals, for society, and for their sustainable relationship with the environment. Eradicating poverty and ensuring access to basic human needs such as food, water, energy, health care and services, safe shelter and security, and education and knowledge empowerment are fundamental, both now and in the future, to achieving sustainable development. The dawn of the 21st century is an era of unprecedented economic growth and technological change, and yet it is a time when over one-fifth of humanity exists in demoralizing poverty and suffering. In September 2000, political leaders from around the world took an unprecedented step toward deciding time-bound target dates for a global partnership to resolve the major issues of our time, including poverty and hunger, the lack of universal access to primary education, gender inequality, child mortality, poor maternal health, diseases including HIV/AIDS and malaria, and unsustainable use of natural resources and environmental degradation. Turning these goals into concrete actions is the central challenge of achieving sustainable development in the 21st century and beyond.

Research has shown that changes in population growth, age structure, and spatial distribution interact closely with the environment and with development. Rapid population growth has exacerbated freshwater depletion, climate change, biodiversity loss, depletion of fisheries and other coastal resources, and degradation of agricultural lands. Fertility decline in high-fertility countries, by slowing population growth, can make many environmental problems easier to solve. It can also have important economic benefits by reducing the number of children relative to the working-age population, and creating a unique opportunity to increase investments

in health, education, infrastructure, and environmental protection. In high-income countries, the environmental impact of population growth and distribution must be considered jointly with high consumption rates. Even in countries where little growth is envisioned, unsustainable patterns of consumption have global implications for the environment and human well-being.

Rapid population growth creates many pressures. In the last 40 years, India's ecological systems have been severely taxed as the population has more than doubled, increasing consumption of resources. India's population is increasing by around 16-17 million each year and may touch 1264 million in 2016. Poverty is a serious problem, and roughly four out of five of India's poor live in rural areas. Many of these have migrated in search of economic opportunity. When they move to urban areas, pollution levels rise, and it is difficult for cities to provide jobs, education, sanitation, and health services to ever-larger populations. When people migrate to wilderness areas, wildlife habitat is degraded or destroyed.

Population & Environment

At any level of development, human impact on the environment is a function of population size, per capita consumption and the environmental damage caused by the technology used to produce what is consumed. People in developed countries have the greatest impact on the global environment. The 20 per cent of the world's people living in the highest income countries are responsible for 86 per cent of total private consumption compared with the poorest 20 per cent, who account for a mere 1.3 per cent. The richest fifth account for 53 per cent of carbon dioxide emissions, the poorest fifth, 3 per cent. A child born in the industrial world adds more to consumption and pollution levels in one lifetime than do 30-50 children born in developing countries. As living standards rise in developing countries, the environmental consequences of population growth will be amplified with ever-increasing numbers of people aspiring, justifiably, to "live better." Rather than assign blame in the debate over environmental challenges, both current and new consumers need to realize and address the consequences of their levels of consumption.

The difficulty in facing these questions is that the answers are neither simple nor complete. The most obvious environmental impacts are usually local, such as the disappearance of forests and associated watersheds, depletion of ground water, soil erosion or desertification or the brown haze hovering over cities. Less obvious are phenomena such as the build-up of carbon dioxide in the atmosphere, the global decline of fish catches or the pollution of land and water resources with industrial and hazardous wastes. Further complicating the issue is the lack of data to help researchers determine trends and accurately measure what is happening, a reflection of the relative youth of the environmental sciences, disciplines that require expertise across research areas.

Some trends are already obvious, however, particularly with regard to the three "renewable" resources on which human life depends: land, water and air. Each year, an estimated 5 to 7 million hectares of agricultural lands are lost to accelerating land degradation and rapid urbanization. A sixth of the world's land area — nearly 2 billion hectares — is now degraded as a result of overgrazing and poor farming practices. Another 16 to 20 million hectares of tropical forests and woodlands are lost each year.

Water is a finite resource. There is no more water on earth now than there was 2,000 years ago when the population was less than 3 per cent of its current size. During this century, while world population has tripled, water withdrawals have increased by over six times. Today, with water scarcity defined as less than 1,000 cubic metres per person per year, 458 million people in 31 countries face water shortages. By 2025, close to 3 billion people in 48 countries will be affected by critical water shortages for all or part of the year.

The pollution and increasing scarcity of renewable fresh water supplies also threaten human health and welfare. An estimated 1.1 billion people were without access to clean drinking water in 1994; 2.8 billion people lacked access to sanitation services. Waterborne diseases infect some 250 million people each year, about 10 million of whom die. The poor are most exposed to fumes and polluted rivers and least able to protect themselves. Of the estimated 2.7 million

deaths each year from air pollution, 2.2 million are from indoor pollution and 80 per cent of the victims are rural poor in developing countries.

Today, climate experts worry that continued increases in atmospheric concentrations of CO_2 – already 28 per cent higher than pre-industrial levels – could result in sufficient temperature increases to raise sea levels around the world and seriously disrupt agricultural production.

The impact of population growth in rural areas can push communities into unsustainable practices, such as the burning and razing of tropical forests in order to plant crops, over-cropping – and subsequent depletion – of fragile arable land and over-pumping of groundwater.

For the past 50 years, food production has kept ahead of rising demand. Today, in a world where two-thirds of the people depend on rice, wheat and/or maize as their staple food, 80 countries cannot produce enough food to feed their own populations from existing land and water resources. According to FAO, world food production will have to double in order to provide food security for 7.8 billion people expected by 2025.

Compounding the environmental challenges facing us all are the needs of more than roughly 1.3 billion people living in absolute poverty. Without higher standards of living, one-fifth of the world's people – and their children – will continue to suffer malnutrition, disease and illiteracy.

The gradual slowing of population growth already under way is part of the answer to this environmental dilemma. With slower growth rates, countries will have more time to prepare for the still inevitable, if smaller, population increases to come – time to build schools, dig sewers and lay water pipes.

North-South cooperation is vital to success in ending absolute poverty, a further element in the ongoing environmental dilemma. For those eking out a living, environmentally sound practices are a luxury, not a choice. Developed countries need to develop technologies which minimize damage to natural systems and make these new technologies more widely available to developing countries. For both

North and South the ultimate goal should be sustainability in all areas of economic activity, including agriculture, industry, forestry, fisheries, transportation and tourism.

A favourable international economic climate, featuring improved and reliable access to developed country markets, debt reduction and an increased flow of financial resources from North to South, by way of both foreign direct investment and aid for development, is vital to the success of efforts to alleviate poverty.

Education, basic health care – including family planning and reproductive health care — and access to land, credit and employment are all important to poverty alleviation and, therefore, crucial to long-term economic and environmental sustainability. Above all, however, ensuring sustainability will require people to make changes, in both the way they think about their environment and how they live in it. In particular, the high consumption, high-waste lifestyle of the top-earning fifth of the world's population, most of whom live in the North, cannot continue without imperiling the right of the lowest- earning fifth of the world's population to satisfy their basic needs.

Population, Poverty Reduction and Sustainable Development

The world population numbered 6.3 billion in 2000 and is currently growing by a net increase of some 77 million people per year. By 2050, the United Nations Population Division, in its 2002 Revision of the world's population prospects, estimates that total world population will be 8.9 billion. The impact of this growth will be focused mainly in less developed countries, where currently some 1.2 billion people, the majority of whom are women and children, are living in extreme poverty. By mid-century, the 80 per cent share of the world's population in less developed countries in 2000, will have expanded to 88 per cent. The bulk of the population growth will thus accrue in the regions of the world least able to absorb large increments of people, threatening sustainable development and producing further deterioration in levels of living and quality of life. Without the realization of the goals of the Programme of Action of the International Conference on Population

and Development (ICPD), especially universal access to gender sensitive and quality reproductive health services, it will be difficult to achieve a more favourable balance between population and available resources.

The goal is shared by millions: a better life, with a higher standard of living, education, health care and economic opportunity–not only for themselves today, but also for their children in the future. Without higher standards of living, one fifth of the world's people–including children–will continue to suffer malnutrition, disease and illiteracy. The challenge is to increase standards of living without destroying the environment.

Reproductive health and rights are integrally linked to sustainable development. Natural resources are conserved when individuals have the information and services they need to plan smaller, healthier families. And, ultimately, slowing and stabilizing the rate of population growth gives countries time to take steps that meet people's needs yet protect the environment–such as conserving fresh water, introducing more sustainable farming methods and reducing emissions of greenhouse gases. Poverty alleviation is crucial to long-term economic and environmental sustainability. North-South cooperation is vital to success in ending absolute poverty, as are fair markets, debt reduction, aid for development and foreign direct investment.

The majority of the rural poor have increasingly become clustered on low-potential land. This outcome has resulted from a combination of factors which vary in importance from one country to another. These factors include land expropriation, demographic pressures, intergenerational land fragmentation, privatization of common lands, and consolidation and expansion of commercial agriculture with reduced labour inputs. Demographic pressures in particular continue to play an inexorable underlying role in the geographical, economic and social marginalization of the poor in most countries where there is a high incidence of poverty.

Because they have been pushed or squeezed out of high-potential land, the rural poor often have no choice but to over-exploit the marginal resources

available to them through low-input, low-productivity agricultural practices such as overgrazing, soil-mining and deforestation, with consequent land degradation. Not that land degradation has been primarily instigated by poor farmers. Most deforestation has been caused by logging interests and / or rich farmers with substantial, favourable concessions. Soil erosion, water logging and salinization, which have resulted in desertification in many parts of the world, have commonly been caused by wealthy landowners with considerable financial resources.

Long-term poverty reduction and sustainable economic growth can be undermined by the degradation of the natural resource base, lack of access to, and increasing scarcity of water, and air pollution that directly affect people's health and livelihoods. Opportunity declines when poor people who depend on natural resources for their livelihoods can no longer support themselves because natural resources have been damaged and they lack alternative livelihood opportunities.

Real and lasting reduction in poverty can be achieved by enhancing environmental quality and protecting human health from the adverse effects of pollution; maintaining ecosystems and improving natural resource management; securing people's access to resources; reducing people's vulnerability to environmental risks such as natural disasters; and empowering the poor by giving them a voice in decision-making.

Poverty and degraded environment are closely inter-related. Specially where people depend for their livelihoods primarily on the natural resource of their immediate environment. Restoring natural systems and improving natural resource management practices at the grass-root level are central to a strategy to eliminate poverty. Removal of poverty is therefore a pre-requisite for the protection of the environment. Poverty magnifies the problem of hunger and mal-nutrition. The problem is further compounded by the inequitable access of the poor to the food i.e. available. It is therefore necessary to strengthen the public distribution system to overcome this inequity. Diversion of common and marginal lands to economically useful purposes deprives the poor of resource base which has traditionally met

many of their sustenance needs. Market forces also lead to the elimination of crops that have traditionally been integral to the diet of the poor, thereby, threatening food security and nutritional status.

While conventional economic development leads to the elimination of several traditional occupations, the process of sustainable development, guided by the need to protect and conserve the environment, leads to the creation of new jobs and of opportunities for the re-orientation of traditional skills to new occupations.

Norms of Sustainable Population Management

Management of human resource is a very important part of the process of sustainable development. The standards on the basis of which a plan may be judged as to its efficiency in this respect are briefly stated below:-

- *A consistently good performance in closing the gap between population and other resources:*

Compared to capital and effectively available natural resources, the population of most LDCs is excessive. Achieving of many vital goals of a programme for sustainable development, rests on the rate of success that these countries record in their target for population containment. Consistency in policy is very important since population related variables are influenced by many trend factors.

- *Population management to be broad based:*

There should be a broad-based strategy of population management. The pressure of population on resources/environment can be relieved to some extent by an appropriate plan of shifting people over the geographical area. The management process should be one that provides for special attention towards problems of weaker sections, women and the aged.

- *Freedom of Choice:*

While operating the population control programme the use of force should be avoided. In other words, the individual's right for decision making has to be

left untouched. Different types of contraceptives have to be made available that couples can exercise their choice in an optimal way.

- *Participatory Planning:*

The official programme should provide for people's participation at various stages of population planning.

"*Efforts to slow down population growth, to reduce poverty, to achieve economic progress, to improve environmental protection, and to reduce unsustainable consumption and production patterns are mutually reinforcing."*

Facilitating the demographic transition "will contribute to the stabilization of the world population, and, together with changes in unsustainable patterns of production and consumption, to sustainable development and economic growth."

[United Nations International Conference on Population and Development: Cairo, 1994]

Sustainable Agriculture

"*Constraints imposed by the earth's natural systems, the environmental degradation of land and water resources and the diminishing backlog of yield-raising agricultural technologies are slowing the growth in world food production, raising questions about the earth's population carrying capacity. The earth's capacity to produce enough food to satisfy expanding demand is now emerging as the overriding environmental issue as the world approaches the 21st century*".

Lester Brown

At the dawn of this millennium India and many other developing nations stand at a very critical juncture. We are confronted with a very difficult choice; on one hand we have an ever-increasing burgeoning population that requires us to increase food grain production every year, while on the other hand our natural

resources are increasingly coming under strain and their carrying capacity is being exceeded. And our future may depend on the choices that we make.

Agriculture development in India has always been guided by the principle of increasing agricultural production to feed our ever increasing population. Towards the end of the sixties, the government adopted the agricultural strategy which produced the "*Green Revolution*". Green Revolution in India ushered the use of hybrid seeds that were particularly responsive to chemical fertilizers. Crop production and crop productivity improved significantly but widened the regional imbalances and social disparities. The benefits of green revolution remained largely confined to the North and North-West parts of the country.

The eighties saw the effect of green revolution waning, with problem of stagnation and decline of yields on irrigated land, rapid rate of land degradation, contamination and over-exploitation of groundwater resources which rendered large areas vulnerable to drought, coming to the forefront. The huge water requirement of the hybrid seed varieties propagated under green revolution led to conditions of water-logging, increased soil salinity and in extreme cases, even desertification. Extensive use of chemical inputs has polluted both surface water and groundwater, causing environmental and health hazards. After years of heavy use of fertilizers, the fertility of soil declined and progressively to obtain the same yields, chemical fertilizers need to be applied excessively. As a consequence, the organic matter in sandy loam soils reduced from normal 0.5% to 0.2%, and has encouraged luxuriant growth of weeds and their fast spread. Conventional methods such as manual weeding and inter-cultural operations have now become almost impractical.

Further, the application of pesticides led to increased pest resistance and development of new pest forms with aggravated virulence. The inappropriate and indiscriminate use of pesticides has become so widespread and an issue of serious concern that, the United Nations administered an international code of conduct on the distribution and use of pesticides. Strikingly, pesticide use in India is only 3.75% of the total quantity consumed in the world but almost half the world's pesticide

poisoning cases and almost three quarters of the deaths take place in India as a result of improper handling by the farmers. Today, agriculture experts, planners and policy-makers reluctantly acknowledge the failure of the green revolution and its lopsided concentration of resources on irrigated agriculture at the expense of rain fed agriculture which, paradoxically, constitutes 70% of India's cultivated area.

Over the last three decades, increased reliance on groundwater and surface irrigation, chemical fertilizers, pesticides and insecticides, has transformed agriculture in India to a capital intensive occupation. The spread of Green Revolution has led to local-economies getting broken up. Farmers were encouraged and often coerced into producing goods primarily for the market. There was an erosion of indigenous, traditional agricultural practices and knowledge developed over the centuries. Taking their place was the quick technological fix provided by HYV agriculture with its heavy use of chemicals and pesticides on mono-cultured farms. The farmers became entirely dependent on the producers and distributors for these external inputs. The end result of such resource-intensive agriculture was the increased cost of production per unit of output, which in turn has led to higher consumer prices for food.

With recognition of the onset of "green revolution fatigue" evident in the stagnating yields of many crops, the impending task is to mitigate the ill-effects of green revolution, which if unchecked may wreck complete havoc with Indian agriculture. Simultaneous efforts need to be made to promote a more **sustainable** form of agricultural and identify sources for future spurt in agricultural productivity.

In the context of agriculture, "**sustainability**" refers to the capacity to remain productive while maintaining the resource base. According to Gips 1986, "*agriculture is sustainable if it is ecologically sound, economically viable, socially just, humane and adaptable*."

Dr. M.S. Swaminathan, the eminent agricultural scientist, identified 14 major **dimensions of sustainable agriculture** covering the social, economical, technological, political and environmental facets of sustainability.

These dimensions are:

1. **Technological appropriability:** refers to how far agricultural technology, be it seed, fertilizer, pesticide, or improved machinery suits the social and infrastructural situation of the end users.

2. **Economic feasibility:** refers to capacity of farmers to afford to incorporate the technology in his farm within his realm of financial status and position.

3. **Economic Viability:** refers to the returns to investments of every rupee counts.

4. **Environmental Soundness:** refers to whether the technology results in enriching the environment or at least does not harm the existing agro-ecological conditions.

5. **Temporal Stability:** refers to whether the positive aspects of the technology remain stable over the long run.

6. **Resource use efficiency:** refers to how efficiently the technology can utilize the inputs to convert them into useful, productive and eco-friendly outputs.

7. **Local Adaptability:** refers to the extent to which the technology is adaptable to the existing local conditions of the farmers.

8. **Social acceptability and social sustainability:** Social acceptability refers to the extent to which the technology is acceptable by the different sectors of the society, whereas social sustainability means it has to fulfill the personal needs.

9. **Political Tacitness:** refers to whether technology can be used unhampered in the existing intricacies and implications of political setup.

10. **Administrative Manageability:** refers to the extent to which the technology can be practically implemented under the existing bureaucratic structure.

11. **Cultural Desirability:** refers to the extent to which the technology fits with the existing cultural patterns and values of the society.

12. **Renewability:** refers to the extent to which the technology can be used or re-used without much additional efforts and inputs.

13. **Equity:** is a measure of how evenly the products of the agro-ecosystem are distributed among the local producers and consumers.

14. **Productivity:** is a quantitative measure of the rate and the amount of production per unit of land or input.

Components of Sustainable Agriculture

Success in promoting sustainable agriculture depends to a large extent on **resource conservation technologies and processes**. Some of the important areas have been discussed below:

1. **Crop Diversification:** Its major advantages include reduced soil erosion, improved soil fertility and increased yield. They also reduce the need for nitrogen fertilizer in the case of legumes grown in crop rotation. Some of the important methods include:

   a) **Crop Rotation:** is the successive planting of the same field with the same crop. Advantages include increase in soil moisture, pest control, availability of nutrients and pest & disease control.

   b) **Biological Nitrogen Fixation:** Nitrogen can be provided by a leguminous crop which fixes atmospheric nitrogen into the form absorbed by other crops. Several physical and managerial factors like soil acidity or timing of harvest influence the amount of nitrogen fixed. A thorough understanding the interaction of ecology-plant-microbe-climate-soil would facilitate the capacity to do sustainable agricultural practices.

c) **Mixed Cropping:** Mixing different crops in the same field reduces risk of crop failure and increases the overall yield. This is because the rooting systems of different crops tap different levels in the soil profile thus increasing the total nutrient uptake. Attack of pests and diseases on a single crop may result in its total failure, whereas in a multiple cropping system, even if one crop is affected, there remain other crops yielding some harvest to the farmer.

2. **Genetic Diversity:** Traditional farming systems depend heavily on in situ conservation of genetic variability in the form of numerous landraces. Modern agricultural systems lead to genetic homogeneity with a greater genetic vulnerability to biotic stresses.

3. **Integrated Nutrient Management (INM):** INM is a broad term encompassing the nutrient cycle among the soil, the crop and livestock, balancing the fertilizer use cum organic recycling, combined use of organic manures and chemical fertilizers, exploiting biological nitrogen fixation potential and taking holistic view of crop management system. INM also includes a suitable variety, use of optimum cultural management and soil and water use for efficient and sustainable crop production. Fertilizers, farmyard manure, compost, crop residues, green manure, green leaf manure, rhizobium, blue-green algae and azolla are the main components of INM besides management practices.

The major steps in INM are:

a) A systems approach to INM of particular crops and cropping systems.

b) Based on soil test values, correction of nutritional deficiencies.

c) Agronomic techniques like split application of fertilizers at different growth stages, use of coated fertilizers, granulated fertilizers, methods and placement of fertilizers and organic and inorganic combinations of fertilizers.

d) Use of green leaf manures.

e) Conjunctive use of farm wastes.

f) Selection of appropriate variety and optimal cultural practices.

g) Adoption of water management techniques including maintenance of farm drains.

4. **Integrated Pest Management (IPM):** According to FAO panel of experts (1966-72), IPM is "*A pest management system that in the context of the associated environment and the population dynamics of the pest species, utilizes all suitable techniques and methods, is as compatible a manner as possible and maintains the pest population at levels below those causing economic injury*". The objective of IPM is to optimize and not maximize pest control in terms of overall economic, social and environmental values. The overall objective of IPM is to create and to maintain situations in which insects are prevented from causing significant damage to crops. In practice IPM is developed around the knowledge of ecology of the pest agent and takes maximum advantage of the natural mechanisms of pest suppression. It involves practices implemented both long before and when the field is planted and not just after the crop is sown. Some of the tools or components used for IPM includes:

   a) Use of pest resistant varieties.

   b) Cultural practices like early or late planting.

   c) Summer ploughing.

   d) Use of pheromone traps.

   e) Use of parasites.

   f) Predators and pathogens of crop pests.

g) Quarantine measures.

h) Hard collection and destruction.

i) Judicious use of pesticides.

j) Attractants, repellants.

k) Sterilants, growth regulators, male sterile techniques and suppression programs.

5. **Sustainable Water Management:** Water is an important input in terms of its utilization and management to achieve better crop production and productivity. The distribution of annual precipitation varies from less than 50 mm to more than 2000 mm in low to high rainfall areas in the country. Hence, it is necessary to develop suitable technologies for its localized storage and its application, particularly in the semi-arid tropics of the country. Effectiveness in water saving, equity in water sharing, efficiency in water delivery and use are important for sustainable use of surface and ground water resources. There should be an integrated policy for the conjunctive and appropriate use of river, rain, ground, sea and sewage water. Important steps involved in sustainable water management are:

a) Judicious use of water resources.

b) Supply of irrigation water on volumetric basis so that farmers would use it more economically. Thus over-irrigation and its bad impacts on physical, chemical and biological properties of the soil can be checked.

c) Water harvesting in command area.

d) Legislation regarding spacing, depth, quantity of water pumped through the tube wells.

e) Proper design and management of irrigation system for preventing salinization.

f) Application of remote sensing to locate ground water aquifers.

g) Recharging of ground water

h) Proper allocation of funds for drainage, ground water resources development and electrification to utilize the irrigation potential.

i) Development of environmentally sound low cost and medium scale dams.

6. **Post Harvest Technology:** Whole plant utilization methods and the preparation of value added products from the available agricultural biomass are important, both for enhancing income and for ensuring good nutritional and consumer acceptance priorities. Low cost drying, storage and marketing technology not only demand non-renewable source of energy but also prevent quantitative and qualitative damage to the agricultural products. Technology should be developed for the value added products from the agricultural produce in order to give better returns to the farmers.

7. **Extension Programs:** Programs for education extension and communication for farmers will certainly help in popularizing the sustainable agricultural practices. Computer applications, video tapes, popular and vernacular press, farmer magazines help to keep the farmer up to date on latest management systems and technology developments. "Social Engineering" means manipulation of the farmers' attitude to make them aware about ecological production and economic consequences of technology or policy being adopted. For this purpose, a committed extension system is needed, especially in resource poor areas to popularize ecology based technology which can make all the above components success at farmers' field levels.

Table no. 1: ***FUTURE OPTIONS FOR SUSTAINABLE AGRICULTURE AND THEIR IMPACT ON ECOLOGY AND ECONOMY IN INDIA***

OPTIONS	Possible (P) Not Possible (NP)	IMPACT ON ECOLOGY	MPACT ON ECONOMY
Area expansion under agriculture.	NP	-	-
Additional irrigation facilities	P*	Negative	Positive
Soil and water conservation methods	P***	Positive	Positive
Yield increase through genetic improvement	P***	Positive	Positive
Hybrid Vigour Technology	P***	Positive	Positive
Organic farming	P***	Positive	Positive
Chemical fertilizer use	P*	Positive	Positive
Integrated pest and disease management	P***	Positive	Positive
Chemical pest and disease control	P*	Negative	Negative
Low cost input technologies for eco-agriculture	P***	Positive	Positive
Small farmers oriented mechanization	P***	Positive	Positive
Eco-friendly economic policies like incentive price, timely credit supply, effective technology transfer policy, reorientation of research efforts in SAT areas	P***	Positive	Positive
Special agricultural development programs like rice, oil-seeds, pulses, horticultural development programs and technology missions.	P***	Positive	Positive
Social engineering	P**	Positive	Positive

Note: * Meagre Scope ** Some Scope *** Ample Scope

Source: Dr. M. S. Swaminathan, The Hindu Survey of Indian Agriculture 1991.

SOME INDICATORS OF IMPROVEMENT IN SUSTAINABILITY

Financial benefits	Substantial environmental improvements with stable/lower yield in industrialized countries
Stable or higher yields with environmental benefits in green revolution lands	Increase agro-yields in complex and diverse lands based on locally available resources
Mixed organic farms with rotations	Mixed livestock-ridge tillage-rotations
Multiple cropping	Conservation tillage
Inter-cropping	Reduction of fungicide use
Low-input pesticide	Integrated farming
Bio-dynamic farms	Organic farms
Better quality and taste of products	More diverse and wild-life rich landscapes
Maintenance of environmental quality un-contaminated aquifers/surface water	Sustaining resources for future generations
Increased wild-bird populations and number of territories	Reduced soil-erosion
Increased number of beneficial insects	Lower livestock stocking rates
IPM	Waste Recycling
Rice-fish culture	Agro forestry
Green manures	Trenching
Rearing predators	Irrigation improvement
Cutting external inputs	Substituting knowledge; labor management skills for external inputs
Development of niche markets for organic farm products	Community benefits
Soil/water conservation	Land rehabilitation
Nutrient conservation	Better community cohesion

Table no 2: **STATUS AND PROCESSES OF SUSTAINABLE AGRICULTURE IN FRAGILE AND WELL ENDOWED RESOURCE REGIONS – A COMPARISON**

FRAGILE RESOURCE REGIONS	WELL-ENDOWED RESOURCE REGIONS
PHYSICAL ENVIRONMENT	
Harsh climatic conditions	Favorable climatic conditions
Degraded soils and desertification	High-intensive or non-organic input use
Depleting natural resources like forests, ground water and other CPR due to population pressures	High irrigation and cropping intensities
Lack of vegetation and in situ moisture	Increasing water-logging and salinity
Low-input intensity in agriculture production and limited protective irrigation facilities	Declining soil-fertility
	Increasing health hazards Depletion of natural resources like forests and other CPR due to
commercialization of agriculture	
ECONOMIC ENVIRONMENT	
Subsistence agriculture (largely) and low value crops	Commercial and high value monocrop agriculture
Low and stagnant or moderate growth rates in production marketable	High but stagnant/moderate growth in production
High level of un/under employment	Multiple choices of income
High dependence of non-market sources of income like forests and CPRs.	Improved products and factor markets with larger surpluses
Low resource base of the rural community	Easier access to basic needs like drinking water, literacy, health etc.
Low marketable surplus and low profits	Fairly high level of living standards

Larger efforts and expenditure in acquiring basic needs like drinking water, fuel wood etc.	
Low levels of living standards	
SOCIAL ENVIRONMENT	
Low levels of social consumption (literacy, health, sanitation, drinking water etc.)	Better political awareness and access to social consumption items
Strong cultural values which are often linked to environmental factors	Greater dependence on technology and hence lesser concern for environment
General attitude is towards resources conservation mainly due to scarce conditions	Highly commercial mindedness and abuse of natural resources and often compete among themselves in exploiting the natural resources
Low level of political awareness	Priority for accumulation in the short run
Priority for survival in the short run	
POLICY ENVIRONMENT	
Neglected and half hearted attempts of development	Pampered by policy makers so far
Lopsided development policies with inappropriate technologies, blanket policies etc.	Policies are not conducive for natural resource conservation. They are productivity based rather than being sustainable.
Neglect of natural resource base and alienation of local institutions like participatory process, community management and local knowledge	Policy makers failed to utilize the commercial attitude of the people for promoting sustainable policies due to political pressures and rent seeking nature
Attitude among policy makers are	

not conducive to the evolution of strategies based on conservation oriented technology, use of local and often degraded resources and mobilization of people	
However, of late, there is a realization among policy makers that the development of these regions is crucial for overall sustained growth	
LEVEL AND PROCESS OF SUSTAINABILITY	
Some of the reasons are at the bottom of the sustainability curve (SC) Some on the upward sloping portion of SC	These reasons are located at all the 3 points on SC. The downward trend has become conspicuous in the 1980s The vital ingredients for sustainability of these regions are, generating awareness through formal education fostered with policies based on market valuation of natural resources. Aggressive market oriented policies can be pursued without much adverse impact.
As the potential for dry land technology and market environment is quite high in these regions, there is a possibility of sustained growth	
Appropriate policies in terms of technologies and institutions are needed in order to sustain the upward climb of SC curve along with generating awareness through formal education.	

Source: *The Challenge of the balance*; Anil Agrawal

Policy matters on Sustainable Agriculture

Sustainable use of natural resources requires that their ownership and control lies with decentralized agricultural communities in order to generate livelihoods, provide food and conserve natural resources. The three dimensions of ecological security, livelihood security and food security are the essential elements of an agricultural policy which is both sustainable and equitable.

Agenda 21 approved in the Rio Earth Summit in 1992 has also recognized the need of following sustainable development initiatives to be taken across the world:

a. Ensuring people's participation and promoting human resource development for sustainable agriculture;

b. Improving farm production and farming systems through diversification of farm and non-farm employment and infrastructure development;

c. Land-resource planning information and education for agriculture;

d. Land conservation and rehabilitation;

e. Water for sustainable food production and sustainable rural development;

f. Conservation and sustainable utilization of plant genetic resources for food and sustainable agriculture;

g. Conservation and sustainable utilization of animal genetic resources for sustainable agriculture;

h. Integrated pest management and control in agriculture;

i. Sustainable plant nutrition to increase food production;

j. Rural energy transition to enhance productivity;

k. Evaluation of the effects of ultraviolet radiation on plants and animals caused by the depletion of the stratospheric ozone layer.

The Agricultural Development Strategy was revised in 1999, as the National Strategy on Sustainable Agriculture and Rural Development (SARD). The strategy is essentially based on the policy on food security and alleviation of hunger. A regionally differentiated strategy, based on agro-climatic regional planning which takes into account agronomic, climatic and environmental conditions will be adopted. The thrust will be on ecological, sustainable use of basic resources such as land, water and vegetation, in such a way that it serves the objectives of accelerated growth, employment and alleviation of hunger.

Major activities to implement the SARD policy are as follows:

1. Development of crops based on regionally differentiated strategy
2. Development of Horticultural crops
3. Adequate and timely delivery of core inputs
4. Integrated Pest Management
5. Greater use of bio-fertilizers and bio-technology
6. National Agricultural Technology Project
7. Rained farming and Watershed Management
8. Soil and Water Conservation
9. Animal Husbandry and dairying
10. Development of fisheries
11. Agricultural research and education
12. Development of Human resources

The major thrust of the agricultural development programs in India is on improving the efficiency in the use of scarce natural resources, namely, land, water and energy. This can be achieved only through improved productivity in a cost-effective manner, which alone could increase the welfare of the farmers and agricultural labor. Balanced and integrated use of fertilizers, agricultural credit, institutional support, accelerated investments in agriculture, enhancing the competitiveness of agro-exports, creation of additional irrigation facilities etc. have been given encouragement through various schemes and activities of the Government of India.

The state in India has by and large been unable to integrate lessons from micro successes into macro policy to address the problems of the poor. science that has not been able to dramatically benefit the poor, marine resource development that has led to severe depletion of fish stocks and loss of livelihoods for fishermen, pollution control that could not prevent the defilement of rivers nor preserve the quality of air and ground water, growth that has been jobless and poverty neutral and water resource management that is antithetical to sustainable livelihood issues of those who live in the dry lands are some examples of the abject failures of the policy.

Road map to sustainable agriculture and food security

Table no 3: **Three Models of Agriculture**

	The green Revolution model of State control	**The corporate model**	**The sustainable, small farmer-centred model**
Driving force	Multi-lateral agencies; government driven	Corporations; trade driven	Small farmer, women and women-led, nature and human need driven
Structure of production and distribution	Centralized/long distance high 'food miles'	More centralized longer distances, 'food miles' contributing to CO2 climate change	Decentralized, local and regional transport, low 'food miles'
Preferred methods	Chemicals/high external input	Higher external input/ increased chemicalisation /genetic engineering	Organic/ecological/ low external input
Status of diversity	Monocultures	More extensive mono cultures	Poly cultures
Productivity	Low resource use productivity, high environmental subsidies	Lower resource use productivity, higher environmental subsidies	High resource use productivity, no environmental subsidies
Socio-ecological characteristics	Non-sustainable/ undemocratic	Non-democratic /non-sustainable	Democratic / sustainable.

Source: *Sustainable agriculture and food security*; Vandana Shiva, Gitanjali Bedi

Two Models of Food Security

State centered model

Operates on the trickle down theory that stocks in the FCI godowns will actually meet the food needs of the women, children, dalit, landless and the most excluded people in the Country.

National food security

Regional food security

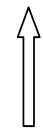
Local food security

House hold food security

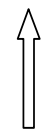
People centered model

National food security is built on the basis of a genuine people's food security even in remotest corners of the country.

National food security



Regional food security



Local food security

Women led house hold food security

Source: *Sustainable agriculture and food security*; Vandana Shiva, Gitanjali Bedi

Elements Of A People And Food Security Centered Food Procurement And Distribution System

Table no.:4 **What A Genuine Decentralized Food System Would Imply**

For consumers food rights ensured	For farmers Fair price guaranteed through uniform MSP	For corporations Dumping of artificially cheap agricultural commodities banned	For international trade fair trade rather than free trade
Food safety at affordable prices	Right to transport food within country	Trade monopolies prevented	Fair price to farmers and consumers rather than low prices to farmers and high prices to consumers
Guaranteed food during scarcity	Maintenance of QRs	Procurement only at government specified MSP	Export of genuine surplus left over after food security needs are met domestically at all levels
Survival of diverse food cultures	Reduction of cost of production and resource improvement through low external input agriculture	Grain and food sold only at government fixed maximum retail price	No imports except to meet genuine scarcity
Right to information regarding food, its safety, pricing, etc.		A need to meet exacting standards for food safety	No imports allowed where prices re below Cost of Production in India, or in country of origin, to prevent dumping and destruction of livelihood
		No hidden and overt subsidies (including use of public money) for research, distribution, building infrastructure, tax concessions, low interest rate lending, etc.	No export subsidies, either hidden or overt.

Source: *Sustainable agriculture and food security*; Vandana Shiva, Gitanjali Bedi

Lester Brown and Hal Kane in their book "Full house" predict that at the current rate of population growth and environmental degradation coupled with he improvement in the consumption capacity of the poor, India will have o import annually over 40 million tones of food grains by the year 2030. This is 4 times the quantity we imported in 1966 i.e. before the onset of the green revolution. 11 million new livelihoods will have to be created every year in India and these have to come largely from the farm and rural industries sectors. Importing food and other agricultural commodities will hence have the same impact as importing unemployment. While further agricultural intensification in industrialized countries will be ecologically disastrous, the failure to achieve agricultural intensification and diversification in India where farming provides most of the jobs will be socially disastrous. Thus what we need now is an environmentally sustainable and socially equitable green revolution or what may be termed as ***Ever-Green Revolution***.

PRACTICES OF SUSTAINABLE AGRICULTURE- CASE STUDIES

CASE STUDY NO 1: THE BIO-VILLAGE PROJECT

- Located in South India,
- An example of Government – NGO cooperation. It is executed by M.S.Swaminathan Research Foundation (MSSRF) with the department of Agriculture of the govt. of Pondicherry.
- Started with the premise that the green revolution is probably not ecologically sustainable in the long run. So an alternative approach is to sustainable development is tried in the targeted villages by using sustainable agricultural practices and other enabling devices to increase the livelihood potential of the villager.
- The approach is 'a bottom up'
- The aim is integrated development involving the economic, medical as well as the educational status of the villagers, thus empowering them to take informed decisions for themselves in the future.

- Started in 19 villages covering 25000 families over 4000 hectares.

- FIRST STEP: Establishment of a resource centre, BIO – CENTRE, that provided access to the information. Located in a centrally located village with sub-centers in all the other villages. Villagers were not presented with 'the best option' by a third party; rather they made their own choices. For the first time, the villagers were provided with information on organic fertilizers, IPM and the prospect of additional opportunities to enhance the earning capacity by using community resources such as ponds for pisciculture and waste lands for fodder production and mushroom farming. The Bio – Centre was managed by the stake holders themselves through a Bio village society. The project staff acted as facilitator – participants. The advantages were that it instilled confidence in villagers and also automatically allowed for the withdrawal of the NGO at the appropriate time. Bio centers helped the villagers to access the capital through DRDA and other government agencies and credit from banks. The families that took loans to initiate pisciculture in community ponds met their repayment commitments in the first three years. IPM was taken over and controlled by the stake holders, with govt. run units taking care of the localized production of Bio-pesticides.

- Role of NGO:

  - Identify location specific, eco-friendly and viable technologies
  - Test and adapt the chosen technologies to bio physical and socio-economic conditions
  - Integrate the technologies through skill upgradation of the target population.
  - Translate the technology into practice by facilitating the credit needed.
  - Facilitate production through support services
  - Foster and institutionalize changes

- At present, the MSSRF is enabling the villagers with access to real time information through internet connected data gathering centers.

CASE STUDY NO 2 : Nagaland Environment Protection And Economic Development Project. (NEPED)

-UNIQUENESS: Here, govt. functioned like an NGO. It is funded by the Indo-Canadian Environment Facility and International Development Research Centre, Canada.

Naga society is organized around the village, which functions democratically. The Nagas depend largely on agriculture. Terraced paddy cultivation is practiced at lower elevations and jhum or shifting cultivation is practiced on higher elevations. Out of seventeen thousand sq. kms., nearly 7000 sq.km is under jhum and around 1000 sq.km is under active jhum in any given year. Burning of jhum cultivation allows for the rapid re-mineralization of the soil. Forests of Nagaland are tropical in nature with a very high standing bio mass density and a nutrient poor soil that requires a rapid recycling of the nutrients. The jhum cycle involves a 2 year plant growing period and a subsequent fallow period ranging from 5 to 18 years, with an average of 7 to 8 years. The inherent draw back of jhum cultivation lies in the loss of top soil after burning, although the eco system tends to recover if left fallow long enough. Problems arise when villagers are forced to reduce the interval between successive slashes. More than 90% of the forest is under private ownership – either with the village communities or with the individual families – and state interference to protect the forests is unlikely to have much effect. Nagaland has the highest population growth rate in the country. The long standing insurgency also poses a big challenge.

The project operations unit of the action group formed in 1996 consisting of several committed officers is a nearly independent organization. It ensures that nothing that was “grossly unacceptably” was done.

The goal is to improve the livelihood security of Naga families in the higher elevations and to protect the environment in a socially acceptable way. Accepting that jhum was a fundamental cultural construct and could not be wished away was the first step in formulating an innovative action plan to ensure that the environment was protected.

The solution thought was that if each Naga family could be persuaded to add a long lived timber yielding native tree to the regular mix (a jhum field normally contained a mix of crops) then, by the time the plot was abandoned the sapling would have reached a stage when it could survive without further tending. These trees ensured that there was always a plant cover on the land that kept the soil bound, thereby reducing erosion. The trees chosen were the ones that increases the soil fertility. During the next cycle, the trees could provide some timber and / or fire wood by selectively lopping the branches. The mix of crops would be changed to include some shade tolerant species. The approach of the project was to implement these as test plots on the actual jhum plots of volunteering families.

This participatory approach established 1794 test plots in 854 villages covering 5379 hectares in the five year period. A multi-disciplinary team and a decentralized delivery mechanism was created . above all, it was free of political interference.

This single project has raised environmental awareness at all levels and particularly so at the level of the farmer. Farmers now often plant five or sex different tree species. They have identified pockets of natural forests on community lands in some villages, which they have set aside and marked as protected areas that are not to be exploited.

The project is extremely likely to have a long term impact on sustainable development in Nagaland because of its acceptance of the ingrained cultural compulsions of the jhum cultivation and adoption of a practical, complementary and participatory approach to the problem.

ANALYSIS:

Four essential attributes have contributed to the success of these projects.

1. Their approach was participatory. The local people provided inputs to develop them.

2. The beneficiaries trusted the project coordinators. Commitment on the part of the project personnel evoked a positive response. This is in contrast to the uncommitted, laissez – faire attitude of some (government) implementing agencies.

3. The project was perceived as long term efforts that reassured the stake holders that they were not mere guinea pigs in some fly by night experiments with their well being at stake.

4. The projects were built upon existing social frame works. Unlike totally 'new' ideas, this approach ensured that the stake holders related readily to the concepts introduced and 'owned' the effects.

Forests & Biodiversity

The forests constitute an important resource for conservation of biodiversity and maintenance of eco-system functions. They also constitute a critical livelihood resource for the people who live in and around forests. It is estimated that out of 260 million people living below the poverty line, more than 100 million are partially or wholly dependent on forest resources for their livelihoods. These include more than 70 million tribal people of India. There are strong correlations between the locations of tribal people, forests and areas with a concentration of poverty. Ability of poor to continue their livelihoods is partially dependent on the health of forest resources and their ability to access these resources. **The National Forest Policy of 1988** recognised these concerns and radically changed the objectives of forest management wherein the conservation of forest resources and subsistence needs of forest dependent communities were given paramount importance and revenue

motive was downgraded. Thus conservation of forest resources and livelihood of forest dependent people are two parallel and equally important objectives of forest management in the country.

The recorded forest area of the country is 76.52 mha (23.28% of geographical area), 90% of which is under public/government ownership and managed by state Forest Departments. Dense forest area has stabilised around 38 million hectares during the last decade. Approximately 25 million hectares are open forest. There is thus an opportunity to increase the forest productivity of at least half the forest area that is not under dense tree cover.

The growing stock of the country (including natural forests, plantations and areas other than natural forests) is 4,740.8 million cubic meters with an annual increment of 87.62 million cubic meters. Of this, 60% is estimated to be timber and 40% fuelwood. Compared to the annual yield the annual removal from forests is far too high. It is estimated that about 270 million tonnes of fuelwood, 280 million tonnes of fodder and 12 million cubic metres of timber are annually removed from the forest. Without improving the forest yield, this level of consumption is unsustainable.

Sustaining Forest based livelihoods: Forest based livelihoods found full recognition in the **National Forest Policy (NFP),1988**. While the forest-dependent communities had certain rights and privileges on forest lands even before the NFP was adopted, most such rights were considered as largesse granted by the state to the forest dwellers. The NFP completely reversed this notion as it recognised the fact that decentralised management of natural resources improves the resource as well as livelihood. The policy is unambiguous "The holders of customary rights and concessions in forest areas should be motivated to identify themselves with the protection and development of forests from which they derive benefits. The rights and concessions from forests should primarily be for the bonafide use of communities living within and around forest areas, specially the tribals." As far as tribal communities are concerned, the policy recognises that "The life of tribals and other poor living within and near forests revolves around forests. The rights

and concessions enjoyed by them should be fully protected. Their domestic requirements of fuelwood, fodder, minor forest produce and construction timber should be the first charge on forest produce. Similar consideration should be given to scheduled castes and other poor living near forests." The policy became a major instrument in bringing about a change in the forest management from policing the forest area to co-managing forests with the people. The new management system is widely known as Joint Forest Management and has been extended to peripheral areas of Park and Sanctuaries under the name of Ecodevelopment. Similarly **Panchayati Raj Extension to Scheduled Areas Act (PESA**) provides greater authority to tribal people to manage their forest resources .

Future Strategy

The Ministry of Environment and Forests has been instrumental in preparing the National Forestry Action Programme (NFAP) that provides a comprehensive work plan for sustainable development of forests in India for the next 20 years. Following the provisions of National Forest Policy it incorporates both concerns; conservation of forest resources and sustainability of forest based livelihoods. The NFAP identified five interrelated basic issues confronting forestry development in India, for which detailed programmes have been made.

Programme Structure of NFAP

- ***Protect Existing Resources:*** Comprises of three main programmes**: (i) Forest Protection, (ii) Soil and water conservation, and (iii) Protected areas and biodiversity conservation**. These include, forest survey, demarcation and mapping, biodiversity conservation, protected areas management, protection against poaching, encroachment and fire, etc., and other related issues.

- ***Improve Forest Productivity:*** Includes four main sub-programmes of **(i) rehabilitation of degraded forests, (ii) research and technology development, (iii) development of NWFPs, and (iv) assisting private initiatives with community participation.** These involve mainly research, improvement in technology, enrichment planting, soil and water conservation, regeneration, rehabilitation and afforestation mainly in existing forests.

- ***Reduce Total Demand:*** Has three sub-programmes for the efficient use of **(i) fuelwood and fodder, (ii) timber, and (iii) NWFPs.** This includes the programmes for reduction of demand placed on forests through the technology of preservation, seasoning, substitutions, and other measures for the efficient utilisation of forest products and also through biomass plantations.

- ***Strengthen Policy & Institutional Framework:*** Has three main sub-programmes aimed at strengthening of **(i) central forestry administration, (ii) central forestry institutions, and (iii) state forestry administration and institutions.** These include the development of infrastructure such as buildings, communications, etc. and the strengthening of staff including HRD. This issue covers all aspects of capacity building, forest policy and legislation, public forest administration and organisational structure, research, planning and budgeting, etc.

- ***Expand Forest Area:*** Has two main sub-programmes: **(i) tree plantation on forest and non-forest lands, and (ii) people's participation in plantations and its protection.** This issue includes the extension of forestry programmes in all kinds of wastelands and marginal farmlands. It also includes the programmes of certain kinds of plantation forests through wastelands reclamation, afforestation and promotion of agro forestry.

Biodiversity, Forestry & Environment Sector

Conservation and sustainable use of biodiversity is fundamental to ecologically sustainable development. Biodiversity is part of our daily lives and livelihood, and constitutes resources upon which families, communities, nations and future generations depend. Every country has the responsibility to conserve, restore and sustainably use the biological diversity within its jurisdiction. Biological diversity is fundamental to the fulfilment of human needs.

An environment rich in biological diversity offers the broadest array of options for sustainable economic activity, for sustaining human welfare and for adapting to change. Loss of biodiversity has serious economic and social costs for any country. The experience of the past few decades has shown that as industrialization and economic development in the classical sense takes place,

patterns of consumption, production and needs, change, straining, altering and even destroying ecosystems.

India, a mega biodiversity country, while following the path of development, has been sensitive to needs of conservation and hence is still rich in biological resources. Ethos of conservation and harmonious living with nature is very much ingrained in the lifestyles of India's people. India is one of 12 mega diversity countries of the world.

SUSTAINABLE DEVELOPMENT INITIATIVES TO PROTECT BIODIVERSITY

Biosphere Reserves

Biosphere Reserves are areas of terrestrial and coastal ecosystems which are internationally recognized within the framework of UNESCO's Man and Biosphere (MAB) Programme. The world's major ecosystem types and landscapes are represented in this Network, which is devoted to conserving biological diversity, promoting research and monitoring as well as seeking to provide models of sustainable development in the service of mankind.

These reserves are rich in biological and cultural diversity and encompass unique features of exceptionally pristine nature. The goal is to facilitate conservation of representative landscapes and their immense biological diversity and cultural heritage, foster economic and human development which is culturally and ecologically sustainable and to provide support for research, monitoring, education and information exchange.

Biodiversity Conservation

India became a Party to the International Convention on Biological Diversity in May 1994. The three objectives of the Convention are (i) conservation of biological diversity (ii) sustainable use of components of biological diversity and (iii) fair and equitable sharing of benefits arising out of utilization of genetic resources. The

main implementation measures for the CBD are through national strategies, legislation and administrative instruments to be developed in accordance with each country's particular conditions and capabilities.

National Biodiversity Strategy and Action Plan (NBSAP) Project

Adopting a consultative process with the stakeholders, a National Policy and Action Strategy on Biological Diversity was drawn up as a macro-level statement of strategies, gaps and further actions needed for conservation, sustainable use and strategies and realization of actual and potential value of biological diversity. Emphasizing the need for conservation, this macro-level policy identified the basic goals and thrust areas and outlines action points for conservation and management of biodiversity.

In order to prepare detailed microlevel action plans at state and regional levels based on the framework document, the Ministry has accessed funds from the Global Environment Facility for the National Biodiversity Strategy and Action Plan (NBSAP) project. The NBSAP project envisages assessment and stocktaking of biodiversity-related information at state level including distribution of endemic and endangered species and site-specific threats and pressures.

Key features of this project include an emphasis on decentralized state level planning, and the use of interdisciplinary working groups to involve all sectors concerned with biodiversity conservation. In all 69 Executing agencies are presently preparing action plans at four levels: local, state, ecoregional and thematic, which will be consolidated and developed into a national level action plan. NBSAP is India's largest development and planning exercise on environment, based on a highly participatory approach. All the 69 plans are under finalization.

Legislation

India's richness in biological resources and indigenous knowledge relating to them is well recognized. One of the major challenges is in adopting an instrument which helps realize the objectives of equitable benefit sharing enshrined in the Constitution. Towards this, a legislation on biodiversity was developed following an extensive

consultative process. The legislation aims at regulating access to biological resources so as to ensure equitable sharing of benefits arising from their use. The Biological Diversity Bill has been passed by Parliament on 11th December, 2002.

Salient features of the Biodiversity Legislation

The main intent of the legislation is to protect India's rich biodiversity and associated knowledge against their use by foreign individuals and organizations without sharing the benefits arising out of such use, and check biopiracy. The Act provides for setting up of a National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs) and Biodiversity Management Committees (BMCs) in local bodies. NBA and SBB are required to consult BMCs in decisions relating to use of biological resources/related knowledge within their jurisdiction and BMCs are to promote conservation, sustainable use and documentation of biodiversity.

All foreign nationals/organizations require prior approval of NBA for obtaining biological resources and/or associated knowledge for any use. Indian individuals/entities require approval of NBA for transferring results of research with respect to any biological resources to foreign nationals/organizations for commercial purpose. Collaborative research projects, and exchange of knowledge and resources under these projects are exempted provided they are drawn as per the policy guidelines of the Central Government and have its approval.

Indian industry is required to give prior intimation to the concerned SBB about obtaining any biological resource for commercial use, and the SBB may restrict the activity if found to violate the objectives of conservation, sustainable use and benefit sharing. However Indian citizens/entities/local people including vaids and hakims to have free access to use biological resources within the country for their own use, medicinal purposes and research purposes. While granting approvals, NBA will impose terms and conditions to secure equitable sharing of benefits.

Before applying for any form of IPRs in or outside India for an invention based on research or information on a biological resource obtained from India,

prior approval of NBA will be required. There is an enabling provision for setting up a framework for protecting traditional knowledge.

Joint Forest Management (JFM)

The National Forest Policy, 1988 envisages people's involvement in the development and protection of degraded forests as a permanent resource base to fulfill the requirements of fuel wood, fodder and small timber to local communities as well as to develop the forests for improving the environment.

So far, 27 States have issued resolution for JFM. As on 1.12.2002, 14.26 million ha. Of forest lands in the country are being managed and protected by around 64,000 Committees. The activities under JFM programme are monitored by JFM Cell of the Ministry of Environment and Forests, Government of India.

Conclusion

The (Im)Possibility of Sustainable Development

"…it would appear we are poised on the horns of a difficult dilemma – unable to live with economic growth for reasons of ecological limitation, but unable to live without growth for fear of the social and political spectrum that might follow in its absence". [Sanders:1990]. To the modern mind, high on the rhetoric of global expansionism, the alternative literature seems politically naïve and economically simplistic. However, alternative concepts are often more firmly rooted in the soil of real human and eco-system behaviour than is the dominant paradigm. This should be kept in mind as we contemplate the present prognosis for sustainable development. It is argued here that serious analysis and interpretation of sustainable development raises it above mere technological adjustment and efforts to extend neo-classical economic analysis. Developing sustainability requires profound changes in existing power relationships, re-ordering of cultural values, massive institutional reform, and re-consideration of the social role of the economic growth. The problem is that "sustainability is not regarded seriously by those who really count, namely those at the top of political structures and those who control the flows of national and international capital" [O'Riordan:1988].

Ironically, the failure of present development approaches to increased self-reliance and economic security in much of the world actually increases resistance to change at the popular levels. Despite the growing threat of ecological instability, people's greater fear seems to be the socio-political chaos that might accompany deliberate economic stagnation. In the absence of feasible alternatives, no country has voluntarily made the necessary institutional adjustments or abandoned the pursuit of growth as the preferred means to sustain 'development'.

The customary path leads nowhere near sustainable development. Long before we achieve the five-to-ten fold expansion of industrial activity anticipated by the Brundtland Commission, humanity may find itself in a politically dangerous world. One wonders if anything short of planetary destruction will convince the leaders of the industrialized world that all present social myth, however well-sustained by the evidence to date, is little more than what Beer (1981) would call a collection of 'shared illusions?'

In a variation of the common property problem, there is little incentive for even a committed nation to go it alone. On the positive side, the co-operation of all sovereign states would not necessarily be needed at the outset. While sustainable development is often seen as a Third World issue, it is the 25% of the world's population in the industrialized North who, by consuming 80%-85% of the world's non-renewable resources and up to 50% of the world's food supplies [WCED:1987], create most of the problems. If the industrial minority would lead, the developing majority would have to follow. Unfortunately, as the main beneficiaries both of material growth and the prevailing development model, the wealthy nations are often the least inclined to change their profligate ways.

The three pillars of sustainable development i.e. environmental / ecological, economic and social dimensions are equally important and we need to maintain a delicate balance by incorporating these in the decision making process to achieve sustainability.

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Assessment of Environmental Impacts of River Valley Project and Planning for Sustainable Development

- *Sanjeev Ranjan**

Abstract

This paper discusses the shortcomings of the methodology of Environmental Impact Assessment (EIA) of Hydropower and River Valley Project and their practical consequences in developing countries. It argues that while the available methods are useful guides to decision making at the level of individual projects they are insufficient for the assessment of cumulative and large scale impacts.

It suggests that the promotion of sustainability should be clearly distinguished from environmental impact assessment of individual river valley projects and it should also be conducted at a more aggregate planning level. For an environmental assessment process to be meaningful and to be able to serve the purpose of promoting sustainability, integration of environmental considerations in economic appraisal and development plans has been suggested.

To this end a basin-planning model that takes into account the cumulative impacts and the assimilative capacity of the environment has been proposed and a solution procedure developed. The suggested procedure helps keep the decision maker aware of the alternative decision in terms of economic objectives and the environmental consequences thereby facilitating the process of arriving at a compromise optimal plan. The procedure helps in structuring and focusing the environmental analysis on key environmental benefits and costs of possible combination of projects, comparing alternative options in an integrated way along with other objectives and providing relevant information needed for environmentally sound decision making.

*Commissioner cum Secretary, Department of Power Government of Tripura, sranjan@iname.com

Introduction

The effectiveness of environmental impact assessment (EIA) of hydropower and river valley projects is hampered by a number of factors. One of the major deficiencies is that project EIA is insufficient for assessment of cumulative and large scale impacts. Another weakness is in the lack of adequate integration of EIA into a broader framework of decision-making. Awareness of the limitations of environmental assessments of individual river valley projects has given rise to interest in the use of environmental assessment at earlier stages of the planning process.

Sustainability-or the version that is more palatable, sustainable development has become accepted as a goal of environmental policies, especially since the Bruntland Commission's report of 1987 and the Rio declaration on environment and development. In the last decade the interdependence of the economy and the environment, the global scale of environmental problems and the necessity to address the environmental problems in an integrated manner at the strategic level has been recognised. It is now accepted that instead of looking at the impact of individual projects sustainability requires a more proactive approach encompassing a wide range of environmental factors and human activities. The increasing interest in measures to promote sustainable development has led to the growth of interest in integration of environmental considerations into project and basin planning.

Unfortunately, though there is general acceptance of the principles of sustainability and carrying capacity, there are practical difficulties in operationalising the concept. Sustainability, carrying capacity, and their translation into objectives for environmental management have many theoretical and practical problems. The concept of sustainability can be operationalised if it is based on carrying capacities, which in turn become the environmental thresholds that are not to be exceeded. Within these environmental constraints economic, social and other factors can be optimised.

The methodogy of impact assessment and basin planning suggested in this paper adopts this approach. By extending and integrating environmental assessment to the stages of planning process a project selection model that takes into account

the carrying capacity of the river has been proposed and a solution procedure developed.

Objective of Environmental Management-Sustainable Development

The objective of environmental management is to maintain the quantity and improve the quality of natural resources and therefore to ensure a sustainable development of society. Sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential of human needs and aspirations. This concept of sustainable development is relatively easier to define from the point of view of an economist. It is the level of welfare that is to be sustained and promoted through economic, social, institutional and technological change. Such an approach would involve integration of economic, social and environmental considerations when planning and selecting new projects and guiding future development (Lee and Walsh, 1992).

Other definitions of sustainable development focus on the physical or resource base of an economy. In these definitions sustainable development requires that the level of environmental capital should not decline through time and be at least kept at the same level (Perman, 1996; Hanley et al.,1997). This implies no reduction of aggregate natural resource stocks, maintenance of the ecological regenerative systems and compliance with constraints set by the carrying and regenerative capacity of the environment and the ecosystem.

The most effective means of promoting sustainable development are still being debated. Lee and Walsh (1992) have however identified the following types of measures:

"-Setting environmental quality goals and/or emission targets to achieve these goals.

- Institution strengthening to promote the combined attainment of environmental quality and economic development goals

- Greater use of economic instruments to guide economies to more sustainable development pathways

- Strengthening of procedures and assessment methods for integration of environmental considerations, alongside economic and social considerations, in formulating and evaluating new policies, plans, programmes and projects at all levels of decision making."

Applying the fourth of these measures, which involves integration of environmental considerations in the formulation and evaluation of plans, has been discussed in this paper and forms the basis of the model that has been suggested.

EIA of a river valley project should supply information to the decision makers on the likely consequence of the project. Although the significance of environmental impact may be expressed in economic terms it is not a requirement of EIA and, in the majority of the cases, this is not considered to be practical in case of hydroelectric or river valley projects because of problems regarding the quality of data available and the reliability of economic valuation methods available. When the environmental impacts are not expressed in economic terms it becomes difficult to integrate the EIA findings in the decision making process and much is left to the value judgement of decision maker. In order to increase the usefulness of EIA there is an increasing emphasis on the relationship of EIA to its broader decision making and environmental management context and an increasing recognition that some form of strategic environmental assessment is required (Wood, 1988).

For the EIA process of river valley projects to serve the objective of sustainability there is a need to improve the existing process of project EIA. Project EIA cannot in itself lead to comprehensive protection of the environment if the EIA process does not adequately consider the cumulative impacts of hydroelectric or river valley projects. The impact of development projects may be more visible if the combined effect exceeds environmental threshold/saturation level. A stream may be self purifying up to a certain level of pollutants discharge and living organisms may continue to survive but loses its self purification capacity if the pollutant level exceeds the threshold level; it is then that the stream may not support life form any longer. The EIA process being project oriented may also fail to address the induced/ indirect impacts and time-crowded/space crowded impacts.

Instead of EIA of individual hydroelectric and river valley projects, environmental assessment at a more strategic/aggregate planning level would better serve the purpose of sustainable development as it would allow these impacts to be better addressed with consideration of a wider range of actions over a greater span of time and over a wider area. The World Bank's policy is also to promote the use of regional and sectoral Environmental Assessment (EAs), moving the analysis of environmental issues upstream in the decision making process. Experience indicates that their use can eliminate environmentally negative proposals and alternatives and facilitates focusing project EAs on issues specific to its location. Such an approach would require institutions to consider the consequences of a range of actions early on in the planning process, to choose the most appropriate action on the environmental as well as the socio-economic grounds, and to minimise any remaining environmental impacts. Such methodologies are likely to include elements of cost benefit and monetary valuation and would ensure the consideration of alternative policy options, including the 'do nothing' option, at an earlier time when an agency has greater flexibility. It would enable consistency to be developed across various policies, especially when trade-offs are needed to be made between the different objectives. It would also ensure that the principles of sustainability are properly integrated into the development, appraisal and selection of policy options and projects. Implementation of such an approach however is constrained by the technical and procedural difficulties that exist and the model suggested in this paper aims to resolve some of the difficulties.

Sustainability and the Planning Process

The concept of sustainability or sustainable development in the planning process and selection of projects can be made operational in the form of carrying capacities of the rivers. The carrying capacity is a function of a number of variables in case and would depend on the region, sector or the resource in question. Regenerative and assimilative capacities of the river is treated as natural capital and failure to maintain these capacities is considered capital consumption and therefore unsustainable. This requires that utilisation rates of renewable resources should not exceed the sustainable regeneration rates and that waste emission rates should not exceed the assimilative capacities of ecosystems (Cesar, 1995). The carrying

capacities may also be in terms of what is being sustained in the long run e.g. human population, waste discharge in a stream etc.

In order to attain sustainability, the planning and the river valley project selection should be such that to ensure that the carrying capacities are not exceeded. To ensure this the planner should have information on the current state of resources and their future uses and the possible use of alternatives. Mitigation measures must be made available to be implemented if the uses exceed, or threaten to exceed, the carrying capacity of the river.

International Association of Impact Assessment in their International study on the Effectiveness of Environmental Assessment (1996) have identified that the use of EA as a sustainability assurance (rather than impact minimisation) mechanism may require adjustments to EIA and SEA, such as :

"-focusing on environmental bottom lines to stay within the source and sink capacities of natural systems;

- avoiding the loss of irreplaceable and high value environmental stock by full cost analysis to determine the acceptability of impacts;

- requiring an in king compensation for all other losses to ensure no net loss of natural capital."

Despite a growing awareness of the seriousness of environmental problems the following characteristics of environmental problems, which are typical features of market failures, make these problems difficult to solve :

- environmental costs do not reflect their true social costs and benefits as markets for them are often distorted or absent;

- there are associated uncertainties and ignorance with respect to the reality and relevance of their effects;

- they can occur in complicated systems hence not always easily detectable and attributable;

- they are usually unequally distributed; and

- being public goods with no well defined property rights they often result in a conflict between individual and collective interests.

The requirements listed above clearly show that the pursuit of sustainable development is a complex multi-objective problem. Environmental problems relating to river valley projects are complex due to the multiplicity of management objectives but also because of their temporal, spatial and institutional characteristics.

What may appear feasible and environmentally sustainable at the river valley project (micro) level may not remain feasible and consistent at the macro level as the cumulative impacts of all the selected projects may exceed the "carrying capacity" of the environment. With respect to the question of optimality while EIA can ensure optimality at the project level, it is not designed to address this issue at the macro level.

Integration of EIA of river valley projects in Decision Making

Appraisal of economic costs and benefits in terms of shadow prices using a specific unit of account (numeraire) is assumed to provide the scale to judge the utility of projects for the country's development (Little and Mirrlees, 1974). Attempts have been made to integrate environmental impacts in the project appraisal methodology by valuing the environmental effects in terms of economic costs and benefits (Winpenny, 1991; Dixon, 1994). However while integrating EIA with Cost Benefit Analysis (CBA) problems of both relevance and consistency occur.

Where projects are appraised according to some economic efficiency criteria an all the components of social cost and social benefit are measurable in economic/monetary terms, the EIA provides the physical measures of expected environmental costs and benefits which are converted into economic measures for inclusion in a standard cost-benefit analysis for use in appraisal and decision making. In this situation EIA and CBA are mutually relevant and consistent. Also when projects are appraised according to commercial criteria and all externalises are internalised through a system of charges/taxes (for negative impacts) and grants/ subsidies (for positive impacts) the integration if EIA and CBA should not raise problems of relevance and consistency (Lee and Kirkpatrick, 1996).

In practice however because of methodological problems, such as valuation of environmental impacts, variation in appraisal and decision making context and multiplicity of objectives, problems of relevance and consistency usually arise. The assumption of the Litlle and Mirrless approach that all the objectives are convertible into a single *numeraire* is not entirely satisfactory and the problem becomes more acute when environmental considerations are also to be taken into account. Planning or river valley projects for sustainable development which takes into account environmental impacts is better addressed if it is looked at as a multiobjective problem and the methodology of shadow prices and CBA is suitably modified.

The usual suggestion in the literature of project appraisal is that projects should be appraised and ranked according to their PSV and then selected from the top of the list until the available development budget is exhausted. This may be presented in the form of an integer programming (0-1) model as follows.

$$\text{Maximise } X_0 = \sum_{p=1}^{P} b_p X_p$$

$$\text{subject to} \quad \sum_{p=1}^{P} a_p X_p \leq B$$

$$\text{for p = 1,2, ..., P} \qquad X_p = \begin{cases} 1, \textit{ if project p is accepted} \\ 0, \textit{ if project p is rejected} \end{cases}$$

P = number of projects under consideration,

b_p = PSV of project p,

a_p = investment requirement of project p,

B = available development budget.

The solution to this model would select an optimum set of projects with respect to their sum of PSV (calculated by using, for example, either the Little and Mirrlees or UNIDO method) within the budget constraint. The most important shortcomings of this model are that it technically accommodates only a single objective (though composite) and assumes that the budget constraint is the only resource constraint (Noorbakhsh, 1989). In situations where the environmental impacts are measurable in economic terms or where externalities are internalised by a system of taxes and grants the environmental costs and benefits can possibly be included in the PSV. But given the characteristics of environmental problems its valuation or internalisation may not be feasible in most real life situations and if, in addition to environmental costs and benefits, the sustainability and the environmental carrying capacities are to be integrated into the planning process a multi-objective approach may be more satisfactory.

With respect to the multiplicity of objectives one may envisage two kinds of 'objectives'. Those of a general nature which are to be optimised with no limits on them, such as one representing the level of welfare (for example, aggregate consumption), and those which are more specific and are required to be only achieved within known limits.

While the former can be in terms of the selected *numeraire* in CBA, the environmental carrying capacities of the water body and the sustainable assimilation and depletion rates of river may be included as additional constraints/targets in the project selection model along with other targets. In fact the second type of *objectives* are requirements by nature and may be separated from the overall objective function and presented in the form of targets in an optimisation model. This is one possible way of allowing different objectives to be considered separately in the model.

Sustainability of renewable resources can be included in the river valley project selection and the planning process by ensuring that the rate of utilisation of these resources is less than its regeneration, while upper limits, which are less than the assimilative capacity of the environment, may be imposed in case of the pollutants and the waste generated.

With respect to the feasibility of projects, three reasons may be envisaged for the individually feasible projects becoming collectively infeasible within this framework: insufficient resources, unrealistically high levels of targets with respect to scarce resources and the insufficiency of projects for achieving the target levels.

With these points in mind the following optimisation model for the selection of projects at the aggregate level of planning as proposed by Noorbakhsh and Ranjan (1999) is suggested. The model and its solution procedure is a modified version of the model presented in Noorbakhsh, 1989.

$$\text{"Maximise } X_0 = \sum_{p=1}^{P} b_p X_p$$

$$\text{subject to } \sum_{p=1}^{P} a_{pk} X_p - \sum_{p=1}^{P} d_{pk} X_p \leq R_k, \qquad \text{for k = 1,2, ..., K}$$

$$\sum_{p=1}^{P} m_{pj} X_p \geq T_j, \qquad \text{for j = 1,2, ..., J}$$

$$\text{for p = 1,2, ..., P} \qquad X_p = \begin{cases} 1, \textit{ if project p is accepted} \\ 0, \textit{ if project p is rejected} \end{cases}$$

K = number of scarce resources including the environmental resources,

R_K = availability of scarce resource k including the carrying capacity of the river,

a_{pk} = resource requirement of project p of the k^{th} resource,

d_{pk} = contribution of project p to scarce resource k,

M_{pj} = contribution of project p to the j^{th} target,

T_j = level of the j^{th} target

J = number of targets.

Other variables and coefficients are defined as before.

In this model other objectives appear in the form of targets (requirements) to be satisfied. The levels of targets should be determined beforehand and should be in harmony with the macro economic objectives and the accepted environmental parameters. More specifically target related to environmental considerations may be directly included in the model. The waste assimilative capacity of the river (sink/carrying capacity) may also be treated as a scarce resource with suitable upper limits fixed for the region for different wastes/pollutants generated.

The above formulation ensures that a certain level of financial returns, as well as certain levels of environmental and other targets are achieved while maximising the economic returns. Furthermore, the first set of K constraints will ensure that the aggregate resource requirements and emission levels of/from the projects are within the sustainable limits.

At this stage it seems appropriate to make a general point. Theoretically, the process of planning may be seen as a programming exercise in the optimal allocation of scarce resources. This consists of optimising an objective function which represents the welfare implications of putting scarce resources to various uses, subject to a set of constraints related to the sustainable uses and sustainable availability of such resources.

As previously mentioned, carrying capacity is linked to definitions of time area and resources; different carrying capacities are interlinked; and outside factors such as technological innovation affect carrying capacity. The model tends to consider regions as self contained and closed. Region based environmental planning has problems as well: links between regions have to be forged and flows between regions have to be forged and flows between regions makes it difficult to predict carrying capacities adequately. Nevertheless, the suggested model can be modified to take into consideration regional links provided that the required information can be made available.

Within the above framework the analyst is able to bring to the attention of decision makers not only the collective effects of projects on environmental resources but also possible sources of inconsistency between various targets in addition to other useful information. The model allows for enough projects to be

picked up in order to alleviate pressure on specific environmental resources, which are critical for the selection of projects with high returns to the overall objective, which in turn have a high usage of those resources. For example a project, which is highly desirable with respect to its economic returns, may have serious costs in terms of its use of environmental resources. If these effects are beyond the availability of such resources then the model allows for the possibility of remedial projects to be selected in order to make improvements on relevant resources. This feature would lend itself to the existing approach of EIA which would expect projects to address remedial plans for their environmental effects in the form of Environmental Impact Report (EIR) and Environmental Management Plan (EMP) to be included in the project report. It would be also possible to include as targets those environmental goods which have already surpassed their sink/carrying capacity. The model would then ensure the selection of enough number of projects to restore the lost carrying capacity.

Solution Procedure

The solution to the above model, if existing, would select an optimal set of projects which would satisfy all constraints and targets. The state of no solution, which is a more likely outcome, would be analytical use to decision makers in the sense that it is either reflecting the inconsistencies between the targets and resources or revealing that the set level of targets are not achievable with the given projects.

Such results may provide a lead for subsequent actions including adjustments in the targets, designing of new projects in order to address inconsistencies in the model or redesigning of projects which put pressure on (contribute to) specific environmental resource (targets).

In addition the analyses of the 'partial' optimal solutions to the model may provide information which could be helpful in deciding on the trade-offs between the targets. This would require a specific manipulation of the solution procedure as explained below.

We first solve the model for all K resource constraints and the first target requirement only. No solution outcome would indicate that the included target is

set too high for the available resources and/or projects. This may require subsequent appropriate adjustments either in the target level or resources and /or the inclusion of new projects which would affect the relevant target which causes infeasibility.

In the case of having an optimal solution the values of the objective function ($\bar{X}_0$) and the selected target (T_{11}) are registered. Then with the selected projects in mind the achievable levels for the excluded targets (T_{1j}, for j=2,3,...J) for this solutions are computed.

The next step is to drop the first target from the model and include the next target and repeat the above procedure. Once this procedure is repeated for all targets we will have a set of solutions with different characteristics (Table 1)

Table 1. Optimal solutions for the suggested sub-models

Solution	**Objective**	**Pay-off matrix j=**				**State of resource constraints**			
i=	**Value**	**1**	**2**	**...**	**j**	s_1	s_2	**...**	s_K
1	$\bar{X}^1_0$	T_{11}	T_{12}	...	T_{1J}	s_{11}	s_{12}	...	s_{1K}
2	$\bar{X}^2_0$	T_{21}	T_{22}	...	T_{2J}	s_{21}	s_{22}	...	s_{2K}
.	.	.	.	...	.	.	.	...	.
.	.	.	.	...	.	.	.	...	.
.	.	.	.	...	.	.	.	...	.
J	$\bar{X}^J_0$	T_{J1}	T_{J2}	...	T_{JJ}	s_{J1}	s_{J2}	...	s_{JK}

For J solutions we have a pay-off matrix for various targets with the maximum achievable level on its diagonal. The non-diagonal elements of this matrix give the achievable levels for all other targets for solution i when target j is at its maximum achievable level. The values of the objective function and the 'slack variables' will provide useful information for making a decision on the trade-off between the targets which will be discussed with reference to the example provided below. **An Illustrative example**

The data requirements of the above model are those usually required for the appraisal of projects. The following example illustrates the data requirements and the solution procedure for the proposed model.

We consider six hypothetical river valley development projects (A to F) with different present economic values, resource requirements and contributions to targets. We have two constraints: a budget and one pollution constraint. There are five targets: employment, irrigated area, financial returns, food production and restoration of carrying capacity of an environmental resource (for example improving the quality of the river which is already highly polluted). Each project requires resources and contributes to the set targets (Table 2)

Table 2. Project data and resource availabilities

Constraints/targets	Resource requirements/ target contributions						Resource availability/ target level
Project	**A**	**B**	**C**	**D**	**E**	**F**	
Constraints :							
budget	6	5	4	4	3	4	15
Pollution carrying cap.	5	6	4	4	1	2	18
Targets							
employment	7	5	4	3	3	4	16
irrigated area	1	9	2	6	2	0	21
financial returns	3	6	7	2	6	3	19
food production	5	8	2	1	7	2	20
environmental restoration	7	3	2	1	3	7	17
Present Social Value	21	19	14	13	12		10

For the data in Table 2 there exists no solution as the set targets overall, in the light of available resources, are not achievable and in the case of some (irrigated area target) there are not enough projects available for achieving the required level.

Following the solution procedure explained above we keep the resource constraints and the employment requirement and solve the sub-model. The *optimal* solutions indicates that we should select projects A, B and C with $\bar{X}^{-1}_{0}$=54 and T_{11}=16. We then compute the contribution of the selected projects to the remaining targets: T_{12}=12, T_{13}=16, T_{14}=15 and T_{15}=12.

Next we drop the employment target and include the foreign exchange earning target and solve the model. There exists no solution as this target has been set too high with respect to the available resources. Given the existing resource constraints and the proposed projects the optimal feasible solution for this sub-problem results in an adjusted target level of 17 for foreign exchange earnings with projects B,C and D being selected. We then repeat the above procedure for other targets. All solutions are presented in Table 3.

Table 3. Optimal solutions for the hypothetical example

Solution i=	Objective Value	Pay-off matrix j= 1	2	3	4	5	unused resources s_1	s_2	Projects selected
1	54	16	12	16	15	12	0	3	A,B,C
2	46	12	17	15	11	6	2	4	B,C,D
3	45	12	13	19	17	8	3	7	B,C,E
4	52	15	12	15	20	13	1	6	A, B, E
5	50	16	10	12	15	17	0	5	A,B,F

While the suggested solution procedure highlights the sources of inconsistency in the set targets and allows for adjustment, the final set of optimal solutions in Table 3 provides the decision makers with valuable information regarding the relative *costs* and *benefits* of achieving the set individual targets in terms of the value of the overall objective function and losses in the other targets. Indeed one of the above solutions may be preferred.

If this is not the case then the analyst may try to find a trade-off between the targets (and also between the targets and the objective function) using various criteria. One procedure could be the use of a weights, provided by the decision maker, for finding a weighted sum of the achievable targets for each solution with the aim of finding the *best* solution. Another approach is to compute a *loss-matrix* from the pay-off matrix in Table 3 on the basis of the deviation of the achievable targets in different solutions from their maximum achievable levels. The analyst can then apply the *minimax loss* criterion by finding the maximum loss associated with each solution and selecting the solution corresponding to the minimum of maximum losses. This approach will result in solutions 1 and 4 being equally the *best* solutions.

Alternatively the loss-matrix can be normalised or standardised to a common scale unit and even weighted if desired. The main purpose is to take all losses into consideration in finding the best solution. Depending on the selected criteria various standardisation procedures may be employed for elements of the loss-matrix or pay of matrix. Amongst them we may refer to computing standard scores, division of each element of the pay-off matrix by the column sum, division of the column elements of the pay-off matrix by the diagonal element (maximum achievable target), or a standardisation procedure which would reflect the relative position of the targets in different solutions in relation to difference between the highest and lowest values for the targets, i.e $(T_{ij}-m_{i}inT_{ij})/(T_{ij}-m_{i}inT_{ij})$ where T_{ij} is the value of target j in solution i and T_{ij} is the maximum value for the j^{th} target (the diagonal elements of the pay-off matrix). On applying the last standardisation procedure to the pay-off matrix for different solutions the results obtained are presented in Table 4. According to the aggregate targets achieved solution 4 is the best solution followed by solution 1.

Table 4. Standardised targets

Solution	**Pay-off matrix j=**					**Summation**
i=	1	2	3	4	5	
1	1	0.286	0.571	0.444	0.545	2.847
2	0	1	0.429	0	0	1.429
3	0	0.429	1	0.667	0.182	2.227
4	0.750	0.286	0.429	1	0.636	3.101
5	1	0	0	0.444	1	2.444

In recommending the best solution we may be interested to take into consideration losses in the value of the objective function in different solutions. Table 5 reveals percentage losses in the objective function from its highest value next to percentage losses in the recommended aggregate measure of targets. This exercise would provide the decision makers with more information regarding the trade-off between the aggregate targets and the objective function. For example solution 1 results in no loss in the highest value of the objective function coupled with 8% loss in the highest standardised aggregate measure of the targets, while solution 4 results in a 2% loss in the value of the former and no loss in the latter."

Table 5. Aggregate targets and objective function losses

(1) Solution i=	(2) Objective value	(3) % Loss in (2)	(4) Aggregate targets	(5) % Loss in (4)
1	54	0	2.847	8
2	46	8	1.429	54
3	45	9	2.277	27
4	52	2	3.101	0
5	50	4	2.444	21

Conclusion

In order to promote sustainability there appear to be profound advantages in extending EIA from individual river projects to river valley development plans as limiting EIA to project level may fail to consider aspects of consistency and optimality. The future development of EIA lies in the integration of EIA in the integration of EIA in the planning process and the two procedures could be integrated for better decision making in order to promote sustainable development. This would require developing appropriate tools of analysis, which could be flexible enough to address complicated issues of dealing with different objectives. The suggested model is a step in this direction. Ignoring the fact that there are other objectives at macro level which may be in conflict with environmental objectives usually results in the latter being ignored or toned down. The inclusion of various objectives in the suggested model allows the decision maker to become aware of the consequences of various decisions in terms of their effects on different objectives. The suggested analytical solution procedure provides useful insight into the extent of inconsistency in the set targets and deviation from their optimum achievable levels, which may be helpful in deciding on their trade-off.

Looking further ahead, the long-term objective has to be sustainability of river systems. Decisions taken over the next generation may well determine whether the society becomes a sustainable one, whether it overshoots resource and environmental thresholds.

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Creating Entrepreneurs and Forming Networks in the Weaver Cluster of Pochampalli

- *Sameer Sharma**

Abstract

This article describes the initiatives taken to organize the weavers, outside the cooperative fold, in the Pochampalli area of Andhra Pradesh, into a self supporting cluster. This effort aimed to secure them, inter-alia, advantages of greater efficiency, knowledge sharing and enhance their ability to compete in local and global markets. The article first discusses the existing activities and networks of the weavers - the various agencies germane to them such on the cooperatives, NGOs, Government etc., at the beginning of the project. It then proceeds to describe the intervention made by the Handlooms and Textiles department of Andhra Pradesh, for organizing the cluster and providing necessary inputs. The results of there activities are also discussed.

Handloom industry in India is the second largest employer after agriculture. It supports almost 12 million people. Thousands of weavers work individually or interact as part of different networks to procure raw material and to market their products. Weavers with poor education and awareness cannot influence the success of the network. This is particularly seen in weavers not covered by an institutional network like a co-operative. Hence an interesting experiment, to convert weavers outside the co-operative fold into entrepreneur weavers (EW) was done in the Pochampalli weaver cluster of Andhra Pradesh (AP). The weavers were formed into consortia to help them mobilize limited resources, provide avenues for collective actions and overcome constraints associated with size, promote technological

*Shri Sameer Sharma is at present the Director of Industries in Andhra Pradesh.

development and enhance their ability to compete in local and global markets. Schmitz (1995) captures these clustering advantages in the concept of collective efficiency, distinguishing between passively acquired benefits that arise from specialized agglomeration- of skills, inputs and knowledge and actively generated gains that accrue from the joint action of clustered actors. Local institutions were used to create local co-operation and the consortia were given a formal and legal character under contemporary laws. The project was funded under a comprehensive scheme called the Deen Dayal Hathhkargha Protsahan Yojana (DDHPY). The scheme attempts to look at the needs of weavers for working capital, basic inputs, creating awareness and attempts to support quality fabric production through appropriate design intervention, increase in productivity, provision of publicity and marketing incentive (Development Commissioner of Handlooms Delhi, India).

Basically there are three networks operating in weaver clusters of AP (fig1)

Network I (Cooperatives and Government): The co-operative movement in India was officially started in 1004 by the Government of India by enacting the Co-operative Credit Societies Act, 1904 (Ravichandran, 1998). In these co-operatives, the principal is either the Co-operative Society or the Khadi and Village Industries Commission or the State run Handicraft and Handloom emporia. The linkage between the principal and agent, the craftsmen, is very strong and the area of influence has distinct boundaries and does not allow the craftsmen to have a lot of weak connections, which would enable him to seek assistance. To seek assistance from within the zone it is usually bureaucratic and the course of action is top-down.

Co-operatives have been formed to cater to the following needs of the craftsman (Gurumoorthy 1993), (Mohan Rao 1997) and (Kotaiah, 1995):

- *To obtain raw material on continuous basis*

- *To release them from the clutches of master craftsman and traders*

- *To provide financial and technical aid*

- *To strengthen the bargaining power of the craftsman*

The reasons for the failure of this network are many as pointed out by Ravichandran, (1997), Thakur, et. al. (1992), Sankararaiah and Saibaba, (1992)

- Delays in financial assistance which lead to higher losses

- The society adopts only limited designs and no product diversification

- The sales promotion method adopted by the society is traditional (they do not have any trained sales men/women)

- Insufficient number of sales outlets at strategic market zones

- No sales promotion activities like advertisements, brochures, etc.

- Low salaries of employees and no job security and hence low motivation of the staff

- Influence from external environment like local and state officials politicians

● **Network II (the trader and master weaver)** : Here, there are possibilities of having free market transactions where quality and quantity could have a relation to wages. However, there have been many cases of the principal exploiting the agent. Most of the governmental action of creating co-operatives and similar networks is to stop the traders 'exploit' the craftsmen. (Kotaiah, 1995).

● **Network III (The NGO)** : There have been many cases of NGOs working with craftsmen. Their entry into the sector is for the same reason as we find in the case of the Government intervention, namely to prevent exploitation of the craftsmen. The broad assistance, which the NGOs give, is similar to what Menning (2000) found out while studying SEWA Banascraft project (an NGO intervention into crafts).

- The forms of assistance are i.) Organization and capacity building, ii) product development, iii) Training, and iv) Marketing.

- Out of several thousand craftswomen involved in production and manufacturing only a fraction of these market their goods on a regular basis through the program (ibid., 3). So the effect of a particular NGO is limited to a fraction of the total number of craftsmen involved in the field.

- Sixty-five percent of the sales go to the artisans while Banascraft takes 10% and the rest goes to cover raw material and other expenses (ibid4). This gives a broad idea of the NGO-craftsmen financial relation. The NGO takes a fixed percent of the final price for its intervention and gives the necessary support for sustaining the network.

- The program has not been self sufficient in the past, it currently benefits from various indirect forms of assistance and subsidies, and it will not necessarily be sustainable in the foreseeable future. (ibid. 13) Usually, the fixed amount from the final price is not enough to sustain the whole operation so the NGO seeks funding from various other agencies.

Evolution, Turning Points and Current Status of the Cluster

Pochampally village is located in Nalgonda district in AP. Pochampalli and its surrounding areas are famous for the production of hand woven tie and dye designs and the technique is called Ikkat. The main products are, tie and dye silk and cotton sarees, cotton bed sheets, dress material, furnishings, body wraps (lungies, dhotis), etc. Besides Pochampalli the other major silk weaving centers are, Narayanapur, Suryapeta and Nalgonda. There are about 10,000 weavers organized in 45 co-operative societies and nearly 8600 weavers outside the co-operative fold in Nalgonda district. The handloom weaving cluster around Pochampalli after showing a steady growth for 55 years went into a crisis in early 2002, when the weavers unable to compete in a free market lost their livelihood. The immediate interventions were to lift the excess stocks and to give work to the weavers as a social safety net. Simultaneously relief in the form of health care, food for work were started to add to the income of the weavers.

Major Problems

The major problems faced by the cluster in 2002 were :

- *Design gap*-the weavers were producing fabrics with obsolete design and no link to seasonal fashion forecasts.

- *Weak institutional linkages* - The weavers were working in isolation having no linkages with the Weavers Services Centers (WSCs) or the National Institute

of Fashion Technology (NIFT). There was no sharing of market information or common purchase of inputs and the weavers could not anticipate the common problems

● *Technological gap* - The looms had hardly changed, the processes for production of cloth were arduous, it was difficult to maintain uniform quality, leading to overpriced fabrics and low productivity.

● *Low value addition*- Their was no change in the product profile and their was low value addition resulting in subsistence wages for a majority of the weavers

● *Lack of innovation, entrepreneurship and full employment* - The weavers were completely dependent on an intermediary called the Master Weaver (MW). There were no rewards for innovation and little opportunity to develop entrepreneurship. Not many young people were willing to join the weaving profession.

● *Stagnant weaver skills* - The MWs had no interest in up-skilling the weavers. Since they were working outside the co-operative fold they had not been assisted by public agencies

● *Lack of working capital, low turnover and rising inventories* - Unable to sell the MWs were left with stocks of slow moving cloth. The Banks having already overfunded the co-operatives, were unwilling to lend any further. Consequently the MWs stopped giving work to the weavers. The artist weavers unwilling to switch to other activities lost their livelihoods.

Key cluster Actors and their linkages

Relationship between the MW and the weaver - The key actor in the network is the MW. He invests his own money usually taken from informal sources and coordinates between the production and the wholesale market. Fig 2, gives the network and the handloom production value chain in the MW channel. The main production is done by the weaver. The raw materials come from the dyeing unit and from zari (metal tread) unit. The MW may purchase raw material in the open market and supply them to his weavers. Zari has to be purchased with cash but

yarn could be taken on credit. The weavers then take these raw materials to their homes where the looms are located, and bring back the finished products. Each weaver has a small booklet where the products are accounted and the MW notes the number of products in his account book.

There are many nuances to the production stage:

- Sometimes, all the production is done in the same village or sometimes in the nearby villages

- Then, there are few master weavers who work with, small contract weavers from other areas, who monitor the production and deliver the product. In which case the master weavers production is done in various parts across the district

- The need to seek other areas is due to the varied production set up that exists due to geographical variations. Weavers in some areas are able to weave very fine cloth whereas in other areas they are able to use different dyes and in some other areas they can only weave coarse cloth.

- Hence, the range of the products a master weaver deals in basically depends on the client he has. If the client wants a particular product then the master weaver searches in his social contacts to get to a person who could be a relative or a friend of a relative or relative of a friend and start giving orders to this person, who in turn begins to control the production and often invests money also.

- As far as actual production is concerned, there are again a few nuances. The MW may purchase all the raw material and the weaver gets paid for his labor after the raw material is balanced for. Otherwise, the weaver may be made to pay in books for the most expensive raw material and the MW pays for the rest of the raw material. In the case of contract weaving, the contract weaver pays for all the material and gives it to the MW.

- Also there are few pre-loom activities that need to done. In certain areas or for certain products, the pre-loom activities are done by the MW. But in other areas, the weaver's family does these activities and there are no payments for such activities. In certain other areas, there are specialists who only do the pre loom

activity. This however happens if there is sufficient market for the single activity.

The financial relationship between the MW and the weaver is given below;

- The relationship between a master weaver and a weaver starts with a loan. The loan could be to set up a loom or for consumption purposes like marriages, building house, medical, etc.

- Once the loan is taken, the master weaver has to continuously give work to the weaver.

- Whether the MW is able to sell or not, he cannot stop production or else the weaver will be left without work.

- If the master weaver is unable to provide work, there is a possibility that the loan amount may not be returned.

- If the weaver stops working for the master weaver, he will have to repay the loan.

- Also, on each set of products that the weaver prepares, a small portion is deducted towards repayment of the loan.

- If the weaver does not take a loan, his labor charges increase.

So, a weaver who takes a loan not only gets paid less, but also pays interest.

Due to the collapse or the cloth market in Gujarat and drying up of other marketing channels the MWs were left with large quantities of unsold cloth leading to cessation of weaving activity. The weavers did not return the advances taken from the MWs, and once the loan money was exhausted a small crisis like a disease or a ceremony in the family only accelerated the destruction of the livelihood of the weaver.

Forward linkages of the MWs-The master weaver goes to various towns where his clients are located or he 'takes the road'. His clients are clothing retailers in various towns. The MW does this himself and does not let anyone else do this job,

other than those who have an almost equal share in the business viz. His partner or their children because there have been cases where the employee who has been assigned this job 'usurped' the market and set up his own business. Also, the master weaver feels that the clients will not know who the owner is, and for all practical purposes, the person who takes orders gives credit is believed to be the owner or a partner.

The tasks that are performed while 'on the road' are :

- To show sample products to each of the clients and get orders
- To collect payment for the unpaid bills
- Enquire about 'hot selling' designs/colors

An average master weaver has about 10-15 clients with about 5-7 core clients. A successful master weaver will have about 50-60 clients with about 15-20 core clients. Core clients are those who regularly purchase material and with whom the master weaver has a strong relationship.

There have been cases where the clients go bankrupt, which in turn affects the master weavers badly. At times client's bankruptcy may even prove fatal for the master weaver's business, especially if he has a lot of credit due from the client. This was one of the reasons for the MWs of Pochampalli reneged on their assurance to give continuous work to the weavers.

Implementation Strategy

The intervention by the APCO (Andhra Pradesh Handloom Weavers Cooperative Federation) and the handlooms and textile department of Andhra Pradesh with NIFT and WSC as business service providers started with a mapping of the cluster in 2001, preparation of the project and its approval in 2002. The action

plan was prepared in close consultation with the stakeholders and APCO, NIFT and WSC. APCO was also the implementing agency and the project was completed in two years. While normal industrial cluster development programs relate to firms, this cluster intervention related to people or the weavers. The approach was flexible to reflect the needs and voice of the poorer in the cluster and accordingly set different priorities. The focus was to provide full employment and increase productivity leading to enhanced returns for the weavers. This was done by integrating the weavers in the regional and national supply chains and assisting the weavers to add more value to their products to shift up the value chain. The objectives of the intervention were:

- Convert the weaver into an entrepreneur producer and make him a part of a network by forming groups/consortia in the form of a multi area co-operative society (MACS), under the new law
- Increase access to working capital
- To develop new market channels
- To bridge the technology gap and the design gap
- To upgrade the skills of the weavers

The areas of intervention and the components of the action plan are given below:

Area of intervention	Components	Service provider	Financial assistance
enterprise	* Creation of consortia	APCO	
development	* Up-skilling of weavers	NIFT/WSC	Rs 21 million
	* Technological up-gradation	WSC	

	* Improved products, process quality, broadened product range	NIFT	
Creation of	* Greater availability or credit	APCO	
networks	*Market expansion	NIFT	Rs 20 million
	* Cost reduction through bulk purchases	APCO	
	* Participation in national	NIFT	
	international fairs	NIFT	
	* Institutional networks-insertion in national value chains	APCO	
	* Promote ideas of co-operation	APCO	

Major activities

The first step was to **create groups** with a governance structure to address cluster level issues. In consultation with all the cluster actors it was decided to form co-operative societies under the new co-operative law called MAC societies act. This was done over a period of time by generating awareness, getting like minded weavers together and developing group identity. Trust was built giving them working capital in the form of a working limit to be used jointly to purchase yarn and dyes. Joint training was given and techno-upgradation was done by the MACS with technical inputs from WSC. NIFT was introduced as a business development service provider to give contemporary designs, develop marketing channels and advise on good business practices. The details of the groups are given below:

S. No	Name of MAC society	Number of weavers
1	Meenakshi	160
2	Chandana	133
3	Markandaya	157
4	Bhavnarushi	121
5	Laxminarayana	75
6	Chetana	89
7	Bhadravathi	160
8	Navadoya	55
9	Mother Mahila	50

● The **Working capital** loan consisted of a seed capital of Rs 4000 to be kept in a bank and the banker permitted a five times revolving working capital limit to each weaver in the MACS. Initially this was used for purchase of raw materials only. The bankers were convinced after seeing the project reports and the involvement of business service providers like NIFT and WSC and the design and marketing linkages.

● **Up-skilling** was of two types - training to produce new designs and operate the upgraded looms. The WSC, Hyderabad trained master weavers and the master trainers then trained weavers for three months at their working place. The weavers received stipend during the training period for the loss of wages during the training period. After training the weavers were able to operate new looms, quickly switch designs according to changing seasonal preferences, improve their cloth productivity, learn improved dyeing processes and minimize waste in the pre and post loom processes.

● In consultation with the business service providers APCO gave **modern pre-loom and on-loom equipment** to the MACS. This included dobbies, accessories and weft preparatory equipment. The weft preparatory equipment was a newly developed electric machine for tie and dye weft preparation given to a group of 4-8 weavers. This machine reduced to a large extent reduced the drudgery of women, increase their wages, led to higher production of cloth and productivity of weavers. The training was given by the business service providers and equipment manufacturers.

● A critical activity was to bridge the **gap** between the **design** preference of the consumer and the designs produced by the weaver. The weavers were unaware of the latest designs, could not switch designs quickly, did not have access to a reliable design forecast service and were not connected to retail chains to integrate operations like supply of yarm, give advance designs, purchase cloth at a contracted rate and time and assist in value addition activities like decentralization garmenting. NIFT gave such services to the weavers. NIFT appointed a chief designer and designers to prepare new designs, carry the designs to the looms, give seasonal forecasts and create links with retails chains like pantaloons and big bazaar. The MACS gave agglomeration gains to the weavers. They could jointly deliver larger quantities to the retail chains, negotiate prices and generally enhance their positions. They developed entrepreneurial skills since they had to do more than only produce cloth. This gave them opportunities to earn more, the negotiation activities increased their exposure and they began to see the evolving market economy as an opportunity than a threat.

Results

The results of the intervention are summarized below:

● *Value Addition*

As a result of the intervention the weavers were able to move up the value chain leading to substantial increase in earnings. The increased returns are given below;

S.No	Variety	Before	After
1	Bed sheets * Large - Rs 230	* Small - Rs 110 Rs 320 & 540	Rs 160 & 250
2	Silk Sarees	Rs 1250	Rs 1600-1900
3	Cotton Sarees	Rs 350-600	Rs 450-1100
4	Cotton dress material	Rs 55 per meter	Rs 75 per meter
5	Silk dress material	Rs 155 per meter	Rs250 per meter

** Impact on key Indicators*

1. Nine MAC societies were formed with 1000 weavers. These helped to promote the idea of co-operation, develop a consensus on cluster approach and increased the relevance of the weavers in the state and region. The cost of yarn and chemicals was reduced by bulk purchases.

2. Developed linkages with institutions like NIFT, WSCs, Handloom Export Promotion Council and the local banks.

3. The weavers started using blended yarn, improved the product and process quality and broadened the product range.

4. The monthly wages of cotton weavers rose from Rs 1250 to Rs 1800 and those of silk weavers rose from Rs 2000 to Rs 2550. Disposable income for weavers was created.

5. An amount of Rs 20 million was given as margin money to the weavers leading to a working capital limit upto Rs 100 million. All the weavers had sufficient working capital to prepare production plans for the next season.

6. The production of silk varieties rose from Rs 40 million to Rs 60 million and the production of cotton varieties rose from Rs 30 million to Rs 45 million. The MACs entered new markets and participated in national fairs. Linkages were also developed with retail chains like pantaloons, Big Bazaar by NIFT.

7. 1000 weavers were trained to prepare new designs and operate up-graded looms.

8. A chief designer with designer for NIFt and technicians from the WSC worked with the weavers to prepare seasonal designs, bring it to the looms, enhance quality and reduce the cost of pre and post loom processes. This led to reduction in drudgery and improved the living conditions of the weavers. NIFT assisted the weavers to embed them in the regional and national chains and increase security through market diversification. Previously the weavers were mainly producing traditional sarees. After the intervention by NIFT they started producing high count cotton sarees, warp and weft double ikkat with plain border of zari border with rich pallu. The diversified products included dress materials, cotton and silk blened bed sheets, use of mercerized yarn in bed sheets and modern furnishing material for sofas, table tops and wall curtains.

Lessons

Summing up, the strategy was to help potential entrepreneur-producers to overcome the constraints associated with size, promote techno development and develop their ability to compete in local and regional markets. To use the strong sense of social identity to strengthen ties between the producers, foster trust among them and promote local co-operation and support. To remove the weavers from the low value networks of the MWs and traders and convert them into entrepreneur-producers to promote sustainable employment and higher income. This was addressed by creating awareness among the weavers, building consensus

on the group approach, building the capacity of MACs and through a series of parallel interventions, like design development, techno up-gradation, upskilling, providing working capital and developing markets.

This was the first time weavers outside the co-operative fold were assisted in AP. The project validated the cluster approach of AP. Firstly different approaches are required for incipient clusters like the Pochampalli and growth engine clusters like Pharma, aqua etc. The first focuses on individuals the second focuses on firms in the cluster. Secondly the approach should deal with the complete eco system of the cluster along its three dimensions-cluster actors, networking and value chains. Thirdly a fulcrum is required to trigger and leverage the different activities in the cluster. This could be a cluster development organization or an industry association. Lastly flexibility in approach is required whether it is in the selection of the cluster development agents, business service providers or technology service providers. The strategy should be prefereably developed by the field actors with inputs from experts and facilitators and monitoring should be done by the stakeholders themselves.

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Meeting the Challenges of Millennium Development Goals : Practice in an Indian District

- M. Naga Raju, IAS DM & Collector South Tripura

Abstract

This paper describes the initiatives taken by a District Collector to achieve the Millennium Development Goals (MDGs) in the Sourth Tripura District, through the various existing development programmes, implemented by the Government. The paper states that while many Government programmes are geared intrinsically towards achievement of the MDGs; there is still a need to orient these activities towards involving local self government bodies and civil society groups. This is in order to focus these programmes towards achievement of MDGs and to ensure better delivery of intended outputs. The various strategies adopted for this purpose in South Tripura are described thereafter. The efforts made in the area of poverty alleviation, primary education, health, environment and gender mainstreaming are covered in detail.

The global agenda of Millennium Development Goals (MDGs) to reduce half the world poverty and improve social development indicators of world wide poor in developing countries has given a clear focus to developed countries as well as development institutions, much needed raisond'etre to show their commitment to global development and fighting poverty. The MDGs have also given focus and framework for policy changes to poor nations to direct their efforts to join the global resolve.

The progress and achievement of MDGs is mixed and varied across countries, regions, and ethnic groups. The steady progress of MDGs meeting their targets in some countries is highly laudable. This is primarily because of the clear

national vision and convergence of global and national efforts in these countries. However, there are several regions/countries, which are yet to focus their commitment, develop policy framework and pay attention to the MDGs.

A quick perusal of the MDGs and their progress would provide us the direction where we are heading. The percentage of families not earning a dollar a day has declined in all developing countries from 29.6% in 1990 to 23.2% in 1999. However, there is increase in poverty levels in Sub Saharan and Western Asia from 47.4% to 49% and 2.2% to 7.5%. Reasons could be instability, armed conflict and governance problems. The rate of progress hardly inspires confidence to meet the targets by 2015 A.D. Many nations are falling behind the targets significantly. The regional variations would make the task much more daunting.

The progress of achieving universal primary education has shown considerable momentum. The primary level enrollment per 100 children of enrolment age has shown increase from 81.9 in 1990-91 to 83.6 in 2000-01. But, the progress in Sub-Sahara, which is 57.7 in 2000-01, is cause for great concern and calls for immediate action.

The goal of promoting gender equality and empowering women still has to go a long way in education, employment and their representation in decision-making bodies. The infant mortality rate has been reduced from 64 in 1990 to 57 in 2000 in the world. However, again the infant mortality rates in developing regions 63 (sixty three), Sub-Saharan Africa 106 (one hundred and six) and South Central Asia 70 (seventy) are very high. The regional imbalances require doubling of efforts to reach the targets. The percentage of one year olds immunized is 72 (seventy two) for the entire world in 2001. But it is very less in Sub-Saharan Africa 58 (fifty eight) and South Central Asia 61 (sixty one). The progress is not uniform and vigorous efforts are required in African regions. The MMR is 40 (forty) for the world in 2000 while it is 2 (two) for the developed regions. It is 44 (forty four) for the developing regions. In sub-Sahara it is 92 (ninety two). We need to focus our resolve more in these regions. The births attended by skilled health personnel or institutional delivery is also very poor in most of the developing world except Latin America and the Caribbean.

The goal of ensuring environment sustainability requires an integrated approach to land development forest, water management & waste disposal. The proportion of land area covered by forests is very less in Northern Africa, Eastern Asia, Western Asia and South Central Asia. Similarly, maintenance of biological diversity and energy use require global expertise. Sustainable access to safe drinking water and basic sanitation are pre-requisites for improving the quality of life and also to ensure basic human rights. While developed countries have almost hundred percent access to safe drinking water in urban and rural areas, in developing regions it is less in urban areas and even lesser in rural areas. The trend also shows a similar trajectory for sanitation in developed and developing regions for urban and rural areas.

India is also a signatory to the global commitment to achieve MDGs. However we still have to formulate comprehensive policy initiatives for achieving MDGs-detailing, inter-alia, approach, processes, framework, and stakeholders' partnership.

While there is no focused attention on MDGs in the country, there are dispersed programmes/targets at national level to achieve some of the MDGs. The tenth plan document 'for example' has set the following monitorable targets :

- Reduction of poverty ratio by 5 percentage points by 2007 and by 15 percentage points by 2012.
- Providing gainful and high-quality employment at least to addition to the labour force over the tenth plan period.
- All children in school by 2003; all children to complete 5 years of schooling by 2007.
- Reduction in gender gaps in literacy and wage rates by at least 50 percent by 2007.
- Reduction in the decadal rate of population growth between 2001 and 2011 to 16.2 percent.
- Increase in Literacy rates to 75 percent within the plan period;

- Reduction of Infant mortality rate (IMR) to 45 per 1000 live births by 2007 and to 28 by 2012.
- Reduction of Maternal mortality ratio (MMR) to 2 percent 1000 live births by 2007 and to 1 by 2012.
- Increase in forest and tree cover to 25 percent by 2007 and 33 percent by 2012.
- All villages to have sustained access to potable drinking water within the plan period.
- Cleaning of all major polluted rivers by 2007 and other notified stretches by 2012.

However, the 'monitorable targets' require further dissemination to key stakeholders and civil society groups to foster partnerships, and they also require closer monitoring to achieve the targets during the plan period. In fact, the success or failure of MDGs at the Global land would depend largely on the Indian success in this field. Therefore there is a need for urgency in developing programmes to involve local self government institutions and civil society groups to achieve the MDGs. This paper discusses initiatives taken in Tripura to develop such as approach.

Tripura is one of the smallest states in India located in North East. The population of the State is 31,91,168 with 72% BPL population. Majority of BPL population belong to SC/ST who constitute about 47% of total population of the State.

Tripura is one of the states in the country attaching high priority to human and social development indices. The state had taken several policy initiatives, which will go a long way in meeting some of the global targets of MDGs.

One such initiative is District Development Goals taken up in 2002 in South Tripura District. The district was created in 1970 with Udaipur as the head

quarter. The total area of the district is 2624.35 sq.km. The population of the district is 8,34,801 with SC 17.16% and ST 37.5% of the population. The district was divided administratively into four subdivisions, eleven blocks and 323 panchayats. The district has 320 kms of international border with Bangladesh. There are three principal hill ranges, which are inhabited by tribals. There are almost 18 tribes in the district with different languages, cultures and religions and practices. The terrain has made communication very difficult in these parts of the district. Agriculture is the main occupation but only 31.61% of the land is cultivable.

The long international border has made the district a target for smuggling and infiltration by illegal immigrants and insurgents. There is too much involvement and spoon-feeding by the government and there are no local initiatives in many public services. Tripura is one of the few states in the country with strong decentralization mechanism in place. However, there is no local governance system in tribal areas.

The development goals taken up have measurable indicators and provide a framework to sustain development- social, economic and environmental. The goals will have as its central theme, reduction of poverty in all its forms. All these goals have been developed keeping in mind the resources, capacity of the communities, the ability of the local self-governing institutions and government departments.

The methodology adopted to identify the goals and targets and implementation strategy were all based on participatory stakeholders concept. The approach is process oriented, grassroots based, involving panchayats, govt officials and civil society groups. It may be pointed out here that all the goals have not been taken up at a time rather a few of them evolved over a period of time.

The present status of each goal was assessed through household surveys, govt documents and it was segregated up to gram panchayat level. Similarly, targets have been reached till gram panchayats after extensive social mobilization, discussions, and workshops involving elected officials, panchayat raj bodies, govt officials and civil society groups. Elaborate, extensive and frank discussions were held at district level, block levels and gram panchayat levels with large public participation on the present status of the goals, financial and managerial capacity, targets required to be achieved and responsibilities of all the stakeholders vertically and horizontally. Monitoring committees have been formed at district level, Block and GP level to review the progress, address problems if any and chalk out future programmes. The entire programme is based on new approach to governance in achieving certain development goals and run on campaign mode.

The **development goals** are :

1. **Reduce BPL population by half by 2007**

   Indicator : Increase income per day above Rs. 75/-per family

2. **Achieve universal primary education by 2005**

   Indicator : Enrol all boys and girls and ensure completion of primary education

3. **Reduce Infant Mortality Rate to below 10 by 2007**

   Indicator : (a) Ensure medical attendant at the time of delivery and improve health education

   (b) Ensure universal enrolment of 0-6 yrs in ICDS centres

4. **Reduce Maternal Mortality Rate to less than 1 by 2007**

Indicator : Make available a trained medical attendant at the time of delivery

5. **Ensure Environment sustainability**

Indicator : (a) Reduce soil erosion and diversify fuel consumption needs of people.

(b) Improve the quality and quantity of drinking water and enhance community capacity to manage the water resources.

(c) Ensure sustainable sanitation and hygiene practices in all households and community places.

6. **Ensure 100% Immunization to all children by 2005**

Indicator : Expand present capacity and bring all the left out children for immunization.

7. **Mainstream gender into all development programmes**

Indicator : Gender component should be kept in all development programmes and ensure equal legal rights to women in all government benefits given to the families.

This whole process of goals identification and implementation had generated tremendous interest, responsibility and pride among several stakeholders especially among the poor in the district. It had further motivated both PRIs as well as govt officials to own this programme and achieve considerable progress within this short period.

The strategy and implementation plan for each goal and progress achieved in the last two years is summarized below:

Goal 1 : Reduce BPL population by half by 2007-08

Indicator : Increase income per day above Rs. 75/- per family.

Poverty reduction was the main focus of the development goals for South Tripura. Poverty reduces the ability of human beings to participate in decision-making process and impacts them negatively in all developmental indicators. Therefore, reduction of poverty in all its forms will be the central theme of the strategy. As per the DRDA survey conducted in 1997 (a new survey is going on) the total BPL families are 1,08,214. The new survey of BPL families will be completed shortly. It is expected that at least 20% of the total BPL families would have crossed the poverty line during the last 5 years.

Strategy

In South Tripura there are 323 Gram Panchayats. Every year from the district administration as well as other development departments several economic benefits are extended under various state/central government schemes to the poor BPL families to increase their income. It was decided that all these schemes would be converged at each Gram Panchayat, which will identify at least 25 families per year to increase their income and become APL families. If 25 families are covered in each Gram Panchayat in a year for a period of 5 years, about 40,375 families will be covered, which would reduce by half of the total BPL population in the district. The important programmes to reduce the BPL families could be Rural Development schemes, Agriculture/Horticulture schemes, Irrigation, ARDD, Forest, Tribal Welfare, SC, OBC & Minority Welfare etc. The families would identify the schemes based on their existing resources and capabilities. The Block wise and

year wise target to reduce BPL families is given below:

Name of Block	Total BPL Families	2003-04	2004-05	2005-06	2006-07	2007-08	Total
Matabari	16834	1684	1684	1683	1683	1683	8417
Killa	5350	535	535	535	535	535	2675
Kakraban	10389	1039	1039	1039	1039	1039	5194
Bagafa	17818	1782	1782	1782	1782	1781	8909
Rajnagar	10758	1076	1076	1076	1076	1075	5379
Hrishyamukh	6965	697	697	696	696	696	3482
Satchand	12131	1213	1213	1213	1213	1213	6065
Rupaichari	6556	656	656	656	655	655	3278
Amarpur	15033	1504	1503	1503	1503	1503	7516
Karbook	6380	638	638	638	638	638	3190
Grand Total	1,08,214	10824	10823	10821	10820	10818	54105

Development blocks had taken the initiative to converge the schemes at local level involving all development departments as per Gramoday (peoples participatory resource plan) action plan. A similar strategy will be followed for urban bodies also. Each block will prepare G.P. wise action plan for uplifting BPL families into APL families. The development departments shall prepare/modify existing development schemes and formulate economically viable schemes as per the needs of the families. The development departments shall also take initiatives to provide

escort services to all the assisted families for rising above BPL status. Each block and nagar panchayat will finalize names of families to be uplifted each year.

Progress

During the year 2002-03, 7079 BPL families have been assisted and in 2003-04, 8175 families have been benefited. All the families had been identified by the community from amongst the poorest. The programmes, which benefited these poor families, include bringing additional area under cultivation, increasing crop intensity, forestry, soft loans, animal resources augmentation, and income generation activities. However, wage employment was not included. No separate funds were neither required nor placed.

Only the existing state and union government schemes for poverty alleviation and wage employment were converged at Block and Panchayat level to raise these families above poverty level. It is possible, therefore to reduce poverty by half if poor are directly targeted in the country.

Goal 2 : Achieve universal primary education by 2005

Indicator : Enrol all boys and girls and ensure completion of primary education.

Status

The goal is to achieve universal primary education in the age group of 6 to 14 in the district. As per the survey conducted by the Education Department in 2001, there are 1, 2135 drop out children and never enrolled children in the age group of 6 to 14 in the district. Household surveys were conducted to find out the number and reasons for dropout. The dropout rates are higher for tribals and it is slightly higher for girls. Most of the girls have dropped out to contribute to household chores.

Strategy

An action plan for 2003-04 & 2004-05 for un-enrolled & dropout children for each block was developed through stakeholders participation. The action plan of each village was developed at the village level involving parents of the target group, NGOs, SHGs and public representatives. Block action plan is a simple aggregation of habitation plans chalked out by the Gram Panchayats. The action plan table is given below.

Sl No	Name of Block/ Nagar Panchayat	No. of un-enrolled & dropout children in the age group of 6 to 14					
		Boys		Girls		Boys	
		2003-04	2004-05	2003-04	2004-05	Boys	Girls
	Block						
1.	Matabari	717	478	632	422	1195	1054
2.	Killa	301	201	304	204	502	508
3.	Kakraban	324	217	326	218	541	544
4.	Amarpur	933	622	1115	744	1555	1859
5.	Karbook	552	368	679	453	920	1132
6.	Bagafa	982	655	1000	667	1637	1667
7.	Rajnagar	308	206	531	354	514	885
8.	Hrishyamukh	362	242	399	266	604	665
9.	Satchand	988	660	1020	680	1648	1700
10.	Rupaichari	592	395	1168	779	987	1947
	Total	**6059**	**4044**	**7174**	**4787**	**10103**	**11961**
	Nagar Panchayat						
1.	Udaipur	51	35	48	32	86	80
2.	Amarpur	30	20	26	17	50	43
3.	Belonia	20	14	19	13	34	32
4.	Sabroom	04	03	11	08	07	19
	Total	**105**	**72**	**104**	**70**	**177**	**174**
	G. Total	**6164**	**4116**	**7278**	**4857**	**10280**	**12135**

The total children classified as either un-enrolled or as drop outs in the age group of 6 to 14 is 17, 131. Therefore, the goal of universal primary education will be achieved only if we ensure that all un-enrolled and dropout children go back to the school and complete primary education. It is proposed that 60% of these children will be enrolled during 2003-4 and the remaining 40% will be enrolled during 2004-05. The gender, social and spatial gaps will be filled up during the current year.

The children between age group of 6 to 8 will be admitted into normal schools and for 9 to 14 age groups. 318 EGS (Education Guarantee Schools) centres will be opened as per requirements of the Gram Panchayats. The proposed EGS centres will be Matabari-52, Killa-30, Kakraban-29, Amarpur-4, Karbook-3, Bagafa-44, Rajnagar-59, Hrishyamukh-24, Satchand-43 and Rupaichari-30. A continuing education campaign will be run concurrently for the age group of 17 to 45. The idea is that entire South Tripura District should be declared 100% literate by the year 2005.

Progress

The goal of universal primary education has mobilized all sections of the society especially the poor both for dignity as well as social ascendancy. The campaign was conducted involving several civil society groups. Innovative campaign methods like ***Festival of Education***, a sense of competition among the Panchayats and officials, use of local customs and traditions etc. were used to achieve the goal. The initial target was only 12135 children but when we actually started the campaign for admission the number became 13901 students.

Block wise total no. of drop out and un-enrolled children Admitted in South Tripura District as on 20.5.2004

Sl No	Block	Total Nos of Drop outs					Drop outs Admitted				
		6-11 yrs		11-14 yrs		Total	6-11 yrs		11-14 yrs		Total
		Boys	Girls	Boys	Girls		Boys	Girls	Boys	Girls	
1.	MTB	169	133	349	264	915	169	133	349	264	915
2.	KLA	523	443	419	358	1743	463	365	359	298	1485
3.	KKB	169	91	159	114	533	169	91	159	114	533
4.	AMP	306	268	381	302	1257	306	268	381	302	1257
5.	AMPI	138	135	124	106	503	123	120	109	91	443
6.	KBK	571	590	588	532	2281	509	530	528	472	2039
7.	BGF	150	170	155	145	620	150	170	155	145	620
8.	RJN	335	331	334	297	1297	305	301	304	270	1180
9.	HRM	101	120	106	94	421	101	120	106	94	421
10.	STC	307	265	355	385	1312	242	200	285	315	1042
11.	RPC	190	200	248	208	846	145	155	203	160	663
	Total	**2959**	**2746**	**3218**	**2805**	**11728**	**2682**	**2453**	**2938**	**2525**	**10598**

We are still to bring back 1130 students to local specific schools. This was chiefly due to non-operationalisation of all the EGS centres in the district. We expect to complete the process by the end of July 2004. The table below would give the progress of admitting un enrolled students.

Sl No	Block Name	Total Nos un-enrolled					Un-enrolled Admitted				
		6-11 yrs		11-14 yrs		Total	6-11 yrs		11-14 yrs		Total
		Boys	Girls	Boys	Girls		Boys	Girls	Boys	Girls	
1.	MTB	47	28	33	21	129	47	28	33	21	129
2.	KLA	10	08	02	00	20	10	08	02	00	20
3.	KKB	23	16	13	10	62	23	16	13	10	62
4.	AMP	43	32	13	14	102	43	32	13	14	102
5.	AMPI	101	103	107	93	404	101	103	107	93	404
6.	KBK	57	55	48	52	212	57	55	48	52	212
7.	BGF	37	30	28	22	117	37	30	28	22	117
8.	RJN	235	205	159	141	740	235	205	159	141	740
9.	HRM	75	71	85	50	281	75	71	85	50	281
10.	STC	12	06	16	04	38	12	06	16	04	38
11.	RPC	16	14	23	15	68	16	14	23	15	68
	Total	**656**	**568**	**527**	**422**	**2173**	**656**	**568**	**527**	**422**	**2173**

While most of the never enrolled children have been admitted into the schools, ensuring their regular attendance is a challenge to all the interested groups. The progress of 3-6 years and 15-45 olds was highly encouraging. We even opened additional sub centres required for the learners along with volunteers in many places. The table below would give block wise progress.

Block Name	Group/ Category	Name of Programme								
		100% literacy enrolment			Identification of volunteers			Identification of sub-centre		
		Targ.	Achi	%	Targ.	Achi	%	Targ.	Achi	%
Matabari	3-6 yrs.	877	877	100	420	420	100	340	340	100
	15-45 yrs.	4183	4183	100						
Kakraban	3-6 yrs.	309	309	100	196	196	100	220	220	100
	15-45 yrs.	1878	1878	100						
Killa	3-6 yrs.	895	895	100	304	304	100	321	321	100
	15-45 yrs.	3381	3381	100						
Amarpur	3-6 yrs.	2390	2390	100	2656	2656	100	265	265	100
	15-45 yrs.	3253	3253	100						
Karbook	3-6 yrs.	735	735	100	251	251	100	234	234	100
	15-45 yrs.	2512	2512	100						
Ompi	3-6 yrs.	1036	1036	100	365	365	100	365	365	100
	15-45 yrs.	4070	4070	100						
Bagafa	3-6 yrs.	561	561	100	285	285	100	285	285	100
	15-45 yrs.	3125	3125	100						
Rajnagar	3-6 yrs.	1241	1241	100	340	340	100	372	372	100
	15-45 yrs.	3716	3716	100						
Hrishyamukh	3-6 yrs.	555	555	100	155	155	100	176	176	100
	15-45 yrs.	1998	1998	100						
Satchand	3-6 yrs.	932	932	100	64	64	100	61	61	100
	15-45 yrs.	1462	1462	100						
Rupaichari	3-6 yrs.	278	278	100	225	225	100	225	225	100
	15-45 yrs.	2773	2773	100						

Children of 3-6 age group were admitted into pre-primary schools, ICDS (Integrated Child Development Scheme) centres. There are a large number of 15-45 age group who are illiterate or relapsed illiterates in the district. They were brought back to community managed, volunteer taught centres for short period

literacy programmes. Apart from the existing centres, additional centres and volunteers were identified and literacy programmes were taken up. After successfully running Continuing Education Centres (CECs) for the uneducated adults in the age group of 14-15, an external evaluation was conducted through ISI, Kolkata.

The unenrolled and dropout children in the age group of 6-14 have been admitted either in regular schools as per their literacy skills or into EGS (Education Guarantee Schools) centres, a community based volunteer taught learning centres in the habitations. The challenge in universal primary education is not bringing the children to schools but ensuring their regular attendance and sustaining their interest in learning literacy skills. An attempt was made to make the learning experience more relevant, interesting and life skills oriented.

Goal 3 : Reduce Infant Mortality Rate to below 10 by 2007

Indicator : (a) Ensure medical attendant at the time of delivery and improve health education.

(b) Ensure universal enrolment of 0-6 yrs in ICDS centres.

Strategy

Reduction in Infant Mortality Rate is one of the important goals of the district. The State average is 42 for every 1000 live births. As per the survey conducted in the district in 2002 IMR is 52.50. The goal for the district will be to reduce to less than 10. The strategy will be to ensure medical attention during pre and postnatal stage and also to ensure a medical attendant at the time of delivery. Effective IEC is needed at grass roots level so that poor families can come to the hospitals for delivery. The Anganwadi workers as well as para medical staff of medical department will basically do this task. They will maintain data on the pregnant

women gram panchayat wise and provide medical education for safe delivery, pregnant women.

The data will be maintained gram panchayat wise and block wise.

Progress

ICDS programme staff were given the responsibility to identify all the unenrolled children, and maintain data on pregnant and lactatives mothers. As per the household survey, there are 9809 children in the age group of 3-6 years who are unenrolled. We could admit all these children into ICDS centres. Extensive brainstorming sessions with the programme staff were held at all levels to mobilize their expertise and motivate them for this goals. Workshops, training programmes etc. were held at panchayat, sector and block level with community participation. The institutional rate of IMR is 9.2. The rate was 14.6 in 2002. Therefore, at institutional level there is significant reduction of IMR. The data of non-institutional deliveries would be collected in Dec 2004.

Goal 4 : Reduce Maternal Mortality Rate to less than 1

Year : 2007-08

Indicator : Make available at least a trained medical attendant at the time of delivery.

Strategy

The present rate of MMR is 4 against the national average of 4.37. It is 11.5 for South Tripura District. The strategy will be to make sure that all pregnant women reach hospital for delivery or a trained medical attendant is present at the time of delivery. Trained medical attendants monitor prenatal care. For this purpose, anganwadi workers (ICDS) will maintain data on the pregnant women gram panchayat wise and medical visits including 3 health check ups will be ensured at

ICDS centres for pregnant women. The data will be maintained gram panchayat wise and block wise.

Progress

Regular visits were made to the houses of the pregnant women by the ICDS staff and medical checkups and counseling was done. The objective was to ensure firstly, institutional delivery and secondly provide pre and post natal medical care to the mothers and new born babies. The ICDS programme staff conducted regular awareness sessions with pregnant women and enhanced health care. Due to all these measures, institutional deliveries in the district have increased from 4927 in 2000 to 5325 in 2003. Similarly, institutional MMR has decreased from 2.7 in 2001 to 1.7 in 2003. Exact data on MMR would be collected at the end of year even though initial reports indicate reduction in the MMR in the district.

Goal 5 : Ensure Environment sustainability

Indicator : (a) Reduce soil erosion and diversify fuel consumption needs of people.

(b) Improve the quality and quantity of drinking water and enhance community capacity to manage the water resources.

(c) Ensure sustainable sanitation and hygiene practices in all households and community places.

Strategy

a) Watershed development programmes will be taken up to prevent soil erosion. Plantation of soil erosion resistant species will be taken up on large scale. Smokeless chullahs and other fuel efficiency methods will be encouraged in rural areas.

b) User committees for every source of drinking water will be formed. At least one person in each village/para will be trained in repair of drinking water sources.

Progress

All the perennial and summer dry rivers and streams in the district have been identified and surveyed for the extent of soil erosion and pollution and sources of pollution. Watershed development approach will be adopted to restore the natural balance and to prevent further erosion in the rivers and streams. We have taken up 49 watershed development projects since 2002. These watershed projects have helped to use runoff water, conserve local resources, arrest soil erosion and enhance community understanding of proper use of natural resources.

Indiscriminate felling of forests for fuel and livelihoods mostly by the poor is very common in South Tripura. Forest protection measures were strengthened to prevent illicit felling and about 10,324 smokeless chullahs (stove) were installed in the households to reduce fuel needs of the poor.

South Tripura has the problem of excess iron in water and the entire population depends on underground water for drinking and domestic water needs. The strategy was firstly to make available water for the poor & then to improve quality of water. We have covered all the habitations either with piped water supply schemes or with spot water sources. To enhance the community involvement and participation, we have formed 2432 user committees to own, operate and manage the water sources. But the critical component would be repair of hand pumps.

An increase of 199 sq. kms under forest cover has been recorded in SFR 1999 over SFR 1997 in South Tripura District. It is also to be mentioned that as per the National Forest Policy one third of the area is to be under forest cover.

Current figures for South Tripura District

Forest classification	Area (sqkms)	% of geographical area
Dense forest	276	8
Open forest	723	20
Cumulative %		**28**

* above figures from SFR 1999

* For South Tripura the geographical area is 3581 sqkms.

Scheme

Plantation of forest and non-forest species on forest and non-forest lands is continuously done in the district. On certain occasions like Van Mahotsava substantial number of seedlings are distributed free of cost. Sale of seedling from nurseries also takes place based on the rates fixed by the department. Certain number of teak stumps and polybag seedlings are also distributed to the beneficiaries under the Angan Ban Prakalpa scheme. Based on the planting distance this can be converted to increase in area under tree cover on non forest land on the assumption of a certain level of mortality (eg. 10%). Forest Development Agency wise action plan has been prepared by the DFOs. Plantation by school students, eco club etc. were undertaken.

Sanitation

Strategy

There are 1,44,444 households without sanitary toilets in the district. This was first goal taken up and on the experience of the sanitation campaign for more goals have been developed. Poor sanitation and hygiene practices are major reasons for many water born diseases in the poor households in the district. Provision of

sanitation will ensure reduction in mortality and other diseases, which make the poor, lose working days. It is, therefore, proposed that all the households in the district will be provided pucca toilets by the end of 2003-04. The important objectives will be to ensure that proper IEC is done at schools, community places, ICDS centres so that there is no open defecation in the entire district. During the campaign on sanitation, other related issues like health, hygiene, woman empowerment etc will be carried out. Social mobilization will be ensured and key to participation of all the families into the campaign. The table below would give the status of the goal at the end of March 2003.

Name of Block	No. of households without sanitary toilet in 2002		Sanitary toilets completed during 2002-03		Sanitary toilets target during 2003-04	
	BPL	APL	BPL	APL	BPL	APL
Amarpur	8500	4320	1066	132	7434	4188
Bagafa	15494	9987	2705	1366	12789	8621
Rajnagar	10978	6390	2330	0	8648	6390
Hrishyamukh	7490	2530	1091	30	6471	2500
Satchand	12130	4631	5990	456	6140	4175
Rupaichari	6104	2154	1197	8	4907	2146
Matabari	14346	2232	6872	0	7474	2232
Killa	4436	1761	50	0	4386	1761
Kakraban	9048	5757	1680	0	7368	5757
Ompi	5250	2066	1966	27	3284	2039
Karbook	7082	1758	2012	204	5075	1554
Total	100858	43586	26887	2223	73976	41363

Families without sanitary toilets have been motivated to apply to panchayats with contribution of 10% cost. SHGs, CBOs, and Gram Panchayats have started production centres for squatting plates. The structure consists of a pit, squatting plate, a super structure. The beneficiary will contribute 10% of squatting plate

cost and provide on their own a pit and super structure with local resources of bamboo. SHGs have been given the responsibility of undertaking IEC, receiving applications, making of squatting plates, supply, ensure use and monitor hygiene practices. The SHG was paid Rs 20 per house as incentive apart from the cost of plate Rs 420/-.

Progress

South Tripura is the first district in the country to complete 100% sanitation. Total sanitation campaign has caught the imagination of the rural and urban poor primarily due to convergent nature of the campaign and stakeholders participation and ownership of the programme by the community. The campaign has resulted in construction of 1,49,175 toilets in individual households, 1942 toilets in schools/ SECs/AWCs. The Total Sanitation Campaign funds were used for hardware and software development in the district. The participant stakeholders shared 10% the costs of hardware.

The effectiveness of the programme could be gauged from full cost sharing by about 43,502 APL families to construct the toilets. The programme also led to enhanced awareness levels among students, parents, health staff, and teachers and generally in the society. During first year 2002-3 only about 29,000 toilets were constructed but next year 120,000 toilets have been constructed. It has raised community awareness levels in health, hygiene and water use methods among the poor. The success of the impact is visible in terms of reduction in deaths due to water borne diseases and the number of cases reported to hospitals for treatment and better hygiene practices in villages, communities and schools in the district.

We have also focused on providing drinking water to all the educational institutions and covered all of them during these two years by converging PHE, PMGY, ARWS, Swajaldhara and SGRY schemes. Drinking water facilities would enormously increase the use of toilets and proper use of water. In fact total sanitation campaign is the one, which has given inspiration and confidence to formulate the district development goals.

Name of Block	Group/ Category	Name of Programme					
		Safe drinking water			Sanitation		
		Target	Achiev.	%	Target	Achiev.	%
Matabari	School	73	65	89	73	73	100
	AWC	104	88	84.6	104	104	100
	SEC	56	50	89.3	56	56	100
	APL	-	-	-	3472	3472	100
	BPL	-	-	-	15971	15971	100
Kakraban	School	44	44	100	44	35	79.5
	AWC	88	56	63.6	88	88	100
	SEC	39	33	84.6	39	39	100
	APL	-	-	-	4664	4664	100
	BPL	-	-	-	10232	10232	100
Killa	School	60	53	88.3	60	41	68.3
	AWC	79	34	43	79	75	94.9
	SEC	11	4	36.4	11	41	100
	APL	-	-	-	1761	1761	100
	BPL	-	-	-	5166	5166	100
Amarpur	School	75	75	100	75	60	100
	AWC	76	76	100	76	76	100
	SEC	37	18	48.6	37	37	100
	APL	-	-	-	4320	4320	100
	BPL	-	-	-	8789	8789	100
Karbook	School	54	45	83.3	54	26	48.1
	AWC	73	42	57.5	73	73	100
	SEC	8	2	25	8	8	100
	APL	-	-	-	1758	1758	100
	BPL	-	-	-	7282	7282	100
Ompi	School	58	35	60.3	58	33	56.9
	AWC	47	41	87.2	47	47	100
	SEC	23	3	13	23	23	100
	APL	-	-	-	2066	2066	100
	BPL	-	-	-	5250	5250	100
Bagafa	School	152	145	95.4	152	101	66.4
	AWC	134	103	76.9	134	134	100
	SEC	61	38	62.3	61	56	91.8
	APL	-	-	-	9987	9987	100
	BPL	-	-	-	16294	16294	100

Rajnagar	School	89	85	95.5	89	39	43.8
	AWC	75	75	100	75	75	100
	SEC	43	39	90.7	43	43	100
	APL	-	-	-	6447	6447	100
	BPL	-	-	-	12514	12514	100
Hrishyamukh	School	72	62	86.1	72	43	59.7
	AWC	70	35	50	70	70	100
	SEC	19	17	89.5	19	19	100
	APL	-	-	-	2952	2952	100
	BPL	-	-	-	7490	7490	100
Satchand	School	114	100	87.7	114	114	100
	AWC	135	120	88.9	135	135	100
	SEC	53	46	86.8	53	53	100
	APL	-	-	-	3921	3921	100
	BPL	-	-	-	12920	12920	100
Rupaichari	School	79	60	75.95	79	36	45.57
	AWC	101	52	51.49	101	101	100
	SEC	19	10	52.63	19	18	94.74
	APL	-	-	-	2154	2154	100
	BPL	-	-	-	7260	7260	100

Goal 6 : Ensure 100% Immunization to all children

Indicator : Expand present capacity and bring all the left out children for immunization.

Year : 2005-06

Status and Strategy

As per available data about 80% of the children are immunized in the State. The data available for the district is not reliable since it was only theoretical. It was decided to conduct house-to-house survey to assess the present status. However, it is generally found that poor tribal children were less immunized from the poor localities than from rich and educated families. The survey data will be segregated

into gram panchayat/blocks and all the children will be identified by name and immunized. The Health and Family welfare department will take up immunization at ICDS centres in the entire district. Immunization will be completed by the year 2003-04 in entire district and after that all newborn babies will be immunized as per WHO guidelines.

A survey on immunization was conducted in South Tripura in the month of May 2003. As per the survey report there are 54,954 children in the district. The position of immunization status is given below :

No. of total children	BCG	Measles	Polio			Booster	DPT			Booster
			1st	2nd	3rd		1st	2nd	3rd	
54954	30998	29799	32936	29873	27579	13604	30302	27745	23906	12819

As per data available 43.59% of children are not given BCG, Vaccinations 45.77% of children are not given Measles shars. In polio also 40.08%, were not covered. As far as DPT is concerned 44.85% children were not covered. The coverage of PPI programme was not reflected in the study since doses are not recorded in any immunization card. Polio Immunisation status, therefore, represents children immunized on their own. The survey data indicate that large number of children does not complete the full regime of doses. This may be due to ignorance, cost of immunization or social or religious views of the community. Therefore, gender, social gaps also have to be identified and efforts should be made to bridge the gaps.

Progress

The progress achieved so far is very encouraging considering the fact that four blocks were fully immunized and four more blocks have been taken up during the current year. The table below will give the picture.

Block Name	Immunization					
	Age group 0-1 years			Age group 2-6 years		
	Targ.	Achi	%	Targ.	Achi	%
Matabari	408	408	100	80	80	100
Kakraban	152	50	32.9	214	90	42.1
Killa	1070	87	8.13	2663	101	3.79
Amarpur	2542	1689	66.4	3165	3024	95.5
Karbook	468	312	66.7	1330	537	40.4
Ompi	747	170	22.7	1381	681	49.3
Bagafa	763	43	5.64	1278	137	10.7
Rajnagar	484	484	100	1057	1057	100
Hrishyamukh	267	21	7.87	432	377	87.3
Satchand	31	31	100	0	0	0
Rupaichari	299	0	0	150	0	0

The result of household survey on status of immunization has shown that many children have either not completed full regime of doses or have not taken at all. Another reason for worry was poor percentage of immunization rates in tribal areas. Greater efforts are needed both at awareness levels and actual delivery of immunization programme.

Initially, we have identified four blocks in the district to completely cover under immunization. Since it is not possible for poor to reach/access at long distances, we have drawn up an action plan of immunization calendar to cover

each G.P. with proper advance intimation. Teams were formed with health and ICDS staff to visit each Panchayat. "Immunization Camps" as these were called, were conducted in close coordination with ICDS staff by the health department. The left out children were especially targeted in the camps. The team visited each camp or post three consecutive months. During these visits the immunization teams advocated campaign on health, hygiene; safe motherhood, sanitation etc. were conducted. It is a great satisfaction to note that we have completed 100% immunization in four blocks. The task was much more difficult since some of these places require security to visit due to insurgency, difficult terrain in tribal areas and strange cultural practices of tribals. After completion in four blocks we have extended the programme to four more blocks during the year for completion.

Goal 7 : Mainstream gender into all development programmes

Indicator : Gender component should be kept in all development programmes and ensure equal legal rights to women in all government benefits given to the families.

Strategy

Women Empowerment is one of the objectives of development process. Empowerment of women will ensure security, equality and full participation in the development of society. Access to resources, information and participation in the decision making process are important strategies for empowerment of women. The following strategy will be followed in South Tripura to mainstream gender in all development programmes.

a) Gender component will be kept in all development programmes.

b) Benefits under various government schemes will be given to either woman or jointly with husband.

c) At least 10,000 Self Help Groups (SHGs) will be formed and at least Rs. 10 crores will be disbursed as credit to these groups. All BPL families will be covered under SHGs and required skill development and trainings will be organized. The SHGs will be effectively involved in rural and social developments.

Progress

Gender sensitization programmes to enhance capacity of govt. functionaries were taken up. Many line departments were coopted to form SHG groups and increase their capacity to manage enterprises. Orders were issued to provide all government benefits jointly or in the name of woman only. Most of the public funded programmes were in the name of women only. It has raised self-esteem and social recognition of women in the rural areas and given confidence to move into unchartered paths. The total SHGs formed are as below :

Name of Blocks	**2002**	**2003**
Matabri	147	411
Kakraban	36	184
Killa	32	103
Amarpur	156	48
Karbook	36	135
Ompi	93	52
Bagafa	252	519
Rajnagar	110	265
Hrishayamukh	42	111
Satchand	206	529
Rupaichari	47	135
Total	1157	2492

A total of 3649 groups were formed during the two years of the campaign. The poor group members saved a total corpus of Rs. 286.71 lakhs. Rs. 61.80 lakhs was disbursed as loans to 878 groups in the district. Cash credit accounts for 480 were opened in the banks. This economic strength has given the poor women a voice in economic decisions in the family and supplemented to family income. Another dimension of SHGs movement is their active participation in other development goals and their role of facilitation in achieving many of them is commendable.

Looking Ahead

District Development Goals have energized whole official machinery, key stakeholders, SHGs, CBOs and other civil society groups in he district. The past two years have been very enriching, igniting, and purposeful for both district administration as well as Panchayatraj bodies. The advocacy campaign had opened new dimensions to public administration, people's participation and social mobilization strategies to achieve these goals, which are mostly neglected and not on priority agenda of the key govt. functionaries in most of the districts in the country.

As I said earlier, a few of these goals have evolved over a period of time and therefore progress also differs. The gains have to be consolidated, needs periodical review at Panchayat, sector, Block and district levels on the progress and timely corrective action and advice to the implementing agencies. The impact of some of these goals has to be studied for further lessons and inclusion of new goals in the district.

The development Goals have given direction and new meaning to governance at district level. The participation, convergence, advocacy methods, involvement, ownership of the programme by elected representatives, civil society

groups and government officials has fostered groundbreaking partnerships at various levels. These partnerships have to be consolidated and further utilized for future programmes. The motivation levels of junior functionaries, public have increased and mutual trust has grown among all the stakeholders.

This model of district strategy to achieve MDGs would be far more practical, achievable and up scaled into global and national levels. This approach is fully participative, stakeholders owned and grassroots based. It has certainly given new direction and strategies at district level to achieve commendable progress at a short time.

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Educating Kaimur

*Mihir Kumar Singh**

Abstract

This paper describes the efforts taken in a district to achieve the goal of education for all. It describes the processes of problem analysis, strategy formulation, resource mobilization and implementation. The achievements at the end of the programme are also assessed and evaluated.

"Ya Vidya Sa Vimuktaye"

(That is education which liberates)

The Directive Principles of State Policy in the Indian Constitution envisaged free and assured education for all the children below fourteen within ten years of independence. However, as per the 2001 census the country's literacy rate is 65.38% and till date universalization of primary education has not been achieved. The situation in the so called BIMARU states of Hindi heartland is particularly worse, as the states are grappling with problems of underdevelopment & poverty along with that of illiteracy and lack of facilities for education. The resource crunch of the state governments has become so crushing that most of them are finding it difficult to meet their revenue expenditure and maintain their present budgetary commitments of development.

At this crucial juncture there is an increased need to join hands and achieve the goal of Education for All, as avowed in the Jomtien conference in 1990. A sincere effort was made in the district Kaimur between 1999-2003 to achieve the common goals as set by the UNESCO conference, by utilizing all the resources at the disposal of th district administration and by building partnerships between the

* The author of this article is Collector & District Magistrate, Kaimur. The views in the article are his personal views and not necessarily of the government and relate to the period between 1999-2003.

community and the government. While the successes have been may, and there is still a lot of work left to do in this field. Here is the story.

The Problem in Kaimur : In 1999, Kaimur had a poor infrastructure in primary education. About seventeen percent of the primary schools did not have buildings and the children studied under the open sky, while almost all the schools lacked in drinking water and sanitation facilities. Many of the old buildings, made of mud and tiles, frequently crumbled for want of annual repair. The problem of teacher absenteeism and shortage of teachers, which prevails statewide, was also a major constraint. Against the sanctioned strength of 2643 primary teachers, only 2042 were available. This strength of teachers was quite old and with the increase in number of students the average pupil teacher ratio had deteriorated to 89 per teacher. The schools lacked creativity and due to a general feeling of malaise the children did not reach the formal schooling system.

In secondary schools, due to paucity of funds from all sources and constant neglect, most of the buildings, like their counterparts in the state, had become dilapidated. Except a few schools in Ramgarh and adjoining areas, the rest of the secondary schools in the district desperately needed attention. And all the work was to be done by government machinery alone, since there was no NGO worth its name working in the education sector.

Creating Infrastructure for Primary Schools : It is a truism to say that the formal free schooling system of the public schools bears the burden of educating India's poor. Considering this aspect a conscious decision was taken to bring education on the forefront of development agenda by taking the elected political leaders into confidence and evolving a consensus. A resolution, stating that first preference would be given to the construction of building for schools and providing basic facilities to them, was passed in the District Rural Development Agency, the principal body to channelise funds in the district. A bold beginning was made by sanctioning all the 118 schools, which had their own land, in one stroke of pen. Devetailing of funds to develop supporting infrastructure, was done from other schemes, such as district plan for construction of urban schools and BEP and

PHED funds, for providing drinking water and sanitation facilities. Sometimes when it was not possible to sanction rooms due to fund constraints, an additional community hall was constructed in such a way that it was located just next to the school. Directions were given to repair and maintain buildings of all educational institutions on a priority basis. All this created a very positive impact on the community and the people came forward with land and labour donations. This also resulted in support from the local politicians. Gradually a momentum was built on the principle that education is above all political considerations.

From 1999 to March 2003, the total outlay on provision of infrastructure to education in Kaimur district was above Rs. 16 Crore, out of which about four crore rupees were spent from the discretionary quota of M.L.As and M.P. This excludes the budget under Sarva Shiksha Abhiyan in the current year which comes to about Rs. five crores. This is detailed in table 1.

Expenditure on Education in District Kaimur (1999-2003) (fig. in lacs)

Name of M. Scheme	No. of Sub-schemes on education	Outlay	Expenditure till date	Work in Progress	Main type of works
E.A.S	211	399.98	377.52	22.46	New schools, access roads to School
JRY	90	47.99	43.56	4.43	Maintenance of old schools
JGSY	90	53.31	46.02	7.29	Maintenance/new schools
District Plan	12	59.46	58.53	0.93	Libraries/New Schools
10th Finance Commission	84+466	152.97	152.97	0	New Schools/ Handpumps
11th Finance Commission	156	80.28	66.57	13.71	New Schools/ handpumps
SGRY	51	95.52	74.88	20.63	New school/room addn
MADA	11	18.51	17.85	0.66	New schools/ Support faci.
PMGY	64	24.73	20.67	4.06	New schools/ support fac.

Welfare	5	6.82	6.82	0	Maintenance Schools
MLA scheme	197	316.58	269.60	46.98	Library, Gym, Benches Electrification, Playground
MP LADS	25	67.99	63.97	4.02	New Schools
BEP	199	294.84	294.84	0	New schools, additional classrooms, CRC, BRC
Miscellanious	2	1.15	1.15	0	
Grand Total	1260	1620.13	1494.95	125.17	

Source : DRDA, Kaimur & BEP Rohtas.

The support of the people and the elected democratic leaders in the race to build infrastructure for the schools was the most enthusiastic part of the exercise. Not only was their contribution in terms of allotment of funds substantial, but actually the total outlay of education from their kitty increased as the years passed, as can be seen in table 2.

Year wise Use of Funds in Education in MLA Scheme & MPLADS

year	Amount available in MLA Scheme	Amount spent on education	Percentage	Amount available in MPLADS	Amount spent on education	Percentage
1999-00	214.00	43.59	20.36	50.00	16.00	32.00
2000-01	208.00	60.22	28.95	300.00	29.04	9.68
2001-02	420.00	94.73	22.55	151.25	22.94	15.16
2002-03	426.00	118.03	27.70	25.00	0	0
Total	1268	316.57	24.96	526.25	67.98	12.91

Source : DRDA Kaimur

The most important part in this whole exercise was a clearly defined strategy at district level to identify the critical gaps and the resources and to allot the resources in such a manner that duplication of efforts did not take place and the

resources were utilized properly. At present all the schools in the district which did not formerly have buildings possess new buildings. Out of 45 new schools, buildings for twenty have been completed and the rest are under construction. All the middle schools in the district and schools for girls, have been given drinking water and sanitation facilities. The creation of minimum basic infrastructure for all 878 primary schools, as stipulated by Operation Blackboard norms, is expected to be complete by the end of this financial year. This is summarized in table 3.

Infrastructure in Primary School : A Comparison

Facility	No. of Schools 1993	No. of Schools 2003	Schools Under Construction	Kaimur % 1993	Kaimur % 2003	Bihar 1993	Bihar 2003
Buildingless	174	0	–	19.8%	0	12.3%	5.8%
Schools							
No Pucca Building	139	0	–	15.8%	0	32.2%	N.A
One Room Schools	246	131	131	28%	14.9%	9.4%	N.A.
Two Room Schools	144	225	54	16.4%	25.6%	28.4%	N.A.
Three Room Schools	99	295	51	11.3%	33.6%	7.3%	N.A.
More than three room schools	76	227	2	10.4%	25.9%	10.4%	N.A.
Schools with handpump	210	731	147	23.9%	83.3%	45.2%	66.38%
Middle Schools with Toilet	14	100	41	9.9%	71%	31.6%	N.A

Sources : All India Educational Survey 1993, DSE Kaimur-SSA Report 2003.

Voluntary Parateachers and Controlling Teacher Absenteeism : A major constraint to universal primary education in the district was the shortage of teachers. Due to fund constraints, the state government was unable to appoint teachers in sufficient numbers. To overcome the constraint, a programme of recruiting educated unemployed youth as *voluntary parateachers* was started. More than 2100 volunteers, were motivated to work gratis as parateachers in schools. The campaign was extremely successful and in some of the schools the number of volunteer parateachers far exceeded the regular teachers. In return, the youth get recognition and prestige in their own society for educating the community without demanding payment for their work.

Campaigns for enrollment of children were undertaken with the help of guardians and opinion makers of the community. In order to lure students, government schemes of incentives such as mid day meal scheme and monetary incentives to poor students *(Protsahan Bhatta)* were meticulously implemented. Since most of the below poverty line students belonged to Scheduled castes and Scheduled tribes, the incentives came handy in setting right the traditional bias against them and to some extent in drawing the children away from manual work. Village Education Committees were constituted to control the absenteeism of government teachers and to improve the quality of education. The newly elected *Panchayat* members were trained about their powers and duties as well as in the intricacies of controlling government teachers' absenteeism.

All of this has greatly increased the confidence of the general public in the formal education system and created a demand for better schooling in the district. At present there are hardly twenty private schools in the whole district and most of them ar situated close to the towns of Bhabua and Mohania. An interesting offshoot

of improved enrolment is the increased pressure on primary schools infrastructure, as at present, schools are teeming with students and the available facilities are again not able to cope up with the requirements of the new situation. This is being attended to. Table 4 shows the position of enrolment of children in the primary schools.

Kaimur : Enrolment in Primary Schools

year	Boys (General)	Girls (General)	Boys (S.C.)	Girls (S.C.)	Boys (S.T.)	Girls (S.T.)	Total
1999	60263	42255	21021	10953	1836	1049	139376
2000	64547	46953	26777	17306	3071	1557	162211
2001	70936	55061	25628	14372	2366	1552	171916
2002	87726	70164	32739	22173	2612	1753	219169
2003 (May)	86161	73015	31872	22886	3114	2105	219153

Source : DSE Kaimur

Improving Quality of Education in Primary Schools : A major issue in basic education is the periodical need to readjust the teachers based on teacher pupil ratio, as government teachers tend to gravitate towards urban posting or postings close to their homes. One two occasions, during the appointment of new teachers and at the time of sending extra teachers from towns to villages, a total of 476 teachers were relocated. This move coupled with that of the recruitment of voluntary parateachers, resulted in achievement of Operation Black Board (OB) norm of having at least two teachers in almost every school.

A system of awards was introduced to motivate the teachers and students by giving public recognition and prizes to them on the occasion of national functions. All the teachers of the district were trained in the new, child friendly methods of

pedagogy by making use of BEP programme. Free text books were provided to all the SC, ST and girl children upto class -V, again through BEP programme. Extra curricular activities such as debate, painting, sports and science competitions were organized on various days, such as environment day anti tobacco day, etc. Finally the government scholarship programme which generally reached the students after the period of need, was fine tuned so that all the scholarships were given in time to the students. A special drive was started to grant scholarships to the handicapped students.

Improving Quality of Education in Aanganwadis (Pre-school education) : Pre school education is intended to provide quality educational and character building input to the children under five and training to mothers. However it is generally the most neglected part of the educational programme and hardly any educational input or training is available to the Aanganwadi workers. To overcome this constraint two extensive training programmes were conducted for the *Sevikas* and *Sahayikas,* in order to educate them on all relevant points. A new teaching manual was also prepared for them. Nutritional support to children under five years of age was provided under the government programme. An interesting offshoot of the exercise was the introduction of immunization programme for children and mothers in Aanganwadi centres by tying up with health department. The programme was a runaway success and attracted mothers and children in large numbers to the centres. It was visited and appreciated, among others, by the state representative of UNICEF also.

Strengthening Secondary School Infrastructure : As discussed earlier, secondary school infrastructure has traditionally been very poor as no government support was available to the schools for more than thirty years. By dovetailing diferent rural development programmes, and taking help of MLA funds as well as

raising local contributions, crucial infrastructure support was provided to these schools such as drinking water, bathrooms, benches, chairs, fans, electricity and playgrounds.

Parent teacher meets were organized to assess the expectation of parents and to solve the problems of teachers. Stress was given to develop the secondary schools of the district as the nodal points of learning. To inculcate moral values, a tradition of acquainting the students with the lives of the great men of the country on their birth anniversaries, was started. Extra curricular activities were encouraged and debates and competitions on different national days were organised. Computer teaching has been introduced in two schools, by making it a part of the curriculum. The students of the secondary schools of the district have taken part and won awards in National Child Scientist Congress. At present all the secondary schools of the district are overflowing with students and the best schools are conducting an internal entrance examination to restrict admission. Some of the schools are doing two shifts and employing private teachers to cope with the flow fo students. Table 5 summarises the enrolment status in Secondary schools.

Kaimur : Enrolment in High Schools

Year	Boys - Gen.	Girls - Gen.	Boys-SC	Girls-SC	Boys-ST	Girls-ST	Total
1999	8231	2637	1461	323	395	01	15047
2000	10476	3800	2096	540	400	02	19314
2001	10491	2996	1825	230	488	02	18033
2002	11926	3437	1833	319	544	22	20083
2003	14634	5630	3320	781	528	22	26918

Source : DEO Kaimur & DWO Kaimur.

Stress on Girls' Education : The emphasis on girls' education was sought to be achieved through a number of measures. One of them was the development of special Project Schools for girls. In these schools the girls are given, apart from regular education, vocational training as well as computer education. A very unique experiment has been made in the Project Girls School, Ramgarh which has been gifted three buses by the local MLA cum Minister, and the school runs them on no profit no loss basis to fetch girls from far away places. This move has solved the crucial problem of mobility of the girls in the rigidly patriarchal society and made it the tool of upward mobility. For the rest of the schools, a choice of measures were adopted in order to give special preference to girls. Special coaching classes and schools known as Balika Vihar were promoted while 'girls only' fairs were organized to highlight their achievements. As a result total enrolment of girls in primary schools has risen by 172% and in secondary schools by 217%. Against the national average of 81 girl students for 100 boys, Kaimur district, (from 65.80% in 1999), has achieved 81.40% enrolment ratio in 2003, while the figure for Bihar stands at 65.92%.

Games and Sport : Recognizing that games and sports are particularly important in the formation of the character of the youth, stress has been given to developing sports facilities in all corners of the district. The high schools were selected as the nodal centres of development of games, as each of them had a physical trainer. To facilitate all round development, some schools were notified as centres of excellence where a particular discipline was trained by experts.

Playground development in high and middle schools was given priority and the revenue authorities were advised to allot government land to primary and middle schools which did not have playground. Two stadiums, complete with pavillions, were developed in the two subdivisions where as seven rural stadiums were built in the high schools. The result of all this was spectacular. Kaimur district has been the champion of state level rural games for three consecutive years now, and is the wrestling championship holder. It has won the Subroto Cup football tournament in both the age groups.

Total Literacy Campaign : The total Literacy Campaign envisages to make all persons falling in the age group of 15-35, literate. From first of January 1999 to June 30th 2000, a massive campaign of teaching 205,000 illiterates was taken up by approximately 19000 volunteers. A total of 9909 centres for women and 7982 centres for men were run, spread over the whole of the district. **Kaimur district was awarded the Certificate of Appreciation by the Hon'ble Prime Minister for the success of Total Literacy Campaign in 2001**. At present by linking up the two programmes of NLM and SSA, a beginning has been made in the direction of starting CE libraries and learning centres in many of the schools.

To sum up the saga of the battle for education in Kaimur is far from complete. While the achievements have been quite significant, they have prepared only the launching pad of the final assault on illiteracy and achieving the goal of Education for All. While the issue of provision of basic infrastructure to schools as per OB norms has been achieved and surpased in many cases, despite efforts, much remains

to be done in the field of improving the quality of education and raising it to the desired level. The problem of dropouts, especially of girl children at the upper primary level, and covering cent percent SC and ST children by luring them away from work to school, are still to be addressed more effectively. But the torch has been lighted and if the consensus on giving top priority to education continues, the district will again emerge as the pioneer in the state and the country.

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;g "kk;n ^l;k* dk'kkx dh dk;kdh fo"o luh;rk gh gfd vkjfHkd ekgk ¼o'k 2002½ esa ek= 60 okn ¼ekeys½ nt;g, Fk] fdr vkt yxHkx 600 dh l[;k esa nt gk pdh gA "k: vkr esa dk'kkx eT;knkrj okn x;k e[;ky; dh gh vkr Fk] ijr vkt efgyk, ;Fkk Mefj;k] bekex t] ckjkpVVh] ckdck tkj] x: vk] fVdkjh] xjk:] vrjh vkfn lnj i[k.Mk l Hkh viuh leL;kvk dk yxdj dk'kkx dh ikl vk jgh gA

^l;k* efgyk dk'kkx }kjk x;k ftykUrxr ipkj&il kj gr le;≤ ij i[k.M@vue.My Lrj ij efgykvk dh cBdk@lHkk, vk;kftr dh tk jgh g] ftuesa efgykvk dh chp ^l;k* efgyk dk'kkx dh lc/k esa lpuk, nh tkrh g] rkfd T;nk l T;knk efgykvk dh Hkkxhnkjh lfuf'pr dh tk, A bu cBdk esa fofHkUu ljdkjh inkf/kdkfj;k] tuifrfuf/k;k vkj LFkkuh; Lo;loh lLFkkvk u Hkkx fy;k g rFkk ^l;k* efgyk dk'kkx dk i.k lg;kx dk vk"okl u fn;kA ^l;k* efgyk dk'kkx }kjk fd;x;dk;,o inkf/kdkfj;k@tuifrfuf/k;k@LFkkuh; Lo;loh lLFkkvk }kjk mRifjr i;kl l efgykvk dh chp dk'kkx dk vfr&egRoi.k LFkku curk x;k gA

orieku e] tc ^l;k* efgyk dk'kkx dh ikl oknk dh l[;k c<u yxh rc vuHko gvk fd cgr lkj xkeh.k {k=h; ekeyk e ;fn LFkkuh; Lrj ij dk'kkx dh bdkbi dk;l djr] rk dk;l vf/kd iHkkoh gkxk] lkFk gh ekeyk vf/kd rhork l fu'ikfnr fd;x tk ldxA

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cBd e vue.My inkf/kdkjh] "kj?kkVh dh v/;{krk e dk'kkx dh vuesMyh; bdkbi dk;l dju dh fof/kor ?kk'k.kk dh xbA orieku e "kj?kkVh vue.My e bdkbi dk;jr gk pdh g vkj vuesMy dh fofHkUu uk i[k.Mk l vk;g, oknk dk gy dju gr vuesMyh; bdkbi }kjk dk;l fd;k tk jgk gA

fnukd 08&03&2003 dk ¼efgyk fnol½ v[kckj }kjk ,d efgyk dk ng t fy, cjh rjg l tyku dh ckr lkeu vk;hA bl lc/k e ^l;k* efgyk dk'kkx d igy }kjk vkjkih dk l tk fnyk;h xbiA bl d vUrxr nt vU; ekeyk e Rofjr dk;kokbi dh tk jgh gA

¼1½ ikfjokfjd@lkekftd vR;kpkj & ^l;k* efgyk dk'kkx }kjk T;knkrj ikfjokfjd@lkekftd vR;kpkj d oknk e dkjkokbi dh tkrh gA ikIr vkonu e ik;k x;k gfd T;knkrj ekeyk e ifr@lkl }kjk efgykvk ij ekufld ,o "kkjhfjd mRihMu dh tkrh gA bl lc/k e ^l;k* efgyk dk'kkx d ijke"kh lgk;rk }kjk vud efgykvk dk jkgr feyh gA

¼2½ Mk;u iFkk & eku ij i[k.M d vcxhyk {k= e ,d efgyk dk Mk;u ?kkf'kr djd i rkfMr fd;k tk jgk FkkA ^l;k* efgyk dk'kkx d igy lm l efgyk dk lj{kk ink u dh xbi ,o LFkkuh; yksxk e bl iFkk d fo:} tkxfr ink dh xbiA vU; nt 4 ekeyk e Hkh dk'kkx u LFky fujh{k.k dj tkxfr ink dju dk i;kl fd;k gA

¼3½ cky fookg & ^l;k* efgyk dk'kkx }kjk cky fookg d fo:} lHkh vko";d dkjokbi dh tk jgh g ,o yksxk e bl iFkk d fo:} tkxfr ink dh tk jgh gA

¼4½ cykRdkj & ^l;k* efgyk dk'kkx e ckykRdkj d 6 ekey lkeu vk;s gA 3 ekeyk e dk'kkx d igy l vkjkfi;k dk l tk Hkh feyh gA ,d ekey e i rkfMr efgyk cgr cjh gkyr e FkhA efgyk dk'kkx }kjk bl rRdky lgk;rk ink u dh xbiA

¼5½ vkFkd lgk;rk l lcf/kr & ^l;k* efgyk dk'kkx }kjk xjhc efgykvk dk _.k fnyk;k tkrk gft l dk o dkedkt e yxkdj vkFkd fLFkfr l/kkj l dA ^l;k* efgyk dk'kkx ,o ft yk xkeh.k fodkl vfHkdj.k d lg;kx l efgykvk dh fLFkfr e l/kkj gr Rofjr dkjokbi dh tk jgh gA

¼6½ fofHkUu foHkkxh; lgk;rk & fofHkUu foHkkxh; lgk;rk e cgr lkj ,d ekey dk'kkx dk ikIr gkr jgk gS] tk fofHkUu fodkl lc/kh ljdkj ik;kftr dk;Øe l feyu oky ykHk l lcf/kr gkr gA ,d ekeyk e bu okdk dk fu'iknu vkondk dk lcf/kr foHkkx dk fpfUgr dj ogk tku dk ijke"k fn;k tkrk gA lkFk gh fo"k'k fLFkfr e dk'kkx l i=kpkj }kjk foHkkxh; l id fd;k tk jgk gA

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ik;% ;g n[kk tkrk g fd NkVs me d cPpk dk ?kj y dk;l d fy, j[kk tkrk g tk fd dkuu t e gA ^l;k* efgyk dk'kkx }kjk bl lc/k e Hkh dkjokbZ dh tk jgh g vkj bl dkj.k cgr lkj cPpk dk jkgr fey gA

^l;k* efgyk dk'kkx }kjk fo/kok fookg Hkh djk;x gA efgyk dk'kkx d igy l lekfjd dk;kdrk }kjk ,Ml xLr efgyk dk 5000-00 dh vkfFkd lgk;rk inku dh xbZA

mi;qDr lHkh idkj d oknk e ;Fkk"k?k fu'iknu dk dk;l fd;k x;kA dk'kkx }kjk oknk dh lonu"khyrk d vuq:i dkjokbZ dh xbZA vfr lonu"khy ,o vfr"k?k dkjokbZ dh vi{kkoky oknk e ?kVukLFky ij gh dk'kkx dh Vhe }kjk ijek"kh; lgk;rk nh xbZA vko";drkuqlkj LFkkuh; ifyl&cy dh lgk;rk Hkh ?kVukLFky rd tkuk gqr yh xbZA

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nt oknk e ifyl@Fkkuk dh dkjokbZ e vko"; drku lkj mu lg;kx fy;k x;kA bl d vfrfjDr fofHkUu foHkkxh; lg;kx dh vko"; drk oky ekeyk e lcf/kr foHkkxk l i=kpkj d vk/kkj ij dk;Zfd;k x;kA lkFk gh] le;≤ ij fofHkUu foHkkxk d inkf/kdkfj;k l lid dj oknk dk gy djus gr fo"k'k dne mBk;s x;sA

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^l;k* efgyk dk'kkx e nt dN mYy[kuh; Cases, ft le l;k dh Vhe }kjk ?kVukLFky ij tkdj lkekftd ncko cukdj dk;Zfd;k x;k vkj lcf/kr foHkkx dk Hkh mRifjr fd;k x;k] o fuEufyf[kr g%&

^l;k* efgyk dk'kkx e egkno yky ikBd }kjk f'kdk; r nt djkbZ xbZ fd mudh i=h Jherh j[kk noh dh gR;k l ljkyokyk }kjk dj nh xbZ gA lo iFke dk'kkx }kjk lcf/kr Fkku dk bl dh lpuk ,o dkjokbZ gr fy[kk x;kA

Kkr gk fd ;g ekeyk LFkkuh; fo'.kin {k= vUrxZr i.Mk lekt l lcf/kr FkkA i.Mk lekt d dN vU; ekeyk Hkh ^l;k* efgyk dk'kkx e nt g, FkA bl nkjku LFkkuh; egYyk e tc l;k dh Vhe xb] rk ge i.Mk lekt e 0;kIr dbZ djhfr;k dh Hkh tkudkjh feyh] ft le ink iFkk rFkk vf'k{kk e[; gA

bl ekeyk e l;k dk'kkx d ifrfuf/k fcgkj f'k{kk ifj;kt uk l lyXu ^dyk tRFkk* dk viuh Counseling Vhe d lkFk ydj ?kVuk LFky ij igpA bl Vhe d }kjk ogk uDdM ukVd dk epu fd;k x;kA bl d }kjk ngt yu&nu ,o vf'k{kk l lcf/kr Kkuo/kd dk;ZØe i"k fd;k x;kA

"kk;n bu dkjokbZ;k }kjk fd;k x;k og lkekftd ncko gh Fkk fd ?kVuk d e[; vfHk;Dr u Lo;a gh LFkkuh; Fkku e vkRe le i.k dj fn;kA

ikfjokfjd dyg ,o ifr&iRuh d fookn l lcf/kr db ekey Hkh efgyk dk'kkx e n t g,A

b le ,d ekey d lc/k e cch noh }kjk vkonu fn;k x;k fd] m l d ifr dk fd lh vU; L=h l ukt k; t lc/k gku d dkj.k] o mUg i rkfMr djr g vkj lkFk gh ?kj e jgu Hkh ugh n jg gA ^l ;k* efgyk dk'kkx }kjk lcf/kr Fkku dk tkp grq fy[kk x;kA lkFk gh nkuk i{kk dk cykdj mu l ckrphr dh xbA

;g dk'kkx }kjk dh xb ijke"kh; lgk;rk dk urhtk g fd ifr&iRuh vc l[k iod jg jg gA

LFkkuh; dkrokyh Fkkuk Urxr ,d ekeyk Jherh eukjek noh dk vk;k] ft le mUgku viuh cg }kjk irkfMr dju d lc/k e vkonu fn;k FkkA dk'kkx }kjk ?kVuk&LFky ij tkdj rFkk nkuk i{kk l ckrphr d nkjku b l dN gn rd lgh ik;kA rRi"pkr Jherh eukjek noh u lfpr fd;k fd or eku e e ?kj e vkjke iod thou 0;rhr dj jgh gA lcf/kr Fkku dk dk'kkx }kjk vkn"k fn;k x;k rkfd Hkfo'; e vkofndk dk iu% mRihfMr u fd;k tk,A

b lh idkj dk ,d vU; ekeyk ikfjokfjd fookn dk dk'kkx e vk;kA ft le "kdj i lkn] ub lMd] ekykx t u ;g vkonu fn;k fd mudh iRuh lgh idkj l jguk ugh pkgrh vkj "kknh d ckn vf/kdrj og viu ek;d e jg jgh gA nkuk i{kk dk dk'kkx }kjk ijke"kh; lgk;rk igpkb xbA "k: e nkuk gh i{k ,d nl j dk luu ,o ckrphr dk Hkh r ;kj ugh g;A rRi"pkr dk'kkx }kjk dh x;h dkjokb d ifj.kkeLo: i nkuk i{k vc vkilh lyg dj] or eku e l[ke; thou&;kiu dj jg gA

dN vU; ekey ft le Fkku d lg;kx l dk'kkx u ihfMrk dk jkgr igpkbA cykx t i[k.M dk ,d ekeyk l ;k efgyk dk'kkx e n t gvk Fkk] ft le ,d 20 o"kh;k ckfydk ykMyh d lkFk cykx t d gh ,d 0;fDr tkxk fe;k u ckykRdkj fd;kA b l

lac/k esa dk'kkx dh Vhe us Lo;a tkdj Fkkuk iHkkjh ,oa vU; inkf/kdkfj;ksa ls ;Fkk"kh?k dkjokbZ gsrq vuqjks/k fd;kA

orZeku esa tkxks fe;kW mDr vkjksih eqU;kf;d fgjklr esa gS ,oa mDr ekeys esa ^lq;ks* efgyk dk'kkx Hkh dh tk jgh dkjokbZ ij u tj j[ks gq;s gSA

dUnh; dkjkxkj d tfoukbZy lSy esa uokpkjh fo|ky; dh LFkkiuk

^lq;ks* efgyk dk'kkx dh LFkkiuk esa [; r½ efgykvksa dks mRihMu ,oa "kks'k.k ls efDr fnykus rFkk mudh fodkl ,oa mRFkku dks lkFk& lkFk ckfydkvksa] fo"ks'kdj dfBu ifjfLFkfr esa thou 0;rhr dj jgs ;qodks] cky&ckfydkvksa dks f"k{kk miyC/k djkus dk mnns"; Hkh dh x;h FkhA bl y{; dh ikfIr&gsrq ^lq;ks* efgyk dk'kkx ,oa fcgkj f"k{kk ifj;kstuk] x;k us dN dfBu ifjfLFkfr esa thou 0;rhr dj jgs ;qodks] ckyd] ckfydkvksa dks uokpkjh fo|ky; }kjk f"k{kk miyC/k djkus dh igy dh gSA

bl Øe esa dUnh; dkjk dks tfoukbZy lSy esa fofHkUu vkijkf/kd xfrfof/k;ksa esa fyIr 42 vYi 0;Ldks dh f"k{kk dk fufeRr ,d uokpkjh fo|ky; dh LFkkiuk 23&09&2002 dks dh xbZA l{ke Lrjh; lokZs vk;kftr dj bu cPpksa dks lac/k esa vko";d tkudkjh bdVBh dj ,d ikQkbZy r\;kj fd;k x;k] ftlds vuqlkj 18 cPpsa ek/;fed Lrj ij fo|ky; NksM+ pqds Fks rFkk "ks'k 19 cPps ikFkfed Lrj dk Kku j[krs FksA bu lHkh cPpksa dks f"k{kk dh 0;oLFkk ,d uokpkjh fo|ky; }kjk lq;ks efgyk dk'kkx ds igy ij fcgkj f"k{kk ifj;kstuk ds lg;ksx ls djkbZ x;h rFkk ifj;kstuk }kjk 2 f"k{kd miyC/k djk;s x;sA tks u doy bu cPpksa dks f"k{kk nus dk dk;Z dj jgs g] cfYd eY; vk/kkfjr f"k{kk rFkk mudh âu;&ifjorZu gsrq uokpkj ij vk/kkfjr f"k{kk miyC/k djkrs gSA bl ;qodksa dh thou "kSyh dks iHkkfor djus okyh f"kYi ;Fkk fp=dyk] laxhr bR;kfn dh f"k{kk Hkh miyC/k djkbZ tkrh gSA fo"ks'k :i ls ;gka ij Vsd.ks ¼VkbZ ijkbZfVx½ ,oa fp=dyk dh f"k{kk miyC/k djkbZ tk jgh gSA

i.;kl ;g jgk gS fd ;gk¡ ls tc cPps viuh ijkuh nqfu;k esa okil tk;s] tks ,d vPNs ekuo ds : i esa mudk iquZ tUe gksA blds lkFk&lkFk budh f'k{k.k dk;Z esa fujrjrk cuk;s j[kus ds fy, eSaus fo|ky; ls nl oha d{kk rd dh f'k{kk miyC/k djkus ds i.;kl fd;s tks jg gS rFkk tgk¡ ls tekur ij fjgk gq, nks cPps ;gk¡ VkbZ ijkbZfVx lh[kdj vc viuh Lojkstxkj ij yx x;s gSaA ,d ;qod us 11oha d{kk esa viuk ukekadu djk;k gSA ;gk¡ ij ;qodks dh lqfo/kk&gsrq ^l;k* efgyk dk'kkx us ;quh lsQ ds lg;ksx ls Lukukxkj ,oa "kkpky; ds fy, /ku jkf'k miyC/k djk;k gS rFkk VhOohO fQfyl dEiuh ds lg;ksx ls miyC/k djk;k x;k gSA dk'kkx }kjk fujrj vuqJo.k fd;k tkrk gS rFkk jk'Vh; fnol ,oa vU; iosZ ds volj ij efgyk dk'kkx dh lpkyudrkZ ,oa vU; lnL; lkLdfrd dk;Øek dk lpkyu Hkh djrs gS ,oa cPpks ds vUnj eukoKkfud cnyko ykus dk Hkjiwj i.;kl fd;k tkrk gSA blls fudyrs gq, ,d ckyd dks ifj;kstuk esa dk;Z ij Hkh yxk;k x;k gSA

fjek.M gkse esa fd"kkjksa dh f'k{kk ds fy, uokpkjh f'k{kk

x;k fjek.M gkse esa fo"k'k'kdj vkijkf/kd xfrfof/k;ksa esa fyIr fd"kkjksa dks fjek.M ij j[kk tkrk gSA ;gk¡ ij 40 fd"kkj gS ftlesa 4 fd"kkj rhu o'kZ ls rFkk "k'k 36 nks ;k nks ls de o'kZ ls fjek.M ij gSA bu lHkh fd"kkjksa dh vk;q 12 ls 17 o'kZ ds chp gSA dbZ fd"kkj ,sls Hkh gS] tks viuh ?kj ls o'kZ ls ykirk gS budh f'k{kk dh 0;oLFkk vR;Ur vlrks'ktud FkhA lkFk&lkFk budh vkoklh; 0;oLFkk vR;Ur n;uh; FkhA ^l;k* efgyk dk'kkx ,oa fcgkj f'k{kk ifj;kstuk] x;k ds lg;ksx ls ;gk¡ ij vkoklh; 0;oLFkk esa lq/kkj fd;k x;k rFkk ,d "kkpky; ,oa Lukukxkj miyC/k djk;k x;kA blds lkFk&lkFk fd"kkjksa dh f'k{kk ds fy, ,d uokpkjh Ldwy dh 0;oLFkk dh xbZ gS ftlesa 6 cPpks dks vkiu Ldwy ls d{kk 10oha dh ijh{kk rFkk 14 cPpks dks 8oha d{kk dh ijh{kk fnykbZ x;h rFkk "k'k cPpks dks ikpoha d{kk rd f'k{kk miyC/k djkus dk i.;kl fd;k tk jgk gSA ;gk¡ ij fo"k'k : i ls flykbZ] ifVx]

lxhr vkj yxMh dh f[kykuk cuku dk if'k{k.k fn;k tk jgk gA cky&fnol ij lkexh dk in"ku fd"kkjk }kjk djk;k tk;xkA

i;kl ;g gS fd lHkh fd"kkjk dk ân;&ifjorZu gk vkj cPpk fjek.M gke lckgj tku dh ckn ,d vPNk ukxfjd cu ldA fjek.M gke dh lHkh cPpk dk le;≤ ij LFkkuh; lLFkkvk vkj liUu 0;fDr;k }kjk [kku dh cr] dEcy] diM ,oa [kyu dh lkexh fofHkUu R;kgkjk ij miyC/k djkbZ x;h gA ft l lk mudh vUnj eukoKkfud cnyko vk lds vkj o ,d vPNk ukxfjd dh :i esa viu dk LFkkfir dju dk i;kl dj ldA ^l;k* efgyk dk"kkx }kjk x;k ft y d dUnh; dkjkxkj] x;k e cUn efgykvk d fy, Lojktxkj gr lRr@clu@e'kkyk fuek.k dk;Øe

^l;k* efgyk dk'kkx dh Vhe }kjk dUnh; dkjkxkj] x;k dh Hke.k dh nkjku ;g ik;k x;k fd efgyk,a tk fd ty e cUn gS] mudh chp Lojktxkj LFkkfir dju l o efgyk,a ty lckgj vkus dh ckn vft;r dh x;h jkf'k l viuh Hkfo';k dk l/kkj ldrh gA bl ifji{; e bu efgykvk dh chp mudh bPNk dh vu:i lRr fuek.k dk dk;Z ikjHk djus dk fu.k; fy;k x;k A efgyk dk'kkx dh ikl Lo;a dh /ku jkf'k dh vHkko e bl gr ft yk vf/kdkjh egkn; l vujk/k fd;k x;k A ft yk vf/kdkjh egkn; }kjk lh0lh0,0 dk;Øe dh vUr'xr ^l;k* efgyk dk'kkx dk Qjojh 2003 dh igyh lIrkg e 15000-00 :i;k miyC/k djk;k x;k A

lRr&fuek.k gr dUnh; dkjk e dn l tk;kQrk efgyk dfn;k dh chp ,d leg cukdj bl dk;Z dk ekp 2003 l ikjHk fd;k x;k A Kkr gk fd ml oDr dUnh; dkjk e vkB ¼8½ fl) nk'k ,oa 26 ¼NCch l½ fopkjk/khu efgyk,a cUn@dn FkhA

ty dh vUnj io l vkVkpDdh e"khu ek tn jgus dh dkj.k ek= puk ,oa ml dk Hkqrku ,oa ifdx l lcf/kr lkekfx;k dk Ø; djkdj efgyk okMZ e LFkkfir djk fn;k x;k A bl i;kstu dkj lRr&fuek.k l lcf/kr lkjh midj.kk dk miyC/k djkdj fuek.k dk;Z

ikjHk fd ;k x ;kA lRr dk fuekk.k&dk ;l fnukd 30&04&2003 l ikjEHk fd ;k x ;k tk vk t rd fuok/k : i l pky gA b l Øe e ,d DohVy puk l dk ;l ikjHk fd ;k x ;k Fkk] ft l l ikIr /ku&jkf'k l ,d DohVy pu dk Ø; djd vkB ckj vFkkr vkB DohVy puk dk ih l dj lRr mRikfnr djk ;k x ;k ft l l "k) ykHk d : i e 4162-00 ¼pkj g tkj ,d lk ck lB½ : i ; udV tek gq] t l lcf/kr efgykvk dk dkjk i'kk lu d }kjk forfjr dju dh dkjokbl dh tk jgh g rFkk ,d DohVy puk Hkh i th d : i e ekktn gq] ft l l lRr&fuek.k dk dk ;l pyk ;k tk jgk gA

^l ;k* efgyk dk"kkx }kjk x ;k ft y lEi'ku xg x ;k e cUn cPpk d chp Lojk t xkj LFkkfi r dju d mnn ; l efr@f[kykuk fuek.k dk ;Øe

^l ;k* efgyk dk'kkx dh Vhe }kjk lEi"ku xg] x ;k d Hke.k d nkjku cUn iM cPpk }kjk Lojk t xkj ,o vU; xfrfof/k ;k d fy, vudk ckj vujk/k fd ;k x ;k gA efgyk dk'kkx d }kjk ;g eglI l fd ;k x ;k fd cUnh cPp viu thou d vueky le ;] ft le bUg fofHkUu idkj dh f'k{kk, ikIr djuh g] t y e cUn jgu dd dkj.k b l l ofpr jg tkr g rFkk dn l ckgj vk tku d ckn vd"ky@ykpkj@cjkt xkj d : i e lek t d Åij ck> gh cur gA b lh fcUn dk /;ku e j[kdj efgyk dk'kkx u bu cPpk d chp Lojk t xkj dh 0;oLFkk dju dk fu.k; fy ;kA

/ku d vHkko e f t ykf/kdkjh egkn; l b l dk ;l e lgk ;rk dju dk vujk/k fd ;k x ;kA mudh igy ij cPpk d Lojk t xkj d fy ,] cPpk dh bPNk d vu : i ydMh d f[kykuj] f tudh ekx ck tkj e vPNh g rFkk Åp nkek ij ;fcdr Hkh gq] dk fuek.k djku dk fu.k; fy ;k x ;kA b l dk ;l e if'k{k.k nu d fy, i : 'k fcgkj lok lLFkku dk f tEek fn ;k x ;kA lEi"ku xg e cUn djhc 40 cPp b l dk ;l dk dkQh yxu l lh[k jg gA

^lq;k* efgyk dk'kkx vis{kk djrh gS fd ;fn bu cPpksa ds chp izf'k{k.k dk dk;Z blh izdkj pyrk jgk] rks dqN fnu ls ckgj vkus ds ckn ;s cPps ,d dq'ky dkjhxj ds :i esa lekt ds chp izfrf'Br gksxs vkSj lekt dks xkSjo c<k;saxs rFkk viuk Hkfo'; Hkh /ku vftZr dj mTToy djsxsA

^lq;k* efgyk dk'kkx }kjk ,l&,l esa[; ennksa dh igpku dh xbZ gS] ftuds vk/kkj ij efgykvksa dks "kks'k.k fujarj fd;k tkrk jgk gS] buesa ,d esa[; ennk u"kk[kksjh Hkh gS] ftl dks f"kdkj lnSo efgyk,sa gksrh gSaA ^lq;k* efgyk dk'kkx dks ,sls cgqr ls f"kdk;r feyh gS ftl esa iq:'k "kjkc ihdj efgykvksa dks ihfMr djrs gSa ,oa blls vkSnr ds dkj.k ijk ifjokj iHkkfor gksrk gS] ijUrq lcls vf/kd iHkkfo efgykvksa ij gh iMrk gSA efgyk dk'kkx }kjk QSyrh gqbZ] uxj fuxe ds MIYgk egYyk rFkk gfjgjiqj] ck/kx;k esa fcgkj f'k{kk ifj;kstuk] x;k ds lkLdfrd tRFks dh lgk;rk ls ,d vfHk;ku pyk;k x;k ftl dk fo"ks'k iHkko gfjgjiqj xkao esa n[kk x;kA gfjgjiqj] ck/kx;k esa fLFkr ,d xkao gS] tgka yxHkx lHkh yksx ftudk lc/k vfHkofpr oxZ ls gS] "kjkc dk lsou djrs Fks rFkk ;gka n"kh "kjkc vo/k :i ls cukbZ tkrh FkhA ;gka ij efgyk dk'kkx dh lapkyudRrkZ Jhefrh eerk egjk=k rFkk vU; tqM+s yksxksa rFkk fcgkj f'k{kk ifj;kstuk] x;k }kjk dbZ lIrkg vfHk;ku pyk;k x;k] ftl esa tRFks }kjk ukVd] xhr iLrqr fd; x;s rFkk fo"ks'k tkx:drk vfHk;ku efgykvksa ds fy, pyk;k x;kA vkf[kjdkj dk'kkx dks lQyrk feyh rFkk lHkh yksxksa us ;g fu"p; fd;k fd og "kjkc NksM+ nsxsa vkSj ,slk gh gqvkA bl lQyrk ls iHkkfor gksdj efgykvksa us ;g n<+ ladYi fy;k fd og vc ?kj ds yksxksa dks dHkh "kjkc ihus ugha nsxhA xkao ds cPpksa dh i<+kbZ ds fy, fcgkj f'k{kk ifj;kstuk] x;k }kjk ,d fo|ky; dh LFkkiuk dh xbZ gSA ftl ds fy, Hkou dk fuek.k dk;Z djk;k tk jgk gSA

^lq;k* efgyk dk"kkx }kjk efgykvksa ls lcaf/kr ,d fnolh; dk;Z"kkyk dk vk;kstu

^lq;k* efgyk dk'kkx ds rRoko/kku esa efgykvksa ls lacaf/kr ennksa ij ,d fnolh; dk;Z"kkyk dk vk;kstu ftyk f'k{kk ,oa izf'k{k.k laLFkku] x;k esa fd;k x;k] ftl esa ftyk inkf/kdkjh]

x ;k] ifyl v/kh{kd] x ;k] Jherh eerk egjk=k] lpkyudRrk efgyk dk'kkx] vkbZ0lh0Mh0, l0] f"k{kk foHkkx] i[k.M efgyk foLrkj inkf/kdkjh] efgyk ft yk ik'kn rFkk vU; tu ifrfuf/k;k ,oa Lo;alsoh lLFkkvk dh ifrfuf/k;k uHkkx fy ;kA

ogk fuEukfdr ikp ennk ij fopkj&foe"k fd ;k x ;kA

¼d½ efgyk mRihMu

¼[k½ efgykvk dk ifyl }kjk fgjklr e yu dk vf/kdkj

¼x½ ngt&iFkk

¼?k½ cky&fookg

¼p½ efgykvk dk mudh dk;{k= e dke dju lcf/kr leL;kvk ij fopkj fd ;k x ;k rFkk bl l lcf/kr dkuu ij ppk dh xbZ rFkk budk fdl izdkj jkdk tk ;] bl ij Hkh ppk dh xbZA

^l ;k* efgyk dk'kkx }kjk x ;k e efgykvk dh mRFkku ,oa l"kfDrdj.k gsrq vk;kft r gkuoky fofHkUu fØ;k&dykiksa e lno lgHkkfxrk lfuf'pr dh tkrh jgh gSA bl Øe e ckdh ckt kj] vkel] "kj?kkVh] MkHkh] ck/kx ;k] ckjkpVVh] cykxat] f[kt jl jk; ,oa xjk: i[k.M dh lnj xkoksa e efgyk dk'kkx Vhe u fofHkUu vol jk ij Hkkx fy ;k rFkk efgykvk dk mudh vf/kdkj dh ifr lpr fd ;k rFkk mRihMu l cpkus gsrq lg ;kx miyC/k djkus dh i;kl fd ;kA bl Øe e xjk: dh vR;r lnj xko e ogk dh efgykvk vkj ipk; r }kjk vk;kft r dk;Øe e efgyk dk'kkx dh Vhe }kjk Hkkx fy ;k x ;kA bl vol j ij efgykvk dk lEckf/kr djrh gbZ efgyk dk'kkx dh lpkyudRrk Jherh eerk egjk=k u efgykvk dh vf/kdkj ,oa efgyk mRihMu jkdu dh fy, fofHkUu mik;k ij ppk dh rFkk ;gk ij Hkkjh l[;k e mifLFkr efgykvk l fopkj&foe"k fd ;k vkj fofHkUu leL;kvk dh lek/kku gsrq vkonu Hkh Lohdkj fd ;kA

x;k e ,uhfe;k fu;=.k dk;Øe

x;k e fd"kkjh ckfydkvkj] ftudh vk; 10&19 o'k gj] e ,uhfe;k dh jkdFkke&gr ,d egRokdk{kh ;kstuk ;uhlQ }kjk lpkfyr dh tk jgh gj] ft le ^l;k* efgyk dk'kkx }kjk x;k d "kgjh&{k= e iMuoky lHkh e/; ,o mPp fo|ky;k rFkk xj ljdkjh fo|ky; e bl dk;Øe dk vk;kstu fd;k tk jgk gA bl dk;Øe d rgr cfPp;k e [ku dh deh d dkj.k ,uhfe;k dh jkdFkke&gr tkx:drk vfHk;ku] cfPp;k dk vkb0,Q0,0 VcyV miyC/k djkuk rFkk fo"k'k:i l ,l ik'kd rRok d lou ftle ykg rRo dh ek=k vf/kd gk dh tkudkjh miyC/k djkbZ tkuh gA iR;d fo|ky; e ,d f"k{kd@f"kf{kdk dk ukMy f"k{kd d :i e if"k{k.k ndj llrkg e ,d xkyh dk lou djrh gj rFkk bl d vuJo.k gr ,d vuJo.k dkM miyC/k djk;k x;k g] ftl dk ckfydk,¡ viuh d{kk dh ekuhVj dh lgk;rk l i;kx djrh gj lHkh ckfydkvk dk ,uhfe;k dh tkudkjh ,o jkdFkke rFkk ,uhfe;k l gkuuoky iHkko dh tkudkjh miyC/k djkbZ tkrh g] fo"k'k:i l mudk Hkkstu dh vknr e l/kkj yku gr tkudkjh miyC/k djkbZ tkrh gj rFkk bl rjg tkx:ifd;k tkrk gifd cfPp;k viu Hkkstu e ,l inkFkk dk lou dj] ftle vk;ju rRo dh vf/kdrk gk] bl d lkFk&lkFk le;≤ ij cfPp;k dk tkudkjh miyC/k djkuu rFkk bl dk;Øe d ifr lonu"khy cuku dh nf'V l ifr;kfxrkvk dk vk;kstu Hkh fd;k tkrk gA bl dk;Øe dk ikjHk 25 tqykbZ] 2003 dk jkt dh;e0fo0] uockfydk ,o Mh0,0oh0 Ldy] jkVjh Dyc d'Eil l fd;k x;kA bl volj ij efgyk dk'kkx] Mk;V rFkk bl dk;Øe l lcf/kr fofHkUu ykx mifLFkr FkA

U;k;efr ukxUn jk; u l ;k efgyk dk"kkx d dk;k dk ljkgk

iVuk mPp U;k;ky; d U;k;k/kh"k ukxUn jk; u ^l;k* efgyk dk'kkx d dk;kdykik dh ljkguk dh gA U;k;efr Jh jk; lekgj.kky; ifjlj e fLFkr ^l;k* efgyk dk'kkx dk

fujh{k.k dju s “kfuokj dk x;A mUgksau s l ;ksa }kjk fucVk;s x;s ekeyksa dk o/kkfud ekU; rk nu s d s fy, f t yk ,o a l = U;k;k/kh”k dk funs”k nrs g q, dgk fd ykx vnkyr l s l ;ksa d s ekeys dk lcf/kr dj nA chl g tkj : i ;k dk;ky ; O; ; grq fn;s x;A bl volj ij ^l ;k efgyk dk’kkx dh l ;k t d ,o a leUo; d Jherh eerk egjk=k u s U;k;efrZ Jh jk; dk crk;k fd vc rd djhc 550 ekeys ^l ;k* e a n t l g q,] ft l e s 250 ekeyksa dk lQyrkiwoZd fu’iknu fd;k x;kA*

fo; ruke h lk lnk d vkB lnL;h; ny dk ,d fno lh; v/; ;u ;k=k

fo; ruke h lk lnk s d s vkB lnL;h; ny dk ,d fno lh; v/; ;u ;k=k ij ck/kx;k e s vkxeu g qvkA fo; ruke h Vhe }kjk ^l ;k efgyk dk’kkx dh l ;k t d ,o a leUo; d Jherh eerk egjk=k ,o a iwHkkjh inkf/kdkjh Jherh Hkkjrh d s lkFk cBd dh x;hA*

cBd e s efgykvk s d s mRFkku] cky Je] cky&fookg] ng t & i zrkMu] efgyk&mRihMu] u”kk[kkjh d s fo: } pyk;s t k jg s dk;ZØe dh tkudkjh ikIr dhA dk’kkx dh l ;k t d ,o a leUo; d Jherh eerk egjk=k u s lk lnk s dk s x;k e s ukjh mRFkku d s fy, fd;s t k jg s dk;ZØek s dh foLr`r tkudkjh nhA

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Van Dhar in Bastar
A Case Study

*- Pravir Krishna**

Abstract

"This study describes the efforts taken in the Bastar district of Madhya Pradesh, to ensure that local tribal communities got adequate remuneration for the non-timber forest produce (NTFP) collected by them. It first outlines the situation that existed before the intervention - the non implementation of laws, activities of middlemen etc. The various elements of intervention such as formation of Self Help Groups (SHG), village level district level committees etc. are then described. The strategies underlying there elements are also described. The results of the interaction are then evaluated, and a question is posed about the sustainability of the initiative."

1. Context

Context of the intervention and resulting objectives

Bastar district is primarily a forest and tribal area. About 60% of the land is under forest cover. Ethnically, it is a district inhabited by the scheduled tribes - maria, muria, gonds, halbas etc. Gathering and selling or non-timber forest produces (NTFP) is the mainstay of the tribal economy in addition to agriculture. The major NTFP found in Baster include tamarind, mahua, kosa, wild-mangoes and several tree-borne oilseeds. There are about 40 NTFP traded in Bastar. These are available according to the season of each. The first quarter (Jan-March) can be called the peak season. Haat, the weekly market is the first-point of nearly 100% of tribal trade. The pressure of time (with the average walk to and from the forest being 10

* Pravir Krishna was the District Magistrate, Bastar. He belongs to the 1987 batch of the IAS

kms) and low level of literacy facilitated easy exploitation by a nexus of moneylender-middlemen-traders. Snatching of baskets of NTFP from the women walking to the haat bazar, under-pricing, under-weighing and under-cal cutting were the main tricks of trade plagued by the moneylender-middlemen-trader, causing the tribals to receive less than 20% of the terminal price[1], of the products. This in turn paralysed all initiatives of the tribals for economic growth through trade.

Though provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996, [Central, No. 40 of 1996, referred to in short as "PESA"] had granted to the Gram Sabhas in Scheduled areas sweeping powers for self-governance including ownership of NTFP and power to manage their bazars, it was largely unknown in the villages.

2. Intervention

Enforcement of Laws

It was with this background in early 1999 that the Van Dhan Project was conceptualized and implemented in Bastar. Van Dhan is a panchayat-centric model for sustainable development through self-help groups (SHGs) of the villagers working as procuring agents for Trifed, a Government of India (GOI) sponsored Tribal Co-operative Marketing Federation.

The Structure

Van Dhan is based on self-help. PESA grants ownership rights over local NTFP to the Gram Sabha. In exercise of this right vested in it, the Gram Sabha promotes a self-help group (SHG) of 8-10 members, all being natives of the village. This SHG gained popular currency as "Van Dhan Samiti". For convenience, the SHGs

[1] NTFP, like many tribal produces, passes through a chain of 'pass-through' middlemen in raw (unprocessed) form from the primary gatherer to the first point of processing. The price at which the first processor obtains the NTFP is called here the terminal price for that NTFP.

were placed under the guiding charge of "Focal Agents" - CEO (Zila Panchayat), GM (Cooperative Bank), and the three DFOs in district being such focal agents. Trifed advances money to the focal agents who pass it on to the SHGs under their charge. The entire chain of movement of money was through proper banking channels. Each SHG has a bank account into which it receives the amount of advance. With this money, the SHG procures from the haat bazar, NTFP from the villagers who are the primary gatherers from the forests. The price of purchase is fixed by a district level "Apex Committee" under the chaimanship of the district Collector. The Apex Committee is a multi-departmental committee. Additional Collector, CEO (ZP), GM Trifed, GM District Central Cooperative Bank (DCCB), Divisional Forest Officers (DFOs), Dy. Registrar Cooperative Societies (DRCS), and Dy. Director Mandi are the other members of the Apex Committee. Apart from these officials, the Apex Committee has 15 members drawn from the SHGs. This Committee meets every Saturday and reviews the progress of the program. It also reviews market trends for NTFP as evidenced by the local Mandi. In the light of this, prices are fixed for procurement of NTFP by the SHGs in the Villages. The DD Mandi is a key advisor in this regard. The GM Trifed is a member of the Apex Committee and after due discussion accords his acceptance to the price before it is finally declared. For the service rendered by the SHGs. Trifed pays them a commission of 7%.

The Collector Bastar was the promoter for Van Dhan. Apart from members of the SHGs, the team was at two levels; the 'lower' level consisted of the field workers viz., SDMs, CEO (Janpad) etc. and there was a core team of 6 persons at the top.

Through strict enforcement of the M.P. Krishi Upaj Mandi Adhiniyam, 1972 (Mandi Act, in short) which forbids buying outside the mandi square, the operation of kochiyas[2], who are the working arm of the exploitative nexus, was curbed in villages and haat bazars.

[2] Koochiya is the local name for a lowly haggler who is often a dandy of sorts, engaged by the money lender-merchant to buy NTFP from the villages and the bazars on 'best' (read deceptive, exploitative) terms.

Awareness Generation and Mobilisation

Intense mobilization and training exercises were undertaken to educate the villagers as to how exactly they were being exploited, what they were losing, and what powers were vested in them under PESA etc. An estimated 1,000 meetings, workshops, and choupals (village conferences) were held at various villages in Bastar in the first year of the program. The CEOs Janpad Panchayats played a key role in organising these workshops. The workshops were conducted by the 'Master Trainers' trained at the district level by resource persons. Senior district officers including the Collector participated in several of these workshops. The workshops (not very expensive, anyway) were funded by the training funds available with the Panchayats, and by Trifed whose mandate includes using their 'profits' for further training and skill-upgradation. The use of the traditional art-troupes, kalajathas, for communicating the message in local dialects proved to be very effective. The SHGs were given training on team-work, banking, and book-keeping etc.

The Gram Sabhas were educated and motivated to sponsor SHGs having 8-10 committed members to procure NTFP from the villagers on the firm promise of fair trade. Gram Sabhas were given the authority to dismiss the SHG if it was considered to have worked against the interest of the villagers.

3. Impact

Of the approximately 1000 SHGs sponsored, at present 700 SHGs are active. The system serves about 3 lakh NTFP gatherers. There has been a sharp improvement in the quality of products. The SHGs have done trade worth over Rs. 60 crores, and earned commissions, over Rs. 3 crores. Around 8,000 youth have found self-employment under the program. The practice of fair-trade by the SHGs has helped to double the income of the primary gatherers. Rural tribals and the most remote villagers who are part of Van Dhan how use calculators to compute exactly the commission due to them. Ma-Didi Banks (women's thrift and credit groups) which were promoted to complement Van Dhan by countering the sahukar, have grown impressively. There are around 2000 such SHGs with a saving of

over Rs. 35 lakhs. Some of these SHGs have taken up tendu leaf procurement jobs in Bastar in 2001.

The general awareness level has gone up, as seen in the acceptance of literacy and education by the villagers which, earlier, used to amuse them.

There has been a phenomenal increase in tree-plantation[3], which is often self-inspired. Bastar district was recently awarded the Indira Priyadarshini Vrikshamitra award by GoI, mainly due to Van Dhan.

The tendency of wait endlessly for government jobs has begun to die down. Self-help and self-employment are seen as meaningful openings by the people.

Value-addition to NTFP for greater gains is a concept that is being understood now in Bastar although, value-addition centers are yet to take off in a big way.

Recently, when prices had to be lowered because of an international slump, there was a strong violent agitation so far unheard in Bastar.

4. Critical Analysis

The main strengths of Van Dhan program are delineated below:

- Van Dhan never tried to introduce any new lines of activity. It went down well with the villagers for this reason from the very beginning.
- The program was designed as people-driven. SHG members were from the same village and 'outsiders' and government servants were kept out. The people were trusted with money and the SHGs repaid the trust. The bad debts were less than 1%, some of these were for reasons beyond control of the SHGs.

[3] The species planted include tamarind, cashew etc. The plantations have been done by the villagers on degraded forest lands and panchayat lands. The villagers' watershed committees have played an active role in this. Work has been done on a profit sharing basis.

- The high degree of commitment and motivation was based on the conviction that everybody was working for a truly noble cause. There was excellent distribution of work among the core-team members with clearly defined roles, and each member knew his/her role well.
- The program evolved on the field[4] with changes being made as and when felt necessary with an honest and open mind. All problems were addressed and were never swept beneath the carpet.
- The sound market tie-up with Trifed gave the necessary thrust and support to the intervention without which it might never have started.
- Proper maintenance of accounts and regular audit with even the SHG accounts being audited by Chartered Accountants!
- No hesitation in booking foul playing SHGs which instilled due fear.
- Regular weekly meeting of the Apex Committee.

The main challenges faced by Van Dhan can be outlines as follows:

- The challenges faced by Van Dhan involved the handling of opposition at times even violent opposition, from injured vested interests, who were mainly erstwhile traders and sahukars. They were tackled with a firm resolve and an investigation was launched into the commercial tax irregularities committed by them. As a result 186 cases were booked, which put them on the defensive. Political opposition too was effectively tackled in many appropriate ways.
- The high levels of illiteracy and low level of awareness prevalent among the villagers was addressed by the widely used strategy of communication in local dialects through kalajathas in choupals etc.

[4] Van Dhan began as a response of the district administration to frequent law and order problems in the village haat bazars, arising out of exploitative ways of the traders agents. Later, the intervention acquired the form of a program for socio-economic empowerment of the people.

- False propaganda and mischief by vested interests was checked by counter propaganda and pro-active publicity which was launched in a cool, balanced, and calculated manner.

- On reflection we feel we might have done better if we had formed the SHGs in a more systematic manner by first identifying the natural leader of the group and proceeding though him/her.

- Bankers should have been involved from the beginning of the program Trifed was an ad-hoc support as far as working funds concerned. The program involved financing of working capital to the SHGs by the banks. Bankers, when their turn came, had to be educated about the merits of the program. This was not easy to do. The pace of sanction of loans was very tardy. Had bankers been involved from the start, the sailing might have been better.

- Trifed had some inherent weaknesses such as lack of professionalism which were ignored as its internal matters. This later created problems. Some other players[5] should have been involved alongwith Trifed. Traders should not have been totally side-lined. Traders should have been given an online counter[6] at Jagdalpur either through Trifed or otherwise so that the load on Trifed could have been reduced. Value-addition activities at the level of Gramodhyog was successful in some instances (e.g., hillgrass brooms) but value-addition in a truly big way never could be tried. Private entrepreneurs should have been involved more vigorously to set up processing industries involving SHGs.

[5] An attempt was made to involve M.P. Oilfed and M.P. Silkfed, but these were financially not upto the mark and had their own priorities. Civil Supplies Corporation, perhaps, could have been involved.

[6] Under the Online Counter (Tatkal Sewa Counter) Trifed could have sold its procurement before shifting it into the godown on a nominal (#%) service charge.

Returns from Investments

The investments made were largely in terms of tireless work done by a committed and highly motivated team day in and day out as seen in the results in terms of perceptible empowerment of the villagers. Financially, hardly any investment went into the program as NTFP cropped naturally and the villagers had the right over them. Trifed advanced money against purchases. Trifed's business in Bastar increased more than ten-fold following Van Dhan. More significantly, this business was directly with the villagers/tribals, not through any trader.

We think that the returns in contrast to investment are very high though the outcome could have been improved if the value addition plan had taken off on a large scale.

How effective was the role of the promoter?

The strong and positive role of the promoter-the Collector of Bastar was one of the reasons for the success of Van Dhan. It was ensured that all members of the team thoroughly understood the philosophy and the thought underlying the program. Club and house parties hosted by the Collector helped to consolidate the team spirit. Even in moments of adversities, the Collector/promoter kept the morale high. A top journalist once observed that the entire district was working like a highly motivated NGO!

Interventions like Van Dhan can go wrong for various reasons such as ego problems and the tendency to ignore problems rather than face them; market failure, for whatever reason; fieldworkers failing to understand and appreciate the basic aims of the program; and the lack of flexibility of the program to change with time.

Lessons for Livelihood Promotion

Based on our experience of Van Dhan we feel that it has thrown up some key lessons of livelihood interventions, the key lessons being

(1) Livelihood interventions must actually be implemented by the people. Officers of the Government should not do the job for the people. The notion that funds are secure in the hands of officers in largely a bogey and is certainly counter productive to the empowerment of the people. Officers must remain only as facilitators, and should never become actors and players.

(2) Laws and schemes meant for promoting livelihood for the underprivileged are often buried in books, which necessitate dissemination of information mainly verbally to reach the laws to the people for whom they are meant. NGO outreach services should be tapped if the district administration cannot cope with the work involved.

(3) Ownership rights to Gram Sabhas over local resources can in itself be a very major capital for rural development if an effective engine like SHGs and Trifed in the case of Van Dhan in Bastar district can be successfully evolved and set in place.

(4) Marketing should never be taken for granted. This loose end must be professionally tied and not unprofessional tied, which perhaps happens often in the case of state-support to handicraft development. Qualify control at all times and ruthlessly must be emphasized.

(5) Any program for livelihood promotion for the underprivileged is bound to injure at least some if not many vested interests. A barrage of false propaganda will be prevalent, and every attempt will be made from within and without to upset the program. The implementers must be prepared for this and must adopt a two-pronged approach-fight falsehood tirelessly, and counter it by propagating right information constantly and proactively.

5. General

As a model for livelihood intervention in practice, the following features of Van Dhan are relevant :

(1) It put people first and was a program which was not only for the people, but

also of the people and by the people. Back seat driving by government functionaries was at all costs discouraged.

(2) Livelihood intervention was based on locally available resources and locally familiar lines of activity.

(3) Sound market tie-up is very vital and there should be no compromise on issues like quality of produce.

(4) 'Weak' villagers can match the powerful urban vested interests only through collective strength such as SHGs, which were very relevant for the Van Dhan program.

(5) Verbal modes of mobilization and training are very necessary in the context of our villages.

(6) All concerned people especially those directly connected to the program knew that they are stirring a hornet's nest. Near-criminal attempts were made to unnerve them, in order to upset the program hence they were prepared psychologically and otherwise to brave such opposition from injured vested interests.

Postscript : May 2003

Van Dhan Today

Reports from Bastar on Van Dhan were at once disconcerting and very encouraging. The end of the year 2000 brought several changes all at once.

Hard times began for Van Dhan. The new Collector fought back bravely and successfully averted a surreptitious attempt to undo the program. In the face of conflicting reports, the state government appointed a 3-member high-power committee under Ashok Masih to study the program and to advise thereon. After a thorough field-study the program and to advise thereon. After a thorough field-study of market-systems in several districts, the committee found Van Dhan model in Bastar the best and recommended its replication in all districts of the new state.

The SHGs lent moral support to one another. They have kept their work on. They are buying from the villagers and are selling it to traders or are getting it auctioned in the Mandi. They now feel at home in this institution which earlier was an exclusive preserve of traders in Bastar.

The SHGs have been organised into unions at the block level and into a federation at the district level. This has helped them to brave the storm. The unions and the federation are now registering themselves as Cooperative Societies and seeking registration under the Mandi Act and the Commercial Tax Act to function as trading bodies.

A people-driven program, an empowerment program, can never entirely fail. Van Dhan is another example of this truth.

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Jhumias in Transition
A wholistic Approach to Sustainable Development Through Rubber Based Projects for Shifting Cultivators - An Experience of Tripura

- R.C. M. Reddy, IAS

Abstract

"In times of change, traditional practices can sometimes become unsustainable. Jhoom or shifting cultivation in the North Eastern States is an oft quoted example on this regard. In this article, the effort to replace this traditional activity in Tripura with a new activity, rubber cultivation is described. The strategies adopted by the key proponents, the State Government and the Rubber Board are described. Issues such as resource mobilization, convergence of activities and community participation are also touched upon. Impact evaluation and projection of further trends are also done."

Background

The problem of shifting cultivation, the necessity to control the extent of the cultivation and to develop the tribal families dependent on this practice of cultivation through settled form of agricultural methods in the North Eastern region are well known. There have been success stories, failures and the experiments with mixed results. Various surveys and studies have been projecting rapid depletion of forest cover in the North Eastern region and the shifting cultivation has been identified as one of the factors for such depletion.

Tripura with a geographical area of 10,491.6 Sq. km is the smallest State amongst the Seven Sisters of the North East. The total population as per 1991 Census is approximately 28 lakhs of which 319 are the tribals belonging to 18 different tribes. In the year 1987, a benchmark survey was conducted where

it was estimated that 55,000 tribal families are dependent on shifting cultivation, locally known as "Jhum" cultivation (slash and burn method of cultivation), in the State of which about 60% are fully dependent on Jhum cultivation and remaining 40% are partly dependent. The number of such tribal households practicing "Jhum" (known as Jhumias), at present is estimated to be around 52,000 hac. The socio-economic characteristics of Jhumia tribal families indicate that they are the most under developed, economically backward, technologically primitive and socially the most exploited category of the people. The successive Governments of the State and centre have recognized the need to undertake the developmental projects for weaning the tribal families away from shifting cultivation and to develop them economically.

The "jhum" cultivation, through always a means of subsistence economy was, at least, able to cater to the basic needs of the development families in the past when the jhum cycle was long enough and the population pressure was relatively less. Now, with the reduction in jhum cycle and increasing population pressure, the productivity of jhum cultivation has come down and it is no longer economically viable and cannot sustain the dependent families. However, the families continued to practice jhum cultivation, fully or partly, since the practice of jhum has been an integral part of social life of the tribals and the alternative alternative economic avenues are not available.

The State Government and the Central Government from time to time, have been taking up a number of programmes in the development of these Jhumia families with the objective of weaning them away from the traditional jhum cultivation in order to reduce the pressure on local ecology and also to provide a sustainable source of income to the dependent families. The experience of such programmes has been mixed.

The Traditional Schemes for Jhum-Resettlement

A number of schemes have been taken up by the Government of Tripura since 1950 for the settlement of shifting cultivators. The schemes have been primarily based on agriculture, horticulture, animal husbandry, fisheries and forestry implemented by the departments such as Tribal Welfare, Agriculture, Horticulture, animal husbandry, fisheries and forestry implemented by the departments such as Tribal Welfare, Agriculture, Horticulture, Forest etc. One of the main schemes has been the Integrated Jhumia Settlement Scheme being implemented by the Tribal Welfare Department which is an integrated scheme covering the housing, economic and infrastructural needs of the families. At present, Rs. 30,000/- per family is being spent under the scheme. As per the schematic pattern, certain number of jhumia families, normally not less than 25 to 30, are settled on a compact block of land where each family would be given at least 1 hectare of land, a house, economic inputs such as horticulture, fishery, animal husbandry etc. and the necessary link roads and drinking water sources. The duration of the scheme is 3 years and implemented by the Supervisor of the Tribal Welfare Department posted in the sub-Division under close supervision of the Sub-Divisional Officer (SDO).

This traditional scheme of the State Government is well conceived and aims to develop the Jhumia family in an integrated manner. However, the experience of implementation of the scheme in the State has shown that it would not achieve the desired results. The reasons are mainly two fold - firstly, the returns on the traditional crops such as pineapple, banana etc. have not been very attractive as to sustain the tribal families over a longer period of time. Secondly, the community participation in the process of implementation has almost been negligible. This experience has indicated that there is a necessity of identifying alternative economic

activities around which settlement projects could be planned and implemented which would generate adequate returns over a longer period of time and at the same time would be suitable for the tribals to adopt easily. Rubber plantation proved to be one such economic activity.

Rubber: A Sustainable Economic Activity for Development of Jhumias

In Tripura, rubber plantation proved to be an acceptable and viable economic activity based on which projects for development of Jhumia tribals could be planned. The reasons for such suitability are:

a) Suitability of terrain and climate

b) Availability of large tracts of unutilized land in the old resettlement project areas

c) Potential of employment generation during the immature period of plantation

d) Sustainable income generation upto 30 years

e) Acceptability by the tribal families.

f) Easy techniques of cultivation, tapping etc.

As discussed above, many of the old re-settlement projects for Jhumia tribals have ended up in failure and large quantum of land is still lying unutilized in these locations and such land could be put to use for rubber. Rubber plantation is labour intensive. It generates approximately 1200 mandays during the immature period of seven years and most of these labour would be generated in the first two years. It is estimated that approximately 50% of the total plantation cost of rubber per hectare would be on labour. For the tribal families dependent on jhum

cultivation which is a primitive form of cultivation, the change from such activity to any commercial plantation activity will have to be a gradual process which would enable them to adjust and adopt. Rubber plantation activity serves this purpose where the plantation techniques are relatively easy and the process of change is gradual since the actual tapping and processing activities would start only from 7th year onwards. With an investment of Rs. 44,000 per hectare (mostly grant/ subsidy), the returns from 7th year to 30th would be on average Rs. 60,000 per hectare per annum and such attractive returns over a longer period will develop the dependent families economically.

Thus in Tripura, rubber plantation was conceived to be an instrument of socio-economic change for economically backward Jhumia tribals. Rubber plantation performs twin functions of being commercial value and also an effective tool for poverty alleviation programmes.

The Rubber Based Development Project

Rubber was first introduced in Tripura in 1960 by the Forest Department. A Corporation namely - Tripura Forest Development and Plantation Corporation (TFDPC) was created in the year 1976to undertake rubber plantation programmes in the State. Apart from raising its own plantations for commercial purpose, the Corporation has undertaken a number of re-settlement projects for the development of Jhumia tribals. In the year 1983, an exclusive Corporation under the State Government namely - Tripura Rehabilitation and Plantation Corporation (TPRC) was created to implement the rubber based Jhumia settlement programmes. The efforts of both these State Government agencies were strengthened by effective participation of Rubber Board (RB) of Government of India, in the State, as an agency of promotion and of implementation. Apart from providing financial and

technical assistance to the rubber growers, the Rubber Board has undertaken the responsibility of implementation of development projects for the shifting cultivators. Encouraged by the success of Government agencies in promotion of rubber cultivation in the State, a number of growers - SC, ST and others have taken up individual plantations on their small holdings. The State Government has identified the rubber plantation as one of the thrust areas and actively supporting the efforts to spread the rubber cultivation in the State.

The on going rubber plantation activities can be categorized as shown below:

a) Projects by the TFDPC and TRPC

The Corporations identify suitable and compact plot of lands and the beneficiaries, develop the plantations, on these plots by engaging the participant beneficiary families as laboureres and hand over the plantations to them after maturity. The supporting facilities such as drinking water sources, link roads, fencing and also processing facilities like rolling machines and smoke houses are set up by the Corporations. It is estimated that approximately 4000 hectare (covering 3000 tribal families) is under such plantations of both the Corporations at present. The participant families are trained in plantation techniques and processing activities. The income generated from the sale of latex after maturity is shared between the Corporation and the beneficiary families till the investment made by the Corporation is recovered and thereafter plantation would be handed over completely to the beneficiary family.

b) Joint project of the State Government and the Rubber Board (Block Plantation)

In the year 1992-93, a project was formulated jointly by the Tribal Welfare Department of the State Government and Rubber Board to raise rubber plantation in 1500 ha. In a span of five years for development of Jhumia tribals. As per the

scheme, the Tribal Welfare Department provides Rs. 25,000/- per ha. And the Rubber Board provides Rs. 32,000 a total of Rs. 57,000 per ha. The contribution of the Tribal Welfare Department is used for infrastructural facilities such as link roads, fencing, conveyance, etc. and the Rubber Board's contribution is primarily used to meet the planting cost. By 1996-97, the entire target area of 15,000 ha. Is Planted covering 1200 tribal families in 25 plantation centers. Under this project, a plot of compact land (Block) is identified, entire allotted/to be allotted or recorded in the names of the tribals and the plantation is taken up on these lands by engaging the tribal families as wage earners, train them in various operational and after maturity the plantation to be handed over to the beneficiary families. The entire project cost is on 100% grant basis. This concept of Block Plantation proved to be very successful and there is greater demand now for such projects in the State.

c) Project assisted by the World Bank

A project assisted by the World Bank has been taken up in Tripura to raise plantation over 5000 ha. In five years mainly on the holdings of the tribals since 1994. Each family would have a minimum of 1 ha. Plantation. The project is a credit cum subsidy programme. The plantations are raised under the supervision of the rubber Board and a portion of the area is also being planted by the TRPC as implementing agency. Around 50% of the targeted area is planted so far.

d) Group Plantation

The individual growers are grouped together in clusters and the necessary technical supervision is provided by the Rubber Board. The sources of funds for the plantation are the subsidy from the Rubber Board, some amount of grant from the State Government and the remaining from the own contribution of the beneficiary - growers themselves in the form of labour.

It can be seen from the above description that the on going rubber based jhumia development programmes can broadly be divided inot two to meet the requirements of two different target groups for those tribals who are very backward and mostly dependent on shifting cultivation, the programmes such as Block Plantation and the projects by the Corporations have been taken up where the participant families would be engaged as wage earners in their own land, sustain them during the entire immature period of plantation, equip them with the skills required for plantation and processing and then only hand over the plantations to them. The target group population under this category of the projects need not have to contribute any funds. The second category of projects which include Group Plantation are tailored for the target group of tribal families which are partly dependent on jhum cultivation and are slightly better than the first category of people in terms of awareness, economic conditions etc. In this category, the beneficiaries are expected to manage the plantations by themselves right from the beginning and the role of the Government agency is limited to technical supervision and financial assistance where as in the first category, the entire project is implemented by the Government agency. Both the models have proved to be successful to meet the requirements of two different target groups of tribal families.

Under the programmes aimed at developing the shifting cultivators, the rubber implementing agencies have been making conscious efforts to impart the skills and training necessary for the families in up keeping the plantations and also in tapping. Various schemes have been formulated by the Rubber Board and the Corporations to give the required exposure, impart training and skills to the participant growers and also making the inputs and funds available. The State Government has been actively supporting the efforts of the Rubber Board and Corporations in under taking such development projects. Today the rubber plantation activity has been identified as one of the thrust areas in the state and in

particular the development of jhumia tribals through rubber cultivation has been recognized as the appropriate alternative to wean the tribals away from jhum cultivation and to develop them economically.

Immature period of Rubber Plantation Sustaining the 'Jhumias'

One of the main reason for failure of the traditional jhumia development programmes was the inability of the implementing agency to ensure that the participant families are sustained during the period of implementation of the project. The wages generated through plantation works of horticulture crops were inadequate and as a result some of the beneficiaries were forced to desert the settlement projects. This problem assumes greater proportion when the gestation period of the project is relatively long, like that of rubber plantation, unless the mechanism to sustain the beneficiary families during this intervening period is carefully planned.

Rubber takes 7 yeas to mature and during this period of years it provides employment of 1200 mandays. As mentioned above 50% of the plantation cost is spent towards labour. However, 75% of the entire employment is during the first 2 years only and thereafter, it tappers down to an insignificant amount towards 7th year. A poor tribal grower whose only land is put to rubber plantation, will find it difficult to earn adequate livelihood from the rubber plantation activities in the form of wages from 3rd to 7th year of the plantation and it is this period which would give scope for the families to desert the project in search of alternative livelihood. It is, therefore, necessary to provide some short trm income generation activities to the families so that they can sustain themselves till 7th year of the plantation activity.

With this objective, in the rubber based rehabilitation projects for jhumia tribal families under the World Bank assisted project, a comprehensive package

of socio-economic activities for providing short term income generation activity and other social inputs and facilities has been conceived. Under this package, broadly called as Tribal Development Plan (TDP), each family is covered under a short-term income generation activity such as piggery, fishery, poultry etc. which would generate an income of approximately Rs. 7,500/- to Rs. 10,000/- per annum from 2nd year of the Project so that the participant families can sustain themselves till the income from the rubber plantation starts yielding. Although with such economic inputs, the participant families are also covered under the programmes of adult education, health education, small savings, etc. and necessary infrastructural facilities such as roads, drinking water facilities and community halls are also provided. Such comprehensive package of socio-economic inputs along with the rubber plantation activity is very useful and meaningful for the Jhumia families to continue to stick to the project area till the maturity of rubber plantation.

Management of Change-Community Participation

The tribal families, hitherto, practicing primitive methods of cultivation are now being introduced to a settled form of commercial activity such as rubber. Through the skills required are easy to adopt, the change from a subsistence nature of jhum cultivation to a commercially promising rubber plantation activity is required to be managed meaningfully so that the target group beneficiary families would exploit the fruits of development. One of the main weaknesses in the traditional projects for resettlement of Jhumia tribal families was lack of community participation and tendency of Government agencies to implement to the projects in a mechanical manner. The emphasis was always on utilization of funds and meeting the physical targets. The beneficiaries were never encouraged to take charge of their own affairs and as a result dependency syndrome was perpetuated. The consequence was the failure of the project as soon as the Government machinery withdrew from the implementation responsibilities at the end of the project period.

In light of such experience and the necessity to manage the change, the rubber based rehabilitation projects in the State lay specific emphasis on community participation in the project where it is sought to empower the growers to manage their own affairs. In the Block Plantation Project and the Projects of the Corporations, beneficiary committees are formed. One-person is identified as beneficiary worker who would act as master trainer for the other families and also as link person. The decisions related to planting operations etc., are jointly taken by the beneficiary committee and the implementing staff. However, such approach to beneficiary participation in the project had its limitations.

Under the Project being assisted by the World Bank, special focus is given to the community participation. In order to ensure their participation, Self Help Groups with all the rubber growers of the project as members are formed. These Rubber Producer Societies (RPS) are informal groups and the rules and regulations for functioning of the groups and the rules and regulations for functioning of the groups are formulated by a social agreement amongst the beneficiary members. Initially these RPSs are entrusted with the responsibility of managing the non-rubber economic inputs, which are given to provide supplementary income during he immature period of rubber plantation. Each member of the RPS would contribute a portion of income earned from non-rubber economic activities into a common fund called Revolving Fund. The group fund thus accumulated would be utilized by the members for various economic purposes on borrowing and repayment basis.

At the same time, for the women of the participant tribal families of the project, a separate women thrift group with at least 20 members of women locally named as "Yakhili" is formed where each member would contribute Rs. 1.00 per day over a period of 5 months and matching assistance - ten times to their savings

would be contributed by the Project/DRDA which would become the Revolving Fund for the women group. On the similar lines of the Rubber Producer Societies, the members of the women thrift group would utilize the Fund for various socio-economic purposes on borrowing and repayment basis.

Around 100 such groups - Rubber Producer Societies and Women thrift group have been formed under the World Bank Aided Rubber Project so far. The NGOs are involved in implementation of the entire package of non-rubber economic activities and specifically to develop and nurture the Self Help Groups (SHGs) under the project. The participant beneficiary families of the project and the NGO staff are given adequate exposure and training both outside the State and within the State in order to handle the operations of the SHGs more effectively. This concept of SHG has induced an identity to the community, self confidence and the affiliation to the project in a significant manner. Today the groups are given the responsibility of chalking out the strategy and action plan for rubber planting operations and also for other activities such as construction of community halls, procurement of pig feed, health education, literacy etc. The effective participation of the beneficiary families will prevent desertion of the families and also alienation of the rubber plantations to non-tribals. This process of implementation of the rubber based settlement programmes on a group approach by involving all the participant tribal families has opened a new chapter in development administration in the State.

Convergence of Services

It has been seen from the experience of traditional jhumia settlement programmes that the projects are implemented often in isolation and there have been no effective linkages with other appropriate Governmental/non-Governmental programmes in order to make the project more effective. Such approach to implementation often resulted in weak infrastructure support and linkages.

With this experience in view, the rubber based jhumia settlement projects, particularly the Block Plantation programme and the World Bank assisted Project envisage convergence and integration of various on going governmental programmes in the State. For example, the funds available from JRY/EAS are used for providing approach roads and in some cases for undertaking pre-planting operations such as digging of pits etc. the services of Social Education Department and Tribal Welfare Department are enlisted in providing supplementary nutrition; the scheme of DWCRA, available with the DRDA, is used to support the SHG and also in undertaking training - production programmes for the women; the training facilities available with the Animal Husbandry and other Non-Governmental agencies are used for training the beneficiaries; the Science and Technology Department provides funds for taking up fuel wood plantation around the plantation centers which would help as wind barrier to the rubber plantation and also to meet the fuel wood requirement of the tribal participant families; the smokeless "chullas" and the Solar lighting systems are also provided by the Science and Technology Department' the services of Revenue and Rural Development Department through DMs, SDOs and BDOs are used in identifying the locations, allotment of land, survey of plantations etc. nearest Primary Health Centres are involved in the health education programmes; available with the Education Department and the total Literacy Campaign (11.C) are made use of in ensuring that all the members of the tribal house holds are made literate; under Rural Water supply programme, the Rural Development Department, through the BDOs, provides drinking water sources in the plantation centers.

Such convergence and integration of all on going Governmental programmes has proved to be extremely useful in ensuring that adequate investments are made in the rubber plantation project so that necessary linkages

are developed and each plantation center would become a self sufficient entity in due course.

Funding and Institutional Arrangements

Approximately Rs. 44,000/- is required to raise 1 ha. of rubber plantation of which the Rubber Board's subsidy is to the tune of Rs. 13,000/-. Remaining funds are to be raised either by the implementing Government agency in case of Block/Corporation plantations or partly by the beneficiary in case of Group Plantation. To undertake the development projects for the tribals on a larger scale, it is necessary to ensure that not only the adequate funds are available but also they are made available timely. Under the World Bank assisted Project, the credit which was to be provided by the Commercial Banks under re-finance agreement with the NABARD could not take off due to various constraints. Thus the grants from the Government are required to be mobilized in an effective manner to meet the requirement of funds for plantation activity.

In view of the acceptability and suitability of rubber for development of tribal jhumia families, many state government agencies have been funding/ implementing directly or indirectly a number of schemes. The agencies involved are Tribal Welfare Department, Rural Development Department, Forest Department, Schedule Castes Welfare Department, Autonomous District Council (TTAADC), and the Rubber Board. This multiplicity of agencies often leads to an ad-hoc nature of implementation arrangements/and also uncertainty in availability of funds. A close coordination amongst these agencies and an assured source of funding is felt to be the need of the hour to ensure that the projects are implemented in a more effective and time bound manner.

With this objective in view, Rubber Development Fund (RDF) has been instituted which is being handled by the Development Unit, a Society registered

under the Societies Registration Act. The concerned State Government Department such as TW Department, SC Welfare Department and the Rural Development Department and also the TTAADC contribute funds to the Rubber Development Fund centrally and from this kind of funds, the requirement of the rubber implementing agencies are met. Based on the requisition of funds sent by the Rubber Board TRPC the funds are released from time to time through bank accounts to the concerned individual growers of the implementing agency to meet a portion of the planting cost. Arrangements of pooling the resources of the State Government into one single Fund with one agency and subsequent timely release of funds to the growers/agency is found to be very useful in eliminating uncertainties related to availability of funds. The development Unit, which is entrusted with this task, is likely to emerge as a nodal agency for all rubber based development programmes in the State with main focus on the Jhumia development programmes.

The Tribal Welfare Department and the TTAADC have attached top most priority for implementation of rubber based projects for economic development of shifting cultivators. A major portion fo the funds under economic development programmes are earmarked for such plantation activities. The staff of the Department are also trained in various operations related to rubber plantation.

The role and utility of involving the Non-Governmental Voluntary Organisations in implementation of such projects is recognized by the State Government and the Rubber Board. The NGOs are being associated in implementation of various components of the rubber based projects. The continuous presence of the NGOs in the project is very helpful in ensuring a linkage between the implementing the Government agency and the target group.

The Impact

The rubber based development projects proved to be successful firstly in ensuring employment to the participant tribal families during the gestation period and thereafter attractive futures to enable the families to cross the poverty line and to improve their socio-economic condition considerably. The pre and post scenario of some rubber plantation projects fo Jhumias has clearly shown the positive impact of the plantation of changing the life style and the socio-economic condition of the poor tribal families. In the study on the impact of participation of Reang families in rubber plantation projects to TFDPC, Sri Tapan Kr. Som, a Researcher, ahs clearly brought out various dimensions of such positive impact. Such findings are supported by various other studies. One such study was conducted by the Tribal Research Institute of the State Government where it was conclave proved that rubber plantation activity has not only been a viable economic proposition but also an instrument for social change.

The people who hither to lacked access to base amenities and services are now able to avail the benefits of development administration. The shift from traditional jhum cultivation to modern rubber plantation has not proved to be a difficult task and also has not disturbed the basic social structure of the tribal communities. There are numerous examples and cases where the individual tribals covered under rubber plantation are able to lead a better life. Such demonstration of positive impact of rubber plantation activity has generated enthusiasm and interest amongst the tribals on a massive scale.

Though the extent in reduction of jhum cultivation as a result of rubber based projects has not been studied. It is clearly seen that the beneficiary families in rubber projects, are less dependent on "Jhum" and in some cases even stopped

the practice of jhum cultivation altogether. Simultaneously rubber plantation in degraded and unutilized lands has added vegetative cover in the area which resulted in improvement in local ecological condition.

Future Plans

Encouraged by the success of the rubber based projects for resettlement of shifting cultivators, the State Govt. and the Rubber Board have drawn up ambitious plans for further plantation activity and also to provide necessary processing facilities. The target for new plantation in the State during 9th Five Year Plan will be 14000 ha. Of which approximately 7000 ha. Will be for rehabilitation of jhuma tribals.

In view of success of the Block Plantation project of 1500 ha. Jointly implemented by the T.W. Deptt. And the Rubber Board, another project for 5000 ha. Has now been drawn up to be implemented over the next 5 years by the Rubber Board and the State Government. ADC has also taken up a project for development of at least 2500 ha. Of plantation for the jhumia tribals. In addition, there will be plantation by the TRPC and also by individual tribal growers. In order to mobilise the funds, the State Government has prepared a comprehensive project for rubber based jhumia rehabilitation projects and sought the funds from the Planning Commission and the Rubber Board.

With these projects, pace of re-settlement of jhumia tribals will get boosted. Such large scale plantation in the state lead to economic development of jhumia tribal families reduction of jhem cultivation and thereby restoring the ecological balance and also in creating favourable atmosphere for rubber based industrial activities.

A detailed soil resource mapping and land use study was conducted by the National Bureau of Soil & Land Use Planning (NBSS & LUP) in the State and as per this study, it is estimated than approximately one lakh hectares of land will be suitable for taking an rubber plantation, without adversely affecting the cropping pattern. Most of such lands are located in tribal areas and will be used for rubber based development projects.

Since most of the plantations raised now would be reaching maturity and also many other projects are being planned. The Rubber Board and the State Government have imitated step for preparation of comprehensive plan for processing activities. Simultaneously the industries Department of the State Government has also undertaken entrepreneurship development programmes for encouraging prospective entrepreneurs in undertaking rubber based industries.

With the result of the above efforts the socio economic condition of the tribals in particular and the economy of the State in general will undergo a rapid transformation in the days ahead.

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Mushrooming Constructions Around Defence Installations-issues and a Case Study of Field Ammunition Depot, Baddowal

- *Rahul Bhandari**

Abstract

This paper touches upon an important topic of mushrooming constructions around defence installations. With increasing urban population and lack of monitoring in the vicinity of these installations number of new constructions keep increasing every day. This can prove to be hazardous for the safety and security of the station. A number of accidents have been witnessed in the past at various stations especially around annunition dumps.

This paper starts with an introduction to this act namely Works of Defence Act, 1903. After broadly highlighting its various features a broad history of Baddowal ammunition depot is traced, which is situated near Ludhiana. Further how number of commercial complexes came up in the vicinity of these stations is also highlighted. The climax was reached when High Court of Punjab and Haryana had to intervene and asked to collector (ADC) to remove all kind of encroachments, which had come up after the notification. This paper then deals with various issues, which confront all the agencies involved under this act. At the end it deals with mechanism which has been evolved in Ludhiana and which has helped in new constructions from coming up.

* *Rahul Bhandari is an IAS officer of 1997 batch, Punjab cadre. He is an Electronics Engineer presently posted as Additional Deputy Commissioner, Ludhiana. He has handled various assignments earlier like Administrator, Punjab Urban Development Authority, ADC (Dev), Muktsar, SDM, Barnala. He was designated as collector under the Work of Defence Act and was secretary to a high power committee, which was formed to look into the lapses on the part of the administration around FAD Baddowal following a High Court order.*

India is a vasst country with an area of 32 lac sq km and land frontiers of 15851 kms. It has a maritime border of 7600 kms surrounded by Arabian Sea, Bay of Bengal and India Ocean from three sides. Seven countries namely Pakistan, Afghanistan, Bangladesh, Nepal, Bhutan, China and Myanmar share their border with India. To ensure the sovereign territory of the country, defence installations of Army, Navy and Air Force are spread throughout the length and breadth of the country.

An important issue that concerns all administrators especially posted in the districts in which these installations are based is the maintenance and upkeep of the surroundings in the vicinity of these stations. With increasing urban pressure on the available land, constructions have come up around the defence installations in a haphazard manner. These constructions, which dot the vicinity of these vital stations, can affect the security and the defence preparedness. We have been mute witnesses to some accidents in the past, as in the case of Bharatpur field ammunition depot, which was affected by a fire accident a few years ago and the accident near Bikaner in which trucks carrying arms and ammunition were damaged. Similar kind of accident happened at Dehu road near Pune, Suratgarh in Rajasthan, Mamoon near Pathankot. This is indeed a very sensitive matter and the problem needs to be addressed immediately.

In this paper an effort has been made to understand the problem of mushrooming constructions around the defence installations with specific reference to Baddowal field ammunition depot, which is situated near the industrial city of Ludhiana in Punjab. The issues which pertain to all such sites along with the mechanism developed at Ludhiana to keep a check on this problem has been discussed in detail in this paper.

Works of Defence Act, 1903

Before going into the details an overview of this important act is required, which deals with this issue.

As the preamble of this act says that 'an act ot provide for imposing restrictions upon the use and enjoyment of land in the vicinity of works of defence', this was passed to ensure the safety and security of defence installations.

In 1903, the Government of India enacted the Works of Defence Act (*Act no VII of 1903*) for the protection of area around the works of defence and for imposition of restrictions upon the land use in the buffer zone. Under the provisions of the Act, restrictions can be imposed by the Central Government regarding the use of land around any Defence installation. These restrictions can be for 500 yards, 1000 yards or 2000 yards from the defence installation (*Section 6*). For imposing of restrictions around a defence work, a declaration under section 3 of the Act has to be made by Ministry of Defence, Government of India.

The actions required under this act any defence installation are :

(i) Publication of the declaration and notice to the villagers that restrictions have been imposed by making entries in the Village Daily Diary in all the affected villages by proclamation.

(ii) Preparation of a detailed sketch plan of the area around the work of defence, distinguishing the boundaries of the land and indicating the exact details of each Khasra number of the land, on the use of which restrictions have been imposed. This should also include the exact number of buildings/structures standing as on the date of the declaration.

(iii) After the identification of the structures, which need demolition, the list of the owners of these structures should be prepared along with the list of the owners of the land on which restrictions have been imposed.

(iv) Before the expiry of 18 months from the date of declaration issued under section 3 of the Act and not beyond a period of three years, the Collector shall cause public notice to be given at convenient places on or near the land stating the effect of the said declaration and hear claims regarding compensation for all the

persons intersted in the said land. This notice is a statutory notice to issued to all such interested persons. (*section 9 of the Act*)

(v) After this, the Collector shall proceed to enquire into the objections raised by anyone, and the Collector shall make an Award of

(a) the true area of the land and the nature of obstructions from which the land is to be kept free,

(b) the compensation which in his opinion should be allowed for any damage caused with regard to removal of any existing obstruction, building or standing tree,

(c) the apportionment of the said compensation among all the persons interested in the land.

This Award shall be made after considering such matters as envisaged under section 23 of the Act.

Baddowal Field Ammunition Depot (FAD)

This depot was established in 1973. Before 1966, the Ammunition Depot was situated in the Army Complex at Dholewal, which is a part of Ludhiana now. Due to growth of the city and residential area, FAD was shifted to Daddowal around 10 kms away from its original place, in the year 1973. After acquiring land in village Baddowal on the Ludhiana -Ferozepur Road the work was subsequently started for the establishment of the Field Ammunition Depot for the storage of sophisticated ammunition for the defence forces. Strategically it si a very important depot as it caters to the Ferozepur frontier, which is very close to the Pakistan border. This depot assumes greater importance being only 110 kms away from the international border.

For imposing restrictions around a defence work, a declaration under section 3 of the Act has to be made. Accordingly, on 31.1.1983, a declaration was made by the Central Government vide which all lands lying within 1000 yards

of 17 Field Ammunition Depot, Baddowal would have to be kept free from buildings and other obstructions, as enshrined in section 7 (b) of the Act. This declaration was notified in the Official Gazette of the Govt of India on 23.4.1983.

The Field Ammunition Depot is spread over an area of approxmately 700 acres and with the imposition of restrictions under the Works of Defence Act, the land of villages namely Baddowal, Gahaur, Ayali Kalan, Jhande, Threeke, Bains was affected by the restrictions. Out of these the entire population of two villages (inside lal lakir) was affected.

How this Issue Assumed Prominence

A news item was published in Indian Express on 19th July 1999, which carried details of the unauthorized constructions, which had come up in the vicinity of the 17 FAD. Hon'ble Punjab & Haryana High Court took congnizance of the same and treated it as writ petition (*CWP no 9864 of 1999*). Bunching this petition along with CWP no 9789 of 1999, in its order dated 19th March, 2001 High Court (HC) asked Collector Ludhiana to remove all constructions, which had come up after the notification, within one year of the passing of the order. The powers of the collector under this act in the district Ludhiana has been delegated to ADC (Additional Deputy Commissioner). Further it directed the Chief Secretary Punjab to identify the officers posted in the district in whose tenure these constructions had come up and who ahd taken no action over the mushrooming constructions in the area.

It was not that the administration had been silent on the issue all along. The record shows that the matter first came to light in year 1988 when army authorities sent a list of constructions, which had come up in the vicinity of FAD in the recent times. Nobody in the administration was aware of any such act or notification at that time. It took more than one year for civil and military authorities to procure a copy of the act and the instructions passed thereafter.

The next issue was deciding the validity of the notification of year 1983. It was not clear whether the notification of year 1983 was valid or not? The proceedings under the act were to be completed within 3 years and in this case more than 7 years ahd already elapsed. Military authorities submitted that fresh notification was required as the earlier one was no longer valid. Now the moot question that arose was that who had the authority to pass this notification- whether it was the state government or central government. State government categorically stated that the powers under this act ahd not been delegated to them; hence this notification was to be reissued by the central government only. Meanwhile during this period of uncertainty many new constructions came up in the area. After dilly-dallying legal opinion was received after three years that fresh notification was not reuired, as no time limit was prescribed in the original one.

An analysis of the role of the Police is alos necessary. Army authorities would invariably write to SHO of the area mentioning about the new constructions and would ask them to take necessary action. A copy of such communications was sent to Collector also. Police would visit that area and temporarily such constructions would be stopped. Police would then report that no constructions were being carried out. There was no follow up in the different cases. Also police would write that since the offence was non-congnizable so no action could be taken.

Although patrolling was carried out but it was in piece meal manner and no follow up was usually done.

Another important point in the whole episode was that who was responsible to maintain the buffer zone around the FAD. As per the instructions issed along with the act, it is quite clear that if any body wants to carry out any kind of repair or new construction he has to seek permission from the concerned in charge of the defence installation. It was considered by civil authorities that because of these instructions army was responsible for removing any constructions, which had come up on the spot. However it was argued by Military personnel that Collector was

responsible for removing any new constructions, which ahd come up in the area. The people of the area took advantage of the same and large number of new constructions came up in the area. This issue was discussed in number of civil military conferences but no conclusion could be reached.

One important question in the mind of administrators posted in late 90s was how to demolish the buildings when no compensation had been paid to the owners of the lands. It was also contended that demolition being irreversible should not be carried out in haste. Civil Administration did every thing short of demolition like stopping clearance of building plans, asking urban development department to stop all new colonies from coming up in the area, asking banks not to clear any loan in that area etc. This helped to some extent in new constructions from coming up.

The turning point in this case was when eight marriage palaces/resorts/ hotels came up in the area, which were spread over huge area of 10-15 acres each. All these commercial activities came within a period of three years (1996-1999). These became the hub for huge gatherings. One of the marriage palaces is so close to FAD that standing at the rooftop of the same gives a good view of FAD. Usually there was display of elaborate fireworks at the time of weddings, which was very risky. This was a glaring case of failure of army, civil and police authorities. At that time the memories of Bharatpur accident were still green in the minds of the people. Also Kargil war had taken place only some months back. Public opinion was against these marriage palaces as they were too close to the operational area of the depot. Collector had issued the notices to some of these palaces and in the meantime this news item was published. After that came the order of the high court dated 19th March, 2001 which gave specific instructions to the collector and also asked Chief Secretary to fix responsibility of civil and police officers for their negligence.

Although the HC order has been stayed by the Supreme Court of India, three marriage palaces were demolished by the district administraton. SC has

ordered for maintaining status quo and no construction has come up on the area after the issuance of the order. The mechanism adopted for preventing such illegal constructions from coming up needs to be discussed at length. But before this certain important issues, which are common to all such installations, need to be discussed along with this judgment of the HC.

Issues Common to all Defence Installations

1. The first and foremost issue is whether the defence installation has been notified under section 3 of works and defence act or not? No administrator can proceed further without this notification. A recent development is a general notification by Ministry of Defence regarding all installations through out the country. The notification needs clarification regarding the size of buffer zone to be established around each installation. This is essential as we are putting restrictions on the usage of land and to what extent these restrictions are to be put is not clear. However a safe way is to put restrictions to the extent of 1000 sq yards (B category restrictions) as mentioned in the guidelines. The important thing to bear in mind is that the act does not deprive the affected people of the ownership of property and imposes certain kind of restrictions only on the usage of land.

After issuance of the notification under section 3 collectors should immediately put restrictions on the land use in the vicinity without waiting for other requirements to be completed. This is very important so as to prevent any kind of delay and prevent any sudden constructions, which come up just at the time of issuance of the notivication. HC has opined that in matters of sensitive nature like defence and security of the country, legislature has not made any powers for the general public to file any objections to the proposal regarding the restrictions (*CWP no 8707 of 1999*).

2. The second issue is the definition of outer parapet of the installation. In defence installations the point from where to measure the crest of outer parapet is very important. The Act says that restrictions are to be put within an area of 1000 sq

yards from the outer parapet of the installation. Now in many cases as in Baddowal and Air Force Station (AFS) Halwara residential portion is situated on one side of the main road i.e. state highway passing through that area and the defence installation is on the other side. HC has ordered that because of the sensitive nature it is not possible to segregate the area and the area should be measured from the outer wall or periphery irrespective of what exists where. This interpretation of HC has been challenged in the SC, which has asked HC to decide it afresh. But definitely residential areas and office areas should not be included for the purposes of measuring the periphery of the area unless because of strategic reasons. A better idea is to involve the military officers to resolve it since they are in a position to judge the situation and the need.

3. The third important issue is regarding determination of compensation to the affected people who own land in the vicinity of the station. As enshrined in the act compensation ahs to be provided to the affected people depending upon the type of restriction put and the status of the land/building at the time of notification. This exercise has to be completed within three years of notification.

In case of Baddowal FAD no compensation has been paid to the farmers even after twenty years of notification. However hon'ble HC has ordered as per the judgment dated 19the March 2001 that this does not bar the proceedings under the act and merely entails a person of higher compensation. It has further ordered that the prodeedings under the act are not analogous to Land Acquisition Act and are not time barred. *(p24; CWP no 8707 of 1999, Pb & Hr High Court)*

In another judgment of the same HC in CWP no 13323 of 1991 dated 4th September, 1992, it has ordered in a case related to ammunition depot Bhatinda that because compensation has not been paid so restrictions can not be put up in the area. *(Public Health Employees Co-op Housing Society, Bhatinda vs. i. UOI ii Collector iii Commandant, CWP 13323 of 1991, Pb & Hr High Court)*

As practiced in the case of Halwara Air base the right course followed by the administration is to put up the restrictions around an area of 900 mts. And the emphasis should be on the preventive part of any encroachment from coming up in the area. The case for paying the compensation after seeking clarifications for the extent of buffer zone should be taken up separately with the government. The most important thing is to map the complete area including the structures and make a list of all buildings or structures existing and ensure no fresh construction is carried out.

4. The next issue deals with the government agency who has to take action against the defaulter. Rules reveal that rule 4 at page 30 defines the restrictions to be imposed and meaning of clearance zone within the vicinity of the ammunition depot. However further at page 34 it is defined that who will be responsible to keep this clearance zone free from buildings and obstructions. Both these provisions are reproduced below :-

"Division/Area Commanders are responsible for the condition of all Works of defence in their areas and for seeing that the rules regarding the demarcation and control of clearance zones are strictly observed. They will arrange for annual inspection of every work of defence and obtain a report in each case as follows.

a) Defects and deficiencies.

b) A certificate that the plan & schedule of the clearance zone have been compared with the actual building and obstructions on the ground and that no buildings or obstructions have been erected other than those noted in the certificate.

Perusal of Works of Defence Act reveals that Collector has only to assess the compensation to be given to the people, whose land falls with in jurisdiction of the restricted area and restrictions have been imposed as per the provisions laid down in the Work of Defence Act.

The best course is a concerted effort. Instead of carrying out lone inspections it is desirable to maintain a uniform command of Army, Civil administration and Police. At Ludhiana we have been able to carry out demolitions by a joint effort of all the three agencies. Using this we are able to use the best services of all the agencies like patrolling reports are received from the Army, legal notices and opinions are issued by the collector and these notices are served by police authorities. Joint patrolling has a detrimental effect on people, which is analogous to a flag march conducted by the army.

It is a matter of grave national security and concern hence it is best not to pass the buck on one another regarding carrying out the demolitions. Rather it is more important to preserve the buffer zone, as it existed at the time of notification.

5. The act is about a century old. No clear-cut rules have been drafted along with this act. The punishment prescribed under the act is also very minimal. Besides it is a non-cognizable offence. The maximum punishment for the offence carried out first time is one-month imprisonment or Rs 100 fine. For continuing offence, additional fine of Rs 5 per day after the first in regard to which the person is convicted of having persisted in the offence. This is too less to have any detrimental effect on the people. So the act requires thorough revision and it should be given more teeth.

It becomes all the more important for us to concentrate on the preventive part than on punitive one. The act provides that the matter be referred to the Magistrate who would then issue orders and only then police can investigate the matter. This leads to a lot of delay in conviction and even if one is convicted he can easily pay the fine and go Scot-free. Regular monitoring to prevent the constructions from coming up at the very start itself is important.

6. The next issue is an ethical one specially related to the areas in which population existed even at the time of the notification. As in this case there were two complete villages, which fell in the buffer zone. Now restrictions have been imposed that

even the villagers cannot repair their old houses nor can add rooms or any other construction to their existing house. The sizes of the households have grown over a period of time. In certain cases permission was not given to even change their Kacha roofs. This leads to a moral dilemma. Where should their families go? Either an alternative in the form of some rehabilitation policy should be framed or some leniency should be adopted for such like cases.

The right course is to segregate the commercial or dangerous activities from the ordinary residential activities. Even within the residential areas further segregation has to made within the Jhuggis and the Pucca houses, which were existing earlier. In this instance our initial focus was the marriage palaces since they were commercial involving dangerous activities and only after that we dealt with the ordinary households.

Minor repairs within the houses should be allowed withprior permission on case-to-case basis.

7. This depot was shifted only 30 years back. Why is their demand to shift it once again? This clearly shows that a proper site was not identified at that time and nobody thought what it would be like in the next 50 years. While planning for such cost consuming and strategic installations a lot of prior thinking needs to be carried out.

Fresh Initiatives Which Have Been Taken

a. The complete area has been mapped around the FAD. For the sake of clarity images taken with the help of remote sensing satellite have been used. All landowners along with the details of the buildings have been mapped on the Khasra numbers.

b. Meetings with all the Panchayats have been conducted and all the villagers have been briefed about the act and the orders of the HC and SC. Notice boards regarding the limit of extent of FAD buffer zone have been prominently displayed.

c. Weekly meetings are conducted under the chairmanship of ADC (Collector under this act) on a fixed day. These are attended by Army, Revenue and police officers. Any kind of construction coming up despite the ban is immediately brought to the notice of the forum. Information is received now through three different sources namely army, police and revenue authorities other than joint patrolling which is carried out periodically, leaving very less chance for a miss. This information is also recorded in the Daily diary register of the Patwari. Police and the army patrol unit immediately reach the spot and ask the owner to stop the construction failing which a legal notice is issued by the collector to the defaulter to remove the construction within 15 days. In case the defaulter fails to act on his own the constructions are removed by a joint operation of civil, military and police operations.

d. In case of any dispute regarding the demarcation of the land (whether it falls within the buffer zone) revenue authorities are asked to do the needful within 7 days. Any person with a grievance can attend the meeting, which is responded to immediately.

e. People in the area have been asked to seek prior permission before carrying out any repairs in their existing houses. All these applications are marked to the in charge FAD and are discussed in these weekly meetings. All efforts are made to take a lenient view towards genuine requests.

f. There is problem of people burning wheat and paddy fields after the harvest so as to prepare the land for the next crop. This can be very dangerous to the depot. This has been stopped completely and revenue authorities have been asked to keep a strict vigil over this. A total ban of burning fields has been imposed in the area.

g. A total ban has been imposed on the use of the fireworks in the marriage palaces, which could not be demolished because of SC stay. Already prosecution has been launched against one defaulter.

h. The impact of regular vigil and monitoring has been tremendous. In the last two years 40 cases came up in which an effort was made to start the constructions. Out of these in 15 cases the work was stopped at foundation level only. In around 5 cases the violations were in the form of changing the roof or the plaster of the existing house. Demolitions were carried out in 17 cases. Rest of the cases have been referred to Western Command Headquarters for approval, as they are quite important for the villages.

i. Notices to all the individual landowners have been prepared so as to decide their claims for the compensation a soon as the stay of SC is lifted.

Thus an effective system of monitoring of the constructions around the FAD has been evolved in which all the agencies now participate and no new constructions are allowed to come up in the buffer zone. It would not be an exaggeration to state that there is now perfect coordination among police, civil and military authorities. People and the authorities have now woken up to the problem and an all out effort is being made to solve it.

It is being realized by one and all that the matter is actually serious and if due attention is not given at this point of time it can assume serious proportions and can have wide ranging ramifications. These are vital installations necessary for the safety and the security of the country, which need to be protected at any cost.