

ECONOMIC DEVELOPMENT IN RURAL SECTOR

Dr. Sudesh Kumar



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Preface

Economic development in the rural sector is a vital component of overall national development, as rural areas are home to a significant portion of the population and play a crucial role in agricultural production, natural resource management, and cultural preservation.

Agriculture is the backbone of many rural economies, and investing in agricultural development is essential for increasing productivity, improving food security, and boosting rural incomes. Initiatives such as agricultural extension services, access to credit, and adoption of modern farming techniques can enhance agricultural productivity and promote sustainable rural development.

Encouraging entrepreneurship and small-scale industries in rural areas is key to unlocking economic potential and creating employment opportunities. Supporting local entrepreneurs, providing access to finance, and fostering innovation can stimulate economic growth, diversify rural economies, and reduce dependency on agriculture.

Investment in rural infrastructure, including roads, electricity, water supply, and telecommunications, is critical for enhancing connectivity, facilitating trade, and improving access to markets and services. Infrastructure development can unlock economic opportunities, attract investments, and improve the quality of life for rural residents.

Social welfare programmes targeting education, healthcare, and social protection are essential for addressing poverty, inequality, and social exclusion in rural areas. Investing in education and healthcare infrastructure, providing access to basic services, and implementing social safety nets can improve human capital development and enhance overall well-being in rural communities.

Sustainable management of natural resources, including land, water, and forests, is crucial for promoting environmental sustainability and rural livelihoods. Adopting practices such as conservation agriculture, watershed management, and agroforestry can enhance resilience to climate change, protect ecosystems, and improve rural incomes.

Collaboration between government, private sector, civil society, and community organizations is essential for promoting economic development in rural areas. Public-private partnerships can leverage resources, expertise, and networks to implement development projects, strengthen local institutions, and empower rural communities.

Promoting inclusive growth in rural areas is essential for reducing poverty, inequality, and social disparities. Ensuring equitable access to opportunities, resources, and services for all segments of the population, including women, youth, and marginalized groups, is critical for fostering sustainable rural development and building resilient communities.

In this book, we delve into strategies for fostering economic growth and prosperity in rural communities, exploring initiatives to unlock the potential of rural areas and improve the livelihoods of their residents.

–Author

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Economic Development Models

Together with a saving function, growth rate equals s/a (s is the saving rate, and a is the capital-output ratio). Assuming that the capital-output ratio is fixed by technology and does not change in the short run, growth rate is solely determined by the saving rate on the basis of whatever is saved will be invested.

HARROD–DOMAR MODEL

The Harrod–Domar model delineates a functional economic relationship in which the growth rate of gross domestic product (g) depends positively on the national saving ratio (s) and inversely on the national capital/output ratio (k) so that it is written as $g = s / k$. The equation takes its name from a synthesis of analysis of growth by the British economist Sir Roy F. Harrod and the Polish-American economist Evsey Domar. The Harrod–Domar model in the early postwar times was commonly used by developing countries in economic planning. With a target growth rate, and information on the capital output ratio, the required saving rate can be calculated. It was the best system.

EXOGENOUS GROWTH MODEL

The exogenous growth model (or neoclassical growth model) of Robert Solow and others places emphasis on the role of technological change. Unlike the Harrod-Domar model, the saving rate will only determine the level of income but not the rate of growth. The sources-of-growth measurement obtained from this model highlights the relative importance of capital accumulation (as in the Harrod–Domar model) and technological change (as in the Neoclassical model) in economic growth. The original Solow (1957) study showed that technological

change accounted for almost 90 percent of U.S., economic growth in the late 19th and early 20th centuries. Empirical studies on developing countries have shown different results.

Even so, in our post-industrial economy, economic development, including in emerging countries is now more and more based on innovation and knowledge. Creating business clusters is one of the strategies used. One well known example is Bangalore in India, where the software industry has been encouraged by government support including Software Technology Parks.

However, when looking at the growth rate put forward from the neoclassical growth model, it seems to suggest that countries with same characteristics and technology will eventually converge to the same rate of growth. However, one should know that the knowledge presented in countries that promotes technological advancement is not stationary. Meaning that knowledge are linked to individual and not to the country.

According to Lucas Jr (1988) to compensate the movement of knowledge, we should implement factors such as labour factor to predict immigration flow. With labour movement coming into factor, we can then predict the flow of knowledge which can then successfully lead to increase in technology.

THE INDUSTRIAL FOCUSES OF CAPITALISM

The decisive part of (lie economic potential of capitalism is still, in spite of the very considerable changes in the distribution of its productive forces after World War I, concentrated in two principal regions—Western Europe and North America. This is due to the whole preceding course of their historical development, especially in the monopoly stage. At the beginning of the 1080s more than 70 per cent of the aggregate product of world capitalism was created in these regions, or nearly seven-eighths of the gross production of its industrial centres. As a result of World War II there was an abrupt redistribution of forces between the principal countries of monopoly capitalism and their opposing groupings of that time, but the total share of the production of North America and Western Europe within the shrunken boundaries of the imperialist system after the war not only was not reduced but even rose a little. At the turn of the 40s and 50s around 94 per cent of the goods and services of all the countries of this system were produced in them.

The postwar disorganisation in the economies of the overwhelming majority of West European countries and Japan favoured establishment of the domination of the United States in the capitalist world, production capacities being concentrated in it that considerably exceeded those of all the other capitalist countries taken together. Major sectors of the economy of Canada, where around 6 per cent of the GDP of the North American region was created in 1950, were moreover under full American control.

The economic expansion of U.S., monopolies had acquired a broad scale in other developed capitalist countries as well, since the latter's monopoly groupings were at best only in a condition to claim the position of junior partners

of their American rivals. U.S., military and political superiority in the non-socialist world was then unchallenged. Priority of the dollar had also been established in the international monetary system. It would seem, at first glance, that there was no force that could oppose the gigantic growth (as a result of the war) of the expansionist strivings of the American monopolies.

And still the attempts to consolidate hegemony of one country's monopoly capital in the imperialist system further, or to maintain it for a long time, proved flimsy. The objective processes governed by operation of the law of the unevenness of capitalist countries' economic and political development, were characterised by new shifts in the distribution of the productive forces within modern capitalism.

Although the GDP doubled in North America in the 50s and 60s its proportion in the world aggregate fell by around 5 per cent. The volume of production in Western Europe rose by 160 per cent in the same period and by nearly 360 per cent in the other capitalist countries, mainly because of Japan. Consequently, there was a corresponding growth of the proportion of these two last groups, and the gap between the GDP of North America and Western Europe was patently reduced.

The operation of this trend during the cyclic development of modern capitalism, it is true, like the processes in general considered here, has not been displayed evenly or stably. After the world crisis of 1974–75, for instance, the gap between North America and Western Europe widened a little, but at the turn of the 70s and 80s, because of a substantial fall in GDP growth rates in the USA and Canada, it again narrowed. Since the late 60s Western Europe's share in the total production of capitalism's industrial centres has in turn begun to show a tendency to fall (because of the speeding up of the economic growth rates of other developed capitalist countries).

This has all led to the total weight of North America and Western Europe in the total GDP of all capitalist countries beginning gradually to decrease in the past 15 or 20 years, for all the considerable fluctuations in their development rates. By the beginning of the 80s it was 8 per cent lower than at the beginning of the 50s, and 5 to 6 per cent lower than the 60s. It is unlikely that one need consider this line of development a temporary one.

In the capitalist countries not located in the West European and North American centres, the principal production capacities are concentrated in Japan. It is the rapid postwar development of the Japanese economy that has governed the substantial growth of the role of this group of countries in the world capitalist economy. At the end of the period reviewed their share in the aggregate production of goods and services of capitalism's industrial centres was more than 14 per cent, as against roughly 8.5 per cent at the very beginning of the 60s, and 6.5 per cent at the turn of the 40s and 50s. It is not fortuitous that the monopoly circles of the USA and Western Europe are increasingly alarmed by the possibility that the Japanese 'centre of force' will take the lead in the world capitalist economy by the end of this century.

The second area of significance among these 'other countries' is Oceania, which includes Australia and New Zealand. But they lag markedly behind Japan and the other leading capitalist countries in both the scale and the rates of their development of production. At the end of the period under review their production was only a fifth of Japan's, while their GDP had been more than half that of Japan's at the beginning of the 50s. Oceania, and in particular Australia, has great, still unutilised potential resources, which allows us to assume a rise in the development rates and role of this region in the coming period. We must also remember, moreover, that the countries of Oceania are being more and more distinctly drawn into the orbit of economic influence of the Japanese 'centre of force'.

The rivalry of the monopolies in the struggle to divide and re-divide spheres of political domination and economic influence can only be studied in motion. At the same time it would be wrong to reduce this struggle simply to an analysis of imperialist contradictions within the limits of separate countries or even regions. The whole system of capitalism is becoming its field. As Lenin wrote: Monopolist capitalist associations, cartels, syndicates and trusts first divided the home market among themselves and obtained more or less complete possession of the industry of their own country. But under capitalism the home market is inevitably bound up with the foreign market—As the export of capital increased, and as the foreign and colonial connection, and 'spheres of influence' of the big monopolist associations expanded in all ways, things 'naturally' gravitated towards an international agreement among these associations, and towards the formation of international cartels.

In those conditions a need arose for a comprehensive analysis of the process as a whole. A new level of the international concentration of capital and production has been reached in recent decades, incomparably higher than at the beginning of the century. But whatever the degree, forms, and methods of concentration, Lenin's methodology of studying shifts in the structure and distribution of production among the principal imperialist powers remains of first-rate value for estimating the important development trends of the system of international capitalist division of labour and inter-imperialist contradictions. These shifts stem from processes developing within the national economies and characterising the position of each country in the world economy to a decisive extent.

The tendencies noted above towards growth of production in the industrially developed regions have in fact been determined in the postwar period, as throughout the preceding history of monopoly capitalism, by a handful of powers, whose composition has essentially remained unchanged, limited to the Bix Six (the USA, Japan, and the four West European powers, Great Britain, West Germany, France, and Italy).

Although there have been changes in the balance of power of the Six that have been of considerable importance in their long-term world economic consequences, more than four-fifths of the GDP of all capitalist countries was

produced in them at the end of the 70s, a fact that explains one of the deep-lying causes of the maintenance of their dominant position in the decision of the world economic and political problems of modern capitalism. The tendency noted in postwar years towards a gradual reduction of the weight of the 'great' powers in the aggregate production of capitalist countries has primarily been associated with the very substantial fall in the postwar share of the USA. The objective conditions were thus brought about for an inevitable gradual growth of instability and inner contradictions in imperialism's system of world economic ties that arose soon after the war under the aegis of the United States. The quite slow economic growth of Great Britain, the country that was the USA's closest junior partner in the building of this system, in turn helped weaken and undermine it. The share of Great Britain, once the mightiest power in the capitalist world, in the aggregate GDP of today's industrial centres of imperialism has fallen by nearly 40 per cent. At the same time there has been a relative consolidation of the positions of the other members of the Six (West Germany, France, Italy, and especially Japan), though with substantial differences.

As a result the distribution of the production capabilities of the main capitalist powers had acquired qualitatively new features at the beginning of the 80s, different from both the prewar and the first postwar years. The powers that were defeated in World War II, whose economies suffered a smaller burden of militarisation immediately afterwards because of certain circumstances, strengthened their position in the capitalist world economy at the expense of the powers (chiefly the USA and Great Britain) that headed the imperialist camp after the war; and were striving to take on responsibility for its fate. The sinking of Great Britain from second place among the Six to next-to-last, and the rise of Japan from last to second place, as regards GDP, are very indicative. West Germany perceptibly strengthened its influence, and only France, of the West European victor-powers, managed to consolidate its position a bit as regards its weight in the aggregate production of the principal capitalist countries.

A very peculiar situation built up during their uneven economic development in the 70s and early 80s because of the extraordinary deepening of the whole set of world capitalism's contradictions. Its peculiarity consisted primarily in the process' having taken place, as we showed above, on the background of a general and relatively protracted slowing down of the economic growth rates of all capitalist countries, which showed particularly clearly after the 1974–75 economic crisis.

It has therefore been a matter, of late, of the maximum prevention of a further crisis decline in rates of production, in the course of the bitter rivalry of the imperialist monopolies and powers on their home and the world markets, rather than of raising them. In that connection the shifts in the ratios of the industrial potentials of the leading industrial powers considered above show only the relative changes in their positions compared with other powers. The continuing rise in Japan's share of the gross product of the Big Seven, for instance, is essentially due to the fact that its rates of general economic development,

although down 60 per cent in the 70s on the previous decade, all the same remained markedly higher than those of its main rivals. The shifts in the distribution of the productive forces noted above cannot, however, diminish the fact that the United States is still the leader among the capitalist powers because of its predominant economic might. Its share in the aggregate product of the Six, it is true, has shrunk, but more 144 goods and services were still produced in that country at the end of our study period than in all its principal imperialist rivals. The United States had a GDP four times that of Japan at the beginning of the 80s and almost double that of the four West European countries taken together. Some of the GDP of the other capitalist countries (apparently at least 6 or 7 per cent on the average), it must be noted, moreover, was created then either under the direct control of American transnational corporations, or with their direct involvement.

The leading position of the USA was markedly strengthened in the monopoly stage. In 1913 the USA produced almost as much output as Great Britain, France, Germany, and Italy taken together. In the early interwar period (1920) (according to the Soviet economists Bolotin and Kudrov) the volume of U.S. production was around half the GDP of the industrial centres of capitalism (within their contemporaneous frontiers), was about equal to the total GDP of all the countries of Western Europe, and was 25 per cent greater than that of the four main ones.

From the end of the 20s the U.S.'s role in the world economy began to decline noticeably, and it felt the weight of the economic crisis of 1929–33 more than the other capitalist powers. On the eve of World War II the U.S. share in the aggregate production of capitalism's industrial centres had fallen to 41.7 per cent, but was still 230 per cent that of Great Britain (12.5 per cent), 340 per cent that of West Germany (9.5 per cent), 380 per cent that of France (8.7 per cent), and six times as great as Japan's (7.0 per cent).

Generally speaking, long-term analysis of the constant fluctuations in the relation of the main powers' production capacities suggests that the position of the USA in the GDP of imperialism's centres was substantially weakened at the beginning of the 80s compared with the levels reached after the two world wars. Furthermore, their weight seldom fell so low during the whole preceding history of monopoly capitalism, yet, being still much superior to their main rivals in economic power, area, natural resources, and population, they still retain a leading position in the world economy.

It would obviously be insufficient to explain the changes mentioned just by transit factors stemming from the specific conditions of the development of production in these countries, taken separately, for one year or another. Changes like these on the long-term plane are ultimately determined by the deep-seated patterns of monopoly capitalism brought out by Lenin at the beginning of this century, patterns that include tendencies to a levelling of the development of its business centres.

This trend, which reveals an important feature of the intensification of the uneven development of the capitalist powers, like other objective patterns at

the stage of imperialism was not and could not be stable. On the one hand, its effect has been repeatedly disrupted and broken by the military and political, and cyclic, upheavals of the world capitalist economy. On the other hand, it has been intensified and stimulated by the internationalization of capital, which in turn has promoted a concentration and specialisation of production on an international scale, mainly in periods of relatively peaceful development.

The processes leading to this levelling have been very distinctly manifested during the mounting impact of the scientific and technical revolution on the productive forces at a time when world socialism has significantly limited monopoly capital's possibilities of unleashing global destructive wars and resolving inter-imperialist contradictions by force of arms. Graphic evidence of that is provided by comparative indicators of the total GDP per capita in the countries where the main economic potential of modern capitalism is concentrated.

It will be clear from the facts cited that the unevenness leading to gradual closing of the gap between the development levels of advanced capitalist countries is being converted into an integral world economic problem of monopoly capitalism. With time, as these levels converged, it has been becoming more and more pressingly important, in fact, for the many phenomena determining both the current and the long-term development trends of capitalism's whole system, of international relations to be investigated. This tendency makes it possible, as well, to determine more exactly certain long-term consequences of the various groupings' continuous competition, and the chances, limits, and prospects of their temporary alliances and blocks in the postwar capitalist world.

It has begun to appear probable that some of the main imperialist countries will succeed in approaching the USA in such important economic indicators as GDP per capita even before the end of this century, and in individual cases overtaking them. It must be remembered, when analysing the world economic consequences of the shifts brought out, that the U.S., growth rates of per capita GDP were higher in our study period than in the interwar years, and higher on the whole than in the first half of the century. At the end of the 70s they were almost 80 per cent higher than in 1950 (in 1970 prices), but the dynamics of their growth was clearly slower than in the USA's main imperialist rivals, Great Britain excepted.

Consequently there was a marked redistribution of forces within this group of countries, and at the same time a certain convergence of levels of development. The Japanese economy, for instance, which still lagged around 45 per cent behind Great Britain in this respect had surpassed the level of the latter by 50 per cent two decades later. Italy, which had been in bottom place in the Big Seven, had come very close to Great Britain, although, like Britain and Japan, it had not reached the average European level of per capita GDP at the end of the period analysed. At the same time France and even more West Germany were considerably above this level, the latter proving to be even a little above the

USA at the beginning of the 80s. These facts by no means exhaust analysis of the extreme contradictions and trends spontaneously operating in the present capitalist world towards intensification of the uneven economic development of separate regions and countries, but they do make it possible to discern the general contours of a very intricate process, namely, the shifts in the sectoral structure of the distribution of their production, and so to bring out several characteristic features of this mounting unevenness. If we estimate these shifts in the light of the indicators of the dynamics of the main industries that contribute to the aggregate product of all the developed capitalist countries, and primarily of North America and Western Europe, then calculations based on UN statistics make it possible to draw the following conclusions, highly important for our further investigation.

The sphere of material production in North America (industry, agriculture, building) developed as a whole more slowly (with a very broad range of long-term and annual fluctuations of growth rates in the industries of each country taken separately) than in the countries of Western Europe. There had been even a more considerable slowing of North America's growth rates compared with the capitalist countries of other geographical areas, in which Japan's unusually rapid economic progress played a paramount role in the first postwar decades. We estimate that the volume of production in this sphere increased on the whole by 160 per cent in the first group during the 50s, 60s, and 70s, by 240 per cent in the second group, and by more than 500 per cent in the last. The gap between these regions, moreover, was not evenly closing in the various industries. It was closing mainly by industry and building. In agriculture, in which production developed at low rates almost everywhere after the war, North America was a little behind Western Europe, and later fell obviously behind the other capitalist countries.

As regards the sectoral dynamics of the sphere of circulation and services in the main regions, large-scale changes also developed, which can be attributed initially to several resultant indicators. The total volume of the product of the sectors of non-material production trebled in Western Europe over the same period, increased by 180 per cent in North America and nearly eightfold in the other countries where it had been historically at a relatively low level. Here, too, the levelling was accompanied with an intensifying of the unevenness of development.

Because of their high degree of statistical generalisation these figures cannot claim to be absolutely accurate. Still, in our view, they reflect the long-term processes actually taking place after the war with sufficient reliability. They can also be used as an approach to forecasting these processes, as they indicate the most probable trends in the movement of the interconnected tendencies both towards a heightening of unevenness and to a levelling up of the sectoral structure of capitalist countries' GDP. It must also be recalled that as regards total volume of industrial output (in fixed 1970 prices) the West European region came noticeably closer to the North American, although the gap between them

remained “quite considerable in per capita terms, being around 40 per cent in contrast to the nearly two-thirds of the early 50s. The growth rates of the economic capability of Western Europe and other capitalist countries are inseparable from the development of construction in them. This has been the second industry (after agriculture) in which Western Europe has exceeded North America in absolute terms since the war, though it still lags behind in per capita terms. At the same time the other capitalist countries have come fully up to the European level; whereas the contribution of building to the GDP in them used to be traditionally in last place, now substantially exceeds agriculture. At the end of the 70s the ratio of building and agriculture in the aggregate social product of all main groups of capitalist countries is estimated at 1.3:1 in favour of the former.

The international political consequences of the structural shifts that have taken place in the distribution of farm production in the capitalist centres are no less important than the economic ones. They are not as impressive and marked, it is true, as in industry and building, largely because of the historical features of the way the uneven distribution of the productive forces came about in this industry.

The West European area, which long surpassed the North American in the absolute scale of farm production (except during the world wars), has steadily fallen behind the USA and Canada in per capita production, especially of food. During the first postwar years this gap began to be rapidly closed, and in the 60s, when farming was transferred onto a basis of machine industry, West European per capita production was already around 60 percent of the North American level.

The subsequent convergence was not, however, clearly expressed, since the production of certain food and fodder crops accelerated in the USA and Canada and was more and more oriented on the expanding demand of the foreign market. In some years the tendency to close the gap ⁱⁱⁱ general disappeared, and was reversed. The close dependence of agrarian production on natural conditions, plus the continuous fluctuation of market conditions, makes it difficult to distinguish stable trends and growth prospects in separate regions and countries over comparatively short periods. Still, the regional lines of the longterm development of agriculture noted above permit us to ¹⁵³ assume that the tendency to level up will most likely continue given the potentially increasing shortage of certain types of agricultural raw material and food in the present-day capitalist world economy, above all in its former colonial periphery. The decline in the importance of agrarian production in the economies of most developed capitalist countries, it must be emphasised, will probably reach a certain limit, which may be characterised by the weight of agriculture in the GDP of the United States.

Everywhere there is, for example, a steady decline in the proportion of agriculture in the sphere of material production. In the period under review it fell from 14 to 8 per cent in North America, from 20 to 10 per cent in Western

Europe, and from 30 or 31 per cent to 11 per cent in the other areas. At the same time there was a gradual raising of the corresponding proportion of industry almost everywhere in the main centres of capitalism, mainly through the leading heavy industries.

Among the objective processes operating synchronously in the sphere of non-material production the long-term trend towards a raising of the role of services has become of paramount importance since the war. The trend has developed unevenly in the different countries and at various stages, which has promoted the redistribution of the productive forces in the 'services' of the main economic centres already referred to. North America has maintained its leading position in this sector to a greater extent than in others. At the end of the 70s, for instance, around 56 to 57 per cent of the whole output of the services sphere of the developed capitalist countries was still produced in the North America, and it was, moreover, the most dynamic sphere of the postwar economies of the USA and Canada.

The superiority of the North American area in per capita production of services was even more marked. At the end of the period under review North America exceeded the average West European level by 160 per cent and was more than three times the level of the other capitalist countries. In this sphere, as in the other main sectors of the GDP, a tendency is discernible in turn towards a levelling up, which is clearly displayed in the consolidation of its importance in the economy of modern capitalism, per capita regional and national indicators included. But even allowing for a very probable gradual intensification of this trend, the existing considerable gap in levels of development will remain a feature of the economies of capitalist countries for the last twenty years of the century.

A certain smoothing out of previously formed substantial differentiation of the role and place of trade and commerce in extended reproduction has also been characteristic of the postwar development of these economies. It has come about, as a rule, through a decline in the proportion of trade in their GDP, where it was traditionally high, and through a rise where it was comparatively low. In spite of the gradual convergence of the per capita indicators in this sector, however, more than half of the added value created in the trade and commerce of the developed capitalist countries taken together came at the end of 70s from the North American region, and the per capita gap, moreover, remained particularly wide. Analysis of the postwar trends allows us to conclude that the weight of trade and commerce may hardly change essentially on an average. For most countries, apparently, it will remain between one-sixth and one-seventh of the GDP.

The regional dynamics of transport and communications in the industrial centres had much in common with that of the growth of trade and services. Given the increasing unevenness of growth in the various countries and in these sectors under the scientific and technical revolution, a levelling tendency forced its way through, which led to a gradual closing of the gap between them in both

absolute terms and per capita indices of production. At the end of the period reviewed, however, nearly as much was produced in value terms in the North American region as in all the developed countries of the other regions.

The tendencies to 'self-movement' of the main sectors of production in world capitalism's centres considered in this section bring out, in their aggregate, several very important shifts in its postwar structure. In essence they are various forms of the manifestation of broader processes reflecting both the course of the unevenness of capitalism's economic development and the objective needs of the further growth and internationalisation of society's productive forces. Concrete analysis of these trends undoubtedly remains topical for a description of the underlying processes taking place within this mode of production in our time.

These needs have largely determined the regional and sectoral shifts in the postwar production of the developing countries in the ever deepening crisis of world capitalism's former colonial relations. In the stage of imperialism, as we know, the sphere of operation of the law of uneven economic and political development began to embrace not only its centres but also their agrarian appendages drawn by the colonial powers and foreign capital into the maelstrom of international economic relations. In October 1917 Lenin insistently stressed: As if all peoples were *equally* drawn into this one world economy! As if there existed no relationship of *bondage* between the uncivilized and the 'civilized' peoples precisely *on the basis of* 'all peoples' being drawn 'into one world economy'.

This postulate of his has acquired special significance and topicality with the break-up of imperialism's colonial system. But a wide range of matters arises here, stemming from the specific features of the manifestation of the law of uneven development in the former colonial periphery, matters that call for special, comprehensive analysis.

DEVELOPMENT ECONOMICS THEORIES

A number of theories are concerned with how economies develop over time. Some of these theories include:

- *Comparative advantage:* Predicts all countries gain if they specialise and trade the goods in which they have a comparative advantage. This is true even if one nation has an absolute advantage over another country.
- *Rostovian take-off model:* A linear theory of development that argues that economic modernization occurs in five basic stages of varying length—traditional society, preconditions for take-off, take-off, drive to maturity, and high mass consumption.
- *Harrod–Domar model:* Explains an economy's growth rate in terms of the level of saving and productivity of capital.
- *Dual Sector model:* Explains the growth of a developing economy in terms of a labour transition between two sectors, a traditional agricultural sector and a modern industrial sector.

THEORIES AND MODELS LINKED TO DEVELOPMENT

This tutor 2u revision note introduces some of the main theories and models linked to the subject of economic development. Links are provided to further revision notes that explain each theory or model in greater detail.

WHAT DO THEORIES AND MODELS TRY TO DO?

Economic development theories and models seek to explain and predict how:

- Economies develop (or not) over time.
- Barriers to growth can be identified and overcome.
- Government can induce (start), sustain and accelerate growth with appropriate development policies.

Theories are generalisations. While LDC's share similarities, every country's unique economic, social, cultural, and historical experience means the implications of a given theory vary widely from country to country.

There is no one agreed 'model of development'. Each theory, like Rostow, gives an insight into one or two dimensions of the complex process of development. Eg Rostow helps us to think about the stages of development LDC's might take and Harrod Domar model explains the importance of adequate savings in that process.

THE MAIN MODELS:

| | |
|--------------------------|---|
| Comparative advantage | Economic theory predicts all countries gain if they specialise and trade the goods in which they have a comparative advantage. This is true even if one nation has an absolute advantage over another country. |
| Rostow | This is a linear theory of development. Economies can be divided into primary secondary and tertiary sectors. The history of developed countries suggests a common pattern of structural change: |
| Harrod-Domar | The Harrod-Domar model developed in the 1930s suggests savings provide the funds which are borrowed for investment purposes. |
| Lewis | The Lewis model is structural change model that explains how labour transfers in a dual economy. For Lewis growth of the industrial sector drives economic growth. |
| Dependency Theory | Dependency refers to over reliance on another nation. Dependency theory uses political and economic theory to explain how the process of international trade and domestic development makes some LDC's ever more economically dependent on developed countries. |
| Balanced Growth Theory | Balanced growth (or the big push) theory. argues that as a large number of industries develop simultaneously, each generates a market for one another. |
| Unbalanced Growth Theory | Unbalanced growth theorists argue that sufficient resources cannot be mobilised by government to promote widespread, coordinated investments in all industries. |

OPEN DIRECTORY PROJECT

ODP uses a hierarchical ontology scheme for organizing site listings. Listings on a similar topic are grouped into categories, which can then include smaller categories.

PROJECT INFORMATION

ODP was founded as Gnuhoo by Rich Skrenta and Bob Truel in 1998 while they were both working as engineers for Sun Microsystems. Chris Tolles, who worked at Sun Microsystems as the head of marketing for network security products, also signed on in 1998 as a co-founder of Gnuhoo along with co-founders Bryn Dole and Jeremy Wenokur. Skrenta was already well known for his role in developing TASS, an ancestor of tin, the popular threaded Usenet newsreader for Unix systems. Coincidentally, the original category structure of the Gnuhoo directory was based loosely on the structure of Usenet news groups then in existence. The Gnuhoo directory went live on June 5, 1998. After a Slashdot article suggested that Gnuhoo had nothing in common with the spirit of free software, for which the GNU project was known, Richard Stallman and the Free Software Foundation objected to the use of Gnu. So Gnuhoo was changed to New Hoo. Yahoo! then objected to the use of “Hoo” in the name, prompting them to switch the name again. ZURL was the likely choice. However, before the switch to ZURL, New Hoo was acquired by Netscape Communications Corporation in October 1998 and became the Open Directory Project. Netscape released the ODP data under the Open Directory License. Netscape was acquired by AOL shortly thereafter, and ODP was one of the assets included in the acquisition. AOL later merged with Time-Warner.

By the time Netscape assumed stewardship, the Open Directory Project had about 100,000 URLs indexed with contributions from about 4500 editors. On October 5, 1999, the number of URLs indexed by ODP reached one million. According to an unofficial estimate, the URLs in the Open Directory numbered 1.6 million in April 2000, surpassing those in the Yahoo! Directory. ODP achieved the milestones of indexing two million URLs on August 14, 2000, three million listings on November 18, 2001 and four million on December 3, 2003.

From January 2006 the Open Directory published online reports to inform the public about the development of the project. The first report covered the year 2005. Monthly reports were issued subsequently until September 2006. These reports gave greater insight into the functioning of the directory than the simplified statistics given on the front page of the directory. The number of listings and categories cited on the front page include “Test” and “Bookmarks” categories, but these are not included in the RDF dump offered to users. The total number of editors who have contributed to the directory as of March 31, 2007 was 75,151. There were about 7330 active editors during August 2006.

COMPETING AND SPINOFF PROJECTS

As the ODP became more widely known, two other major web directories edited by volunteers and sponsored by Go.com and Zeal emerged, both now defunct. These directories did not license their content for open content distribution. The concept of using a large-scale community of editors to compile

online content has been successfully applied to other types of projects. ODP's editing model directly inspired three other open content volunteer projects: an open content restaurant directory known as ChefMoz, an open content music directory known as MusicMoz, and an encyclopedia known as Open Site.

Gnuhoo borrowed the basic outline for its initial ontology from Usenet. In 1998, Rich Skrenta said, "I took a long list of groups and hand-edited them into a hierarchy." For example, the topic covered by the comp.ai.alife news group was represented by the category *Computers/AI/Artificial_Life*. The original divisions were for *Adult, Arts, Business, Computers, Games, Health, Home, News, Recreation, Reference, Regional, Science, Shopping, Society, and Sports*. While these fifteen *top-level* categories have remained intact, the ontology of second- and lower-level categories has undergone a gradual evolution; significant changes are initiated by discussion among editors, and then implemented when consensus has been reached. In July 1998, the directory became multilingual with the addition of the *World* top-level category. The remainder of the directory lists only English language sites. By May 2005, seventy-five languages were represented.

The growth rate of the non-English components of the directory has been greater than the English component since 2002. While the English component of the directory held almost 75% of the sites in 2003, the *World* level grew to over 1.5 million sites as of May 2005, forming roughly one-third of the directory. The ontology in non-English categories generally mirrors that of the English directory, although exceptions which reflect language differences are quite common. Several of the top-level categories have unique characteristics. The *Adult* category is not present on the directory homepage, but it is fully available in the RDF dump that ODP provides. While the bulk of the directory is categorized primarily by topic, the *Regional* category is categorized primarily by region. This has led many to view ODP as two parallel directories: *Regional* and *Topical*.

On November 14, 2000, a special directory within the Open Directory was created for people under 18 years of age. Key factors distinguishing this "Kids and Teens" area from the main directory are:

- Stricter guidelines which limit the listing of sites to those which are targeted or "appropriate" for people under 18 years of age;
- Category names as well as site descriptions use vocabulary which is "age appropriate";
- *Age tags* on each listing distinguish content appropriate for kids (age 12 and under), teens (13 to 15 years old) and mature teens (16 to 18 years old);
- Kids and Teens content is available as a separate RDF dump;
- Editing permissions are such that the community is parallel to that of the Open Directory.

By May 2005, this portion of the Open Directory included over 32,000 site listings.

Since early 2004, the whole site has been in UTF-8 encoding. Prior to this, the encoding used to be ISO 8859-1 for English language categories, and a language-dependent character set for other languages. The RDF dumps have been encoded in UTF-8 since early 2000.

MAINTENANCE

Directory listings are maintained by editors. While some editors focus on the addition of new listings, others focus on maintaining the existing listings. This includes tasks such as the editing of individual listings to correct spelling and/or grammatical errors, as well as monitoring the status of linked sites. Still others go through site submissions to remove spam and duplicate submissions.

Robozilla is a Web crawler written to check the status of all sites listed in ODP. Periodically, Robozilla will flag sites which appear to have moved or disappeared, and editors follow up to check the sites and take action. This process is critical for the directory in striving to achieve one of its founding goals: to reduce the link rot in web directories. Shortly after each run, the sites marked with errors are automatically moved to the unreviewed queue where editors may investigate them when time permits.

Due to the popularity of the Open Directory and its resulting impact on search engine rankings, domains with lapsed registration that are listed on ODP have attracted domain hijacking, an issue that has been addressed by regularly removing expired domains from the directory. While corporate funding and staff for the ODP have diminished in recent years, volunteers have created editing tools, such as linkcheckers to supplement Robozilla, category crawlers, spellcheckers, search tools that directly sift a recent RDF dump, bookmarklets to help automate some editing functions, and tools to help work through unreviewed queues.

LICENSE AND REQUIREMENTS

ODP data is made available for open content distribution under the terms of the Open Directory License, which requires a specific ODP attribution table on every Web page that uses the data. The Open Directory License also includes a requirement that users of the data continually check the ODP site for updates and discontinue use and distribution of the data or works derived from the data once an update occurs. This restriction prompted the Free Software Foundation to refer to the Open Directory License as a non-free documentation license, citing the right to redistribute a given version not being permanent, and the requirement to check for changes to the license.

RDF DUMPS

ODP data is made available through an RDF-like dump that is published on a dedicated download server, where an archive of previous versions is also available. New versions are usually generated weekly. An ODP editor has catalogued a number of bugs that are/were encountered when implementing the ODP RDF dump, including UTF-8 encoding errors (fixed since August 2004) and an RDF format that does not comply with the final RDF specification because ODP RDF generation was implemented before the RDF specification was finalized. So while today the so-called RDF dump is valid XML, it is not strictly RDF, but an ODP-specific format. Software to process the ODP RDF dump needs to take account of this.

CONTENT USERS

ODP data powers the core directory services for many of the Web's largest search engines and portals, including Netscape Search, AOL Search, Google, and Alexa. Other uses are also made of ODP data. For example, in the spring of 2004 Overture announced a search service for third parties combining Yahoo! Directory search results with ODP titles, descriptions and category metadata. The search engine Gigablast announced on May 12, 2005 its searchable copy of the Open Directory. The technology permits search of websites listed in specific categories, "in effect, instantly creating over 500,000 vertical search engines".

As of September 8, 2006, the ODP listed 313 English-language Web sites that use ODP data as well as 238 sites in other languages. However, these figures do not reflect the full picture of use, as those sites that use ODP data without following the terms of the ODP license are not listed.

INFORMATION-LED DEVELOPMENT

Information-led development (ILD) most commonly refers to a development strategy whereby a developing country makes as a primary economic policy focus the creation and development of a national information technology (IT) sector with the express aim of relying on this sector as an engine of growth. Notable examples of such countries are India and the Philippines.

More recently, a new formulation of ILD has emerged. With origins in community economic development in the United States, the new ILD model describes the use of data to generate actionable information or information solutions to development challenges. Examples of this include the inclusion of non-financial payment obligations in consumer credit files, also known as alternative data, and the use of this information in underwriting, as a means to reduce financial exclusion in the United States, where an estimated 54 million Americans are shut out of mainstream credit access as there is insufficient information about them in their credit files to be scored by a credit scoring model.

This variant of ILD was pioneered by PERC, a non-profit policy research organization and development intermediary headquartered in Chapel Hill, North Carolina. Other US-based organizations, including Social Compact and the Local Initiatives Support Corporation, employ variants of ILD, but none has applied this internationally except for PERC.

This development model is gaining traction in emerging markets such as Colombia and South Africa, where the data is being used to reduce financial exclusion and facilitate credit access as a means to build wealth and form assets. It is also attracting increasing attention from development agencies, including USAID, the International Finance Corporation, the World Bank Group, and the Consultative Group to Assist the Poor.

POLICIES AND PROCEDURES

There are restrictions imposed on who can become an ODP editor. The primary gatekeeping mechanism is an editor application process wherein editor candidates demonstrate their editing abilities, disclose affiliations that might pose a conflict of interest, and otherwise give a sense of how the applicant would likely mesh with the ODP culture and mission. A majority of applications are rejected, but reapplying is allowed and sometimes encouraged. The same standards apply to editors of all categories and subcategories. ODP's editing model is a hierarchical one. Upon becoming editors, individuals will generally have editing permissions in only a small category. Once they have demonstrated basic editing skills in compliance with the Editing Guidelines, they are welcome to apply for additional editing privileges, in either a broader category, or in a category elsewhere in the directory. Mentorship relationships between editors are encouraged, and internal forums provide a vehicle for new editors to ask questions.

ODP has its own internal forums, the contents of which are intended only for editors to communicate with each other primarily about editing topics. Access to the forums requires an editor account, and editors are expected to keep the contents of these forums private.

Over time, senior editors may be granted additional privileges which reflect their editing experience and leadership within the editing community. The most straightforward are *editall* privileges, which allow an editor to access all categories in the directory. *Meta* privileges additionally allow editors to perform tasks such as reviewing editor applications, setting category features, and handling external and internal abuse reports. *Cateditall* privileges are similar to *editall*, but only for a single directory category. Similarly, *catmod* privileges are similar to *meta*, but only for a single directory category. *Catmv* privileges allow editors to make changes to directory ontology by moving or renaming categories. All of these privileges are granted by admins and staff, usually after discussion with *meta* editors. In August 2004, a new level of privileges called *admin* was introduced. Administrator status was granted to a number of long serving metas by staff. Administrators have the ability to grant *editall+* privileges to other editors and to approve new directory-wide policies, authorities that had previously only been available to root (staff) editors. A full list of senior editors is available to the public, as is a listing of all current editors.

All ODP editors are expected to abide by ODP's Editing Guidelines. These guidelines describe editing basics: what types of sites may be listed and which may not; how site listings should be titled and described in a loosely consistent manner; conventions for the naming and building of categories; conflict of interest limitations on the editing of sites which the editor may own or otherwise be affiliated with; and a code of conduct within the community. Editors who are found to have violated these guidelines may be contacted by staff or senior editors, have their editing permissions cut back, or lose their editing privileges entirely. ODP Guidelines are periodically revised after discussion in editor forums.

SITE SUBMISSIONS

One of the original motivations for forming Gnuhoo/Newhoo/ODP was the frustration that many people experienced in getting their sites listed on Yahoo! Directory. However Yahoo! has since implemented a paid service for timely consideration of site submissions. That lead has been followed by many other directories. Some accept no free submission at all. By contrast the ODP has maintained its policy of free site submissions for all types of site — the only one of the major general directories to do so. One result has been a gradual divergence between the ODP and other directories in the balance of content. The pay-for-inclusion model favours those able and willing to pay, so commercial sites tend to predominate in directories using it. Conversely, a directory manned by volunteers will reflect the aims and interests of those volunteers. The ODP lists a high proportion of informational and non-profit sites.

Another consequence of the free submission policy is that the ODP has enormous numbers of submissions still waiting for review. In large parts those consist of spam and incorrectly submitted sites. So the average processing time for a site submission has grown longer with each passing year. However the time taken cannot be predicted, since the variation is so great: a submission might be processed within hours or take several years. However, site suggestions are just one of many sources of new listings. Editors are under no obligation to check them for new listings, and are actually encouraged to use other sources.

CONTROVERSY AND CRITICISM

There have long been allegations that volunteer ODP editors give favourable treatment to their own websites while concomitantly thwarting the good faith efforts of their competition. Such allegations are fielded by ODP's staff and meta editors, who have the authority to take disciplinary action against volunteer editors who are suspected of engaging in abusive editing practices.

In 2003, ODP introduced a new *Public Abuse Report System* that allows members of the general public to report and track allegations of abusive editor conduct using an online form. Uninhibited discussion of ODP's purported shortcomings has become more common on mainstream Webmaster discussion forums. Although site policies suggest that an individual site should be submitted to only one category, as of October 2007, Topix.com, a news aggregation site operated by ODP founder Rich Skrenta, has more than 10,000 listings. Early in the history of the ODP, its staff gave representatives of selected companies, such as Rolling Stone magazine or CNN, editing access in order to list individual pages from their websites. Links to individual CNN articles have been added until 2004 and have been entirely removed from the directory in January 2008 due to being outdated and not considered worth the effort to maintain. Such experiments have not been repeated later.

2

Sustainable Development in Economics

The Venn diagram of sustainable development shown above has many versions, but was first used by economist Edward Barbier (1987). However, Pearce, Barbier and Markandya (1989) criticized the Venn approach due to the intractability of operationalizing separate indices of economic, environmental, and social sustainability and somehow combining them. They also noted that the Venn approach was inconsistent with the Brundtland Commission Report, which emphasized the interlinkages between economic development, environmental degradation, and population pressure instead of three objectives. Economists have since focused on viewing the economy and the environment as a single interlinked system with a unified valuation methodology. Intergenerational equity can be incorporated into this approach, as has become common in economic valuations of climate change economics. Ruling out discrimination against future generations and allowing for the possibility of renewable alternatives to petro-chemicals and other non-renewable resources, efficient policies are compatible with increasing human welfare, eventually reaching a golden-rule steady state.

Thus the three pillars of sustainable development are interlinkages, intergenerational equity, and dynamic efficiency. Arrow et al. (2004) and other economists have advocated a form of the weak criterion for sustainable development – the requirement that the wealth of a society, including human-capital, knowledge-capital and natural-capital (as well as produced capital) not decline over time. Others, including Barbier 2007, continue to contend that strong sustainability – non-depletion of essential forms of natural capital – may be appropriate.

Applied Sustainability

Applied sustainability is the application of science and innovation to meet human needs while indefinitely preserving the life support systems of the planet.

Note that this is a significant difference from the standard definition of sustainability that normally is encapsulated by some version of the Brundtland Commission's concept: "development that meets the needs and aspirations of the present without compromising the ability of future generations to meet their own needs".

Just Applied Sustainability

A more refined definition would be called just applied sustainability: the application of science and innovation to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems. This comes from the definition of Just Sustainability, which is "the egalitarian conception of sustainable development".

It generates an improved definition of sustainable development as "the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems". This new form of sustainable development prioritizes justice and equity, while maintaining the importance of the environment and the global life support system.

Synonymous with Applied Science

The relationship between applied sustainability and sustainability (or sustainability science) is analogous relationship between applied science (engineering) and basic science. Whereas science is the effort to discover, understand, or to understand better, how the physical world works, with observable physical evidence as the basis of that understanding. Applied science is the application of knowledge from one or more natural scientific fields to solve practical problems.

Sustainable Engineering

Applied sustainability is essentially sustainability engineering – by utilizing natural laws and physical resources in order to design and implement materials, structures, machines, devices, systems, and processes that meets human need while preserving the environment forever. Applied sustainability is made up of work in engineering, policy, and education – whatever methods are necessary to conserve the world for our children.

Confusion Over Terms

Sustainability, itself, is a term that is often confused because in its most basic form it is a characteristic of a process or state that can be maintained at a certain level indefinitely. When used in the context of development, as sustainable

development, it is a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but in the indefinite future. The most evolved definition of sustainability is that of just sustainability-“the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems”.

‘Sustainable Economic Development’

The term ‘Sustainable economic development’ acquires a major importance in the economic parlance of countries all across the globe. World has witnessed major economic development in last century. Industrial revolution of two centuries back has resulted into all round economic growth and prosperity across the nations. But the major beneficiaries of this economic boom have been western countries.

Major parts of Africa and Asia lagged behind in this context. The difference of economic chasm is so stark that, terms like ‘First world countries’ and ‘Third world countries’ were coined. On the one hand, poverty has reduced in many countries along with overall increase in income but at the same time, this economic growth has not spread equally along all spheres of economy.

To go further into the issue, inclusive growth has remained a mirage. There is a huge gap in income distribution, almost to the point that rich has become richer whereas poor have remained same. In view of such conditions, sustainable economic development plans are the need of the hour.

Sustainable economic development strives for reducing poverty and equitable use of resources. The means adopted consist of minimization of depletion of environmental dilapidation, social unsteadiness, economic resources and cultural disorder.

It also aims to use the resources in a judicious way so that present as well future needs be met. Now a day’s biggest concern is rapidly diminishing of natural resources, whether it is oil, minerals, energy sources or food, *etc.* Because of the rapid industrialization, natural resources have suffered the most.

We are also constantly struggling with environmental issues. World has taken notice to this grave scenario and has started to address the issue by focusing upon economic as well as environmental and socio-political sustainability so that future generations can meet their demands. Different means of energy conservation, alternate energy resources, nature protection and equal distribution of income have been taken to ensure sustainable economic development.

Concept

Sustainable development is defined as a pattern of social and structured economic transformations (*i.e.*, development) which optimizes the economic and societal benefits available in the present, without jeopardizing the likely potential for similar benefits in the future. A primary goal of sustainable development is to achieve a reasonable and equitably distributed level of economic well-being that can be perpetuated continually for many human

generations. Sustainable development implies using renewable natural resources in a manner which does not eliminate or degrade them, or otherwise diminish their usefulness for future generations. It further implies using non-renewable (exhaustible) mineral resources in a manner which does not unnecessarily preclude easy access to them by future generations. Sustainable development also requires depleting non-renewable energy resources at a slow enough rate so as to ensure the high probability of an orderly society transition to renewable energy sources.

Based on similar arguments, sustainable development has been alternatively defined in various manners also, some of them are as follows:

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The World Commission on Environment and Development, Brundtland Commission 1987.

“Sustainable development ensures that the maximum rate of resource consumption and waste discharge for a selected development portfolio would be sustained indefinitely, in a defined planning region, without progressively impairing its bio-productivity and ecological integrity. Environmental conservation, therefore, contrary to general belief, accelerates rather than hinders economic development.

Therefore, the Development plans have to ensure:

- Sustainable and equitable use of resources for meeting the needs of the present and future generations without causing damage to environment.
- To prevent further damage to our life-support systems;
- To conserve and nurture the biological diversity, gene pool and other resources for long term food security”.

Key areas where the partnership works hard to address sustainable economic development issues include the following:

Economic Integration, Investment and Dialogue

The FEMISE network has been financed by the European Commission since 1997, and undertakes economic research and organises dialogue to assess the state of the EU-Med Partnership. The Barcelona Summit in November 2005 advocated the acceleration of Free Trade Agreements (FTAs) among Mediterranean partners to stimulate investment within an integrated economic zone and to achieve concrete progress towards the objective of a Euro-Mediterranean Free Trade Area by 2010.

EC support to South-South FTAs has so far materialised through a programme to support the implementation of the Agadir Agreement. Under this programme, activities such as studies/analyses in the economic and trade domain have been developed as well as support to the creation of a technical unit established in Amman, Jordan.

Investment Promotion

There is a need to improve the investment climate and to energise the reform agenda in some Mediterranean countries. Since 2002, the Commission has financed FEMIP, which aims to enhance the supply of foreign and domestic financing for both private and public investment in the region. The Commission support to FEMIP includes funding for private equity operations as well as technical assistance, and currently comprises an active portfolio of more than € 400 million.

From 2002 to June 2007, the Commission also supported the ANIMA network, which aimed to strengthen cooperation between European and Mediterranean organisations that are involved in investment promotion. Since 2008, Invest in Med is taking over and will develop investments and trade flows in the region.

Industrial Cooperation

By 2010, the Euro-Mediterranean region should become a vast free-trade area with strong development prospects for entrepreneurs. Economic integration is taking place in a global context of increasing trade and competition.

To meet this challenge, the Commission supports various regional programmes and projects:

- The Euro-Med Quality project helped Mediterranean countries to develop quality products for the international marketplace.
- Euro-Med Market aimed to help establish a seamless free-trade area between the two regions.
- MedIbtikar (Euromed Innovation and Technology Programme) aims to boost the innovative capacities of Mediterranean businesses.

Energy

The Euro-Mediterranean Partnership agreed as far back as 1998 that work on energy issues should cover the following priorities:

- Security of supply.
- Energy industry competitiveness.
- Environmental protection and sustainable development.

The Euro-Mediterranean Conferences of Energy Ministers held in Athens and Rome in the year 2003 put an increased emphasis on the necessity of ensuring security of energy supply through better interconnections and increased regional integration.

Hence in 2004, three sub-regional projects were launched to support i) the integration of the Maghreb electricity market; ii) the creation of a Euro-Mashreq gas market (EAMGM); and iii) the establishment of a Joint Office aimed to enhance energy cooperation between Israel and the Palestinian Authority.

The Euro-Med Energy Forum, held in 2006, defined some new priorities for the sector including: the need to integrate energy markets; the promotion of mutually valuable energy projects; and increasing support to sustainable energy initiatives.

A significant proportion of the EC resources available under the regional budget are also used to support the FEMIP Technical Assistance Support Fund, which helps prepare energy-related projects and to provide interest rates subsidies to the European Investment Bank.

Since 2007 and 2008, new projects have been launched:

- Electricity market integration: it aims to harmonise the legislative and regulatory framework of Algeria, Morocco and Tunisia, in line with EU standards.
- Med Emip: its objectives are to enhance the integration of the energy markets and to improve security and sustainability.
- Medreg: it strengthens the cooperation between EU energy regulators and those of the partner countries.

Transport

Over the past few years, the Commission has prioritised regional transport programmes which have addressed shared challenges and the need to develop common standards. Projects which reflect this approach include:

- Safemed, which seeks to improve maritime safety and prevent sea pollution.
- Euromed Aviation, with its emphasis on creating a common aviation area.
- Meda Motorways of the Sea, aiming to modernise maritime connections between the two sides of the Mediterranean

In parallel, the Euromed Transport project has provided an overall policy framework for establishing and maintaining sustained policy dialogue and cooperation between the two regions' transport actors, notably via the Euromed Transport Forum.

The important progress accomplished by the Euromed Transport Forum was recognised by the first Euromed Ministerial Conference, held in December 2005 in Marrakech.

This meeting provided the opportunity to reaffirm the political impetus of our cooperation in the field of transport by adopting the recommendations of the Blue Paper on Euro-Mediterranean transport networks, namely the opening up of transport markets, the development of infrastructure, in particular interconnections, safety and security of transport systems, and the smooth functioning of the multimodal freight transport of chain.

Environment

The promotion and the protection of the environment is an essential dimension of the Euro-Mediterranean Partnership. The challenges related to the scarcity of water and environmental degradation should be tackled at national and regional levels to ensure the sustainable development of the region. Water and environment programmes have the objective to stop degradation and protect the particularly fragile Mediterranean eco-region. The SMAP (Short and Medium

Term Priority Environmental Action Programme) and the MEDA Water Regional Programme are the most relevant environmental regional programmes under MEDA. In November 2005, during the 10th anniversary of the Barcelona Declaration Summit, it was agreed to launch the so-called Horizon 20020 Initiative for the depollution of the Mediterranean Sea. The Horizon 2020 initiative was launched the following year.

Information Society

Cooperation in the field of information society is essential to contribute to the sustainable economic and social development of an increasingly integrated Euro-Mediterranean region. In this sector, the programme Eumedis has interconnected European with Mediterranean research networks and funded 21 regional pilot information society projects in sectors such as healthcare, e-commerce, tourism and cultural heritage, research, business and innovation, and education. The NATP project (New Approaches to Telecommunications policy) in 2002 has established a Euro-Mediterranean dialogue in this field.

Statistics

The Medstat II programme aims at improving statistical information and strengthening the Mediterranean Partners' statistical systems. This programme helps to produce updated, reliable and relevant statistical data necessary for political decision-making and to ensure good governance.

The Government's overarching economic goal is to grow an inclusive, innovative economy for the benefit of all. This goal is closely related to the Government's other social and environmental goals. These include improving the skills of New Zealanders, closing the gaps for Maori and Pacific People in Health, Education, Employment and Housing and protecting and enhancing the environment. The concept of sustainable economic development is central to the achievement of these key goals. It can be thought of in terms of policies and programmes designed to meet the needs of present generations without compromising the ability of future generations to meet their own needs.

The achievement of sustainable economic development requires a new and different approach to policy making and its implementation. The Government is looking for greater integration and coordination of policy making and its implementation across the public sector, and across social, economic and environmental policy portfolios. It is also looking for an approach characterised by greater partnership between central government, local government, Maori economic entities, private industry and other community groups.

The Ministry is being challenged to lead the production and coordination of policy advice on issues related to sustainable economic development across the public sector. It is also required to work closely with New Zealand Trade and Enterprise to design and implement policies and programmes to deliver the Government's sustainable economic policies. To meet these challenges, the Ministry will need to work proactively with other government agencies, and

across policy portfolios. It will also need to develop close working relationships with industry, local government, Maori economic entities and other non-government stakeholders.

Successfully meeting this challenge will require the Ministry to develop a range of new functions, while continuing to advise the Government on the regulation and operation of markets and industries.

These new functions include those related to the:

- Development of policies and coordination of policy advice on issues related to economic development, regional development and industry development;
- Monitoring and researching trends and issues related to sustainable economic development, regional development and industry development;
- Evaluating government policies and programmes to determine their contribution to sustainable economic development, regional development and industry development goals and objectives; and
- Advising on the performance and governance of New Zealand Trade and Enterprise.

ECONOMIC GROWTH

Economic growth is a term used to indicate the increase of total GDP. It is often measured as the rate of change of gross domestic product (GDP). Economic growth refers only to the quantity of goods and services produced; it says nothing about the way in which they are produced. Economic development, a related term, refers to change in the way goods and services are produced; positive economic development involves the introduction of more efficient or “productive” technologies or forms of social organisation.

Economic growth is that branch of one, which deals with the study of rate of change of gross domestic product, referring to the quantity of goods and services produced. Economic growth can either be positive or negative. Negative growth can also be referred to by saying that the economy is *shrinking*. Negative growth is associated with economic recession and economic depression.

Gross national product (GNP) is sometimes used as an alternative measure to gross domestic product. In order to compare multiple countries, the statistics may be quoted in a single currency, based on either prevailing exchange rates or purchasing power parity. Then, in order to compare countries of different population sizes, the per capita figure is quoted.

To compensate for changes in the value of money (inflation or deflation) the GDP or GNP is usually given in “real” or inflation adjusted, terms rather than the actual money figure compiled in a given year, which is called the nominal or current figure. GDP per capita is not the same thing as earnings per worker since GDP measures only monetary transactions for all final goods and services in a country without regard to who receives that money.

SHORT-TERM STABILIZATION AND LONG-TERM GROWTH

Economists draw a distinction between short-term economic stabilization and long-term economic growth. The topic of economic growth is primarily concerned with the long run. The short-run variation of economic growth is termed the business cycle. The long-run path of economic growth is one of the central questions of economics; in spite of the problems of measurement, an increase in GDP of a country is generally taken as an increase in the standard of living of its inhabitants. Over long periods of time, even small rates of annual growth can have large effects through compounding. A growth rate of 2.5% per annum will lead to a doubling of GDP within 28 years, whilst a growth rate of 8% per annum (experienced by some Four Asian Tigers) will lead to a doubling of GDP within 9 years. This exponential characteristic can exacerbate differences across nations. In the early 20th century, it became the policy of most country's governments to encourage growth of this kind. To do this required enacting policies, and being able to measure the results of those policies. This gave rise to the importance of econometrics, or the field of creating measurements for underlying conditions. Terms such as "unemployment rate", "Gross Domestic Product" and "rate of inflation" are part of the measuring of the changes in an economy.

VARIOUS THEORIES ON ECONOMIC GROWTH

Origins of the Concept

In 1377, the Arabian economic thinker Ibn Khaldun provided one of the earliest descriptions of economic growth in his famous Muqaddimah (known as Prolegomena in the Western world):

"When civilization [population] increases, the available labour again increases. In turn, luxury again increases in correspondence with the increasing profit, and the customs and needs of luxury increase. Crafts are created to obtain luxury products. The value realized from them increases, and, as a result, profits are again multiplied in the town. Production there is thriving even more than before. And so it goes with the second and third increase. All the additional labour serves luxury and wealth, in contrast to the original labour that served the necessity of life."

In the early modern period, some people in Western European nations developed the idea that economies could "grow", that is, produce a greater economic surplus which could be expended on something other than mere subsistence. This surplus could then be used for consumption, warfare, or civic and religious projects. The previous view was that only increasing either population or tax rates could generate more surplus money for the Crown or country.

Now it is generally recognized that economic growth also corresponds to a process of continual rapid replacement and reorganization of human activities facilitated by investment motivated to maximize returns. This exponential evolution of our self-organized life-support and cultural systems is remarkably creative and flexible, but highly unpredictable in many ways. As there are difficulties in modelling complex self-organizing systems, various efforts to model the long term evolution of economies have produced mixed results. During much of the “Mercantilist” period, growth was seen as involving an increase in the total amount of specie, that is circulating medium such as silver and gold, under the control of the state. This “Bullionist” theory led to policies to force trade through a particular state, the acquisition of colonies to supply cheaper raw materials which could then be manufactured and sold.

Later, such trade policies were justified instead simply in terms of promoting domestic trade and industry. The post-Bullionist insight that it was the increasing capability of manufacturing which led to policies in the 1700s to encourage manufacturing in itself, and the formula of importing raw materials and exporting finished goods. Under this system high tariffs were erected to allow manufacturers to establish “factories”. Local markets would then pay the fixed costs of capital growth, and then allow them to export abroad, undercutting the prices of manufactured goods elsewhere. Once competition from abroad was removed, prices could then be increased to recoup the costs of establishing the business.

Under this theory of growth, one policy attempted to foster growth was to grant monopolies, which would give an incentive for an individual to exploit a market or resource, confident that he would make all of the profits when all other extra-national competitors were driven out of business. The “Dutch East India company” and the “British East India company” were examples of such state-granted trade monopolies.

In this period the view was that growth was gained through “advantageous” trade in which specie would flow in to the country, but to trade with other nations on equal terms was disadvantageous. It should be stressed that Mercantilism was not simply a matter of restricting trade. *Within* a country, it often meant breaking down trade barriers, building new roads, and abolishing local toll booths, all of which expanded markets. This corresponded to the centralization of power in the hands of the Crown (or “Absolutism”). This process helped produce the modern nation-state in Western Europe.

Internationally, Mercantilism led to a contradiction: growth was gained through trade, but to trade with other nations on equal terms was disadvantageous.

Classical Growth Theory

The modern conception of economic growth began with the critique of Mercantilism, especially by the physiocrats and with the Scottish Enlightenment thinkers such as David Hume and Adam Smith, and the foundation of the

discipline of modern political economy. The theory of the physiocrats was that productive capacity, itself, allowed for growth, and the improving and increasing capital to allow that capacity was “the wealth of nations”. Whereas they stressed the importance of agriculture and saw urban industry as “sterile”, Smith extended the notion that manufacturing was central to the entire economy. David Ricardo argued that trade was a benefit to a country, because if one could buy a good more cheaply from abroad, it meant that there was more profitable work to be done here. This theory of “comparative advantage” would be the central basis for arguments in favour of free trade as an essential component of growth.

Creative Destruction and Economic Growth

Many economists view entrepreneurship as having a major influence on a society’s rate of technological progress and thus economic growth. Joseph Schumpeter was a key figure in understanding the influence of entrepreneurs on technological progress. In Schumpeter’s *Capitalism, Socialism and Democracy*, published in 1942, an entrepreneur is a person who is willing and able to convert a new idea or invention into a successful innovation. Entrepreneurship forces “creative destruction” across markets and industries, simultaneously creating new products and business models. In this way, creative destruction is largely responsible for the dynamism of industries and long-run economic growth. Former Federal Reserve chairman Alan Greenspan has described the influence of creative destruction on economic growth as follows: “Capitalism expands wealth primarily through creative destruction—the process by which the cash flow from obsolescent, low-return capital is invested in high-return, cutting-edge technologies.”

The Neo-Classical Growth Model

The notion of growth as increased stocks of capital goods (means of production) was codified as the Solow-Swan Growth Model, which involved a series of equations which showed the relationship between labour-time, capital goods, output, and investment. According to this view, the role of technological change became crucial, even more important than the accumulation of capital. This model, developed by Robert Solow and Trevor Swan in the 1950s, was the first attempt to model long-run growth analytically. This model assumes that countries use their resources efficiently and that there are diminishing returns to capital and labour increases. From these two premises, the neoclassical model makes three important predictions. First, increasing capital relative to labour creates economic growth, since people can be more productive given more capital. Second, poor countries with less capital per person will grow faster because each investment in capital will produce a higher return than rich countries with ample capital. Third, because of diminishing returns to capital, economies will eventually reach a point at which no new increase in capital will create economic growth. This point is called a “steady state”.

The model also notes that countries can overcome this steady state and continue growing by inventing new technology. In the long run, output per

capita depends on the rate of saving, but the rate of output growth should be equal for any saving rate. In this model, the process by which countries continue growing despite the diminishing returns is “exogenous” and represents the creation of new technology that allows production with fewer resources. Technology improves, the steady state level of capital increases, and the country invests and grows. The data does not support some of this model’s predictions, in particular, that all countries grow at the same rate in the long run, or that poorer countries should grow faster until they reach their steady state. Also, the data suggests the world has slowly increased its rate of growth.

However modern economic research shows that this model of economic growth is not supported by the evidence. Calculations made by Solow claimed that the majority of economic growth was due to technological progress rather than inputs of capital and labour. Recent economic research has, however, found the calculations made to support this claim to be invalid as they do not take into account changes in both investment and labour inputs.

Dale Jorgenson, of Harvard University, President of the American Economic Association in 2000, concludes that: ‘Griliches and I showed that changes in the quality of capital and labour inputs and the quality of investment goods explained most of the Solow residual. We estimated that capital and labour inputs accounted for 85 percent of growth during the period 1945–1965, while only 15 percent could be attributed to productivity growth... This has precipitated the sudden obsolescence of earlier productivity research employing the conventions of Kuznets and Solow.’

John Ross has analysed the long term correlation between the level of investment in the economy, rising from 5-7% of GDP at the time of the Industrial Revolution in England, to 25% of GDP in the post-war German ‘economic miracle’, to over 35% of GDP in the world’s most rapidly growing contemporary economies of India and China.

Taking the G7 economies and the largest non-G7 economies Jorgenson and Vu conclude in considering: ‘the growth of world output between input growth and productivity... input growth greatly predominated... Productivity growth accounted for only one-fifth of the total during 1989-1995, while input growth accounted for almost four-fifths. Similarly, input growth accounted for more than 70 percent of growth after 1995, while productivity accounted for less than 30 percent.’

Regarding differences in output per capita Jorgenson and Vu conclude: ‘differences in per capita output levels are primarily explained by differences in per capital input, rather than variations in productivity.’

DEVELOPMENT ECONOMICS

The latter half of the 20th century, with its global economy of a few very wealthy nations and many very poor nations, led to the study of how the transition from subsistence and resource-based economies to production and consumption based-economies occurred. This led to the field of development economics,

including the work of Nobel laureates Amartya Sen and Joseph Stiglitz. However this model of economic development does not meet the demands of subaltern populations and has been severely criticized by later theorists. PROTAP

New Growth Theory

Growth theory advanced again with the theories of economist Paul Romer in the late 1980s and early 1990s. Other important new growth theorists include Robert E. Lucas and Robert J. Barro.

Unsatisfied with Solow's explanation, economists worked to "endogenize" technology in the 1980s. They developed the endogenous growth theory that includes a mathematical explanation of technological advancement. This model also incorporated a new concept of human capital, the skills and knowledge that make workers productive. Unlike physical capital, human capital has increasing rates of return. Therefore, overall there are constant returns to capital, and economies never reach a steady state. Growth does not slow as capital accumulates, but the rate of growth depends on the types of capital a country invests in. Research done in this area has focused on what increases human capital (*e.g.*, education) or technological change (*e.g.*, innovation). Recent empirical analyses suggest that differences in cognitive skills, related to schooling and other factors, can largely explain variations in growth rates across countries.

Other Theories

Theories of economic growth, the mechanisms that let it take place and its main determinants abound. One popular theory in the 1970s for example was that of the "Big Push" which suggested that countries needed to jump from one stage of development to another through a virtuous cycle in which large investments in infrastructure and education coupled to private investment would move the economy to a more productive stage, breaking free from economic paradigms appropriate to a lower productivity stage.

Analysis of recent economies' success shows a close correlation between growth and climate. It is possible that there is absolutely no actual mechanism between the two, and the relation may be spurious. In early human history, economic as well as cultural development was concentrated in warmer parts of the world, like Egypt.

According to Acemoglu, Johnson and Robinson, the positive correlation between high income and cold climate is a by-product of history. Europeans adopted very different colonization policies in different colonies, with different associated institutions. In places where these colonizers faced high mortality rates (*e.g.*, due to the presence of tropical diseases), they could not settle permanently, and they were thus more likely to establish extractive institutions, which persisted after independence; in places where they could settle permanently (*e.g.*, those with temperate climates), they established institutions with this objective in mind and modelled them after those in their European homelands. In these 'neo-Europes' better institutions in turn produced better

development outcomes. Thus, although others economists focus on the identity or type of legal system of the colonizers to explain institutions, these authors look at the environmental conditions in the colonies to explain institutions. For instance, former colonies have inherited corrupt governments and geo-political boundaries (set by the colonizers) that are not properly placed regarding the geographical locations of different ethnic groups; this creates internal disputes and conflicts, which in turn hinders development. In another example, societies that emerged in colonies without solid native populations, established better property rights and incentives for long-term investment than those where native populations were large.

Effects of Growth

Economic growth has undeniable effects on the living conditions of the peoples of the earth. However, whether these effects are on balance positive or negative is currently open to debate.

Positive Effects

Economist Xavier Sala-i-Martin argues that global income inequality is diminishing, and the World Bank argues that the rapid reduction in global poverty is in large part due to economic growth. The decline in poverty has been the slowest where growth performance has been the worst (ie. in Africa).

Happiness has been shown to increase with a higher GDP per capita, at least up to a level of \$15,000 per person.

Many earlier predictions of resource depletion, such as Thomas Malthus' 1798 predictions about approaching famines in Europe, *The Population Bomb* (1968), *Limits to Growth* (1972), and the Simon-Ehrlich wager (1980) have proven false, one reason being that advancements in technology and science have continually allowed previously unavailable resources to be utilized more economically. The book *The Improving State of the World* argues that the state of humanity is rapidly improving.

Those more optimistic about the environmental impacts of growth believe that, although localized environmental effects may occur, large scale ecological effects are minor. The argument as stated by economists such as Julian Lincoln Simon states that if these global-scale ecological effects exist, human ingenuity will find ways of adapting to them.

Economists theorize that economies are driven by new technology and ongoing improvements in efficiency — for instance, we have faster computers today than a year ago, but not necessarily computers requiring more natural resources to build. Also, physical limits may be very large if considering all the minerals in the planet Earth or all possible resources from space colonization, such as solar power satellites, asteroid mining, or a Dyson sphere. The book *Mining the Sky: Untold Riches from the Asteroids, Comets, and Planets* is one example of such arguments. However, depletion and declining production from old resources can sometimes occur before new resources are ready to replace

them. This is, in part, the logical basis of the Peak Oil theory. Although individual oil wells and mines for other nonrenewable resources are often depleted, the availability of these resources has generally risen and their prices have dropped over the long-run.

Negative Effects

A number of critical arguments have been raised against economic growth. Economic growth may reflect or create a decline in the quality of life, such as crime, prisons, or pollution, in what is known as uneconomic growth. Other aspects of economic growth that affect quality of life, such as its effects on the environment, are externalized, and not traded or accounted for in the market. Growth leads to consumerism by encouraging the creation of artificial needs: Industries cause consumers to develop new taste, and preferences for growth to occur. Consequently, “wants are created, and consumers have become the servants, instead of the masters, of the economy.” The ecological footprint of economic growth has been shown to create an unsustainable drain on the earth’s resources. The 2007 United Nations GEO-4 report warns that we are living far beyond our means. The human population is now larger and that the amount of resources it consumes takes up a lot of those resources available. Humanity’s environmental demand is purported to be 21.9 hectares per person while the Earth’s biological capacity is purported to be 15.7 ha/person. This report supports the basic arguments and observations made by Thomas Malthus in the early 1800s, that is, economic growth depletes non-renewable resources rapidly. Economic inequality has increased; the gap between the poorest and richest countries in the world has been growing. Although mean and median wealth has increased globally, it adds to the inequality of wealth.

Some critics argue that a narrow view of economic growth, combined with globalization, is creating a scenario where we could see a systemic collapse of our planet’s natural resources. Other critics draw on archaeology to cite examples of cultures they claim have disappeared because they grew beyond the ability of their ecosystems to support them. Concerns about possible negative effects of growth on the environment and society led some to advocate lower levels of growth, from which comes the ideas of uneconomic growth and de-growth, and Green parties which argue that economies are part of a global society and a global ecology and cannot outstrip their natural growth without damaging them.

The Austrian School argues that the concept of “growth” or the creation and acquisition of more goods and services is dependent upon the relative desires of the individual. Someone may prefer having more leisure time to acquiring more goods and services, but this fulfilment of desires would have a negative effect on GDP increase. Also, they claim that the notion of growth implies the need for a “central planner” within an economy. To Austrian economists, such an ideal is antithetical to the concept of a free market economy, which best satisfies the wants of consumers. As such, Austrian economists believe that the individual should determine how much “growth” she desires. Canadian scientist,

David Suzuki stated in the 1990s that ecologies can only sustain typically about 1.5-3% new growth per year, and thus any requirement for greater returns from agriculture or forestry will necessarily cannibalize the natural capital of soil or forest. Some think this argument can be applied even to more developed economies.

Growth ‘to a Point’

The two theories can be reconciled if it is recognised that growth improves the quality of life to a point, after which it doesn’t improve the quality of life, but rather obstructs sustainable living. Historically, sustained growth has reached its limits (and turned to catastrophic decline) when perturbations to the environmental system last long enough to destabilise the bases of a culture.

Implications of Global Warming

Up to the present there are close correlations of economic growth with carbon dioxide emissions across nations, although considerable divergence in carbon intensity (carbon emissions per GDP). The Stern Review notes that “under business as usual, global emissions will be sufficient to propel greenhouse-gas concentrations to over 550ppm CO₂e by 2050 and over 650-700ppm by the end of this century is robust to a wide range of changes in model assumptions”. This is in contrast with scientist consensus that planetary ecosystem functioning without incurring dangerous risks requires stabilization at 450-550ppm.

As a consequence, growth oriented environmental economists propose massive government intervention into switching sources of energy production, favouring wind, solar, hydroelectric and nuclear. This would largely confine use of fossil fuels to either domestic cooking needs (such as for kerosene burners) or where carbon capture and storage technology can be cost-effective and reliable.

The Stern Review, published by the United Kingdom Government in 2006, concluded that an investment of 1% of GDP per annum would be sufficient to avoid the worst effects of climate change, and that failure to do so could risk global GDP being 20% lower than it otherwise might be. Because carbon capture and storage is as yet widely unproven, and its long term effectiveness (such as in containing carbon dioxide ‘leaks’) unknown, and because of current costs of alternative fuels these policy responses largely rest on faith on technological change. On the other hand, Nigel Lawson claimed that people in a hundred years’ time would be “seven times as well off as we are today”, therefore it is not reasonable to impose sacrifices on the “much poorer present generation”.

Defining Economic Growth

The simplest definition of economic growth is an increase in real gross domestic product (GDP) (that is, GDP adjusted for inflation). The growth rate of real GDP is the percentage change in real GDP from one year to the next. We can express the rate of growth in, for example, the period 2004-2005, as follows:

Growth rate of GDP = $[\text{GDP (2005)} - \text{GDP (2004)}] / \text{GDP (2004)} \times 100$ U.S., real GDP in 2004 was 10.76 trillion and in 2005 it was 11.13 trillion. Thus the growth rate of real U.S., GDP from 2004 to 2005 was $(11.13 - 10.76) / 10.76 = (0.37) / 10.76 = 0.034$ or 3.4%. For purposes of evaluating how economic growth can feed into economic development it is often helpful to focus on the growth rate of GDP per capita—that is, output per person—rather than simply on overall output. Mathematically, GDP per capita is expressed as:

$\text{GDP per capita} = \text{GDP} / \text{Population}$.

The growth rates of GDP, population, and GDP per capita are related in the following way:

$\text{Growth Rate of GDP} = \text{Growth Rate of Population} + \text{Growth Rate of GDP per capita}$ or:

$\text{Growth Rate of GDP per capita} = \text{Growth Rate of GDP} - \text{Growth Rate of Population}$.

Economic Growth in the ADE/ASR model. Economic growth increases the maximum capacity of the economy. It involves both supply-side and demand-side expansions, and does not necessarily involve a change in the rate of inflation. Thus, for example, an economy that has a GDP growth rate of 4% and a population growth rate of 2% would have a per capita GDP growth rate of 2%. The per capita GDP growth rate is especially important because it indicates the actual increase in average income being experienced by the people of the country. If a country had a 2% GDP growth rate, but a 3% population growth rate, its per capita GDP growth rate would actually be negative, at -1%. The people would on average be getting poorer each year, even though the overall economy is growing. A more positive way of putting it is that, for people's incomes on average to increase over time, the GDP growth rate must exceed the rate of population growth.

In terms of the Aggregate Supply and Demand (ASR/ADE) graphs, economic growth can be shown as a rightward shift of the ASR, increasing the economy's maximum capacity. If this kind of increase in aggregate supply took place without any shift in ADE, its effects would include growth in output and a declining rate of inflation. In practice, however, economic growth is usually accompanied by, and at least in part is often caused by, an increase in aggregate demand. Thus a more typical pattern for economic growth would be for both the ADE and ASR curves to shift to the right. In this case output clearly rises, but the effect on inflation is ambiguous.

SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT

As a working definition, sustainability can be defined as the practice of maintaining processes of productivity indefinitely—natural or human made—by replacing resources used with resources of equal or greater value without degrading or endangering natural biotic systems. According to M. Hasna, sustainability is a function of social, economic, technological and ecological

themes. Sustainable development ties together concern for the carrying capacity of natural systems with the social, political, and economic challenges faced by humanity. As early as the 1970s, the concept of “sustainability” was employed to describe an economy “in equilibrium with basic ecological support systems.” Scientists in many fields have highlighted *The Limits to Growth*, and economists have presented alternatives, for example a ‘steady state economy’; to address concerns over the impacts of expanding human development on the planet.

The term *sustainable development* rose to significance after it was used by the Brundtland Commission in its 1987 report *Our Common Future*. In the report, the commission coined what has become the most often-quoted definition of sustainable development: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” The United Nations Millennium Declaration identified principles and treaties on sustainable development, including economic development, social development and environmental protection.

DEFINITION

The United Nations World Commission on Environment and Development (WCED) in its 1987 report *Our Common Future* defines sustainable development: “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Under the principles of the United Nations Charter the Millennium Declaration identified principles and treaties on sustainable development, including economic development, social development and environmental protection.

Broadly defined, sustainable development is a systems approach to growth and development and to manage natural, produced, and social capital for the welfare of their own and future generations.

The term sustainable development as used by the United Nations incorporates both issues associated with land development and broader issues of human development such as education, public health, and standard of living.

The concepts of sustainable development and sustainability derive from the older forestry term “sustained yield”, which, in turn, is a translation of the German term “nachhaltiger Ertrag” dating from 1713. Sustainability science is the study of the concepts of sustainable development and environmental science. There is an additional focus on the present generations’ responsibility to regenerate, maintain and improve planetary resources for use by future generations.

History

The concept of “sustainable development” has its roots in forest management as early as the 12th to 16th centuries. However, over the last five decades the concept has significantly broadened. The first use of the term *sustainable* in the contemporary sense was by the Club of Rome in 1972 in its classic report on the “Limits to Growth”, written by a group of scientists led by Dennis and Donella Meadows of the Massachusetts Institute of Technology.

Describing the desirable “state of global equilibrium”, the authors used the word “sustainable”: “We are searching for a model output that represents a world system that is: (1) sustainable without sudden and uncontrolled collapse and (2) capable of satisfying the basic material requirements of all of its people.”

- In 1980, the International Union for the Conservation of Nature published a world conservation strategy that included one of the first references to sustainable development as a global priority.
- In 1982, the United Nations World Charter for Nature raised five principles of conservation by which human conduct affecting nature is to be guided and judged.
- In 1987, the United Nations World Commission on Environment and Development released the report *Our Common Future*, now commonly named the ‘Brundtland Report’ after the commission’s chairperson, the then Prime Minister of Norway Gro Harlem Brundtland. The report included what is now one of the most widely recognised definitions: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” The Brundtland Report goes on to say that sustainable development also contains within it two key concepts:
 1. The concept of “needs,” in particular, the essential needs of the world’s poor, to which overriding priority should be given; and
 2. The idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs.

In 1992, the UN Conference on Environment and Development published in 1992 the Earth Charter, which outlines the building of a just, sustainable, and peaceful global society in the 21st century.

The action plan Agenda 21 for sustainable development identified information, integration, and participation as key building blocks to help countries achieve development that recognizes these interdependent pillars. It emphasises that in sustainable development everyone is a user and provider of information.

It stresses the need to change from old sector-centered ways of doing business to new approaches that involve cross-sectoral co-ordination and the integration of environmental and social concerns into all development processes. Furthermore, Agenda 21 emphasises that broad public participation in decision making is a fundamental prerequisite for achieving sustainable development.

The UN Commission on Sustainable Development integrated sustainable development into the UN System. Indigenous peoples have argued, through various international forums such as the United Nations Permanent Forum on Indigenous Issues and the Convention on Biological Diversity, that there are *four* pillars of sustainable development, the fourth being cultural.

The Universal Declaration on Cultural Diversity from 2001 states: “... cultural diversity is as necessary for humankind as biodiversity is for nature”; *it becomes*

“one of the roots of development understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence”.

The proposed changes were supported by a study in 2013, which concluded that sustainability reporting should be reframed through the lens of four interconnected domains: ecology, economics, politics and culture.

DEFINITION AND MEANING OF SUSTAINABLE DEVELOPMENT

Sustainable development has been defined in many ways, but the most frequently quoted definition is from *Our Common Future*, also known as the Brundtland Report:

“Sustainable development is 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 overriding 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.”*

All definitions of sustainable development require that we see the world as a system—a system that connects space; and a system that connects time. When you think of the world as a system over space, you grow to understand that air pollution from North America affects air quality in Asia, and that pesticides sprayed in Argentina could harm fish stocks off the coast of Australia.

And when you think of the world as a system over time, you start to realize that the decisions our grandparents made about how to farm the land continue to affect agricultural practice today; and the economic policies we endorse today will have an impact on urban poverty when our children are adults.

We also understand that quality of life is a system, too. It’s good to be physically healthy, but what if you are poor and don’t have access to education? It’s good to have a secure income, but what if the air in your part of the world is unclean? And it’s good to have freedom of religious expression, but what if you can’t feed your family?

The concept of sustainable development is rooted in this sort of systems thinking. It helps us understand ourselves and our world. The problems we face are complex and serious—and we can’t address them in the same way we created them. But we *can* address them.

It’s that basic optimism that motivates IISD’s staff, associates and board to innovate for a healthy and meaningful future for this planet and its inhabitants.

THE DEFINITION OF SUSTAINABLE DEVELOPMENT

More than one hundred definitions of sustainable development exist, but the most widely used one is from the World Commission on Environment and

Development, presented in 1987. It states that sustainable development is “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Sustainable development promotes the idea that social, environmental, and economic progress are all attainable within the limits of our earth’s natural resources. Sustainable development approaches everything in the world as being connected through space, time and quality of life.

In terms of the world being connected by space, consider the following: Pesticides sprayed in Chile have the potential to harm fish stocks off the coast of Japan. The air pollution we emit in Los Angeles affect the quality of air in Asia. On the flip side, clean air practices on one continent will positively impact air quality across the ocean.

The earth’s connection to time is demonstrated in how we, today, are either benefiting or suffering from the choices of our grandparents and other ancestors.

Their decisions about how to farm their land, for example, continue to impact the agricultural practices of today. Looking to the future, the economic choices we make and policies we endorse today will be the ones affecting our children and grandchildren as adults.

Sustainable development constantly seeks to achieve social and economic progress in ways that will not exhaust the earth’s finite natural resources. The needs of the world today are real and immediate, yet it’s necessary to develop ways to meet these needs that do not disregard the future. The capacity of our ecosystem is not limitless, meaning that future generations may not be able to meet their needs the way we are able to now.

BASIC CONDITIONS OF SUSTAINABLE DEVELOPMENT

Although the purpose of sustainable development is to integrate social and environmental concerns into economic decisions, its achievement requires adherence to general principles that must be joined to the basic conditions for success. Those are nothing more or less than the five major principles governing life in society and relations between governments and nations. They have a number of underlying concepts, which are also considered essential to the attainment of sustainable development.

DEMOCRACY

Although they need not absolutely be linked, sustainable development can hardly be initiated or implemented in the absence of genuine democracy. It is hard to see just how to provide fairly for present needs, and without compromising the future of generations to come, without underlying mechanisms and institutions in which all can participate. To paraphrase the Brundtland Commission, which so aptly opened debate on the subject, isn’t sustainable development everyone’s business and everyone’s future?

Thus, all human beings, no matter what their country of origin, may legitimately aspire to clean air and water, sufficient food, comfortable housing and satisfying work, in an atmosphere of peace and respect for differences and diversity. At the same time, they must be able to ensure the protection and survival of their natural and cultural heritage. In short, all human beings enjoy a fundamental right to an environment that is of high quality and is healthful. By democracy, we must understand respect not only for individual rights, but also for collective rights and in particular the right of women and first peoples to participate actively and fully in the march towards sustainable development.

AUTONOMY

While sustainable development must be achieved in a democratic context, the autonomy of governments, peoples and ethnic groups in making their development choices must also be respected. This does not mean that governments must operate in isolation; on the contrary, they must adopt a global view of development and development planning by taking an active part in international forums and processes for determining major common objectives for sustainable development.

Nor does this exclude the establishment of common international environmental standards, although each government is free to adopt national standards consistent with these. It is important that governments adhere to the principle that, while protection of the environment is a joint responsibility, the development and implementation of environmental standards by less developed countries will take into account the limits and ability of those countries to act and pay the associated costs, as well as their responsibilities with respect to a particular environmental problem. At the same time, it must be acknowledged that these countries have certain potential skills and practical knowledge that often remain underexploited in the absence of appropriate support structures. Thus a greater need for mutual assistance, cooperation and the transfer of knowledge and “clean technologies” arises directly from the interdependence of countries in the implementation of sustainable development.

FAIRNESS

The concept of fairness is central to the entire issue of sustainable development, being based on recognition of the global and common nature of our environment and on the need for the planet’s resources to be shared in a sustainable way. Achieving fairness in sustainable development must be addressed at three levels: (1) within populations or states, (2) between populations or states and (3) between generations.

Fairness within a single population or government essentially requires meeting the needs of all and improving the quality of life through a better distribution of wealth. Despite what is often thought, this objective does not apply solely to the poorest countries, but also to Western societies, where disparities between people have tended to increase over the last decade. At the next level, the harmful

effects of underdevelopment and the obvious disparities between developed and less developed countries show that sustainable development cannot be achieved without reducing discrepancies between the rich and poor countries, that is, without a relentless struggle against poverty. It is for this reason that sustainable development cannot be viewed solely from an environmental standpoint, particularly in the countries of the South, where it must be achieved by accelerating development.

Lastly, one of the major challenges of sustainable development is beyond a doubt the objective of fairness between generations. As mentioned in *A Strategy for Sustainable Living*:

Each generation should leave to the future a world that is at least as diverse and productive as the one it inherited. Development of one society or generation should not limit the opportunities of other societies or generations. Once again, at this level, making certain development choices will, in many instances, require new approaches and attitudes and different behaviour.

INTERDEPENDENCE

Interdependence, which derives from the notion of fairness, is another basic condition for sustainable development: the common interest can only be served through international cooperation. With industrialization, improved technological capabilities and the globalization of trade and commerce, has come increased interdependence, even at the local level. It brings with it its own set of problems, such as the loss of traditional rights to certain resources and increased commercial and industrial production, with an attendant reduction in the decision-making power of local communities and individuals. Interdependence extends beyond a local and regional framework, however; it is now global, particularly with respect to the environmental problems affecting the biosphere.

This interdependence of individuals and communities requires first that we acknowledge our common interest in the environment so that each decision is made and each action taken in full knowledge of the repercussions for the environment and the welfare of others. More than anything else, interdependence is based on the capability for mutual assistance and cooperation at all levels of action, from the local to the international. Although international cooperation in environmental matters has increased over the past decade, a number of aspects must still be reviewed and re-oriented, taking sustainable development into account.

RESPONSIBILITY AND ACCOUNTABILITY

Since it is in everyone's interest to preserve the environment and to use it in a sustainable way, all countries have a responsibility from the outset to preserve and restore the environment and to achieve development, without harming their own environment or that of others. Consequently, all countries must take an active part and show solidarity in this cause. Furthermore, the concept of fairness,

as it applies to countries and nations or to generations and individuals, implies that the responsibilities of all involved may be different but complementary, depending on the needs of each, and may vary in proportion to the extent of damage to the environment and the abilities of each party to rectify this. Furthermore, in the context of globalized trade and environmental problems, it is vital for the economic benefits of a given business activity to be linked with its environmental repercussions, so that the responsibilities of each stockholder are recognized; that is to say, so that all players are accountable for their own actions.

Some have argued that the question of accountability, and thus of every stockholder's assumption of responsibility, may lead to a redistribution of profits so that compensation can be established, for example, for the use of natural resources or for environmental impacts. This proposal might be one way in which the richest countries can make a greater contribution to the sustainable development of poor countries and take an active part in solving environmental problems.

Collective and individual responsibility for managing the environment and natural resources in a sustainable manner must take into account both present and future generations. Making stakeholders responsible for their actions is at the same time encouraging the principle of stewardship, whereby a representative of both present and future generations acts as the "custodian" of natural resources and the environment.

GENERAL PRINCIPLES OF SUSTAINABLE DEVELOPMENT

In addition to the five basic conditions necessary for ensuring sustainable development, five major principles underlie its implementation. These principles, to an even greater extent than the aforementioned conditions, are vital to the definition of sustainable development.

ENVIRONMENTAL AND ECONOMIC INTEGRATION

The environment and the economy are obviously very closely related. This link is more than a mere principle; it is a necessity for sustainable development. Various economic tools and policies may promote sustainable development, or at least lead to a more environmentally conscious use of resources. These tools or policies, such as the polluter-payer or consumer-payer approach, may be applied equally to producers, consumers and taxpayers and to enable the market to determine the correct overall cost of using resources. In many instances, however, for the actual value of natural resources to be taken into account, producers and economic agents need to change their attitudes. As a result, tax incentives or other economic tools may be necessary to promote this coming together of the environment and the economy.

The integration of the environment and the economy is as advantageous for poorer countries as for rich ones because, if production models adhere to

economic and environmental rules, there may be a better balance of comparative production advantages. The result could be a softening of world trade rules whereby poorer countries would be enabled to lay claim to greater economic development.

Certain traditional economic indicators may also assist in assessing the degree to which the economy and the environment are integrated. Particular examples are the gross domestic product and per capita income; global indicators that reflect social aspects (such as the Human Development Index, which includes longevity, education and income); and strictly environmental indicators, such as water quality and land use.

MAINTENANCE OF BIOLOGICAL DIVERSITY AND CONSERVATION OF NATURAL RESOURCES

Achieving sustainable development presupposes that we can preserve biological diversity, maintain ecological processes and life support systems and use the world's species and ecosystems in a sustainable manner. Development based on the preservation of natural resources calls for energetic measures that will make it possible to protect the structure, functions and diversity of the natural systems on which life depends.

These measures must focus on species and ecosystems as well as on their genetic heritage. Consequently, the limits, on and the capacity for renewal of, natural resources such as soil, wild and domesticated species, forests, pasture and farm land, fresh water and marine ecosystems, must not be compromised. As well, the life of non-renewable resources should be extended by developing and using more effective and cleaner technologies and by encouraging re-use and recycling.

First of all must come changes in the behaviour of individuals and communities and in their attitude to the environment, along with the provision of genuine means for managing it better. New approaches at the state level must then integrate development and conservation of resources on the basis of sufficient information and knowledge and through appropriate legal and institutional instruments. Effort at the international level must be on promotion of the development, and adoption and implementation of conventions and protocols on the environment and natural resources.

PRECAUTION, PREVENTION AND EVALUATION

Precaution, prevention and evaluation are the starting points for genuine sustainable development; they must form an integral part of the planning and implementation of every development project. Planners and decision-makers must make it a routine to foresee and provide for the environmental consequences of their projects.

Current environmental protection measures are precautionary; however, in many cases, they are merely a band-aid solution that is not always compatible with the concept of sustainable development, particularly from a long-term

perspective. However, the concepts of precaution, prevention and evaluation are difficult to instill because they are often removed from the day-to-day reality and have benefits that will be felt only in the more or less distant future. Forewarned is forearmed, foresight is knowledge and evaluation enables planning: it is imperative that countries and societies adopt these three watchwords so that present development can be transformed into sustainable development.

COOPERATION, PARTNERSHIP AND PARTICIPATION

Achieving sustainable development has become a collective responsibility that must be fulfilled through action at all levels of human activity. Consultation and cooperation in all decision-making are essential to the sustainable management of terrestrial, aquatic and marine ecosystems. It is incumbent upon all states and all nations to cooperate in good faith and in a spirit of partnership in implementing effective strategies to protect, preserve and restore the environment. All must take an active part and do their fair share in accordance with their capabilities and the means at their disposal.

All governments must accept their responsibilities by introducing economic growth policies and programmes compatible with the protection of their own environment and that of others. They must ensure the protection of ecosystems of particular importance for agriculture and the way of life of the populations that depend on it. Furthermore, they must facilitate the participation of non-governmental organizations and decentralized or local communities to ensure they can play a greater role in all development-and environment-related activities.

In addition, states must join forces to strengthen international law by adhering to existing environmental conservation and management conventions and protocols and by passing the necessary statutes for their implementation. They must also promote and develop new agreements and instruments considered necessary to achieving sustainable development.

Cooperation and partnership also presuppose that the richest countries introduce financial and technical assistance measures that will enable the poorer countries to integrate environmental issues more easily into their development programmes. The creation of specific environmental protection and restoration funds is certainly worth considering. The preservation of biological diversity clearly illustrates how interdependent are the “North and South blocs” in the necessary establishment of new partnerships. The main “centres or sources of biological diversity” are situated more particularly in the countries of the South, whereas the major “technological or biotechnological centres” are mainly in the countries of the North.

In other words, the countries of the South as well as those of the North must be party to all discussions, solutions and conventions necessary to the achievement of sustainable development. They must all ensure that the measures chosen are suited to the situation of each. The more developed countries will no doubt have to make the necessary efforts to bring about a higher degree of development in the poorer countries and, in particular, the latter's improved access to the most suitable technologies.

EDUCATION, TRAINING AND AWARENESS

Safeguarding the environment and achieving sustainable development depend not only on technical and economic matters, but also on changes in ideas, attitudes and behaviour. The direct participation of individuals and communities is essential. All must become fully aware of their environment, know its demands and limits and alter their habits and behaviour accordingly.

To this end, countries must develop strategies to better educate, inform and sensitize their populations on environmental matters and sustainable development. For example, ecological and environmental concerns can be integrated into school programmes; the awareness of the general public can be raised through extensive information campaigns, particularly through the media; “green” projects can be encouraged in local communities, and training programmes can be developed to promote more informed resource management and the use of clean technologies.

NGOS, DEMOCRACY AND SUSTAINABLE DEVELOPMENT

NGOs have rapidly gained an international reputation. They are being consulted on matters of policy making, planning and implementation at the local, national and international levels. This is because they offer new perspectives as well as a wealth of experience in such areas as grassroots development, environmental protection and the defence of human rights. They have a broad knowledge base and strong commitment to issues relevant to the emancipation of the poor. They have shown more sensitivity and understanding of Africa’s severe economic and political crisis than their respective governments and the multilateral institutions. Keeping in mind that Africans at the grassroots level must have the lead in defining their needs and formulating development strategies, NGOs have recommended an action-orientated ‘compact’ for African development which must be translated into coordinated programmes for long-term solutions. Indeed, many NGOs are more active and knowledgeable in the area of development needs of poor countries than are their governments. They have demonstrated an awareness of the fact that conventional development models have not changed the situation of the poorest in Africa and they have been quick to recognize that people are poor because they have no power.

NGOs are increasingly influencing their governments, mobilizing people at the grassroots level by strengthening their institutions and raising their awareness; bringing to the attention of donor countries and the multilateral institutions the harmful effects of some of their policies; calling for equity-led strategies that give priority to achieving broad participatory ownership, control and management of natural resources by people to serve their own needs; and decrying current development strategies which favour the market economy and lead to more debts and reliance on exports and cash crops, whose effects on environmental degradation and overuse of agricultural land are apparent. NGOs

are increasingly interested in sustainability and they realize that local development initiatives will be sustainable only when in partnership with a supportive national development system. That is why they are paying more attention to local and national governments which control the resources and policies that have a bearing on grassroots development, in the hope of influencing them in favour of an institutional and policy setting that is supportive of sustainable development policies. This task requires NGOs to have intra- and inter-organizational skills as well as technical competence and close collaboration with each other.

NGOs now see the future development of African countries as achievable through broader participation in the decision making process. They see such participation as informing both national and local development decisions. In conferences, NGOs have made it clear that the absence of full democratic rights in Africa is the main cause of Africa's economic decline. That is why they are advocating human centred development, the democratization of the development process, and are taking the lead in advocating policy and institutional reforms which are supportive of sustainable development and democracy and would stop the downward spiral of economic inequity and ecological destruction.

NGOs have identified the pressing problems facing African countries as being the undemocratic systems of government and the unequal, unsustainable, misguided and inappropriate development strategies. Consequently, they have proposed strategies by which equitable distribution of the benefits of sustainable development could be achieved; these include reforming of the world's trading system, more financial resources to African countries, and a reduction in military expenditure. They are critical of the institutions and policies causing environmental, economic and social degradation. For example, transnational corporations (TNCs) are under attack because of their role in the extraction of natural resources and despoliation of the environment, and international financial institutions are decried for opening up African economies for resource extraction by TNCs.

For NGOs to be able to promote democracy and sustainable development, they are recommended to "network; build up relationships with governments; participate in development planning committees at regional, provincial, district and ward levels; achieve economic self-reliance and mobilize, build up and expand constituencies," otherwise their democratizing potential will be limited.

The existence of a dense network of autonomous grassroots development organizations and African NGOs on a substantial scale is essential in order to exert pressure in the interests of the poor and to act as their representatives, as well as a countervailing force to the power of the state, bureaucrats and local elites. NGOs also need to work to strengthen the organizational, technical and managerial capabilities of grassroots organizations so that the latter are able to stand up and press for demands and hold governments accountable for their actions.

By strengthening and developing grassroots organizations' capacities, NGOs will be enabling them to ensure resource management and control which

correspond to the specific local context. Considering the climate in which NGOs must operate, their position on the African scene can sometimes be unenviable. NGOs have to contend with policy, economic and above all, political instability with all their ramifications. In some countries, the rise of political pluralism and the decline of centralized, one-party regimes has been replaced by fragmented special interests which have produced polarization, violence and political paralysis.

As if this were not enough, mutual suspicion and hostility sometimes characterize government-NGO relationships. A confrontational relationship with governments does little to enable NGOs go about their tasks effectively.

NGOs may face other threats, too, including disbanding or control. Other permanent threats to NGOs are administrative cooptation, appropriation, harassment and politically-motivated legislation. NGOs have also to contend with vested interests, which include bureaucrats, politicians and rural power elites, many of whom will oppose attempts to transfer power, responsibilities and resources to local institutions. Vested interests which have gained from non-democratic regimes are likely to oppose political and economic reforms. In such circumstances, governments, as well as vested interests, can constrain NGOs' ability to promote democracy and sustainable development. One way to overcome this is for NGOs to strive to create political space, build coalitions of friends and identify common points with governments, and then use this strength to chip away at the power of the vested interests.

BALANCE SHEET

The major sources of funding for NGOs continue to be voluntary private sources and governments. Where before African governments were the only major recipients of official aid from donor countries and multilateral institutions, nowadays more aid is being channelled through NGOs, many of which are perceived by the donor community to work more efficiently in participatory development and to operate in those areas which are not accessible to governments. The effect of this re-direction of some of the aid hitherto going to African governments has meant that these governments are being bypassed as implementing agents. This is leading to interesting examples of how governments are trying to 'coordinate' NGOs in the hope that they might be able to 'control' them now that they are recipients of more official funding.

While increasing availability of public funds for NGOs has been welcomed, for it expands their operations, NGOs are concerned that increasing acceptance of such funds could compromise their development goals, with the risk that they will be increasingly seen as agents of governments and multilateral institutions rather than as partners in development. The central challenge facing NGOs is how to maintain their voluntary character while becoming increasingly effective in their work.

NGOs realize that dependence on others for funding may compromise their flexibility to deal with pressing development issues. It may also undermine

their ability to speak out against those policies of funders which they see as harmful to the interests of the poor. The other quandary which NGOs face is that while they advocate sustainable development and democracy for those they support, they themselves are, in many instances, neither democratic nor self-reliant.

In highlighting the potential and actual impact of NGOs as promoters of sustainable development, it is important that we do not lose sight of the difficulties NGOs face in achieving their goals. A recent series of studies by the UK's Overseas Development Institute (ODI) in Zimbabwe, India and Bangladesh suggests that NGOs have not been successful in (a) benefiting the poorest households, (b) benefiting women, and (c) ensuring self-sustainability of local NGOs. These findings serve to remind us that the tasks that NGOs set themselves are not easy to achieve and that a lot more will have to be done within and outside the NGOs if they are to be able to promote development that is balanced between local short-term use of man's environment and the maintenance and enhancement of long-term productivity.

NGOs have yet to make a significant impact both at national and local levels. In part, this inability stems from their lack of leverage. At the local level, they have yet to develop into an effective force which could counter the presence of local elites and influence decisively people's attitudes as well as local development policies.

NGOs have many constituents, namely, donors, beneficiaries, policy makers and the public. These constituents have conflicting expectations. NGOs need to develop mechanisms for multiple accountabilities. Currently such mechanisms do not exist. This serves to constrain NGOs' effectiveness and blunts any claim to democratic credentials.

The political stance of many African NGOs contrasts with that of their Latin American counterparts where NGOs go as far as providing "trained personnel to occupy government positions." Many Latin American NGOs have had a history of directly and openly supporting social movements in opposition to military regimes. NGOs in Africa have not taken that high a political profile. For many African NGOs, politics is a forbidden and dangerous area. They argue that the best way for them to fulfil their development roles is to remain apolitical. Yet this is an unrealistic strategy, not least because many NGOs' operational activities are themselves political in that they seek to shift existing inequities in favour of the poor. Instead, they prefer to promote democracy by supporting grassroots organizations with resources, training and information. By their own actions, especially in participatory projects, NGOs have created practical schools of democracy from which members from grassroots organizations are able to follow democratic practices. Nevertheless, the feeling is that NGOs in Africa should do much more to contribute towards a more democratic Africa.

That the democracy and sustainable development are two sides of the same coin. The two concepts are underpinned by equality of access to resources, improvement in living conditions and commitment to democratic decision

making. Both concepts, in practice, promote the idea of humanity being empowered and self-reliant, free and very much in charge of its destiny, in partnership with others.

The immense development challenges posed by Africa cannot find all the solutions in NGOs. NGOs have great capacity but cannot be the panacea to the challenges. That said, for NGOs' potential and impact to materialize fully, they must have more effective systems of internal monitoring and self-evaluation and must achieve self-sustainability.

Somehow, they must acquire the political skills which will see them through the complex socioeconomic and political maze of the African situation. Strategically, close collaboration with national governments is essential and, from time to time, NGOs must not hesitate to appeal to multilateral donors who have leverage and could act to protect them against political interference. The ability of NGOs to promote democracy and sustainable development policies in Africa should be considered in the context of the states' preparedness to accept reforms which permit "devolution of power and responsibility for resource use and management from the centre to the communities." The goodwill of national governments, as well as of the international community, is crucial to NGOs' successes or failures, not least because, in the case of the latter, they have the resources to create a supportive international climate that could reverse the flow of resources from African to northern countries and support better terms of trade and accessible markets.

As for national governments, they should show goodwill by creating internal conditions which permit a liberal democratic framework as well as a supportive legal framework. Both macro-and micro-economic policies which are favourable to NGOs would offer a conducive framework within which NGOs would flourish. In their quest for sustainable development and a democratic society, therefore, NGOs must strive to attain this goodwill. It underlies all else.

3

Economic Development for Agricultural Producers

“The change to a global market economy over the last ten years has produced some very big changes for small producers. Now they need to understand global market situations to make better decisions about timing, marketing and management”

Monica Besoain, fieldworker for the Chilean NGO, INPROA, Rengo, Chile (personal communication, July, 1996).

Rural communities and small-scale agricultural producers are deeply affected by global economic, environmental and political forces. The idea that communities of small-scale agricultural producers are isolated and living in closed, self-sufficient societies is a myth. Global trade relationships, such as GATT, NAFTA, and MERCOSUR, place rural communities and small-scale agricultural producers squarely in the middle of global market realities. Trade decisions in Rome or Chicago today affect campesinos in Mexico within hours. Interest rates, global commodity situations, changing trade patterns, transportation developments and tariff structures all impact upon even the smallest farm operation. Without knowledge and without the communication capabilities required to access, analyse and share the information required to create knowledge, small producers remain at the mercy of global market forces.

With knowledge, small producers can have a competitive footing with larger farm operations and corporate agriculture. Small producers often have the flexibility to quickly change crop choices, develop products for small niche markets and even market directly to the consumer or commodity broker in

distant countries (cf. Bridgehead-OXFAM Canada; or International Small Business Consortium). Small-scale, labour intensive farming can reduce input costs and provide consumers with higher food quality, improved food safety and better food taste.

When knowledge is harnessed by strong organizations of small producers, strategic planning can be used to provide members with lower cost inputs, better storage facilities, improved transportation links and collective negotiations with buyers. The International Federation of Agricultural Producers, recognizing the value of the Internet to its members, is investigating the possibility of establishing a global Internet communication network among farmer organizations. If successful, this initiative could enable farmer organizations to gain a much greater voice in the world of international agricultural policy (vertical communication) and enhance communication among farmers and farmer organizations (horizontal communication).

Organizations of small producers want and need instant information on global market prices, negotiation techniques and strategies, analyses of product potentials in various markets, new production and marketing techniques, new transportation systems, and global trade rules. Information that can reduce the costs of transactions and improve prices received at markets (or open new markets) is highly valued. These organizations can and do act as communication conduits or intermediaries, facilitating the flow of information between local people and the rest of the world.

The global Internet is one tool that can enhance this flow of information for organizations of small producers. It is an inexpensive way to communicate and access global information. Local Internet services can be easily managed by well-organized local user groups and farmer organizations. Information and analyses can be tailored to local, regional and national knowledge and communication needs and realities. When combined with national and global market information systems, and with the ability to communicate quickly with potential buyers and brokers, local Internet systems become valuable strategic planning and decision making tools.

Local agricultural producers can benefit from the Internet without having access to computers or phone lines. Community information centre personnel can easily post market prices at places where farmers gather, can liaise with local radio stations and newspapers, and can channel information through interpersonal networks, simple newsletters and posters. Used wisely, the Internet can be part of an extended media mix for both gathering information from vertical channels and disseminating information through existing horizontal communication channels.

Community Development Applications

“Modern communication technologies, when systematically applied and adapted to conditions in rural areas of developing countries, can be used for rural communication to increase participation, disseminate information and share

knowledge and skills. The establishment of new institutional frameworks, including all stakeholders, which are autonomous and income generating, can lead to sustainable and cost-effective efforts, as opposed to working only with government agencies”

Manuel Calvelo Rios, FAO communication for development in Latin America project. FAO. 1996b.

Local community oriented Internet services are also valuable when placed in the service of rural and agricultural development organizations which act as local communication conduits or intermediaries.

Along with providing improved market knowledge, they can also:

- Develop locally appropriate applications and creative services;
- Provide knowledge about successful development strategies;
- Enable efficient regional, national and global organizational efforts (the use of the Internet as a global communication and organising tool in Chiapas, Mexico is an excellent example of the latter);
- Provide improved access to a huge variety of information, training, research and educational resources (including distance education services) that are typically unavailable in rural and remote areas due to the costs associated with accessing printed materials and books;
- Enable rural young people to learn about computers and to have access to the technologies and information available to their urban peers;
- Provide access to critical technical information for rural professionals such as physicians, health care workers, technicians and engineers, thereby providing further encouragement for these professionals to continue practicing in rural and remote communities;
- Be used as marketing tools to promote rural tourism and market the products of small secondary industries and home-based businesses;
- Enable local NGOs to gain a global presence and make better contact with potential donors and supporters through on-line publication of resources and information, and through the use of electronic mail; and
- Sensitize urban policy makers to the realities and needs of rural populations.

Research/Education Applications

“Toolnet is a network for small scale development projects that fosters exchange of information, experiences, expertise and solutions to technical problems. It provides multifunctional electronic mail to link field workers, local organizations technological institutions, international development organizations and individuals... directed towards technology transfer among developing countries... Points are operating or planned in about 25 countries worldwide. “

Volunteers in Technical Assistance (VITA). 1995. World Bank.

Within national, regional and international research communities, there is increased attention towards “participatory research” strategies (Chambers and Gujit, 1996). These strategies place farmers and rural residents at the centre of

the research process and enable them to enrich their knowledge base and share that knowledge with one another, field workers, researchers and decision-makers at various levels. Internet use among intermediary organizations and leaders involved in participatory research can provide a cost effective method for documenting and sharing lessons learned and research results.

Internet use also has the potential to strengthen linkages between and among farmer organizations extension workers, researchers, policy makers and other actors in a farming system. For example, international organizations such as the Information Centre for Low-External-Input and Sustainable Agriculture (ILEIA) and the Technical Centre for Agricultural and Rural Cooperation (CTA) are working to advance knowledge and communication systems to enable intermediary organizations to create local information resources and share them around the world, and to access common information databases and learning tools related to sustainable and low input agriculture.

The Consultative Group for International Agricultural Research (CGIAR) has a highly advanced Integrated Voice and Data Network (IVDN) to link member research organizations around the world and provide low cost member voice and data communications using Internet protocols. In only a year the CGIAR has linked three quarters of the international agricultural research centres to the system. IVDN services include:

- Internet services (FTP, Telnet, Gopher, WWW, *etc.*);
- Free telephone calls within the network;
- Lowest-cost international direct dialing (no need to use call-back services);
- Detailed call reporting and cost control;
- Voice mail (optional);
- Audio conferencing;
- Desktop computer conferencing (“digital whiteboard”); electronic mail (with value-added services: fax, telex); and
- Directory management services.

This powerful network of research organizations has not yet developed significant electronic linkages to intermediary organizations and national agricultural research centres (NARS) that might assist in the dissemination of information and establishment of participatory research strategies [The Technical Centre for Agricultural and Rural Cooperation (CTA) has proposed a network information programme to link NARS nationally and regionally in East Africa and to assist in facilitating dissemination of research information in East Africa. Thought should be given to developing similar projects supported by other agencies in coordination with CTA.]. However, once intermediary organizations are connected to the Internet through local means, or through international networks such as the IVDN, the potential to develop and strengthen these linkages will be very high. The same is also true for educational institutions in developing countries whose students and faculty members could gain access to research information, and share their own research results with the CGIAR,

NARS, FAO and with other institutions involved in rural and agricultural research. An investigation of the possibility of enabling NARS to access the CGIAR IVDN would be a very good first step in the process of assisting NARS and intermediary organizations to harness the power of the Internet. In addition, the vast information resources of the CGIAR system (including information databases such as AGRIS) can be made generally accessible via the Internet, thus providing the world, including information-poor researchers in developing countries, with easy access to a huge depository of international agricultural research information. The cost of accessing printed academic materials within developing countries is usually so high that students and faculty members have great difficulty acquiring books and journals. Also, the time required to obtain printed materials from overseas can be long enough to render some information out-dated by the time it arrives. Via the Internet, information published on-line can be accessed almost instantly and at a small fraction of the cost of obtaining printed materials. Information on the Internet is easy to access and archival lists of resources can be easily reviewed and assessed in remote locations.

Electronic distance education services are already in use in North America, Australia and Europe (particularly among people in rural areas), and with the continued growth of Internet access in developing countries, there is a very good chance that similar services will develop significant demand. Over 87 percent of the rural Internet users involved in the University of Guelph's Rural Internet User Survey indicated that they were very interested in taking advantage of on-line courses and other structured learning opportunities via the Internet (Mayhew and Richardson, 1996), yet there are few such opportunities available to meet their level of interest.

Distance education, as well as traditional education, partnerships between universities in the North and the South (such as the partnerships between the University of Guelph and universities in Cameroon and India to develop distance education extension worker training programmes) have proven to be beneficial to the institutions involved. With the assistance of Internet tools, these partnerships can be further strengthened, and Internet learning resources can be cooperatively developed across oceans to be utilized by participants in developing nations. Of course, this process can work in the other direction as well, to enable students in the North to learn more about the conditions, challenges, potentials and knowledge development of the South.

Overall, the Internet holds significant potential to enhance learning and research relationships among researchers, academics and students, wherever they are located. The list of potential applications is infinite and thousands of informal linkages of this sort take place every day on Internet discussion groups. Development agencies can play a role in helping to formalize and provide credentials and diplomas for people who participate in specific electronic learning initiatives delivered via the Internet.

Within FAO's Sustainable Development Department, for example, there are existing training and curriculum development projects focused on

communication for development and extension worker training. Other FAO departments and many other agencies have similar projects. The materials and processes created within these projects can be adapted for Internet distance education delivery. Such distance education projects could take advantage of the power of the Internet to facilitate local and international learner interaction and team learning contexts based on group learning projects, as opposed to the traditional correspondence style of distance education.

ENHANCING RURAL COMMUNITY RESOURCES: A VISION FOR INTERNET USE IN SUPPORT OF INTEGRATED RURAL AND AGRICULTURAL DEVELOPMENT

The Vision of an Integrated Approach

Investments in development require vision. Development initiatives that involve technology will sometimes lose sight of the human dimensions of development. The goal of an integrated approach to improving Internet services for rural and agricultural development is to enable rural people to increase the community resources they require to improve their lives. Communication networks that enable information to flow to and from rural communities and agricultural organizations as well as between and among the many intermediary organizations that touch rural communities and farmers directly or indirectly, will strengthen community resources. This requires a vision of all the stakeholders involved in rural and agricultural development communicating with one another, with rural organizations and people having access to the same communication tools and information resources as their urban peers.

The Internet suits this vision well. The Internet is a medium of communication, and is perhaps the most flexible medium currently available. It has the potential for integration within a wide variety of projects that have objectives such as local participation, training, education, research (especially participatory research), technical support and institutional strengthening. In short, it is a tool that can be of value to integrated rural and agricultural development.

Whenever a project involves people who need to communicate and share information across geography, across social groupings, between organizations and throughout production systems, there is a need to create flexible systems of communication and information sharing. Thus, projects that might find a role for Internet applications could range from apiculture training to community forestry to veterinary medicine.

The Scope of Possible Outputs

The Internet is a multipurpose tool that, in its essence, enables people to learn from one another and work together. The results of Internet projects are not technical, but human and social. The Internet is essentially a tool for

enhancing human relationships. Projects need to be driven, not by technical concerns, but by human knowledge, communication, and social relationship concerns. Thus, the intended results of an Internet project ought to relate directly to improvements in social relationships, improvements in knowledge sharing and knowledge access, and enhancement of communication among people and organizations. Such project results can happen through efforts to increase rural community resources and agricultural resources to achieve project outputs (depending upon local circumstances) such as:

- Locally developed learning tools, learning games, learning networks;
- Interactive and collaborative extension information networks among farmer organizations, government extension services, rural media, research bodies and educational institutions;
- Rural “folk schools” and “farmer field schools” similar to those created by rural radio, and non-formal education initiatives such as farm radio forums and radio listening groups;
- Market information networks (regional, national, local);
- Distance learning programmes and networks;
- Participatory research and action networks;
- Interactive and collaborative “expert systems” and decision-support networks;
- Early warning system information dissemination and data gathering networks;
- Shared curriculum databases and curriculum development networks; research sharing and information dissemination systems;
- Training tools;
- Small and medium enterprise development networks and marketing mechanisms;
- Rural media networks (*e.g.*, rural radio, newsletters, *etc.*);
- Agro-ecosystem health networks (*e.g.*, Australia and New Zealand’s Landcare “integrated systems for knowledge management” approach);
- Indigenous knowledge networks (*e.g.*, Indigenous Studies WWW Virtual Library);
- Disease and pest monitoring action networks (plant and animal); water management information networks;
- Agricultural product and service trading networks (regional, national, local).

When considering project outputs, the question is not simply “how do we provide Internet access and infrastructure?”. The question to be asked is “how can we use this flexible medium to help people meet their information and communication objectives to obtain their development goals?”. Improving rural community information and communication resources must also link to efforts to improve the capacity of rural organizations and rural people to make the most effective, and sustainable, use of those resources.

Internet initiatives for rural and agricultural development need to be approached with a degree of caution. Different regions, organizations and

communities will have different application, capacity building and technical needs. In some areas it is possible to have farmers and rural residents as direct Internet users (*e.g.*, Chile, Mexico). In other areas, the challenge will be to help build the capacity of intermediary organizations (such as extension field offices, NGOs, rural schools, libraries, health clinics, government satellite offices, and church organizations) or assist in the establishment and promotion of community information centres linked to the Internet. In all cases, it will be important to link Internet activities with existing media and local communication methods and patterns. Every initiative is likely to have its own unique characteristics as a result of the unique characteristics of the local people involved and their social, cultural and economic backgrounds.

Special attention also needs to be given to women's involvement in these initiatives. Overall, there are more male Internet users than female Internet users. North American surveys place the ratio in that region of the world at between three and four to one, male to female Internet users. This situation seems to be improving over time. However, special efforts must be made to insure that women have a chance for early participation in new Internet initiatives for rural and agricultural development. Concern for gender equity is one reason for this recommendation. Another is evidence which suggests that women can play a role in ensuring that community oriented Internet services remain focused on community needs and do not get carried away by technological gimmickry (Richardson, 1995).

Applying a Communication for Development Approach to the Internet

“Participatory development communication values process over product. With participatory video, the communication process is vastly more important than the damn video tape.”

Tony Williamson, Canadian Development Communication Pioneer (Personal Communication)

FAO's twenty-five year experience with a communication for development approach to rural and agricultural communication, using media such as rural radio, small format video (participatory video), photography and print, is now being applied to the Internet in three small scale initiatives. This simple and common-sense strategy of involving people in assessments of their knowledge and communication needs is the cornerstone of communication for development methodologies. This strategy is essential to achieving outputs such as those listed in the previous section.

Much of FAO's success with communication for development approaches has involved the use of a medium that many development planners first dismissed as too “high-tech” and as being inappropriate technology. This medium is small format video (consumer grade video cameras and portable television monitors). Facilitators use small format video to enable rural residents to articulate their ideas, aspirations, needs and solutions.

Using video, people can speak directly to distant decision makers and researchers, gain access to knowledge presented in audiovisual form by experts (often other farmers), and share their experiences with one another across distances. In participatory video work, the communication process is more important than the production of a video. This aspect of the process is frequently misunderstood by observers of communication for development projects. It is not important for participants to become communication professionals: the goal is to provide media that are flexible enough to allow people to articulate and share their ideas. Integrated into development planning activities, such a communication for development approach enables farmers and rural people to actively participate in development processes. These approaches enable rural stakeholders to articulate their knowledge, organize local activities, take part in decision making and fully recognize the value of sharing their ideas.

Like participatory video processes, the Internet may help people to attain their development goals, but it must be used as a communication process tool and not simply as a static “information technology.” Otherwise, Internet tools will be relegated to the junk heaps of inappropriate development technologies or dismissed because of previous failures to make the medium locally relevant and useful. If, for example, the information outputs derived from highly technical electronic information systems such as famine early warning systems or food security databases are not made available to the people whose lives are the subject of those systems, then we are failing to fully exploit the large infrastructure investments involved, and we are failing to assist people in making appropriate decisions based on such valuable information. Before we even create such tools, we ought to involve the ultimate beneficiaries in determining the value of these initiatives and discussing planning approaches.

We must avoid contributing to the gap between the information “haves” (experts, academics, researchers, policy makers, *etc.*) and the information “have-nots” (usually the ultimate beneficiaries of development work), a gap that can emerge when we create Internet applications to serve only elite researchers and bureaucrats. A review of African Internet projects and Internet project proposals conducted at the Bellanet Secretariat reveals to any interested party that only a handful of many dozens of project plans (some funded and some in the discussion stage) go beyond providing services to elite researchers and bureaucrats. Few project plans show evidence of participation from ultimate beneficiaries. A scarce few (*e.g.*, the IDRC ACACIA Project) involve community based organizations.

We must strive to find ways to bring knowledge producers, such as researchers and policy makers, closer (in the social as well as geographical sense) to the other less recognized knowledge producers: the people who are the ultimate beneficiaries of development programmes (*cf.* the Indigenous Studies Virtual Library. The Internet helps make this possible. Thanks to the Internet, farmers can (and do) now have access to the same information, and many of the same information publications and dissemination tools, as researchers at major agricultural universities and research centres. We must insure that Internet

projects are planned with and for the ultimate beneficiaries of development programmes. A fact that is well known to current Internet users is that the Internet has the power to cut across social and geographic distance and help people find new ways of facilitating the flow of information and knowledge. In many ways the Internet has always been a development communication tool. Within bureaucratic organizations it has a way of levering hierarchies, facilitating new communication patterns, and helping enable activities that might not otherwise occur (Negroponte, 1995). This factor makes it an especially attractive medium within communication for development efforts. The key to achieving similar results in new Internet and development projects is to begin with a grassroots, beneficiary-inclusive communication for development approach during the planning process.

“BEST PRACTICES” FOR SUPPORTING INTERNET AND DEVELOPMENT INITIATIVES

“Information is critical to the social and economic activities that comprise the development process. Telecommunications, as a means of sharing information, is not simply a connection between people, but a link in the chain of the development process itself.”

At the end of the Twentieth Century, people in rural and remote areas of developing countries are facing many unprecedented challenges brought on by the changing global economy, dynamic political contexts, environmental degradation and demographic pressures.

The number of food insecure around the world continues to increase. To deal with these challenges, and to make critical decisions, people at all levels of society, and especially the food insecure and the organizations that serve and represent them, must be able to access critical information and communicate. Improved communication and information access are directly related to social and economic development (World Bank, 1995). Participatory development is fully dependent upon communication and information sharing processes.

One cannot expect poor farmers and food insecure residents of rural communities to list computers and digital telecommunication services as high priority items for improving their lives. However, there exist various intermediaries that serve these populations which, together with small and medium enterprises (SMEs) in rural areas, can take advantage of these technologies to improve their work, improve communication capacity, gain efficiencies and reduce telecommunication costs. An integrated approach that fosters horizontal and vertical channels of communication is key to insuring that such benefits are realized.

Intermediary organizations such as extension field offices, rural NGOs, health clinics, government offices, and church organizations together with SMEs, can offer benefit to their rural client groups in numerous ways. Strategies for improving Internet access and use for rural and agricultural development will necessarily involve full participation of intermediary organizations and other

rural stakeholders. As Internet services become more widely used among these organizations it becomes more important to facilitate the exchange of lessons learned and best practices that emerge from on-the-ground experience.

This chapter recommends 11 activities to assist rural stakeholders in gaining access to, and developing creative uses for, Internet services:

1. Promote regional coordination of Internet strategy for rural and agricultural development.
2. Establish pilot projects.
3. Use a communication for development approach.
4. Support efforts to liberalize telecommunication policies in developing countries.
5. Support local Internet entrepreneurs and other service providers in developing countries.
6. Assist stakeholders in advocating for Internet service provision and telecommunication infrastructure and policy improvements.
7. Orient existing Internet information services to users in developing countries.
8. Support rural and agricultural education sector Internet capability.
9. Provide Internet awareness building and demonstration.
10. Support rural and remote infrastructure development.
11. Support creative Internet applications and information services for rural and agricultural development.

Promote policy and regional coordination of Internet strategy for rural and agricultural development, “The first step everywhere is to create awareness and understanding of the nature and fundamental advances which are now possible in development, their practical implications and how they translate into operational terms for individual organizations Every government and donor agency needs to address the new generation of policy which these advances call for and the new public/private sector relationships they require.”

Bernard Woods. “Ceres”, *The FAO Review* No. 158, March-April 1996.

The Internet expansion in the developing world is led primarily by non-governmental organizations universities, and private sector Internet service providers (ISPs). These organizations are typically small and underfunded, but manage to utilize new and emerging technologies to provide reliable Internet services to civil society at competitive rates. With little or no donor support they have emerged as the most effective and sustainable service providers in developing countries.

Governments participate, directly or indirectly, through the provision of improved telecommunication services (such as fibre optic and satellite backbones), improved policy and regulatory environments that enable private sector initiatives, information and communication technology consulting centres (such as the Regional Information Technology and Software Engineering Centre [RITSEC] in Egypt), information and communication technology assistance to the educational sector, and in some cases government telecom Internet service (such as Senegal). Rural and remote regions, however, experience many barriers

to receiving the benefits of Internet services. For example, many African capital cities have reasonably reliable Internet services available, but outside such centralized focal points, service is poor or nonexistent.

Donor agencies can play important roles in influencing national policy with regard to rural and agricultural development and national telecommunication improvement strategies. For example, they can:

- Encourage governments to support private sector knowledge and communication technology innovations and services targeted to rural and agricultural communities;
- Encourage the creation of national information and technology consulting centres, and work to ensure that such centres target some of their services to under served communities;
- Encourage national agricultural research centres (NARS) to investigate the potential of national research knowledge systems and participatory research systems via the Internet;
- Encourage governments involved in telecommunication service improvement to recognise the needs of rural and agricultural communities for service upgrades;
- Encourage governments to involve women and women's organizations in the development of Internet and telecommunication strategy development and activities;
- Assist national educational sectors in establishing rural and agricultural knowledge and information systems learning programmes in universities and technical schools, as well as assist in developing innovative rural learning programme delivery strategies such as electronic distance education;
- Encourage governments to utilize knowledge and communication technology for administrative improvement, extension, and for civil society liaison within rural and agricultural communities (via existing field, extension, research and administrative offices).

Recently, many funding and aid agencies have been “jumping on the Internet bandwagon” to support a collage of Internet related projects in Africa and Latin America. Only recently have some of these agencies begun supporting coordinated and collaborative activities to support establishment and enhancement of Internet services to rural and remote areas (*e.g.*, IDRC in partnership with FAO in Southern Africa).

These areas are, however, the locations with the greatest need for improved communication and information services. Assisting in the coordinated establishment and enhancement of Internet services to rural and remote areas is an activity that donors can support to achieve many benefits for rural populations. In doing so, donor agencies can ensure that their initiatives take advantage of the gains made by other agencies, while serving a sector-the people of rural areas-that may otherwise continue to be neglected.

An African Networking Initiative report (Jensen, 1996) commissioned by the International Development Research Centre (IDRC) contains a number of useful recommendations for regional coordination of strategy in Africa, including:

- Encourage more agencies to become involved in the African Networking Initiative which is coordinated by local African information and communication technology stakeholders;
- Achieve commitment among development agencies to collaborate on a clear strategy for information and communication technology support in Africa in order to improve planning and resource sharing and eliminate the current “overlap in the multiplicity of projects in certain countries and activities” (Jensen, 1996-over 100 information and communication technology projects were identified and over 350 organizations were noted for their involvement in information and communication technology developments in Africa);
- Improve the availability of information on the existing information and communication technology infrastructure and projects;
- Improve access to technical skills;
- Improve information and communication technology for African use, which can include non-African knowledge network administrators becoming familiar with the specific challenges faced by African or Latin American Internet users to insure that information available in Europe or North America is equally accessible (in terms of speed and consistency) in developing countries [*Echoing the Internet’s roots in a technology designed to assist the hearing impaired is an interesting tool that can assist in the creation of World Wide Web pages that are universally accessible. “Bobby” from the Center for Applied Special Technology in Maryland, United States, was developed to assist people with disabilities to have equal access to the information networked on the World Wide Web. Computers and the Internet, in combination with specific hardware and software tools designed for the visually and hearing impaired and people with physical disabilities, mean that they no longer have to be among the information “have-nots.” Bobby helps people design World Wide Web information resources that work with assistive computer technologies and it helps developers keep people with disabilities in mind. Bobby instantly analyses World Wide Web information sites and details features that can slow down data transmission and make information pages difficult to read. The same service that helps people with disabilities in North America is a valuable tool for assessing the appropriateness of World Wide Web pages designed for users in developing countries*];
- Increase support for the development of “local content” and the conversion of existing stand-alone computerised information systems to networked access, integration with decision support systems, and development of new information-based services that exploit local potential; and
- Develop and publicise key pilot projects.

Because this report was produced by the African Networking Initiative, the leading African effort to coordinate information and communication technology initiatives, it deserves special consideration. It provides valuable information and a vehicle for the voices of Internet and information and communication technology users in developing countries. Hopefully, development agencies are listening to those voices.

Establish Pilot Projects

Internet pilot projects can enable the development of local applications related to the range of outputs suggested above. These projects should start on a small scale (even small investments of US\$18 000 are known to achieve important results) which would allow them to be implemented soon, and take advantage of collaborative opportunities with other agencies. Results should be well documented and shared locally, nationally and internationally via reports, videos, Internet World Wide Web sites, and local and international media. Ties to existing Internet services and projects (urban or rural) that involve significant local participation would improve chances of success. Pilot projects should endeavour to involve women and young people (often the most energetic proponents of Internet communication initiatives) in the planning, development and implementation of activities. Small pilot projects will help establish “best practices,” provide avenues for sharing “lessons learned,” and act as vehicles for expanding the impact of Internet initiatives and enhancing coordination.

Pilot projects can also document and highlight the challenges of supporting participatory communication for development initiatives. Research on impact not only focuses on users and local applications, but also on people who do not participate directly in local Internet initiatives (perhaps older people or people marginalized from power structures) and suggest mechanisms for enabling them to benefit directly or indirectly from these initiatives. Research can also help provide reliable data on the most appropriate technologies and the essential infrastructure requirements for rural Internet services.

Promote Community Managed Communication and Information Services

“NGOs-linked through security functionally relevant networks-(have the potential to) play a crucial two-way role of strengthening the work and organizational skills which grassroots communities require for their food self-sufficiency, and articulating grassroots concerns at the policy level. NGOs, therefore, potentially have a developmental function both in directly enhancing the food security context of the poorest populations as well as placing their food security concerns and needs on the national development agenda”.

The most effective and beneficial Internet communication and information services are managed and operated by the members of the organizations served. User management ensures that information is appropriate, and actually desired, by local users. Many of the information services currently designed to serve rural and agricultural users are created with little or no collaboration with the intended users.

Non-governmental organizations such as farmer associations and cooperatives, that serve rural and agricultural communities, are best suited for developing and providing information and communication services to those communities. FAO project activities in Mexico, Chile and Southern Africa are pioneering communication for development approaches that ensure that this critical component is present within Internet services. They promote local development of processes for information analysis and locally appropriate techniques for information dissemination. Within these projects, collaboration with private sector, government, and/or university technical support and technical service enables non-governmental organizations to focus on information content and communication processes, while delegating technical service to more qualified personnel.

Developing information services with users and catalyzing sustainable user management of communication networks is not a common strategy among funding agencies. It is common to find that intended users are unaware of the information and communication services being developed for them. The FAO communication for development approach helps to develop communication and information services that begin with user information needs assessments, and helps to create system ownership and management strategies that are financially sustainable. Mechanisms for providing training and continuous support, delivered for and by the organizations and users involved, are an important part of this approach. It is relatively easy to install the technology for electronic information and communication networks. It is much more difficult to create systems that people actually use and from which they receive tangible benefits.

Connecting small producers and rural residents directly to Internet systems is, for most residents of communities in the developing world, impractical. However, many of the intermediaries (the non-governmental organizations and government units) that serve these people can use Internet systems to provide better services to the people they serve. This issue highlights the importance of the integrated horizontal and vertical communication approach promoted by this chapter. Organizations that are predisposed to open collaboration with the people they serve can become focal points for information analysis and Internet communication access. Such organizations can become Community Access Telecommunication Services (CATS), providing locally relevant information analysis and dissemination, together with public access to Internet telecommunication services such as electronic mail.

The latter function is emerging as a service in its own right in many developing countries. The “telecentres” of Senegal and the “cybercafes” (simple electronic mail services and World Wide Web access services resembling old telegraph services) of Mexico and Zimbabwe, developed by local entrepreneurs, are examples of such basic telecommunication services. Basic electronic mail services are beginning to replace fax and telegraph services as an extremely low cost medium for sending messages between individuals and organizations

As the Internet expands (doubling its number of users each year), various forms of CATS, telecentres and cybercafes will find their niche in developing countries where the purchase of a personal computer is beyond the means of most individuals.

The concept of “community information centres” is not new, but the Internet opens new possibilities for establishing such centres in rural areas. A computer, modem and phone line can place an ever-expanding global library of information at the fingertips of people in rural and remote communities where books are seldom seen. People can gain access to the information resources and tools they need to solve their own problems, set their own development agendas and empower themselves through knowledge. Community centres, schools, rural libraries, local NGOs, producer associations, municipal organizations church centres and health clinics can act as local hosts for community information centres.

In Canada, a federal government initiative known as the Community Access Programme (CAP), has greatly enhanced rural Internet access by providing over 800 (and ultimately a total of 1 500 by the end of 1998) grants to rural and remote communities with the greatest need for Internet services. CAP may be a useful model for assisting rural stakeholders to establish Internet services in developing countries.

CAP offers a relatively low-cost method for introducing Internet tools to rural areas. Community organizations submit proposals consisting of action plans, resource needs, evidence of community support and evidence of matching in-kind and cash contributions. Proposals are evaluated on the basis of community needs and evidence of commitment to local projects. Funding is offered to a maximum of US\$25 000, with most proposals receiving between US\$4 000 to 18 000. CAP encourages communities to partner with universities, schools, libraries, health care institutions and local non-governmental organizations. People in CAP recipient communities are generally enthusiastic about the project and the benefits it brings. Several communities that established simple Internet services in rural resource centres have been successful in catalysing local entrepreneurs to establish community-wide commercial Internet services.

CAP is a community driven funding mechanism. Projects are designed by community members who must determine technical requirements, appropriate community applications and Internet access locations, together with long term financial sustainability frameworks. Rural communities that demonstrate need and have researched their proposals well are most likely to obtain funding. The CAP administrators provide a great deal of support in the way of information about successful CAP project applications, and the facilitation of horizontal channels of communication between CAP communities. Technical support is the responsibility of the community which must identify the most appropriate level and source of technical support. CAP works well because it is a non-paternalistic, community initiated funding model with few bureaucratic layers between the funder and the recipient community. There are lessons to be learned here for donor agencies working in developing countries.

Support efforts to Liberalise Telecommunication Policies in Developing Countries

Digital wireless telephony has reached the stage where it is now less expensive to build a new local wireless telephone infrastructure than it is to build a traditional copper wire telephone infrastructure. For many people in developing countries, their first telephone is hand held, portable and wireless. In Zambia, for example, by the end of 1997, an enlightened group of local entrepreneurs (led by wealthy farmers) will likely be providing digital wireless telephone service to rural and remote regions of the country that have never had telephone infrastructure. This new technology provides basic telephone service for less capital cost than a traditional copper wire infrastructure, and also enables the high speed data communication necessary for Internet access. Early planning for involving Zambia's main Internet provider, ZamNet, in this initiative is underway, making the possibility of full Internet access, to even the most remote rural areas of Zambia, a strong probability by the end of 1997.

In other countries, such as South Africa, wireless telephone booths are providing telephone service to rural and remote areas of South Africa, thus providing basic telecommunication service to all residents of the country. Fibre optic telecommunication "backbones" and new microwave and satellite telephone systems are making their appearance throughout the developing world, drastically reducing telephone service costs and dramatically improving telephone service quality and reliability. Internet services are enhanced, or begin emerging, as a direct result of these telecommunication improvements. In many cases, demand for Internet access is driving the effort to improve telecommunication infrastructure.

There is a strong correlation between such telecommunication improvements in developing countries and national telecommunication policies that help liberalise telecommunication services. The Zambian wireless telephone initiative is possible because of a telecommunication regulatory environment that enables private sector initiatives and competitive service. Relatively restrictive regulatory environments in Zimbabwe, in contrast, have so far prevented the release of portable telephony, despite significant demand. Uganda and Ghana, countries in which Internet use is increasing exponentially, have also adopted liberalized telecommunication policies. The Egyptian Government's decision to support private sector Internet service provision is resulting in an explosion of Internet services and parallel growth in Internet subscribers. Countries which have poor Internet access also tend to be countries with monopolistic national telecommunication policies and little or no service competition in the telecommunication sector.

Donor agencies have an important role in advocating for liberalized telecommunication policies that enable competition and the growth of private sector telecommunication and Internet services. It is also important to ensure that liberalized telecommunication environments balance competition with the needs of under served populations, including rural and remote communities.

Some of the progressive telecommunication policy initiatives in South Africa, which highlight the needs of under served populations and rural areas could prove to be useful models for governments around the world (both in the North and South) (personal communication with Kate Wild, Project Director, IDRC, Johannesburg).

Local entrepreneurs, progressive NGOs and university computing departments in urban centres throughout the developing world are becoming Internet service providers (ISPs), providing dial-up telephone access to the sophisticated graphical, sound and video communication environment of the Internet's World Wide Web, together with basic electronic mail services. When the Egyptian Government agreed to license commercial Internet providers in May of 1996, 11 companies almost immediately began providing service in Cairo. In Harare, Zimbabwe, there are three locally owned and operated ISPs. For about US\$20 per month any individual or organization with a phone line can have full access to such a service, to send as many e-mail messages as they like and to "surf" the World Wide Web for hours from a computer at their home or office.

Small business people operating telecentres and cybercafes in urban parts of the developing world (*e.g.*, Mexico, Egypt, Zimbabwe, Malaysia and Senegal) are bringing the Internet to people who cannot afford computers. For less than 25 US cents an individual can use a telecentre or cybercafe to send an electronic mail message (e-mail) to any e-mail address in the world. A fantastic bargain compared to the cost of international fax messages which can cost up to US \$20 for a single page international transmission.

A simple way for donor agencies to support these initiatives would be to advocate that their field offices and project officers use local Internet service providers wherever possible. Not only will they gain access to better knowledge and communication services, but they will be able to learn more about the local Internet user community and about local development information created by local communities [*FAO's use of CGNET provides field offices with good e-mail service, but does not provide them with full Internet World Wide Web access.*]. Furthermore, while it might be tempting for donor agencies to fund the direct creation of Internet service provision and infrastructure, this may not serve user communities well.

Donors funding Internet projects would be wise to direct their funds to user communities who can then determine the best choice for Internet service provision. This will help insure that Internet service providers remain responsive to the needs of their clients, rather than the other way around.

Assist Stakeholders in Advocating for Internet Service Provision and Telecommunication Infrastructure and Policy Improvements

Despite tremendous technological and service advances in every country in the world (developed or developing), rural and remote areas continue to suffer poor telecommunication infrastructure. In rural and northern parts of Canada

(one of the technological powerhouses of new telecommunication advances), for instance, thousands of people continue to do without basic telephone service, or are unable to utilize existing infrastructure to operate fax machines. Poor telecommunication infrastructure is recognised as an important factor in leading people in rural areas to choose to migrate to urban areas. Rural economic development officers in Canada, for example, rank improvements in rural telecommunication infrastructure as more important than either improved health services or improved educational services, and cite poor telecommunication infrastructure as a primary factor in the out migration of professionals and the difficulty in attracting skilled professionals to relocate to rural areas (Ontario Federation of Agriculture, 1995). They also believe that improved rural telecommunication infrastructure is the key to economic development.

In rural areas, access to communication and information sharing systems can provide simple, but dramatic benefits. For example, the HealthNet Internet service that operates in Zambia is able to provide rural health care professionals with access to medical databases and rapid medical advice from specialist physicians around the world. Such information can literally make the difference between life and death.

In Mexico and Chile, rural farmers are able to obtain timely and accurate commodity prices from Internet and fax services, and use this information to bargain for prices from brokers that are 15 to 20 percent higher than they were previously able to obtain (personal communication from a Mexican farmer). Such price differences, within an agricultural system with increasing input costs, tight profit margins, and global competition, can make the difference between a farmer staying in business or losing the farm.

In North America, the poor availability of Internet services in rural areas has catalyzed an important advocacy effort among rural and agricultural NGOs for general improvements to telecommunication infrastructure and policy. Technical obstacles to Internet service have focused attention on a history of government and corporate blindness to the telecommunication service needs of rural communities.

In Canada, advocacy partnerships have emerged that have forged alliances between rural NGOs, women's groups, national and regional health care agencies, municipal governments, agricultural producer associations, universities, consumer groups, aboriginal communities and government bodies responsible for agriculture and rural development. These advocacy efforts are responsible for significant telecommunication service upgrades, policy improvements and federal and provincial programmes that support rural telecommunication and Internet projects.

In developing countries, organizations such as FAO can play important roles in championing emerging rural stakeholder advocacy efforts, and assisting rural stakeholders in gaining voices on national and regional telecommunication/Internet advisory bodies. Special attention should be paid to the involvement of rural women and women's organizations that serve rural communities.

Orient Existing Internet Information Services to Users in Developing Countries

The global Internet now provides access to a plethora of agricultural and rural development information and discussion services. Information resources on low input agriculture, commodity prices, alternative crops, international crop market patterns (seasonality of specific regions, crop successes and failures, *etc.*), new techniques, integrated pest management, rural development strategies, FAO reports and research, and countless other topics are freely available to users around the world. In order for all this information to truly be of benefit to small producers and the people of rural and remote areas, it must be easily available to them and/or to the organizations that serve and represent their interests.

One of the common complaints among Internet users within the development communities of developing nations is that the people at the agencies who provide access to this information via the Internet do not know very much about the difficulty of accessing Internet services outside of headquarters or central offices. The speed of information retrieval in Africa is vastly slower than it is within FAO headquarters, for example. While Internet access is expanding rapidly in developing countries, users do not tend to have access to the same range of high speed telecommunication lines and phone lines that are available in the North. Internet “bandwidth” (a function of the size and speed of telecommunication lines) is generally less in developing countries than it is in the North. Low bandwidth translates into longer transmission times, and for many users in developing countries, increased costs. As one interviewee told the author “in Uganda it costs US\$50 an hour to sit in an Internet traffic jam” (personal communication with Paul O’Nolan).

One remedy for the bandwidth problem, and one that has a relatively minor cost, is to “mirror” information on regionally located servers that could be managed by local Internet service providers. The service providers could gain some much needed revenue, and local users would have dramatically improved retrieval speeds which would encourage use and analysis of the information that is available to them from development agencies.

Attention should also be given to opportunities for Internet based copublishing efforts between information services in the North and stakeholders in the South. Organizations such as ILEIA, IDRC, the Association for Progressive Communication (APC), Toolnet and CTA are already actively pursuing copublishing initiatives, and in some cases providing support for local Internet publishing capacity.

Another simple remedy for improving the speed of information access is to significantly reduce the size and scale of the use of graphics to help increase data transmission speeds. Many World Wide Web international development and agricultural knowledge resources are exceedingly difficult to access from within developing countries because they are laden with graphics that transfer slowly across the Internet. This effectively prevents access to the valuable

information that lies behind those images. Involving intended Internet information users in developing countries (especially, in the case of FAO, those from rural and agricultural communities) in the design and development of Internet information dissemination techniques is uncommon among development agencies. User consultation methodologies should be developed, and employed as a matter of course, to ensure that users are consulted on an ongoing basis. This will help to avoid user frustration and win user confidence that agency claims to having an understanding of developing country contexts are in fact true.

Support Rural and Agricultural Education Sector Internet Capability

The most important current Internet user group consists of recent university and college graduates. These individuals are exposed to Internet benefits while at school, and when they obtain jobs in business or government, they encourage the adoption of new technologies and methodologies. Their creative uses of information and communication technology is often adopted by managers and colleagues. Indeed, within any organization one is likely now to find recent graduates leading the way with Internet adoption efforts. Their enthusiasm for the Internet can potentially have far-reaching benefits, and is worthy of development agency support.

In Hermosillo, Mexico for example, three dedicated recent university graduates continue to work full time to provide a valuable agricultural information service despite the fact that they have not received a salary in over eight months. Within FAO's project in Chile, one young woman who recently graduated from a social communication programme, and with no previous computer experience, is primarily responsible for the technical development of information resources currently available to farmer organizations. Much of her technical support comes from other young Internet users in other countries with whom she communicates via electronic mail. Throughout the organizations visited during his FAO fact-finding mission, the author consistently found young, recent university graduates playing key roles in the development of local Internet initiatives.

Internet support activities must take account of the availability of dedicated young people, and involve recent graduates wherever possible. Many urban young people, who might not normally be interested in working in rural areas, are excited about the possibility of working with modern communication tools in rural communities. IDRC, for example, is considering developing an international "Internet Youth Corps" to assist in the spread of Internet services in Africa. A similar approach has been endorsed by the participants at the United Nations Youth Summit, August 1995.

Activities can also focus on assisting students to gain access to Internet tools. For the purpose of diffusing Internet services to rural and remote areas, educational institutions in those areas, together with urban educational institutions that have programmes of study related to those areas (*e.g.*, rural

development, agriculture, forestry, fisheries, *etc.*), and research organizations with links to the educational sector (such as national agriculture research centres), could be provided with assistance in acquiring networking computers, training and technical support targeted to young users. Support could also be provided to enable in-course students to engage in practical Internet projects and internships in rural and remote areas. Not only would services be expanded, but local educational institutions would gain a new awareness of rural and agricultural development needs. In Mexicali, Mexico, for example the university hosting the technical infrastructure for the agricultural communication and information services is now considering offering courses in agricultural communication for development and agricultural marketing. Activities should make a strong effort to involve recent graduates and students in as many ways as possible. Their efforts, creativity, and visions will help ensure success and sustainability.

Provide Internet Awareness Building and Demonstration

Despite the rapid growth in Internet service, general awareness of the Internet and its benefits is weak in developing countries. Ties between existing Internet user groups and the rest of the civil society are poor, and there is very little local information content available on the Internet to help stimulate local interest. Existing Internet services have difficulty marketing the Internet beyond early adopters because it often requires fostering desires and needs among clients who may not know they can benefit from the Internet. Thus, awareness building, through workshops, seminars, training courses, public events and media attention, can help to better inform potential user groups and bring them closer to making the decision to begin using the Internet. Awareness among national non-governmental organizations (NGOs), and rural development and agricultural extension services, is particularly weak. These groups should be specifically targeted for awareness building initiatives, and it is here that agencies such as FAO can play an important role through their existing relationship with such groups.

Findings from the author's fact-finding mission and research lead to the premise that the majority of current Internet users in developing countries belong to one of the following groups:

- Recent university or college graduates (both nationals and non-nationals);
- Internationally funded non-governmental organizations (NGOs); international development projects supported by major donor agencies; international organizations;
- Government units with staff and contacts among the above-mentioned groups;
- Universities and the educational sector in general; researchers;
- Tourism agencies (government and private);
- Individuals within expatriate communities;
- Some small and medium enterprises;

- Churches with international affiliations;
- Physicians, health centres and hospitals;
- Communication organizations (newspapers, radio, television); and
- Computer and telecommunication companies.

Awareness building initiatives can make use of such existing user groups to provide testimonials, demonstrations and public opportunities to share their experiences with non-users. Groups that are already active in using the Internet in rural and remote areas can provide persuasive information on cost savings, efficiencies and effectiveness, as well as obstacles and solutions to overcoming them.

Awareness building initiatives must also travel to the potential user's location, and demonstrate Internet tools within the context in which they may be adopted. There are several ways to accomplish this, including:

- Local seminars, workshops and demonstrations with opportunities for hands-on use;
- Production and distribution of videos documenting existing rural Internet initiatives, including testimonials from users;
- Pilot rural Internet services which can provide longer term exposure. Targeted NGOs, rural development and agricultural extension services provided with public demonstration equipment, and training for staff and outreach persons who can provide specific Internet awareness programmes within specific rural and remote regions;
- Enhancing existing rural phone service businesses-“telecentres.” Targeted rural and remote telecentres that currently provide telephone and fax services can be provided with grants of equipment, staff training and outreach materials to encourage local Internet awareness and use, and demonstrate the potential for revenue generation and small business applications;
- Internet mobile units which could provide traveling demonstrations and training facilities to rural and remote areas (using satellite technology for Internet connections);
- Targeted awareness building for high-level decision makers, whose purview includes rural and remote communities, through in-office demonstrations and “mock” World Wide Web pages outlining each decision maker's scope of services and activities, and including photographs of the decision maker and her or his staff in action with rural and remote clients. When decision makers see their own profiles on the Internet and understand the communication potential, they can quickly become proponents.

The benefits of awareness building can be accelerated when key decision makers, from both government and civil society, make public statements of acceptance and encouragement for Internet service to rural and remote communities. Such champions can help pull support from uncommitted decision makers and smooth the way for awareness building initiatives. Efforts should be made to identify such champions and support their work.

Promote Rural and Remote Internet Infrastructure Development

Internet service providers (ISPs) in capital cities of developing countries are often keenly interested in extending service to rural and remote areas. However, lack of market research on potential client bases for Internet services in rural and remote areas, and the necessity to take financial risks in providing such services, can prevent existing ISPs (private, non-governmental organization, or government) from building an infrastructure. Where there is good information on potential client base demand, some existing ISPs, particularly those oriented to revenue generation and profitability, are making plans to provide services. Such is the case for rural and remote tourist destinations and mining areas in Zimbabwe (*e.g.*, Victoria Falls) and profitable farming and mining regions in Zambia. A rural and remote connectivity support strategy could contribute to the realization of such existing plans and help expand these plans to provide service to other areas.

Existing ISPs recommend packages of incentives to enable them to take the risks involved in providing rural and remote Internet services.

Such incentives could include one or more of the following components:

- Low interest loans for purchase of equipment tied to participation in rural service;
- Grants of capital for equipment tied to participation in rural service;
- Free use of “leased lines” for the first three years of service (user community supported Internet backbones, via land, microwave, digital radio, or satellite, which could be eventually transferred to the private sector for sustainability);
- Assistance with the provision of user support, training and awareness building (short term grants for staff in rural and remote communities, access to transportation, and “house call” vehicles and equipment);
- Provision of external technical support during startup phases.

Donor funding, as mentioned earlier, is probably best directed at user communities who can then determine the best local strategy for partnering with ISPs. The user communities can then directly provide the incentives for enhancing rural services. Donor agencies could assist in helping to link user communities with existing ISPs and encourage the creation of unique applications on behalf of user communities.

Support Creative Internet Applications and Information Services for Rural and Agricultural Development

Internet users are fond of saying, “content is king,” when it comes to the ultimate value of Internet use. People use the Internet because it provides them with information they need, and the ability to communicate with friends, colleagues, co-workers and peers from around the world. It also provides a communication environment that encourages creativity, expression, enjoyment and experimentation. There are currently relatively few African information

services, for Africans, by Africans, on the Internet. In countries where there are organizations encouraging the development of creative information services and applications, African content is high, and general support for Internet activities is also high. Such is the case in Zambia where both national newspapers publish daily versions of their newspapers on the World Wide Web, and host various e-mail discussion groups. Supporting creative Internet applications and information services, particularly among rural stakeholders, will significantly extend the reach of information sharing efforts (locally and globally).

In Latin America, creative Internet applications and information services are developing quickly and there are many organizations and businesses ready to “host” and create World Wide Web information. There are several Spanish and Latin American World Wide Web “search engines” (such as “Ole”) to help users quickly locate information resources. However, information services and applications related to rural and agricultural development are sparse. There is an opportunity to develop a distinctly Latin American rural and agricultural development information service. Ideally, this service would be decentralized support creativity and experimentation, and contain information maintained and updated by many different organizations using a common “homepage.”

African and Latin American agencies and NGOs that currently provide creative “on-line” information services report that there are numerous benefits. They report that current and prospective funding agencies find it easier to make contact because NGO information is instantly accessible from the North. NGOs are also able to publicize the value of their contributions within the developed world via creative World Wide Web sites complete with photographs, graphics and even sound and music. Having information on the World Wide Web increases opportunities for recognition by donors and access to new donor initiatives. As the population of African, Asian and Latin American Internet users grows, there will be more and more opportunities to enable Africans, Asians and Latin Americans to develop and share locally relevant information such as extension materials, crop market prices (already on-line in Zambia, and to some extent in Latin America), health information and other information that is poorly distributed due to print publication costs.

There is no shortage of African, Asian and Latin American produced information that can be transferred to the Internet in creative ways. Many national agencies, including national agriculture research centres, extension services, women’s organizations (*e.g.*, the Zimbabwe Women’s Resource Centre), and national/regional NGOs, publish paper newsletters, booklets, manuals, guides, factsheets, and pamphlets, but, due to the costs involved in printing and distribution, these publications may not receive the attention they deserve. Many of these publications are produced on computers using word processing software, and can therefore be easily transferred to Internet software packages for distribution on line. Static printed information can be recycled and gain a new lease on life when mixed with interactive Internet applications that support quizzes, learning games, discussion groups and user responses.

Most existing ISPs rent electronic storage space on the computer network “servers” that can serve such Internet resources to users. They also provide electronic publishing services to clients who may not have the skills to create World Wide Web documents or gopher file archives. A strategy for supporting creative Internet information services and applications in Africa, Asia and Latin America among rural stakeholders can make use of these existing ISP services in several ways:

- Grants to agencies, national agriculture research centres and rural stakeholder groups such as NGOs, women’s organizations and universities, to host creative information services, library/resource centre resources and information depositories via existing ISPs;
- Training in the creation of Internet information services and applications for rural stakeholders that are currently providing information via other media;
- Subsidized servers housed and maintained by existing ISPs, but made freely or inexpensively accessible to qualified agencies and NGOs;
- Grants of servers to universities, the educational sector and national agriculture research centres to promote skill development and provision of African, Asian and Latin American information services;
- Information from development agencies generated for and about Africa, Asia and Latin America (such as that provided by FAO and countless other agencies) “mirrored” on regional servers to ensure faster and more reliable access;
- Support for software solutions that enable information retrieval by Internet users who only have access to electronic mail (no World Wide Web capabilities) or who have older computers;
- Support for the production and distribution of digital audio (perhaps digital video as well) Internet content for use with rural radio applications, extension campaigns, and development programmes aimed for non-literate populations, in combination with instantly printable graphic illustrations or photographs.

The Internet already represents a vast global library of information that can become more easily available to rural and remote residents of developing countries. Combining existing resources with locally relevant and culturally oriented information can increase peoples’ understanding of their own issues and contexts, and increase the rest of the world’s understanding of people in developing countries.

SMALL AND MEDIUM ENTERPRISE DEVELOPMENT

“The removal of international trade barriers has brought quickly changing global markets. Large international corporations can now compete for the SMEs’ (small and medium enterprises’) market, but SMEs traditionally have not had the infrastructure and necessary resources to fight back. Our Mission (is) to

provide a productive and professional Internet/WWW-based network to help SMEs communicate about business needs, share their resources and expand their markets.”

Mission statement for the International Small Business Consortiums: Private sector businesses, large and small, are using the Internet to reach new markets, promote products and services globally, and access critical business and financial information.

Semex Canada and Gencor (formerly United Breeders of Canada), major producers and international exporters of bull semen for artificial insemination, advertise their genetic resources with full colour Internet catalogues with pictures of sires. These companies now receive requests for products from beef and dairy producers from countries such as Brazil, Argentina and Japan who learn about their products only from the Internet. Rural food producers in North America now use the Internet to sell a wide variety of products including live lobsters and packages of apples, oranges, grapefruit, cheeses, smoked meats, pastries and pies. Producers of rural crafts and manufactured goods sell everything from clothing to furniture over the Internet, and use the Internet to organize support networks (cf. Women in Rural Economic Development). The Internet represents a global storefront for such rural and remote businesses, providing them with a degree of access to customers never before possible.

The tourism sector has been quick to recognize the benefits of the Internet for advertising destinations, tours and holiday services. For all of the countries visited during his recent FAO Internet fact-finding mission, the author was able to make use of World Wide Web travel information from the host countries in order to make travel plans. With full colour pictures, and information on hotels, weather, attractions, events, travel tips, currency conversion rates, visa information and much more, travelers are able to obtain timely and accurate information and make informed destination choices.

Of particular interest are the World Wide Web sites for “ecotourism,” game parks, and adventure tours in rural areas of Southern Africa where rural tourism is a growing industry (cf. Africa Tour Net). Tourism operators in rural and remote areas have a difficult time marketing their destinations through traditional media due to production and distribution costs. The Internet now represents a very inexpensive way for them to showcase their sites to the world and interact directly with potential tourists.

News Media Networks

The news media in developing countries have also been on the forefront of developing Internet applications. For example, in Zambia, both national daily newspapers mirror their daily copy on the World Wide Web, making the local news accessible to local Zambian Internet users as well as to expatriate Zambians who live around the world. E-mail discussion groups provide expatriates and nationals with an opportunity to discuss the daily news with one another regardless of where they reside. A discussion group the author joined to research

this chapter generated a minimum of 30 e-mail messages per day! Such e-mail discussion groups for expatriates and nationals exist for virtually every developing country in the world and represent a relatively untapped resource for accessing the views, ideas and creativity of members of civil society with regard to development policy and initiatives.

In addition to the latter news and information applications, organizations such as the Inter Press Service Third World News Agency (IPS) use the Internet to source news stories from local writers in developing countries and share those stories with international wire services such as Associated Press. IPS is also able to provide Internet feeds that enable African news media to have access to African news from around the continent. This is particularly relevant to rural radio stations and other rural newspaper and newsletter producers that would otherwise have been unable to obtain the same news from other sources. IPS can also provide an outlet for rural news writers to share their stories regionally, nationally and globally. Similar Internet strategies for rural radio networks, which might also incorporate digital audio transmissions, may well emerge in the near future.

4

Economic Development in the Cooperative Rural Sector

Rural credit cooperatives in India were at first envisaged as a mechanism for pooling the resources of people with small means and providing them with access to different financial services. Democratic in features, the movement was also an effective instrument for development of degraded waste lands, increasing productivity, providing food security, generating employment opportunities in rural areas and ensuring social and economic justice to the poor and vulnerable.

The history of the cooperative credit movement in India can be divided in four phases. In the First Phase (1900-30), the Cooperative Societies Act was passed (1904) and “cooperation” became a provincial subject by 1919. The major development during the Second Phase (1930-50) was the pioneering role played by RBI in guiding and supporting the cooperatives. However, even during this phase, signs of sickness in the Indian rural cooperative movement were becoming evident.

The 1945 Cooperative Planning Committee had discerned these signs in the movement, finding that a large number of cooperatives were “saddled with the problem of frozen assets because of heavy overdues in repayment.” Even so, also in the Third Phase (1950-90), the way forward was seen to lie in cooperative credit societies. The All India Rural Credit Survey was set up which not only recommended state partnership in terms of equity but also partnership in terms of governance and management. NABARD was also created during this phase. The Fourth Phase from 1990s onwards saw an increasing realization of the

disruptive effects of intrusive state patronage and politicisation of the cooperatives, especially financial cooperatives, which resulted in poor governance and management and the consequent impairment of their financial health. A number of Committees were therefore set up to suggest reforms in the sector.

OUTREACH OF THE COOPERATIVE CREDIT SECTOR

Of high relevance for financial addition of lower income people is especially the Short-term Rural Cooperative Credit Structure (STCCS) providing mainly short and medium-term credit besides other financial services. At present (March 2005), the three tier STCCS consists, according to statistics of the National Federation of State Cooperative Banks (NAFSCOB), of nearly 1.09 lakh Primary Agricultural Credit Societies (PACS), 368 District Central Cooperative Banks (DCCB) with 12,858 branches and 30 State Cooperative Banks (SCB) with 953 branches or a total of 122,590 service outlets. On an average, there is one PACS for every 6 villages; these societies have a total membership of more than 120 million rural people making it one of the largest rural financial systems in the world.

RISING ROLE OF COOPERATIVES IN MICROFINANCE

The Andhra Pradesh Mutually Aided Cooperative Societies (APMACS) Act, 1995 has resulted in the creation of over 30,000 new Mutually Aided Cooperative Societies (MACS) in Andhra Pradesh. A vast majority of these are Village Organisations (VOs) of SHGs and about 800 are higher level federations of these VOs at the Mandal level (20-30 villages). All these have been formed as part of the Velugu Programme. However, about 600 MACS are independent of the Velugu Programme, and have been promoted by NGOs. These institutions are able to provide savings and credit services to their members and are fully autonomous. The parallel Acts are also one way to federate SHGs and form community based MFIs. The founding NGO only plays a facilitating role and there are no external shareholders.

Keeping in view what has been discussed above, the Committee makes the following recommendations in regard to the cooperative credit institutions:

EARLY IMPLEMENTATION

The Committee is in broad agreement with the recommendations of the Vaidyanathan Committee and suggests that all necessary steps should be taken for the early implementation of the STCCS revival package in all States. Consequent on the implementation of the Vaidyanathan Committee recommendations, the Committee hopes for the emergence of a more robust, well managed and self-reliant cooperative credit system with improved governance structures and technology applications.

NEED FOR ENABLING LEGISLATIONS

The Committee is of the view that cooperatives are a good forum for enabling financial inclusion through SHGs. This has been demonstrated in several districts such as Bidar in Karnataka, Chandrapur in Maharashtra and Mandsaur in Madhya Pradesh. The Committee notes that in certain States, legislation has been enacted, admitting SHGs as members of PACS and recommends the enactment of similar legislation in other States to enable the emergence of cooperatives as effective SHPIs.

The Committee also recommends that federations of SHGs may be registered in all the States under the Cooperative Societies Act or the parallel Self Reliant Cooperatives Act and availability of funds to these cooperatives for advancing loans may be considered by NABARD, based on objective rating criteria. NABARD may also set aside requisite funds for sensitising the cooperative movement in this regard. Use of PACS and other Primary Cooperatives as Business Correspondents.

There are a large number of PACS and primary cooperatives under the parallel Acts located in rural areas where there are no other financial services outlets. Many of these cooperatives are in districts where the DCCBs are defunct or moribund. Such PACS could provide valuable services to their members if they get access to a commercial bank. These PACS could originate credit proposals, disburse loans, collect repayments and even collect savings on behalf of the commercial bank. They could also act as payment channels. RBI has already listed Cooperatives as eligible institutions under the BF/BC Model.

In the circumstances, the Committee recommends that the Cooperatives may make use of this opportunity atleast in States which have accepted the Vaidyanathan Committee recommendations. NABARD may be asked to suggest appropriate guidelines for the purpose, subject to the approval of RBI.

COOPERATIVES ADOPTING GROUP APPROACH

Micro-enterprises, in order to be successful, require larger funding which NGOs cannot provide. It will, therefore, be necessary to develop/test a new form of community based organisation other than SHGs which may be more appropriate to support members who engage in micro-enterprises. Those members of SHG who opt to graduate to micro-enterprises could be formed into JLGs or some similar organisation.

Banks may be more inclined to lend to individuals in this group based on the performance of each member in the SHG as well as on the assumption that a JLG will provide some degree of mutual guarantee.

There is evidence however, that the relations of mutual trust and support which is described as affinity in a SHG tend to be weaker in a JLG. Therefore, new forms of collateral or guarantee may have to be worked out. In this regard, NABARD has already circulated the guidelines which may be adopted by banks.

Further, the use of the BF model could be thought of to organize vulnerable segments of the population into JLGs. The pilot project presently under implementation by NABARD should be sufficiently broad based to cover the role of facilitators in formation and linkage of JLGs.

RISK MITIGATION

The Committee also recommends the setting up of a Credit Guarantee Fund as a risk mitigation mechanism and also for providing comfort to the banks for lending to such JLGs (akin to the Credit Guarantee Fund Scheme for Small Industries-CGFSI-available for small-scale industries-SSI-at present).

ROLE OF COOPERATIVES IN PROVIDING AGRICULTURAL CREDIT

The main players in the field of agricultural credit in the formal sector include the commercial banks, the regional rural banks (RRBs), and the rural cooperatives. The rural credit cooperatives in the country are in an impaired state. Several factors have led to the impairment of the Cooperative Credit Structure, but it would be advisable to understand the magnitude of the problem first. The cooperatives once dominated the rural credit market in the institutional segment (with a share of around 65 per cent, going by the All India Debt and Investment Survey 1991), but now have a significantly smaller role. Data for the past decade indicates a fall in the share of cooperatives in the rural credit market, from around 62 per cent in 1992-93 to about 34 per cent in 2002-2003 inspite of an increase of just under 10% per annum in the absolute disbursement on a compounded annual basis.

Two trends emerge from the overall flow of credit to agriculture from the commercial banking sector. The number of rural branches of commercial banks has gone down marginally as part of the branch rationalisation programme. The second trend is that even though the commercial banks almost meet their targets for lending to the priority sector, they have moved more towards larger customers. The average size of direct loans to agriculture in the portfolio of the commercial banks was Rs. 13,500 in 1997, and is Rs 31,585 now. The average size of loans of the PACS, in comparison, is currently only Rs 6,640 per borrower, according to the data tabulated overleaf.

Thus, in a country predominated by small or marginal land holdings, the reach of the cooperative system is much deeper than the other institutional arrangements in the rural areas. Notwithstanding the falling share of cooperatives in the overall share of institutional credit practically in all States, it was found that in States like Gujarat, Maharashtra, Haryana, Madhya Pradesh, Chhattisgarh, Orissa and Rajasthan, the share of cooperatives in institutional credit is currently 50 per cent or more. In States like Bihar, Jharkhand, Himachal Pradesh and Assam, their share is negligible.

The traditional banking system, the systems and procedures of which are actually designed for the urban industrial and business financing, has limitations

in reaching out to the last mile. The exposures of the banks for this segment have risen, but, the rates for defaults in repayment have also gone up. Most often, this happened because banks have not applied appropriate methods for banking with the poor, by keeping in touch with the customers and applying social collaterals. Banks have traditionally worked on documentation related appraisals, rather than on trust and production related appraisals. The client group, however, needs much more support than what the banks currently provide.

By implication, we need to necessarily look to the cooperative sector for delivering credit to small and marginal farmers, and those who have little or no productive assets. It is, therefore, imperative that the cooperative sector, particularly at the primary level, be revived on a priority basis.

IMPAIRMENT OF GOVERNANCE

World over, cooperative credit structures have been based on the concept of mutuality, with thrift and credit functions going hand in hand. But, in India, the structure has largely been focused on credit. The primary level cooperatives, therefore, have traditionally been agencies for credit dispensation. Because of this characteristic at the base level, the upper tiers were created to ensure that the lower tiers get refinance. The structure is, therefore, driven by borrowers at all levels, which creates a serious conflict of interest. A solution is to aggressively advocate conversion of pure credit to thrift cum credit cooperatives. Such societies would not only increase the financial stakes of the members in the system, but also factor in natural incentives for better governance.

The impairment in governance is deep and is represented by the composition of the boards of directors of the cooperatives and the reporting systems. Because of the structural ordering, the lower tiers are managed by the higher tiers in varying degrees of detail in different States. In almost all States, the function of conducting elections for the cooperative structure is vested with the State Government. Similarly, the function of auditing is also vested with a State-run audit system. By implication, the cooperatives lose their right to self-governance and have to look up to the State constantly for several of the functions that naturally fall in the domain of the general body and the Board of Directors. Some pointers on the governance systems are highlighted below:

- No elections have been held in the CCS units across all tiers for long (10 years or more) in three States
- Boards of nine out of 30 SCBs and 134 out of 368 DCCBs have been superseded
- Most State Governments combine the roles of Dominant Shareholder, Manager, Regulator and concurrent Supervisor and Auditor
- The Department headed by the Registrar of Societies (RCS) can and does, influence administrative matters. The interference is in the form of supersession of Boards, appointment of administrators and assuming powers to approve staffing patterns, recruitment, emoluments, asset purchase pattern, *etc.*

- The Department also interferes in financial matters in various forms, like direction on interest rates, interference in loan decisions, announcement of waivers, and direct or indirect pressure on non-recovery of loans.
- The impairment of the governance structure is also because of politicisation of these institutions, reflected in the fact that directors on Boards of Cooperative Banks are involved in active politics either at the State, District, and Taluka level. Data on political background of Directors on Boards of SCBs.
- Audit is pending in at least 15 per cent of the PACS for more than a year. This is a optimistic estimate. Audits are more regular in the upper tiers. Apart from delays, the quality of audit needs to be examined carefully. As the State machinery is involved in conducting audits, those actually conducting audits may not be professionally trained to audit financial cooperatives. It is therefore, doubtful that they are able to understand and comment on the reporting of the actual financial position of PACS.
- Audit at the higher tiers are done in a relatively efficient manner, the income recognition and provisioning norms are more standardized and therefore, the accounting data from the higher tiers could be assumed to be relatively more reliable. Nevertheless, the audit classification of some banks in some States seems to suggest that the audited results do not depict a true and fair position of the banks concerned.

While there are issues of internal governance that are a cause of concern, we also have to remember that even the external regulation and supervision for the structure are not as stringent as it is for the commercial banking structure. In particular the following aspects are to be considered:

- Primary agricultural societies (PACS) are excluded from the scope of the BR Act, 1949
- The minimum capital requirement is only Rs 1 lakh for banks
- The cash reserve ratio (CRR) requirements are lower than that for commercial banks
- The Capital at Risk Weighted Asset Ratio (CRAR) norms have not been prescribed even for SCBs and DCCBs
- All CCS units are, however, subject to submission of regular returns on their financial status and operations, the compliance of which is weak
- The cooperative banks are open to periodic inspection by NABARD. The compliance with the supervision findings and regulations is, however, weak.

The central regulatory authority (the RBI) is naturally concerned at its inability to ensure that financial institutions comply with even the relatively diluted prudential norms applicable to them and to enforce punitive measures against banks that are in poor and deteriorating financial health. The RBIs plight may

be attributed to three primary reasons, of which dual control of cooperative banks by the RBI and the State Governments, is one. The ambiguities on the precise jurisdiction of powers between the two, and the reluctance of the State Governments to enforce disciplinary sanctions by the RBI, are others. Attempts to change the law (through the Banking Regulation Amendment bill) have failed.

The States (and in some cases the Union Government) have not helped the regulatory authority. On the contrary, their actions (*e.g.*, waiver of loans in 1989 by the Union Government, periodic waivers of interest and principal by the State Governments, delay in payments by the State Governments on promises made, their formal or informal instructions to delay or dilute loan recovery, and their unwillingness to facilitate recoveries under the Revenue Recovery Act) have contributed to an atmosphere, that encourages defaults in payment and worse.

IMPAIRMENT IN MANAGEMENT

The impairment in the management of the rural cooperatives is a direct result of the impairment in governance. The various forms of interference of State Governments include deputation of officials to top positions in many banks, setting up common cadres for senior positions in cooperatives across tiers, determination of staffing pattern, and interference in the operational decisions of the cooperatives. The Task Force has sought to collect information on areas in which the state governments are involved in the operational aspects of cooperative banks.

The impairment in management is also owing to the following additional factors:

- Managers of PACS in several States are drawn from a common staff pool who do not feel accountable to the PACS. Remuneration often is without reference to business level or results.
- A generally ageing staff profile characterised by inadequate professional qualifications and low levels of training.
- Delineation of Governance and management functions are unclear and the boards take up issues at operational level, thereby losing sight of the long term strategic issues
- Poor housekeeping, weak internal controls and systems.

The cumulative result is that members, who are mostly borrowers, have little or no sense of stake in the cooperatives, or any accountability in ensuring prudent management of funds. On the contrary, government policies (loan and interest waivers, delaying recoveries, the fact that loans carry State guarantees) encourage them to presume that they can with impunity, delay or even fail to meet their repayment obligations. Boards of management and their functionaries are not held accountable for laxity in granting and monitoring loans, poor quality of loan portfolios, high default rates and non performing assets (NPAs) and their adverse effects on the financial health and viability of the societies. Financial Performance Profitability Data on the proportion of societies in different tiers

that reported making profits during 2000-2001 and 2002-2003, the numbers that reported zero or negative net worth and the magnitude of reported accumulated losses are shown in the following table: State-wise details of PACS reporting profit for the years 2001-2002 and 2002-2003.

Based on available data, while the large majority of SCBs were reporting profits during this period, more than 35 per cent of DCCBs and more than half the PACS were reporting losses. About one in five SCBs and almost 38 per cent of the DCCBs have eroded their net worth. Accumulated losses of DCCBs amounted to around Rs 3,200 crore in 2000-2001 and increased to Rs 4,400 crore two years later. Accumulated losses of PACS exceed that of DCCBs. Considering that the upper tier cooperatives largely depend on the primaries for their business, it can be said that the structure stands on very weak foundations. It is also evident from the above that data, that current profits or losses could be misleading, especially since some of the institutions that are making current profits could have heavy accumulated losses and that all of them may not have made the required provisions against their NPAs. Statistics on cooperative banks that do not comply with Section 11 of the Banking Regulation Act is also given and we find that some of these institutions may have current profits, but accumulated losses.

In 2002-2003, for instance, eight out of the 30 SCBs and 144 out of 367 DCCBs are not compliant with Section 11 of the Banking Regulation Act, which means that they have completely eroded their net worth. The amount of deposits eroded (over and above the net worth erosion) at the DCCB and the SCB level in loss making banks is also significant. The erosion of deposits was at Rs 3,100 crore at the level of DCCBs and Rs 142 crore at the level of SCBs. The data relating to the erosion of deposits in PACS is, however, not available. The performance of these institutions vary across States and across regions. While the number of loss making DCCBs far outnumber the profit making ones in the eastern region, the performance in the northern region seems to be much better.

RECOVERY RATES AND NPAS

The reason for the losses can be traced mainly to the overall business levels and poor recovery position of each of the tiers. As is evident, the recovery percentages for the system as a whole have been low continuously, making the system unsustainable without external injection of resources. While the recovery and NPA positions indicate the extent of reported impairment in the upper tiers, the figures at the primary level have to be viewed with caution, as there are no standard practices in respect of financial reporting. The picture presented in the table above, therefore, may seem more optimistic than the reality. Recovery is a hard number, provisioning is to account for likely losses on account of an assessment of impairment. There is considerable variation in performance within each tier and also across States. Low recovery of loans obviously affects the profitability of the institutions. Poor loan recovery has resulted in a peculiar phenomenon, often referred to as “imbalances”. Imbalances are the differences

between the amounts showing as outstanding from a borrower in the books of a higher tier entity (a DCCB) and the amounts shown as being repayable in the books of the borrowing entity (say the PACS). The imbalance occurs when the PACS receives interest and repayment from a sub-set of its customers and pays in the amount towards its borrowing from the DCCB.

When the amount is paid to the DCCB, the total amount is applied first by the DCCB to the total interest due. The residual amount then is applied to the principal. Imbalances also occur when the PACS collects the loans and uses the cash to fund its overheads over and above the actual interest spread available to it. These two factors and in some situations actual defalcation result in a curious situation, where the principal amount due to the PACS at the ground level is smaller than the principal amount to be paid by the PACS to the DCCB. While this syndrome has been described in some circles as an accounting issue, it is important to recognise the larger cause, which is actually poor loan recovery or high overheads or frauds. Considering that there has been widespread discussion on imbalances within the cooperative credit system, one would expect the recovery position of the higher tier to be lower than that of the lower tiers if the portfolios of both the tiers were perfectly aligned. However, the data given in the above table indicates the contrary. The superior performance of the upper tiers of the system may be because of diversification in their business, and better performance of the non-agricultural portfolio due to non-recognition of losses on portfolio guaranteed by the State Government or due to repayments out of growing deposits. This diversification of portfolio is also reflected in the exposure to agriculture and other sectors as given in the table below. While diversifying the portfolio has its own advantages in risk management, it also has the potential danger of the institutions suffering a strategic drift. These indications prompt the Task Force to focus the efforts of the rehabilitation package on the primary level, where the exposure to agriculture is the maximum.

COSTS AND MARGINS

The cost of funds refers to the average cost from all sources, deposits, borrowings and refinance from NABARD. Deposits account for a relatively small proportion of the PACS' funds, most of which is from refinance through the higher tier institutions. The DCCBs depend largely on public deposits and have for long been offering higher interest rates than other institutions, as a means of attracting deposits. This is done partly with the encouragement and approval of the State Governments. The "captive deposits" syndrome, which requires the lower tier to compulsorily place a part of its deposits with the higher tier, puts pressure on the system as a whole, to fix a higher rate of interest. While the financial margins of the system seem reasonable, the system gets impaired partly because of high transaction costs and high risk cost. High transaction costs are because of lack of standardized business model irrespective of business volume, overstaffing in some cases and not linking salaries with business levels in others. High risk costs are because of low recovery levels. To

compound the problem, cooperatives do not have adequate risk mitigation systems and procedures. Implementing Asset Liability Management (ALM), managing interest rates on deposits and loans, appropriate credit appraisal and monitoring are done more as an exception than as normal practice.

In spite of interest rates having been 'deregulated', lending rates are subject to limits set by the State Government. Lack of scope for cross subsidisation compounds the problem. At the higher tiers, there has been over-exposure to certain sectors of agriculture, which increases the covariance risks. Sugar, cotton and tea, for instance, are sectors where the primaries have an exposure at the farm level and the DCCBs and SCBs have an exposure at the processing unit level. The loan portfolios of the system as a whole are thus, prone to greater risk and, therefore, required provisions for risk costs are also relatively high. Because of these factors, the net margin is extremely low and in many cases negative.

Lending rates of PACS are also subject to state set ceilings and are set well below the market rate, despite higher risks. Transaction costs are also high (again owing to business model issues, overstaffing and salaries unrelated to the magnitude of business). There is considerable doubt whether PACS have to (as per state set rules) or do, follow well-defined norms for risk provisioning. It is impossible to judge the extent of actual provisioning from available accounts. A perusal of accounts for PACS in a few selected districts, and in the opinion of officials with first hand knowledge of ground reality, suggests that they generally do not make any provision at all, or do not make adequate provisions for risks.

Other relevant data on business parameters/infrastructure at the level of PACS and DCCBs are indicated in Concerns arising out of Financial Impairment To protect the interests of depositors, DCCBs and SCBs are subject to controls under the Banking Regulation Act. They are required to observe prescribed prudential norms and their individual depositors also have insurance cover up to Rs 1 lakh by the Deposit Insurance and Credit Guarantee Corporation of India (DICGC). It is evident, however, that the insurance coverage provided is limited, as institutional deposits with the upper tiers do not get covered by the DICGC, thus placing the individual depositors of the lower tier institutions at risk, as several banks have had significant erosion of deposits. This certainly is an area of concern.

It is also important to note that deposits at the level of PACS are not covered by the DICGC. This is a matter of serious concern. While deposits of individuals at the level of the PACS is not uniformly high, some states like Kerala, Tamil Nadu and Orissa together account for around 70 per cent of the outstanding deposits of PACS in the country. Some states (like Kerala and Tamil Nadu) have introduced their own insurance mechanisms to give limited protection to PACS depositors. These schemes have, however, remained notional as depositors in neither State have received actual protection. Remedial Measures and Approach to Reform

Obviously, unless the causes of the serious and growing impairment in several dimensions are tackled, cooperatives cannot be expected to arrest their declining

role in providing agricultural credit, let alone play a significant role in achieving the targeted rapid expansion of credit to the farm sector. As noted earlier, several committees and concerned cooperators have suggested measures to revive and revitalise the CCS, so that cooperatives become an effective medium for meeting the savings and credit needs of small and marginal farmers, rural artisans and other under-privileged sections of rural society. Reviving and revitalising the CCS is essential, both on functional and ideological grounds. In functional terms, cooperatives already have a wider and deeper reach in the countryside than other financial institutions. Experience has shown that the latter serve mostly the better-off segments of borrowers, that have a sufficiently large asset base. They are reluctant to cater to the small and marginal farmers and other underprivileged sections, on grounds that lending to them is far too costly and risky to be profitable.

Cooperatives, of the mutual thrift and credit type, are the only form of organisation by which economically disadvantaged individuals and groups could, through voluntary collective action, overcome their disadvantageous position in an unequal market and promote their well being. Organisations, in which members know each other first hand, are closely linked through kinship and other social relations, and have a strong mutual stake in proper use of the common credit pool, credit would be put to good use. Costs of administration and risks of default in repayment could be reduced. No less relevant is the moral appeal of cooperatives as a counter and an alternative to individual or corporate enterprise, for mobilising and using economic resources for owners' profit.

Recognising the important role that the cooperative network can play in delivering credit to sections of the rural population, which cannot, or are unlikely, to be reached through commercial and rural banks, all the earlier-mentioned committees are unanimous on the steps needed to realise their potential. They emphasise the need to (a) restore democratic management in the societies by holding free and fair elections regularly, (b) reduce the scope for government interference in their management to a minimum; (c) rationalise staff and improve their professional ability; and (d) create a climate conducive to prudent management of resources and efficient management and recovery of dues.

Some suggest de-layering of the cooperative structure, increasing the service area of primary cooperatives to make them viable, and even making DCCBs and PACS branches of the SCBs.

Practically all reviews have recommended strongly against waivers of interest and loan repayment by governments, restraining or impeding recovery processes and such other measures, that create strong disincentives to borrowers to settle their dues fully and promptly. They have also been unanimous in recommending abolition of "dual" control in matters of financial regulation of cooperative banks and vesting the needed authority and responsibility fully and wholly with the central regulatory authority, the RBI, under the Banking Regulation Act. Both the Capoor and the Vikhe Patil Committees recommended special financial assistance to help viable and potentially viable DCCBs and SCBs to wipe out

accumulated losses, strengthen their capital base, consolidate their outstanding debt from past borrowings and convert them into medium term loans at lower rates of interest. They have further recommended that the cost of financial restructuring (running into thousands of crores of Rupees) should be shared by the Union and the State governments, provided credible steps are taken to enable and encourage cooperatives to function efficiently.

Having perused the reports of earlier committees, the Task Force agrees with their central approach and thrust that the cooperative credit structure (CCS) needs:

- Special financial assistance to wipe out accumulated losses and strengthen its capital base
- Institutional restructuring to make for democratic, member driven, autonomous and self-reliant institutions
- Radical changes in the legal framework to empower the RBI to take action directly in matters and to the extent deemed appropriate for prudent financial management of banks, and
- Qualitative improvement in personnel in all tiers and at all levels through capacity building and other interventions, leading to an increase in overall efficiency.

Our recommendations on the specific measures in each of these spheres are detailed in subsequent chapters. They should be viewed as an inter-related, integrated package, to be calibrated by time and institutional responsibility. The package needs to be implemented in a way that it may have a synergetic impact in improving the health and vitality of the cooperative credit structures. Any propensity to pick and choose its recommendations cannot but destroy the “warp and woof of the fabric, that constitutes its core. Unless the conditionalities prescribed go hand in hand with the resource support, the ailments characterising the cooperatives will not be addressed, and the money invested will go down the drain. If the assignment given to the Task Force is not to be repeated by another committee in the future, it is necessary that the package prescribed by it be accepted in full. Such an approach will have the best chance of being accepted by the stakeholders as the basis for reform and revival.

COOPERATIVE CREDIT STRUCTURE

The institutional arrangements for providing rural credit and the role of the Cooperative Credit Structure (CCS). It then examines the various levels of impairment at the financial, governance and managerial fronts. Even though these issues are well known and widely discussed in general terms, the chapter seek to present a more detailed quantitative picture of these features and highlight the nature and extent of their variation in different tiers and States. The reform measures suggested by earlier committees and the outline of the approach of the Task Force in formulating its recommendations on the Revival Package (RP). But before doing so, a brief discussion on the weaknesses in the basic data and the need to improve it seems to be in order.

THE INFORMATION BASE

The Task Force has relied mainly on secondary data relating to various aspects of different tiers of the CCS at the State level, supplemented with information compiled through specially commissioned but selective, inquiries through the regional offices of the National Bank for Agriculture And Rural Development (NABARD). These data along with some analysis based on them, are present. The secondary data used in this chapter and elsewhere, are from two sources – the NABARD and the National Federation of State Co-operative Banks (NAFSCOB). Ideally, the Task Force would have preferred to rely on data put out by NABARD. It was not able to do so, partly because NABARD's database was mainly focused on the intermediate and apex tiers, and partly because it did not have the break up required by the Task Force.

While using the data it soon became apparent to the Task Force that the statistical data reporting and compilation relating to the cooperative sector leaves much to be desired. The Task Force found that:

- The data are not up-to-date and validated,
- There are no uniform formats for collecting and presenting data on comparable concepts and categories, and
- There are significant variations in the data obtained from different sources for the same period and parameters

These deficiencies are particularly serious in the case of primary agricultural societies (PACS). The Task Force also found that states have their own varying rules for accounting and disclosure of financial accounts of cooperatives, in most cases there are no separate rules for financial cooperatives and that the rules are in any case not consistently applied so it is very difficult to compare financial cooperatives' financials across time, states and with other financial sector players.

The Task Force would like to underscore the importance of consistent reporting and disclosure of financial accounts as per generally accepted accounting norms for financial sector players as well as making available sufficiently detailed, comprehensive, up-to-date and authenticated data on the functioning of cooperatives and other agricultural financing institutions to the public domain. This is necessary both for monitoring, operations and policy formulation by the top management of NABARD, as well as for use of policy makers in other financial institutions and government.

The Task Force notes that NABARD has taken over the responsibility of bringing out the publication Statistical Statements Pertaining to the Co-operative Movement in India, once done regularly by the Reserve Bank of India (RBI). The NABARD's latest published compilation, however, provides data only up to 1997-1998. A special effort was, therefore, needed to get more up-to-date data for the Task Force. To ensure that financial reporting by financial cooperatives is consistent with generally accepted accounting norms for financial sector players, the Task Force recommends that NABARD work with the Institute of Chartered Accountants of India to develop and publish appropriate accounting

standards and that the use of these for financial reporting be made mandatory through appropriate rules under the state cooperative laws. To ensure that data on the credit system is collected and used meaningfully, the Task Force recommends that NABARD take immediate steps to devote sufficient resources and personnel to handle the task. The Task Force also recommends that NABARD set up a Department of Statistical Analysis, suitably staffed by appropriately qualified human resources at the very earliest. The effort would be in the nature of a public service by this institution. The NABARD's top management should also institutionalise arrangements for systematic analysis and interpretation of emerging trends in rural credit, as well as analysis relevant for specific issues of policy. most important features of the Cooperative Credit Structure The short term Cooperative Credit Structure (CCS) has a federal three-tier structure with PACS being the grass root level institutions, the Central Banks at the District level (DCCBs) and the apex Bank at the State level (SCB).

In the North-Eastern States and smaller States, there are no DCCBs and the SCB purveys credit through its affiliated PACS (and so the CCS is a two-tier system). We focus on the characteristics, in terms of scale, diffusion, structure and performance of the CCS at the national level, and bring out the regional diversities.

The Task Force has relied primarily on the data base available with NABARD, as far as SCBs and DCCBs are concerned. Data on source-wise deposits and sector-wise loans outstanding are taken from NAFSCOB.

The Task Force noted that NABARD does not maintain any data base on PACS. The only source is the NAFSCOB compilation, based on information provided by the State Governments and the CCS. Hence, the Task Force has used the data published by NAFSCOB as far as PACS are concerned. There are, however, considerable doubts about how complete their coverage is, whether the data are up-to-date and whether there is any attempt at validating the data.

The data on PACS, therefore, need to be used with caution and then too should be limited to getting a broad picture of their characteristics. According to the NAFSCOB collection, there are 1,12,309 PACS, which works out to roughly one PAC for every six villages in the country. The societies have, therefore, a wider spread and reach in rural India than the commercial banks (CBs) and Regional Rural Banks (RRBs). The CCS, moreover, has more than twice the rural outlets and 50 per cent more clients than commercial banks and RRBs put together. There is, however, a wide variation in the density of cooperative outlets. While the density is high in States like Maharashtra and Kerala, it is very low in the North Eastern region.

The total membership of the PACS is reported to be around 12 crore. Scheduled Castes and Scheduled Tribes and small farmers each, are reported to account for about 36 per cent to 37 per cent of the PAC membership as per NAFSCOB. Only half the members are borrowers-this proportion being less than average among small and marginal farmers and least among Scheduled Castes. These figures, it must be reiterated, are only indicative. Even in terms

of essential functions, there is a considerable diversity across States. In some regions there are a few pure thrift and credit societies that generate resources only from members and do not have financial transactions with non-members. In Maharashtra, apart from the regular PACS, there are around 22,000 thrift and credit societies (called *path sansthas*). In States like Kerala, PACS collect deposits from members, as well as non-members, in a significant way.

According to NAFSCOB estimates, which, as mentioned before, needs to be treated as indicative rather than precise, 62 per cent of the PACS in the country are viable, 30 per cent are potentially viable and eight per cent are either dormant, defunct or under liquidation. Here again, there are considerable variations across States. There are also differences in the structure of the CCS. Most States, for instance, have different structures for purveying long term (LT) and short term (ST) credit, but Andhra Pradesh has a single unified structure for providing both long term and short term loans. Most States have a three-tier structure, comprising PACS, DCCBs, and SCBs. While in Gujarat, the SCB conducts most of its transactions with lower tier organisations and does not have any branches outside of its Head Office, in Maharashtra the SCB undertakes full-fledged banking activities through multiple branches, that operate like branches of any other commercial bank.

Apart from the diversity at regional levels, the level of development in terms of accounting practices, supervision and prudential norms vary. The upper tiers, viz., SCB and DCCB, are supervised and follow most of the prudential and accounting norms. These norms, however, are not applied to the primary level cooperatives. It is important to keep this factor in mind, while using the financial data of the PACS. But equally importantly, this must be kept in mind while using financial data for the CCS as a system because a large proportion of the outstanding of the higher tiers is tied up in the successive lower tiers. All this highlights the considerable diversity in the density, scale and structure of the CCS, as well as the nature and severity of their problems across the country. This diversity must be recognised in implementing the recommendations of the Task Force. The recommendations too must allow for sufficient flexibility, to adapt to varying levels and patterns of the system and its problems in different regions.

BIOMETRIC ATMS FOR RURAL INDIA

To reach the rural masses, banks are going all out in providing a user-friendly banking experience. To boost micro financing initiatives, banks are deploying biometric solutions with ATMs. Establishing the identity of a rural depositor through biometrics makes it possible for illiterate or barely literate folks to become part of the banking user community. In recent years the importance of biometrics has grown tremendously with an increasing demand of security in accordance of unique identification of individuals. Its use for identification in applications other than policing is on the rise. In view of the rapidly increasing applications, the scope of biometrics is also increasing, be it identification via

face, voice, retina or iris. Fingerprinting, however, has the advantage of being a familiar concept worldwide. In the retail payments arena, developments in biometric technology have made their presence felt in the pervasiveness of self service devices including Automated Teller Machines (ATMs) and Point of Service (POS) machines. Some of the new generation POS terminals are biometric enabled with smart card readers, allowing thumb-print based authentication. Some Indian banks have started implementing biometric applications in retail branch applications for officer authentication. Elsewhere in the world, efforts are on enabling payments through kiosks based on fingerprints (non-card based). ATM enhancements with biometric support envisaged by vendors eliminate the need for PIN entry, and authenticate customer transactions by thumb-impressions. A simplified menu on ATMs coupled with possible audio guidance in local language enable easy use for rural masses. So far bank ATMs are dependent on PIN verification. The fingerprint authentication method is non-PIN based, and this requires enhancements to the standard Switch environment.

SECURING TRANSACTIONS WITH FINGERPRINTS

With the development of biometric solutions for the ATMs there is no need to remember PIN numbers. Software vendors are coming up with finger print solutions for the rural masses. Chennai based Financial Software and Systems (FSS) has recently launched its Biometric ATM Interface Solution (BAIS) that enables connectivity of ATMs with biometric support to Electronic Financial Transaction (EFT) switches. Elaborating on the working of the biometric solutions, G. P. Shekar, Head-Consulting Practice, Financial Software and Systems (P) Ltd. says, "Customers opting for biometric authentication can visit a nearby kiosk or ATMs or bank, where his finger-print data would be scanned into a special PC with a finger-print scanner and the scanned fingerprint is then stored in an encrypted form in a central server. When a customer inserts (or swipes) his card in a biometric enabled ATM, he is prompted to set his finger in the fingerprint scanner. The transaction along with customer's biometric information is passed on to the switch. The switch verifies the fingerprint with the server, and if successful, requests the banking application to authorise the transaction." Based on the result, the Switch instructs the ATM to complete the transaction. FSS' BAIS solution meets this requirement, by performing requisite message translations as well as confirming authorisation.

CMC Limited which has its presence in the biometric space for nearly two decades has also developed solutions for banks. CMC's Fingerprint solution provides high level authentication for accessing ATMs. Fingerprint solutions provides an interface to integrate with an ATM application. CMC has indigenously developed FACTS (Fingerprint Analysis and Criminal Tracing System)-an advanced automated fingerprint identification system, using image processing and pattern recognition techniques. FACTS was initially targeted at law enforcement, but with increased concerns on security and personal identity,

CMC started focusing on the banking and related sectors. B M Mehtre, DGM, R&D, CMC Ltd says, "Fingerprints of account holders are captured through the scanner in the system at the time of account opening. A template is created for each fingerprint by extracting features and stored in the debit card against the unique Customer ID. During verification, the fingerprint is captured using a fingerprint scanner attached to the ATM and 1:1 matching of the fingerprint captured is done with the templates stored in the debit card. Upon a successful match, the user is allowed to perform further transactions."

Pune based Axis technology is another Indian company which is developing biometric solutions for ATMs and kiosks in the banking sector. Says Abhay Khinvasara, CEO, Axis Technology, "Our ATMs can work with popular protocols that are being used in the financial transaction infrastructure. Axis ATMs will also work with any type of authentication required be it PIN or biometric based. The ATMs are equipped with a high quality fingerprint sensor ideally suited for dry, moist and rough fingers and advanced image processing and pattern recognition algorithms for fingerprint verification (FBI approved). There are also intelligent and dynamic security settings and other biometrics like Iris, face or even layered biometrics, which can be integrated into it."

BENEFITS OF BIOMETRIC SUPPORTED ATMS

- Provides strong authentication
- Can be used instead of a PIN
- Hidden costs of ATM card management like card personalisation, delivery, management, re-issuance, PIN generation, help-desk, and re-issuance can be avoided
- Ideal for Indian rural masses
- It is accurate
- Flexible account access allows clients to access their accounts at their convenience
- Low operational cost of the ATMs will ultimately reduce TCO

With ATMs supported by biometric solutions, banks having a presence across the country are leveraging on this technology. The ATMs are networked and connected to a centralised computer (Switch), which controls the ATMs. The use of biometrics identification is possible at an ATM. The information can be stored at a bank branch. ATMs are so prevalent and you have so many people using ATMs that it becomes easy to use biometrics as a replacement for an ATM PIN. The typical ATM has two input devices (a card reader and keypad) and four output devices (display screen, cash dispenser, receipt printer, and speaker). Invisible to the client is a communications mechanism that links the ATM directly to an ATM host network. The ATM functions much like a PC, it comes with an operating system (usually OS/2) and application software for the user interface and communications.

While most ATMs use magnetic strip cards and personal identification numbers (PINs) to identify account holders, other systems may use smart cards

with fingerprint validation. The ATM forwards information read from the client's card and the client's request to a host processor, which routes the request to the concerned financial institution.

If the cardholder is requesting cash, the host processor signals for an electronic funds transfer (EFT) from the customer's bank account to the host processor's account. Once the funds have been transferred, the ATM receives an approval code authorising it to dispense cash. This communication, verification, and authorisation can be delivered in several ways. Leased line, dial-up or wireless data links may be used to connect to a host system, depending on the cost and reliability of the infrastructure. The host systems can reside at a client's institution or be part of an EFT network. The EFT network supports the fingerprint authentication. Point-of-sale services that use biometric solutions are also possible.

Shekar says, "The FSS Biometric ATM Solution consists of a central server which holds a repository of customer fingerprints. It also customises the Switch to enable authorisation of a customer's biometric data and interfaces with ATMs enabled with biometric devices as per FSS specifications. The central server solution is platform independent, it uses Java and can run on Unix and Oracle/Microsoft SQL Server, customisation to BASE24 Switch (of which FSS is the distributor) is done using TAL. Biometric application and devices from Secugen are used for customer interface and application development."

Axis Technology on the other hand, has developed an innovative new product called the Biometric Retrofit Kit for ATMs. This kit converts a regular ATM to one that authenticates users based on biometrics-fingerprint or iris. This is an affordably priced kit that has generated interest among financial institutions.

RECENT INITIATIVES

Deploying ATMs for rural masses depends largely on banks stepping forward to take the requisite initiatives. The recent directive from the government on financial inclusion ("banking for the common man") is a key driver for the growth of such solutions in India. Banks are quite aware of the untapped potential in the rural sector. The telecom industry is witnessing a blistering growth pace, and so is the Internet. The National Rural Employment Guarantee Programme that guarantees employment and payment in the rural sector requires robust solutions. Using thumbprint and voice guidance in ATMs reduces literacy requirements to a considerable extent. However, the technology is not restricted to rural masses. FSS is in discussions with Andhra Bank for deploying the BAIS. Several other public sector and private sector banks have shown interest too. Says Shekar, "FSS would like to work with ATM and POS vendors to provide innovative and cost effective solutions to banks and customers." FSS is striving to modularise and 'ruggedise' the solution to perform online functions across a wide variety of delivery channels and payment systems. Apart from these banks, some other banks such as ICICI Bank are planning to introduce biometric authenticated ATMs in rural India.

CMC has been working with Institute for Development and Research in Banking Technology (IDRBT) on a pilot project in rural banking. Biometric (Fingerprints) smart cards, which consist of fingerprint data and financial data, will be issued to the rural banking customers for carrying out financial transactions. Elaborates Mehtre, "For building and developing various applications, CMC has a biometric technology group at its Research and Development Centre in Hyderabad. The team evaluates the latest technologies emerging in the biometrics area. This helps CMC's solutions to be competitive and cost effective. CMC has been working with Bank of India for introducing biometric ATMs. CMC has demonstrated its Biometrics ATM solution on the eve of inauguration of mobile ATMs for the bank."

PRESENTATION OF RURAL COOPERATIVE CREDIT INSTITUTIONS

Primary Agricultural Credit Societies, the credit institutions at the grass-root level deal directly with individual members/clients. A large proportion of PACS also serve as outlets for inputs and for the public distribution system for food and other essential items. The total membership of PACS as on 31 March 2005 aggregated to 1,274 lakh, of which, the borrowing members at 451 lakh constituted around 35%. The total as well as borrowing members of PACS declined during 2004-05. Deposits and borrowings of PACS increased by 5 and 17%, respectively, as on 31 March 2005 over the previous year. The loans issued increased by 12% during 2004-05 as compared to an increase of 3.3% during 2003-04, over the previous year.

As per the data available with NAFSCOB, small and marginal farmers constitute nearly 70% of total membership of PACS at the national level, while SCs/STs constitute 34%. Wide regional variations are observed – while Western and Southern Regions have a greater proportion of SFs as members, Eastern and Central Regions have nearly half of their members belonging to SC/ST category.

The average membership per PACS (all India) is 1,171 persons. Southern Region has the highest average at 2,986 persons, while Western has the lowest at 441 persons. The average borrowing membership per PACS (all-India) is 414 persons. While the Southern Region has the highest average at 944 persons, North-Eastern Region has only 91 borrowing members, on an average. The gap between the average membership and the average borrowing membership can be presumed as the credit potential available.

Though the network of commercial banks and RRBs has spread rapidly and they now have nearly 50,000 branches, their reach in the countryside both in terms of the number of clients and accessibility to the small and marginal farmers and other poorer segments is far less than that of cooperatives. In terms of number of agricultural credit accounts, the STCCS has 50% more accounts than the commercial banks and RRBs put together. Directly or indirectly, it covers nearly half of India's total population.

HEALTH OF RURAL CREDIT COOPERATIVES

Despite the extraordinary outreach and volume of operations, the health of a very large proportion of these rural credit cooperatives has deteriorated significantly. The institutions are beset with problems like low resource base, high dependence on external sources of funding, excessive Governmental control, dual control, huge accumulated losses, imbalances, poor business diversification, low recovery, *etc.* Around half of the PACS, a fourth of the intermediate tier, viz., the DCCBs, and under a sixth of the State-level apex institutions, viz., the SCBs are loss-making. The accumulated losses of the system aggregate over Rs. 9,100 crore. Non-performing assets (NPA), as a percentage of loans outstanding at the level of SCBs and DCCBs, at the end of March 2006 were around 16% and 20% respectively. These institutions do not, therefore, inspire confidence among their existing and potential members, depositors, borrowers and lenders. Thus, there is a need to find ways for strengthening the cooperative movement and making it a well-managed and vibrant medium to serve the credit needs of rural India, especially the small and marginal farmers.

NEED FOR REVIVAL OF THE COOPERATIVE CREDIT INSTITUTIONS

Given the above indicators, there has been substantial debate on whether there is an imperative need for revival of these institutions. Herein, it may be pertinent to reiterate the following points: In the first place, India is a country with a population of more than 100 crore, of which around 70 crore reside in a little over 6 lakh villages. As there are a little over one lakh PACS in the country, the first fact to be appreciated, therefore, is that every 6th village, on an average, has an existing cooperative credit outlet.

Secondly, although the rural credit system includes about 45,000 rural and semi urban branches of commercial banks and RRBs, if one would net out the cooperatives from the aggregate rural presence of all RFIs, the per outlet population coverage deteriorates from 1:4,393 to 1:14,893. The short point is that on grounds of outreach, cooperatives cannot be ignored. Thirdly, the outreach is important not merely in absolute numbers but also in terms of location of outlets. The number of PACS located in hilly terrains, deserts and other areas with poor access far exceed the number of rural branches of commercial banks and RRBs.

The same put of conclusions flow when the system is viewed in the context of its membership. Assuming an artificially low family size of 4, a back of envelope calculation shows that cooperative membership touches the lives of nearly 48 crore rural people which is more than half the aggregate rural population. As regards number of agricultural credit accounts, the credit cooperatives have 50% more accounts than scheduled commercial banks (including RRBs). Of these, 70% are estimated to be marginal and sub-marginal farmers.

On the financial side, it is sometimes argued that in terms of deposits, rural and semi-urban branches of commercial banks have nearly six times more deposits than cooperatives. While this is true, it is also true that this is part of a historic policy infirmity which allowed cooperatives to be treated as “refinance windows” instead of incentivising them into becoming genuine thrift and credit institutions. Coming to the assets side of the balance sheet we find that cooperatives have a 37% share in the aggregate crop loans provided by the RFIs. However, in many districts, particularly in remote, hilly and desert areas the share is upwards of 50%.

Notwithstanding a larger client base, the share of cooperatives in institutional credit is lower than that provided by the commercial banks. This is because the average loan size of cooperatives is smaller at Rs. 6,637 as compared to Rs. 31,585 of commercial banks which also confirms the claim that nearly 70% of the cooperative structure’s clients are small and marginal farmers. A little known fact is that the system has nearly 64,000 godowns. Given an appropriate policy dispensation entailing private partnership, conditions can be created for holding of crops by farmers at the ground level in these godowns while allowing them to negotiate the godown receipts in the market. A specific plan to revitalize these godowns in cooperative sector be drawn to make them the nerve centres of rural economy on a ‘kiosk’ model providing storage and financial services.

RENAISSANCE OF THE RURAL COOPERATIVE CREDIT INSTITUTIONS

Financial Stability Report of the Reserve Bank of India states that cooperatives occupy 7.4 percent of financial space in the economy. The Report on Trend and Progress of Banking in India 2009-10 acknowledges substantial improvement in the Urban Cooperative Banking in terms of profitability, improved asset quality and better reach than before. In the same vein, it says that the performance of the rural cooperative credit system has been a ‘cause for concern’, reflected in deterioration in asset quality, declining trend in the issuance of Kisan Credit Cards-a major instrument of farm credit dispensation-and their management.

Two decades of financial sector reforms and the recent effort of pumping in resources through Memorandum of Understanding with the State Governments, as a measure of implementing Vaidyanathan Committee recommendations, did not seem to result in the expected outcome for a variety of reasons. The focus of this article is on Rural Cooperative Credit System for the simple reason that the origins of this system lay in what is now termed as ‘financial inclusion’ even in 1904, when wide geographical coverage was envisaged for extending credit on easy interest rates to the farmers, eventually saving them from usurious rates of interest charged by the money lenders.

At a time we are re-inventing India, particularly in the backdrop of a consistent high growth performance during the last five years, withstanding the onslaught of global recession, there is a clear role for the Government to prevent institutional disasters. I propose to discuss in this article very briefly the reasons

for the failure of the RCCS, steps for enhancing competitiveness, a re-visit to the regulation, and the way forward to make them effective instruments of financial inclusion. A passing reference to their performance would be in order in this exercise.

FAILURE ANALYSIS

“The cooperatives once under enemy control the rural credit market in the institutional segment (with a share of around 65 per cent, going by the All India Debt and Investment Survey 1991), but now have a significantly smaller role. Data for the past decade indicates a fall in the share of cooperatives in the rural credit market, from around 62 per cent in 1992-93 to about 34 per cent in 2002-2003 in spite of an increase of just fewer than 10% per annum in the absolute disbursement on a compounded annual basis.” When the Primary Agricultural Cooperative Societies (PACS) were originally contemplated, it was expected that they would be set up for every four villages with a membership of 3000. With the elapse of time, threatened with viability of the Society, the reach became constricted and the number of PACS shrunk.

The three-tier and two-layered (one for short term and the other for long and medium term) also suffered in some parts of the country (Andhra Pradesh for instance), following the Hazarre Committee (1971) recommendations. The Single Window System introduced in the 1980s truncated the number of societies to less than the number of rural commercial bank branches in Andhra Pradesh. “As at the end-March 2009, half of total rural cooperative credit institutions reported profits. Profits reported by the sector mainly emanated from DCCBs. ...PACS and PCARDBs reported overall net losses...the asset quality witnessed deterioration during the same period. Reasons for such failure, the burden of all the Reports on the sector centre round the following:

State policy during 1950s came to be premised on the view that the government should ensure adequate supply of cheap institutional credit to rural areas through cooperatives and therefore should supply equity and support management and governance. NABARD, set up in 1981 on the recommendations of the Sivaraman Committee found sagacity in supporting a state-partnered and state-governed cooperative credit structure. Instead of tackling the root reason of their weaknesses, the State took responsibility for strengthening the institutions, by infusing additional capital and “professional” workforce. Both the State and the workforce then began to behave like “patrons”, rather than as providers of financial services.

Financial Sector Reforms (Narasimham Committees I and II) facilitated easy migration of the commercial banking in India to global financial standards in terms of capital adequacy, asset-liability management, technology adoption, balance sheet clean up and better human resource management and eventual adoption of Basel Committee recommendations. They are currently implementing Basel II standards and are on the threshold of moving to Basel III advanced approaches. Financial reforms agenda set aside the entire cooperative

credit structure. After a series of collapses of Urban Cooperative Banks surfaced, reforms were initiated in this sector after 2003-04. GoI announced a Revival Package in 2006 for the short term cooperative credit structure (PACS, DCCBs and SCBs) that “envisages (a) provision of liberal financial assistance to bring the system to an acceptable level of health, through cleansing of balance sheet, (b) introduction of legal and institutional reforms essential for their democratic, self-reliant and efficient functioning and (c) initiating measures to improve the quality of management.”

While most of the steps taken in respect of commercial banks did not touch even the boundaries of the cooperative banking system, the Basel Committee standards have been imposed on them. It is like the three-year baby tasting the hot pickle on the day of initiation to eating food. PACS and DCCBs that were not used to balancing cash and general ledger regularly – the essentials of a financing institution-have been asked to adopt prudential norms, asset classification, and capital adequacy standards of Basel II. Knowing that this sector has high concentration risk in that they lend to the most vulnerable farm sector, it is not just frequent injection of capital but the quality of governance and management that would need a change like never before.

When NABARD took over the supervision of RCCS, the share of cooperatives in agricultural banking was 65 percent (1981-82). Nearly thirty years of its supervision and refinance, has brought down the share to 25 percent. Number of PACS declined from 1.12lacs in 1980s to 0.96laks. Percentage of borrowing members of PACS’ is 57.9 and in some States, it has declined to 34 percent. There was a decline of 3.5 percent during the year 2008-09 alone. In no State, the numbers have shown an increase. Own funds showed deterioration; recoveries declined; and percentage of societies in profit is just around 40. While the Vaidyanathan package targeted revival of PACS, after the flow of revival package, Debt Waiver schemes of Central Government and State Governments borrowings of PACS and loans issued to members resulted in a marginal increase of 2.4 percent and 1.8 percent respectively. This is what the NABARD Annual Reports and the annual reports of the RBI make us understand.

The trust in the RCCS has fast worn. The Committee on Financial Sector Assessment (Rakesh Mohan) recognized the “potential conflict of interest between the supervisory and development functions of NABARD. The Sardesai Committee also felt that by virtue of their ‘scheduled status’, it would be more appropriate for these entities to be supervised by the Reserve Bank.”

CFSA called for segregation of the role of NABARD as a development financial institution (DFI) and as a regulator/supervisor of rural financial institutions appropriately. It has also suggested the formation of a Board of Supervision with members drawn from the NABARD Board as also with regulatory/supervisory experience.

“Some of the supervisory concerns that emerged were non-compliance with statutory provisions and KYC/ALM standards, improper application of IRAC norms, high NPAs, deficiencies in sanction, appraisal and post disbursement

follow up of loans, inadequate net margins, ineffective funds management, inadequate risk management systems, lack of corporate governance, weak internal checks and control systems, frauds, improper valuation of securities and irregularities in investment portfolio, violation of credit monitoring arrangement (CMA)/exposure, *etc.*”

1. Historically, they carried the legacy of creating and tolerating imbalances in their accounts: These imbalances are also the cause for the PACS continuously showing losses. While the grassroots PACS, the loan disbursing agencies of the DCCBs which are also responsible for the recoveries, continue to incur losses, the next tier continues to run on profits.
2. The Audits of the Department are more in tune with the Single Entry bookkeeping system while the requirement is from the double entry book keeping of accounts. The Departmental Auditors are supposed to receive training. This training should be actually accounting education. The present instruction manual of NABARD provides for the choice of department auditor or the chartered accountant as decided by the respective board of management of PACS/DCCB. Gross inadequacies in such audits left many balance sheets of PACS undependable.
3. There was debt-waiver package from GoI in the interregnum and some State Governments announced waiver of interest additionally and special waiver packages. These releases also reached the PACS much latter than they were actually due while the recoveries from farmers accommodated for the waivers/concessions as on the dates of announcement by both the Central and State Governments.
4. These have cumulatively led to an anomalous situation that aggravated the sinking PACS further sink.
5. National level implementation and monitoring committee has been reportedly meeting at regular intervals to review the implementation of the Vaidyanathan package and still has not been able to grapple with the realities.
6. DCCBs were all to be licensed under the Banking Regulation Act 1949 by March 2012 and this is being vigorously pursued by the RBI.
7. The legislative changes that were supposed to be brought in as per the MOUs providing autonomy for the RCCS, are at best on paper and at worse, perfunctory (*e.g.*, Tamilnadu has not brought about the changes although the revival package has been released) providing for political sagacity to overtake economic expediency. Except Kerala Government, it took five years for all other States to enter into MoU with NABARD to gain the advantage of the revival package announced by Government of India in 2006. Resistance is more on legal reforms and governance reforms leading to dilution in political influence over the RCCS.
8. Although the RBI has been repeatedly blaming the ills of cooperative system on dual regulatory mechanism – that lay with itself and the

State Government, it followed the similar duality by making NABARD as a supervisory institution over the RCCS and the RBI itself continuing as Regulator. Duality in regulation exists even in the case of private sector banks, public sector banks and foreign banks – SEBI, Government of India and the RBI regulate them. In fact, in respect of the UCBs, where dual regulation existed, the RBI has been able to resolve it through a coordination mechanism at the State level through a non-statutory Task Force mechanism meeting at monthly intervals. Failure to resolve the regulatory issues in RCCS squarely rest with the RBI. 9. GoI has not been able to bring about a modicum of governance in the RCCS through the amendments to Constitution and rehashing the cooperative laws in the States, as recommended by the High Power Committee (S.G. Patil).

It became a big question mark in the minds of farmer-members as to whose fortunes were targeted for revival under Vaidyanathan Revival Package. The long story, rendered short, does not mean that there were no PACS at all that benefited from the scheme. But they are those societies who basically conformed to financial discipline. Even those DCCBs that appeared to turn the corner Post-revival package, now acknowledge that, once their honeymoon with the sops under the package exited, they would be in for painful surprises. It may appear strange, but a fact, that in places where PACS exited on grounds of viability, branch of either a commercial bank or gramin bank sprang up.

THE WAY ONWARD

There can be no two opinions on the need for professionalization right from the PACS to the State Cooperative Banks and aiming for professionalization either at the DCCB or SCB would not address the ills of the RCCS adequately. NABARD's Human Resource Development Committee left many gaps that would require immediate attention. It is desirable that it would draw on the expertise of some of the Public Sector banks in this regard.

PACS FEASIBILITY

PACs' ability to rally deposits and raise members' share capital is extremely limited. This can, however, be reversed if the deposits secured by PACS could be insured by the Deposit insurance and Credit Guarantee Corporation of India on the same lines as for the commercial bank deposits with usual caveats like the PACS following KYC norms and additional leverage of PACS as a consequence in lending for non-farm activities allowed. Net margins of PACS should improve with direct refinance assistance from NABARD or through APCOB. In fact, the High Powered Committee (S.G Patil) suggested de-layering as an option to be examined by the States in this regard.

The SCBs, DCCBs and PACS should have an arrangement of sharing the staff and administrative costs of PACS in certain agreed proportion for the next three years subject to review thereafter. Otherwise, NABARD should bear such

cost as viability gap assistance for three years and it can impose restrictions on recruitment and governance policies at PACS level with much better ease to fall in line eventually with the needed financial discipline.

PACS, unlike the branch of a commercial bank or gramin bank, have the advantage of doing non-banking business and could also be one-stop shop for the farmer, where inputs, credit, storage and marketing of produce could all be accessed, of course, by paying reasonable costs appropriate for such non-credit services. PACS in turn carry the advantage of cross-holding of risks more efficiently and effectively. They, therefore, have the potential for being the most effective instruments of Financial Inclusion, the most important agenda of the present Government and the RBI if they can be brought back to health as economic entities with the respective Boards of PACS enabled to take advantage of the present autonomy (of course within the guidelines of the RBI) and gradual professionalization.

Some essentials:

- *Minimum qualifications for a CEO of PACS should be prescribed:* He should be at least a graduate with computer knowledge. Minimum staff strength at each PACS should be three.
- Existing unviable societies should be helped out for a minimum period of five years through a specially created Management Development Fund contributed by Government of India, NABARD and State Government in equal proportion, subject to the PACS agreeing to abide by the conditions of conforming to the recruitment norms of NABARD and salary structure prescribed by NABARD. The State Government should give an irrevocable undertaking to RBI and NABARD that it would not interfere either in the recruitment process or pay scales. The Salary of the CEOs should consist of two components: Minimum monthly salary and incentive pay to be given at the end of the year after the General Body agrees to grant it.
- It would be necessary for the PACS to evolve a Business Development Plan that would have round the year work for the CEO in delivering the business results. There must be a Directors' Committee responsible for over-viewing Business Development in accordance with the Plan. The Director and the CEO should be jointly responsible to the General Body or the representative General Body as per the bye-laws of the Society. Since all the PACS do not have capabilities to do such planning, they should be helped out by the NABARD and/or SCBs through their well-qualified project staff at the district level who should also oversee the plan implementation.
- PACS should have elected Boards, with a minimum of five at the lower rung of PACS operating in just five villages or less to no more than eleven at the upper end. Each Director should have at least passed Intermediate with a commitment to the principles of Cooperation and not holding any position in any political party. There should be at least

three professional Directors conforming to the due diligence criteria prescribed by the RBI. RBI's Regional Office should clear the names of the professional directors.

- While the choice of the Auditors could be with the Board of PACS, they should be from the Panel of Auditors approved by the Registrar of Societies if it is departmental audit or Chartered Accountant firm approved by the RBI.
- The Registrar of Cooperative Societies should conduct an Annual Test for Auditors with the help of either the RBI or the Institute of Chartered Accountants of India to decide on the panel of departmental Auditors and not by virtue of their designation.
- The salary of the employees of the PACS and administrative expenses should be paid out of a special account with the controlling DCCB/SCB and would be adjusted either out of the grant or the earnings of the PACS.
- The employees of PACS shall not be treated as employees of the State Government and the State Government has no jurisdiction over their recruitment. Disciplinary Procedures governing the PACS employees shall be transparent and line of command must be defined within the knowledge of the employees.

Finance and regulation are only one side of the coin and instantaneous action on the erring/defaulting employees as per the code of conduct and disciplinary procedures is a 'must'. A loosing PACS and gaining DCCB/SCB can co-exist only to the peril of the latter. The DCCB/SCB is squarely responsible for the success or failure of the PACS functioning under its jurisdiction. NABARD should have necessary strings attached to (1) implementation of Business Development Goals; (2) Staff Discipline; (3) Compliance to the Bye-laws, through a quarterly review; (4) Good House Keeping reflected in regular balancing of books with the General Ledger; and (5) Audit compliance. Half-yearly and Annual Closing of Accounts shall be done as per the directives of the RBI on the dates of specified and non-conformance should be punishable with penalties.

Cleaning the Cooperative Slate is not a day's job. When the GoI is still recapitalizing the assets of public sector banks, it should examine the need for recapitalizing the Cooperative Credit system to bring it in tune with the rest of the financial system in the interest of financial stability. If the Central Government has its own banks – nationalized banks – there is no harm in each State government having its own bank and this can be the State Cooperative Bank (SCB) functioning within the regulatory oversight of the RBI. This would mean that the equity of the State Government in the SCB need not be viewed as a sin and need not act as a constraint on the overarching and essential role of SCB as a financial institution as long as the CEO appointed is a professional conforming to the due diligence standards prescribed by the RBI.

5

Infrastructure Development

INTRODUCTION

India's rise in recent years is a most prominent development in the world economy. India has re-emerged as one of the fastest growing economies in the world. India's growth, particularly in manufacturing and services, has boosted the sentiments, both within country and abroad. With an upsurge in investment and robust macroeconomic fundamentals, the future outlook for India is distinctly upbeat. According to many commentators, India could unleash its full potentials, provided it improves the infrastructure facilities, which are at present not sufficient to meet the growing demand of the economy.

Failing to improve the country's infrastructure will slow down India's growth process. Therefore, Indian government's first priority is rising to the challenge of maintaining and managing high growth through investment in infrastructure sector, among others.

The provision of quality and efficient infrastructure services is essential to realise the full potential of the growth impulses surging through the economy. India, while stepping up public investment in infrastructure, has been actively engaged in involving private sector to meet the growing demand.

The demand for infrastructure investment during the 11th Five Year Plan (2007-2011) has been estimated to be US\$ 492.5 billion. To meet this growing demand, Government of India has planned to raise the investment in infrastructure from the present 4.7 per cent of GDP to around 7.5 to 8 per cent of GDP in the 11th Five Year Plan. In general, efforts towards infrastructure development is continued to focus on the key areas of physical and social

infrastructure. The present object is a shorter version of the India country report carried out by the author on-behalf of RIS for ERIA. This version presents a quick profile and prospects of India's physical infrastructure sector.

PROFILE OF INDIA'S PHYSICAL INFRASTRUCTURE

Performance of physical infrastructure in Indian economy in last one and half decades has been mixed and uneven. Table provides the latest achievement of India's physical infrastructure sector.

Table. Overview of Physical Infrastructure

| Particulars | 1991 | 2000 | 2005 | AAGR(%) (1991-2005) |
|---|--------|--------|--------|------------------------|
| Railways length (1000km) | 62.46 | 62.76 | 63.47 | 0.13 |
| Road length (million km) | 2.35 | 3.32 | 3.85 | 5.32 |
| Fixed line and mobile phone subscribers (per 1,000 people) | 7 | 36 | 128 | 150.35 |
| Air freight (million tons per km) | 493.10 | 547.65 | 773.22 | 4.73 |
| Air passengers carried (million) | 10.72 | 17.30 | 27.53 | 13.07 |
| Air transport, registered carrier depatures worldwide (million) | 0.12 | 0.20 | 0.33 | 14.89 |
| Container port traffic (million TEUs) | 0.15 | 2.45 | 4.94 | 26601 |
| Electric power consumption (kWh per capita) | 295.02 | 402.02 | 457.32 | 4.58 |
| Electric power consumption (kWh) | 255.65 | 408.42 | 493.78 | 7.76 |

Over years, India's soft infrastructure grew much faster than the hard infrastructure. For example, India's rising trade has been reflected in growing container port traffic, which increased from less than a million in 1991 to about 5 million in 2005 with an annual growth rate of about 266 per cent since 1991.

Table. Trends in Rail and Road Density in India.

| | | 1991 | 2000 | 2005 |
|------|--------|--------|---------|---------|
| Rail | Spread | 19.00 | 19.09 | 19.31 |
| | Access | 0.07 | 0.06 | 0.06 |
| Road | Spread | 714.99 | 1008.76 | 1171.60 |
| | Access | 2.71 | 3.26 | 3.52 |

In contrast, hardware components, like railways, roadways and airways, witnessed little expansion in last one and half decades. In general, performances of these sectors (hardware) are nevertheless poor, when counted their densities in terms of country's surface area or population. Densities in terms of access or spread of rail and road length clearly indicate that road sector has been successful, compared to railways, in spreading the network as What follows is that software

part of India's physical infrastructure (like telecom, air and port services) performed well, thus not only helped the country to maintain a faster growth but also integrated the economy with the world market at a faster pace.

At the same time, the hardware component of the country's physical infrastructure (*e.g.*, road, rail, power) comparatively grew slowly, thus negated the country's development process. Therefore, in order to unleash India's full potentials, development of hardware component of India's physical infrastructure perhaps deserves utmost attention. This also indirectly indicates high investment potentials in roadways, railways, power and the associated components in India.

ROADS

The most distinct part of India's physical infrastructure development in recent years is the development of road network across the country; per sq. km. of surface area in India is now endowed with one km of roadways. India has one of the largest road networks in the world, aggregating to 3.34 million km. The country's road network consists of Expressways, National Highways, State Highways, Major District Roads, Other District Roads and Village Roads. The road network, as on December 2007, comprises 66,590 km of National Highways, 128,000 km of State Highways, 470,000 km of Major District Roads and about 2.65 million km of other District and Rural Roads.

National Highways comprise only about 2 per cent of the total length of roads and carry about 40 per cent of the total traffic across the length and breadth of the country. Out of the total length of National Highways, 32 per cent is single lane/intermediate lane, 56 per cent is 2-lane standard and the balance of 12 per cent is 4-lane standard or more. The National Highways Development Project (NHDP), the largest highway project ever undertaken by the country, is being implemented by the National Highway Authority of India (NHAI). NHDP Phase I and II envisage 4/6 laning of about 14,279 km of National Highways, at a total estimated cost of ₹650 million (at 2004 prices).

These two phases comprise of Golden Quadrilateral (GQ), North-South and East-West Corridors, Port Connectivity and other projects. The Golden Quadrilateral (GQ-5,846 km) connects the four major cities of Delhi, Mumbai, Chennai and Kolkata.

The North-South and East-West Corridors (NS-EW-7,300 km) connect Srinagar in the North to Kanyakumari in the South, including spur from Salem to Kochi and Silchar in the East to Porbandar in the West. By November 30, 2006, 6,776 km of national highways pertaining to NHDP had been completed, the bulk of which (5,475 km) lie on the GQ. Constraints faced in the timely completion of NHDP include delays in land acquisition, removal of structures and shifting of utilities, law and order problem in some States, and poor performance of some contractors.

Nearly 93 per cent works on GQ have been completed by November 2006, and the NS and EW corridors are expected to be completed by December 2009. With the completion of about 93 per cent of the GQ, a substantial impact upon

the economy is already visible. At this stage there is a need to focus attention on corridor management and road safety, and NHAI has already put in place a corridor management policy.

Financing of NHDP

For implementation of NHDP Phases I and II, the main source of finance of NHAI is the fuel cess. The present rate of cess is ₹2 per litre on both petrol and diesel. A part of this cess is allocated to NHAI to fund the NHDP. This cess is leveraged to borrow additional funds from the domestic market. Besides, the Government of India has also negotiated various loans from World Bank (US\$ 1,965 million), Asian Development Bank (US\$ 1,605 million) and Japan Bank for International Cooperation for financing various projects under NHDP.

These loans from the multilateral institutions are passed on to NHAI by the Government partly in the form of grant and partly as loan. NHAI also negotiated a direct loan of US\$ 165 million from ADB for one of its projects. The funds provided to NHAI, including its borrowings from the market, are utilized for meeting project expenditure as well as debt servicing.

Future Plans

- Government has set ambitious plans for upgradation of National Highways in a phased manner in the years to come. A presentation was made before the Committee on Infrastructure proposing the following projects in addition to the completion of the ongoing works included under NHDP Phase-I and Phase-II:
 - 4-laning of 11,113 km including 4,035 km already approved.
 - Accelerated road development programme for the North Eastern region.
 - 2-laning with paved shoulders of 20,000 km of national highways.
 - 6-laning of GQ and some other selected stretches covering 6,500 km.
 - Development of 1,000 km of expressways.
 - Development of ring roads, bypasses, grade separators, service roads, *etc.*
- As a policy, Government has decided to take up future phases of NHDP proposals mainly on a PPP basis. Implementation of projects through construction contracts will be only in exceptional cases where private sector participation is not possible at all.

PORTS

Ports have been playing a crucial role in facilitating India's international trade and also in generating economic activity in their surroundings and hinterland. India's coastline of 7,517 km. is added with 12 major ports and 187 non-major ports. Of the non-major ports, around 60 are handling traffic. The total traffic carried by both the major and minor ports during 2005-06 was estimated at around 570 million tonnes.

The 12 major ports carry about 3/4th of the total traffic, whereas Vishakhapatnam (on the eastern coast) is the largest port in India. Despite having adequate capacity and modern handling facilities, average turnaround time is 3.5 days as compared with 10 hours in Hong Kong, which undermines the competitiveness of Indian ports.

Congestion is due primarily to the slow evacuation of cargo rather than a lack of handling capacity, since ports are not adequately linked to the hinterland. To this end, all port trusts have set up groups with representatives from NHAI, the Railways, and State governments to prepare comprehensive plans aimed at improving road-rail connectivity of ports. An efficient multimodal system, which uses the most efficient mode of transport from origin to destination, is a prerequisite for the smooth functioning of any port.

It involves coordinating rail and road networks to ensure good connectivity between port and hinterland. In 2006-07, up to October 2006, cargo handled by major ports registered growth of 6.6 per cent, down from 10.4 per cent observed in the corresponding seven months of 2005-06. About 80 per cent of total volume of ports' traffic handled was in the form of dry and liquid bulk, with the residual consisting of general cargo, including containerised cargo. There was an impressive growth of 13.6 per cent per annum in container traffic during the five years ending in 2005-06. Half of the world's traded goods are containerized, and this proportion is expected to increase further.

The largest container port in the world in 2005, Singapore, processed 23.19 million TEUs (twenty foot equivalent units). The 10th largest port, Los Angeles in the USA processed 7.49 million TEUs. In contrast, Jawaharlal Nehru Port (JNP), India's largest container port, handled roughly 2.67 million TEUs in 2005-06. The annual aggregate cargo handling capacity of major ports increased from 397.5 million tonnes per annum (MTPA) in 2004-05 to 456.20 MTPA in 2005-06, with the average turnaround time increasing marginally from 3.4 days to 3.5 days in 2005-06.

The average output per ship berth-day improved from 9,240 in 2004-05 to 9,267 tonnes in 2005-06. The pre-berthing waiting time at major ports on port account, however, increased from 6.03 hours in 2004-05 to 8.77 hours in 2005-06. Significant inter-port variations in pre-berthing waiting time is continued to persist.

National Maritime Development Programme (NMDP)

Following the success of NHDP that is expected to vastly improve connectivity in India, the Government of India has undertaken the NMDP with an investment of ₹610 billion to boost infrastructure at major ports in the next ten years. Under the NMDP, 228 projects have been identified for implementation in two phases through public-private partnership. By identifying specific projects and other measures, the NMDP will over the next 10 years give a concrete shape to the vision and strategy of the National Maritime Policy.

The envisaged investment for these projects is estimated at ₹ 610 billion. Of this, ₹ 392.38 billion will be coming from the private sector, ₹ 114.45 billion through budgetary support and ₹ 50.78 billion from port trusts' internal resources.

CIVIL AVIATION

Airports

The operations, management and development of the airports at Delhi and Mumbai were handed over to the joint venture companies namely Delhi International Airport (P) Ltd. (DIAL) and Mumbai International Airport (P) Ltd. (MIAL). The strategic joint venture partners in DIAL are a consortium led by GMR Group along with Fraport as the Airport Operator, and Malaysian Airports and India Development Fund as the other members.

The joint venture partners together hold 74 per cent equity with the balance 26 per cent being held by Airports Authority of India (AAI). Similarly, in case of MIAL, the strategic joint venture partners are a consortium comprising of GVK Group along with Airport Company South Africa as the Airport Operator, and Bidest, South Africa as the other member.

Various agreements/contracts for handing over the control of the two airports to DIAL and MIAL were executed in April 2006; and with effect from May 3, 2006, the transactions have become effective. The companies have since finalized their master plans for a 20 year period. Construction work at greenfield airports of international standards at Hyderabad and Bangalore is in progress.

The two airports are likely to be fully operational by the middle of 2008. Proposals to set up greenfield airports in Navi Mumbai, Kannur in Kerala, Goa and Pakyong near Gangtok in Sikkim are in the pipeline.

A Greenfield international airport is already operational in Kochi, Kerala. Airports Authority of India (AAI) has decided to develop and modernize 35 non-metro airports in the country, namely, Agati, Agartala, Agra, Ahmedabad, Amritsar, Aurangabad, Bhopal, Bhubaneswar, Chandigarh, Coimbatore, Dehradun, Dimapur, Goa, Guwahati, Imphal, Indore, Jaipur, Jammu Khajurao, Lucknow, Madurai, Mangalore, Nagpur, Patna, Port Blair, Pune, Raipur, Rajkot, Ranchi, Trichy, Thiruvananthapuram, Udaipur, Vadodara, Varanasi, and Vishakapatnam. The Committee on Infrastructure has approved the report of the task force for the development of 35 non-metro airports. Development of airports in India's North Eastern Region (NER) will be taken up by AAI on a priority basis.

Airport Economic Regulatory Authority (AERA)

Through an Act of Parliament, Airport Economic Regulatory Authority (AERA) is proposed to be set up to fix, review and approve tariff structure for the aeronautical services and monitor pre-set performance standards at Indian airports. The Authority will ensure a level playing field for all categories of airport operators and also oversee and deal with natural monopoly and common user/carrier segments of airports. Government has adopted an overall liberal approach in the matter of grant of traffic rights under bilateral agreements with various foreign countries.

A revised air services agreement was signed with USA that led to increased co-operation in the aviation sector. Under this agreement, both sides can

designate any number of services to any point in the territory of the other country with full intermediate and beyond traffic rights. Similarly, traffic rights were enhanced with 19 other countries—Australia, Belgium, Canada, China, Egypt, France, Germany, Italy, Japan, Kuwait, Mauritius, the Netherlands, New Zealand, Oman, Scandinavian countries, Singapore, Spain, UAE (Sharjah), UK—to provide for more flights and better connectivity with these countries and also more commercial opportunity to all operating carriers.

The signing of a new Air Services Agreement is the first milestone for the purpose of establishing air connectivity with new destinations. During the recent past, a number of new Air Services Agreements were initialled (signed) based on modern practices in the civil aviation sector. Air Services Agreement with some countries were signed a long time ago and needed updating in view of the changed circumstances and developments in the international civil aviation scenario, and with respect to newer standards and recommended practices.

Some of these countries are Australia, Brazil, Finland, Iceland, New Zealand, Qatar, Tunisia, UK and USA. The tourist charter guidelines were significantly liberalized in 2004. All airports in the country were opened for international tourist charter flights and Indian passport holders were also allowed to travel on the tourist charter flights. Recently, Government has decided to liberalise the tourist charter guidelines further.

Airlines

A major fleet acquisition is underway by the national carriers, namely Indian Airlines, Air India and Air India Charters' Limited. The project of Indian Airlines for acquisition of 43 Airbus aircraft has been approved by the Government. The first A-319 from this batch of new aircraft joined the fleet of Indian Airlines Limited in October, 2006 and the remaining 42 aircraft will arrive in batches by March, 2010.

After receiving Government approval, Air India signed an agreement with Boeing Company on December 30, 2005 for the acquisition of 8 B777-200 LR, 15 B777-300 ER, 27 B787 Dreamliner aircraft for itself, and 18 B737-800 aircraft for its subsidiary company Air India Charters Limited, which operates a low cost airline under the brand name Air India Express.

These aircraft would be delivered to Air India between end of November, 2006 and December, 2011. Up to December, 2006, Ministry of Civil Aviation has issued no objection certificate for import/acquisition of 42 aircraft for scheduled operators, 62 aircraft for non-scheduled operators and 31 aircraft for private operators. Besides this, in principle approval for 135 aircraft was also granted to scheduled operators.

Air Traffic

Policy initiatives have had a marked impact upon airline traffic. Air traffic has grown up substantially since 2004-05. During the period April-September, 2006, international and domestic passengers recorded growth of 15.8 per cent and 44.6 per cent, respectively, leading to an overall growth of 35.5 per cent.

During the same period, international and domestic cargo recorded growth of 13.8 per cent and 8.7 per cent, respectively, resulting in an overall growth of 12.0 per cent.

RAILWAYS

Indian Railways, world's second largest rail network under a single management, has been contributing to the development of the country's industrial and economic landscape for over 150 years. Of the two main segments of the Indian Railways, freight and passenger, the freight segment accounts for roughly two-thirds of revenues. Within the freight segment, bulk traffic accounts for nearly 95 per cent, of which more than 44 per cent is coal.

Improved resource management, inter alia, through increased wagon load, faster turnaround time and a more rational pricing policy has led to an improvement in the performance of the railways during the last two years. Rationalization of classification is aimed at securing eventual elimination of cross-subsidies in fares and freight, and evolving a more transparent and cost-based tariff regime. This process necessarily requires increase in freight rates for commodities being transported below cost and lowering the freight charges for commodities being moved at abnormally high rates. In the freight segment, the number of commodities in goods tariff has been reduced from 4,000 commodities to 80 main commodity groups in 2005-06, and further to 27 groups in 2006-07.

The total number of classes for charging freight has been reduced from 59 to 17. The high-density network connecting the four metropolitan cities of Chennai, Delhi, Kolkata and Mumbai, including its diagonals, popularly called the Golden Quadrilateral has got saturated at most of the locations. Given the present growth scenario, the Railways expect to carry 95 million tonnes incremental traffic per year and about 1,100 million tonnes revenue earning freight traffic by the end of the Eleventh Five Year Plan. This entails large investment for capacity augmentation.

Dedicated Freight Corridors (DFCs)

Development of dedicated freight corridors (DFCs) for carrying additional traffic is essential in view of the high growth in demand. Therefore, the Railways have proposed a 2700-kilometer long railway line project (Eastern Corridor from Ludhiana to Sonnagar as Phase-I-1,279 Km. and Western Corridor from Jawaharlal Nehru Port near Mumbai to Dadri/Tughlakabad-1,483 Kms). Both the Eastern and Western Corridors will be made suitable for running of longer and heavier trains of 25 tonne axle load.

While the Eastern Corridor will be electrified, the Western Corridor will operate on diesel traction in order to permit Double Stack Container operation. Logistics parks are proposed to be developed on DFC. An SPV called Dedicated Freight Corridor Corporation of India Limited (DFC-CIL) has been formed to implement the project.

URBAN INFRASTRUCTURE

Urban infrastructure consists of drinking water, sanitation, sewage systems, electricity and gas distribution, urban transport, primary health services and environmental regulation. The process of urbanization has gathered considerable momentum in recent years and this has put urban infrastructure and services under severe strain.

Urban Transport

Urban transport is one of the key elements of urban infrastructure. The major objective of urban transport initiative is to provide efficient and affordable public transport. A National Urban Transport Policy (NUTP) has been formulated with the objective of ensuring easily accessible, safe, affordable, quick, comfortable, reliable and sustainable mobility for all. Revised guidelines for preparation of comprehensive city transport plans and DP^२ have been prepared and circulated to all State Governments/UTs for availing of financial assistance to the extent of 40 per cent of cost as Central assistance under the present scheme of Urban Transport Planning.

Detailed guidelines have also been formulated for the guidance of the States and cities and preparation of DP^२ for both rail-based and road-based public transport. Delhi and Kolkata have introduced Metro Rail system in their cities. Delhi Mass Rapid Transit System (MRTS), a joint venture between the Government of India and the Govt. of National Capital Territory of Delhi, is being implemented by the Delhi Metro Rail Corporation (DMRC). The Bangalore Mass Rapid Transit System (MRTS) contemplates construction of metro corridors along East-West (18.1 km.) and North-South (14.9 km.) in Bangalore.

The Government of Karnataka has got financial appraisal of the project conducted recently. The estimated completion cost of the project is ₹56.05 billion. Bangalore Metro Rail Corporation (BMRC), a joint venture company, is executing the project, which is scheduled to be completed by 2011. The first part of 7 km. will be completed in 2009. The Government of Maharashtra has proposed a MRTS for Versova-Andheri- Ghatkopar on the basis of Mumbai Metro Master Plan. The project—Mumbai Metro Rail Project—consists of two corridors. First corridor is of a total length of 11.07 kms. –Versova-Andheri-Ghatkopar. Completion cost is estimated at ₹23.56 billion and it is proposed to be funded through Viability Gap Funding (VGF). The second corridor is Colaba-Bandra-Charkop line of 38.23 km. length. Estimated cost is ₹88.25 billion (at June 2005 prices). While giving in-principle approval for the project, the Government of Maharashtra has been asked to exhaust the VGF route first.

SPECIAL ECONOMIC ZONES (SEZ)

SEZs are designated duty-free enclaves with developed industrial infrastructure. These zones are regarded as foreign territory for the purpose of duties and taxes, and are excluded from the domain of the custom authorities to

enjoy full freedom for the in and outflow of goods. SEZ units enjoy a tax exemption for seven years: 100 per cent exemption in first 5 years, and 50 per cent in the remaining 2 years. They have the facility to retain 100 per cent foreign exchange earnings in Export Earners Foreign Currency Exchange accounts.

All SEZ units are free to sell goods in the domestic tariff area (DTA) on payment of applicable duties. During 2005-06, exports from functioning SEZs, which are mainly the former EPZs were around US\$ 5 billion. At present 1,016 units are in operation in these SEZs providing direct employment to over 179,000 persons (about 40 per cent of whom are women). Private investment by entrepreneurs for establishing units in these SEZs is of the order of about ₹31.63 billion.

After the SEZ Act and SEZ Rules came into effect on February 10, 2006, formal approval has so far been granted to 237 SEZ proposals and in-principle approval has been granted to 164 SEZ proposals. Out of the 237 formal approvals, notifications have already been issued in respect of 63 SEZs. In these 63 new generation SEZs which have come up after February 10, 2006, investment of the order of ₹111.94 million has already been made in less than one year. These SEZs have so far provided direct employment to 15,097 persons. It is expected that total investment in these SEZs would be around ₹584.59 million and 890,700 additional jobs will be created by December 2009. It is also expected that if all the 237 SEZs become operational, investment of the order of ₹3000 billion may take place and 4 million additional jobs may be created.

GOVERNMENT POLICY ON INFRASTRUCTURE DEVELOPMENT: PUBLIC-PRIVATE PARTNERSHIP

India has created specialized institutions for long-term infrastructure financing and there are certainly many arguments for establishing a regional investment bank, similar to the line of India's IIFC. Viability Gap Financing (VGF) is likely to be successful instrument in managing much needed gaps in road development in developing Asia and LDCs where domestic resources are limited and suffer from capacity constraints. While this institution could certainly play an important role by tapping into global financial markets and channelling funds to infrastructure projects, their mere existence will not increase investment if the underlying obstacles precluding investor confidence are not addressed—as the shortage of viable projects for funding by the IDFC or IIFC shows.

PUBLIC PRIVATE PARTNERSHIP (PPPS) IN INFRASTRUCTURE

Government is actively pursuing PPPs to bridge the infrastructure deficit in the country. Several initiatives have been taken during the last three years to promote PPPs in sectors like power, ports, highways, airports, tourism and urban infrastructure. Under the overall guidance of the Committee of Infrastructure

headed by the Prime Minister, the PPP programme has been finalized and the implementation of the various schemes is being closely monitored by the constituent Ministries/Departments under this programme. Indian experience shows that competition and PPPs can help in improving infrastructure. The opening of the telecoms sector is a case in point.

Opening up the sector has led to massive investments and expansion in supply coupled with improvement in quality. The target of 15 per cent tele-density set for the year 2010 was realised in 2007. Further, the cost of service today is lower than that in any other country in the world. Similarly, competition in the aviation sector has resulted in the creation of new capacities and much greater choice for travellers. The annual growth in air traffic has been in excess of 20 per cent and fares have dropped significantly. Even in the road sector, PPPs have demonstrated their efficacy wherever they have been used such as on the Jaipur-Kishengarh highway.

VIABILITY GAP FUNDING IN INFRASTRUCTURE PROJECTS IN INDIA

An investment of about US\$ 493 billion would be required in the infrastructure sector during the Eleventh Five Year Plan (2007-2011). These investments are to be achieved through a combination of public investment, PPPs and exclusive private investments, wherever feasible. According to the Government of India (2005), the Viability Gap Funding (VGF) or Grant means a grant one-time or deferred, provided under this Scheme with the objective of making a project commercially viable.

The total VGF under the PPP scheme of the Government of India shall not exceed 20 per cent of the total project cost; provided that the Government or statutory entity that owns the project may, if it so decides, provide additional grants out of its budget, but not exceeding a further 20 per cent of the total project cost. The VGF is normally in the form of a capital grant at the stage of project construction. Proposals for any other form of assistance may be considered by the Empowered Committee and sanctioned with the approval of Finance Minister on a case-by-case basis. The VGF up to ₹1 billion (about US\$ 25 million) for each project is sanctioned by the Empowered Institution (here through IIFC), subject to the budgetary ceilings indicated by the Finance Ministry. The Empowered Committee is also entitled to sanction VGF up to ₹2 billion, depending upon the project feasibility, and amounts exceeding ₹2 billion may be sanctioned by the Empowered Committee with the approval of Finance Minister.

INDIA'S OVERLAND CONNECTIVITY WITH EAST ASIA: SOME CROSS-BORDER INFRASTRUCTURE INITIATIVES

India attaches utmost importance towards development of connectivity with Southeast and East Asian countries. The importance of overland connectivity through cross-border transport corridors is not only for the trade, but it would

also facilitate investments in infrastructure sector. It will also bring many rich rewards for bordering areas. Some of the recent initiatives linking India with ASEAN are as follows.

INDIA–MYANMAR–THAILAND TRILATERAL HIGHWAY

India–Myanmar–Thailand Trilateral Highway (IMTTH) from Moreh (in India) to Mae Sot (in Thailand) through Bagan (in Myanmar) links India with Southeast Asia. The IMTTH is divided into three phases; the first phase includes 78 km of new roads, upgradation of about 400 km of roads, construction of all-weather approach lanes, rehabilitation/reconstruction of weak or distressed bridges and a detailed examination of a project on the Ayeyarwaddy river as well as a causeway.

The entire project is being funded through government resources. Phase-I of the IMTTA has already taken up in early 2005. India assumes responsibility of 78 km of missing links and 58 Km of upgradation as part of Phase-I. India may also take up additional 132 Km of upgradation. Thailand would take up upgradation of 136 km and 62 km sectors of Phase-I and another 100 km as part of Phase-II. Myanmar indicated willingness to take up intermediary approach roads, reconstruction/rehabilitation of weak bridges. India has agreed to offer credit at concessional terms to Myanmar for financing new constructions from Chaungma-Yinmabin (30 km.) and Lingadaw-Letsegan-Pakokku (48 km.).

India has also agreed to consider similar financing of the upgradation to two-lane standard of the Yinmabin-Pale-Lingadaw (50 km.) inside Myanmar. Further, India has agreed to consider, subject to internal approvals, financing of the upgradation of the Bagan-Meiktila (132 km.) segment in Myanmar. Indian has also agreed to undertake the preparation of a Detailed Project Report (DPR) for construction of a bridge on the Ayeyarwaddy river and for the causeways near Kyadet. Thailand has also agreed to extend concessional loans for financing the upgradation to two-lane standard of the Thaton-Hpa-an-Kawkareik part (136 km.) and Kawkareik-Myawaddy part (62 km.).

The Thailand side also agreed to assist Myanmar in financing of the route Thaton-Mawlamyine-Mudon-Kawkareik as a second phase of the project. Myanmar has agreed to finance construction of all weather intermediate lane approach roads at both ends from Pakokku to Bagan up to the existing ferry crossing and the rehabilitation/reconstruction of only distressed and weak bridges. Myanmar has decided to explore the possibility of important commercial segments of the highway being constructed, operated and maintained by operators on a commercial basis.

INDIA–MYANMAR–THAILAND–VIETNAM RAILWAY COOPERATION: DELHI–HANOI RAILWAY LINK

Railways can play a very positive role in integrating India with her eastern neighbours.

Needs are two folds:

- To link India's Manipur with India's main railway corridor, and
- To re-establish and renovate railway networks in Myanmar.

Harmonisation of railway track in the region is very much essential. Without having a compatible and strong railway system inside Myanmar and Bangladesh, closer communication between NER and its immediate neighbours will be unfulfilled. Indian government has come forward and extended US\$ 56 million credit line to the Myanmar government for upgradation of 640 km railway system between Mandalay and Yangon part. Similar initiative should be taken up for up-gradation of railway network system in southern and northern Myanmar.

A possible connection between Myanmar and Thailand could be via Thanbyuzayat and Three Pagoda Pass, and between India and Myanmar could be by constructing new railway line between Tamu and Kalay. On completion of these projects there could be possibilities for India–Myanmar–Thailand–Malaysia–Singapore rail link. On completion of these projects, there could be possibilities for India–Myanmar–Thailand–Malaysia–Singapore rail link, and finally a railway system that will connect Delhi with Hanoi.

6

Rural Economic Development: A Strategy for Alleviating Poverty

Of late, rural development has assumed global attention especially among the developing nations. It has great significance for a country like India where majority of the population, around 65% of the people, live in rural areas. The present strategy of rural development in India mainly focuses on poverty alleviation, better livelihood opportunities, provision of basic amenities and infrastructure facilities through innovative programmes of wage and self-employment. This chapter overviews the role and function of the Government and its' programmes for rural development in India. Science and technological interventions in the field of rural development have been discussed briefly and efforts being made to document some of the appropriate technologies developed by several research institutes, organizations suitable for application in rural areas are listed. Besides, the actual realization achieved during the Xth plan and the proposed target and strategy of the XIth plan have been highlighted to showcase the recent trend of developmental activities under the Ministry of Rural Development.

Rural Development in India is one of the most important factors for the growth of the Indian economy. India is primarily an agriculture-based country. Agriculture contributes nearly one-fifth of the gross domestic product in India. In order to increase the growth of agriculture, the Government has planned several programmes pertaining to Rural Development in India. The Ministry of Rural Development in India is the apex body for formulating policies, regulations and acts pertaining to the development of the rural sector. Agriculture,

handicrafts, fisheries, poultry, and diary are the primary contributors to the rural business and economy. Rural development in India has witnessed several changes over the years in its emphasis, approaches, strategies and programmes. It has assumed a new dimension and perspectives as a consequence. Rural development can be richer and more meaningful only through the participation of clientele of development. Just as implementation is the touchstone for planning, people's participation is the centre-piece in rural development. People's participation is one of the foremost pre-requisites of development process both from procedural and philosophical perspectives. For the development planners and administrators it is important to solicit the participation of different groups of rural people, to make the plans participatory.

AIMS AND OBJECTIVES

Rural development aims at improving rural people's livelihoods in an equitable and sustainable manner, both socially and environmentally, through better access to assets (natural, physical, human, technological and social capital), and services, and control over productive capital (in its financial or economic and political forms) that enable them to improve their livelihoods on a sustainable and equitable basis.

The basic objectives of Rural Development Programmes have been alleviation of poverty and unemployment through creation of basic social and economic infrastructure, provision of training to rural unemployed youth and providing employment to marginal Farmers/Labourers to discourage seasonal and permanent migration to urban areas.

ROLE AND FUNCTION OF THE GOVERNMENT

The Government's policy and programmes have laid emphasis on poverty alleviation, generation of employment and income opportunities and provision of infrastructure and basic facilities to meet the needs of rural poor. The Ministry of Rural Development in India is the apex body for formulating policies, regulations and acts pertaining to the development of the rural sector. Agriculture, handicrafts, fisheries, poultry, and diary are the primary contributors to the rural business and economy. The introduction of Bharat Nirman, a project by the Government of India in collaboration with the State Governments and the Panchayati Raj Institutions is a major step towards the improvement of the rural sector.

The National Rural Employment Guarantee Act 2005 was introduced by the Ministry of Rural Development, for improving the living conditions and its sustenance in the rural sector of India. The Ministry of Rural Development in India is engaged in legislations for the social and economic improvement of the rural populace. The ministry consists of three departments viz., Department of Rural Development, Department of Land Resources and Department of Drinking Water Supply. Under the department of rural development, there are three autonomous bodies viz., Council for Advancement of People's Action and Rural

Technology (CAPART), National Institute of Rural Development (NIRD) and National Rural Road Development Agency (NRRDA). The objective of the ministry can broadly be elaborated as to encourage, promote and assist voluntary action in the implementation of projects for the enhancement of rural prosperity, strengthen and promote voluntary efforts in rural development with focus on injecting new technological inputs, act as the national nodal point for co-ordination of all efforts at generation and dissemination of technologies relevant to rural development in its wide sense and assist and promote programmes aimed at conservation of the environment and natural resources.

However, various ministries in the central government are engaged directly or indirectly for implementation of many programmes and schemes for the development of rural areas like Ministries of Agriculture, Health and Family Welfare, New and Renewable Energy, Science and Technology, Women and Child Development and Tribal affairs, *etc.* In addition, to strengthen the grass root level democracy, the Government is constantly endeavouring to empower Panchayat Raj Institutions in terms of functions, powers and finance. Grama Sabha, NGOs, Self-Help Groups and PRIs have been accorded adequate roles to make participatory democracy meaningful and effective.

RURAL DEVELOPMENT PARTNERS

AGA KHAN RURAL SUPPORT PROGRAMME (INDIA)

The Aga Khan Rural Support Programme (India), the rural development partner of the Aga Khan Foundation (AKF), is an internationally recognised, community-based, non-denominational, non-government development organisation, based in Gujarat. Since the early 1980s, it has focused on enhancing rural livelihoods through sustainable management and use of natural resources in degraded and resource poor regions of western and central India, often characterised by limited economic opportunities as well.

AKRSP (I) goes beyond merely addressing problems of food self-sufficiency and looks at the wider issue of poverty alleviation and improvements in the quality of life. Its programmes aim for broader, long-term economic and social development. The underlying philosophy is that rural economic development is best catalysed and sustained through village-level institutions that are autonomous and transparent, contributing to democratic norms of behaviour and to the growth of civil society. The “rural support programme” works in close partnership with local communities and the government to implement strategies that lead to:

- Income growth - by increasing agricultural productivity through improved farming methods, input supply, marketing, land development and management or by increasing on-farm and off-farm incomes and supporting micro-enterprise development;
- Asset building - through community management of natural resources; water storage, irrigation infrastructure, soil conservation and forestry;

- Mobilising local capital - by promoting savings and developing financial services to enable access to credit on a sustainable basis;
- Technical innovations - that on one hand help halt environmental degradation and on the other, help reduce the drudgery of poor people, particularly women, who can then utilise time saved more productively;
- Human skills development - through training programmes that support the effectiveness and sustainability of village-level and community-led institutions by providing the management and technical skills needed to plan, implement and maintain local development activities;
- Social Development - especially women's empowerment, equity and social justice and pluralism.

The ultimate goal is for communities to have the confidence and competence to make informed choices from a range of appropriate options for sustainable and equitable development. Particular success has been achieved in improving the management of micro watersheds and creating a variety of water harvesting structures in different agro-climatic regions.

ASSOCIATION FOR RURAL ADVANCEMENT THROUGH VOLUNTARY ACTION AND LOCAL INVOLVEMENT

ARAVALI was initiated as a result of the joint effort of the Government of Rajasthan and a few leading voluntary agencies in 1994 to promote innovations in development and act as a interface between the government and the voluntary organizations. Aravali began formal operations in 1997. ARAVALI's mandate is to ensure that benefits of development reach resource or means poor communities in Rajasthan and to enable this to happen in a structured manner, it is necessary that the government and non-profit organisations working in the area of rural livelihoods, pool their strengths and become partners. Within this context ARAVALI intends to ensure that there are an increased number of effective voluntary organisations working closely with the rural poor in every district of Rajasthan and that an enabling environment is developed within which the government and these organisations can form effective partnerships. ARAVALI's work area includes almost all of Rajasthan. It is currently working intensively with around 20 organisations all over the state and has constant contact with another 70 organisations through its information exchange programmes.

ARAVALI broadly sees the following roles for itself:

- Promotion of development innovations and their upscaling
- Promotion of development innovations and their upscaling
- Networking and liaison between and among GOs, NGOs, Research bodies and private sector
- Capacity Building
- Promotion of Collaborative Initiatives
- Policy and Strategic Research.

DEVELOPMENT SUPPORT CENTRE

Development Support Centre (DSC) is a resource organisation that provides knowledge based support to non-government organizations (NGOs), government agencies and other stockholders in the area of natural resource management.

Established in 1994 in the state of Gujarat, DSC provides a variety of services that aim to improve rural livelihoods through participatory management of natural resources such as land and water on which rural population directly depend upon.

DSC's present focus is on four thematic areas:

- Watershed Development
- Participatory Irrigation Management
- Agricultural Productivity Enhancement
- Joint Forest Management.

In the above thematic areas DSC offers the following portfolio of services:

- Capacity Building/Training of NGOs, CBOs and Government functionaries.
- Field Support Services
- Policy Advocacy
- Communication Services
- Research and Monitoring Services
- Networking.

MAHILA ABHIVRUDDHI SOCIETY, ANDHRA PRADESH

Mahila Abhivruddhi Society, Andhra Pradesh, (APMAS) was set up to meet the increasing need voiced in various forums to bring a quality mode to the growing self help group movement in Andhra Pradesh. APMAS, a state level institution, supports the women's self help movement and promotes sustainable livelihoods. APMAS' core activities are:

- Quality Assessment;
- Quality Enhancement;
- Livelihood promotion;
- Research & Advocacy.

Registered as a public society, APMAS started functioning from July 2001 and represents a partnership between public-private institutions like the Government of Andhra Pradesh, banks, representatives of civil society organizations and SHGs.

LIVELIHOOD PROMOTION

To meet the demand from SHG members seeking various livelihood options, APMAS is positioning itself as a livelihood promotion organisation to strengthen existing and promote new and sustainable livelihoods. APMAS is building networks with like-minded organisations to provide technical support to the SHGs to help them make optimum use of existing resources. As one of the four rural development partners of Aga Khan Foundation, APMAS is implementing

the Sustainable Community based Approaches for Livelihoods Enhancement (SCALE) programme in Anadhra Pradesh. Through this partnership APMAS will over a three-year period carry out livelihood promotion activities on a large scale in the state. Also a need-based strategy of linking SMFIs to industries is part of the plan which will incorporate a sub-sectoral approach with focus on the entire local economy, including the markets, communities, local skills, resources, *etc.*

MORPHING RURAL COMMUNITY DEVELOPMENT MODELS

Rural community development has a long and diverse history in the United States and encompasses a wide range of objectives ranging from solving local problems, addressing inequalities of wealth and power, and promoting democratic values and practices to improving the potential of individual residents and building a sense of community. Given these diverse goals, community development has been defined as economic development, political empowerment, integrated service provision, comprehensive planning, as well as job training and housing programmes. These diverse objectives and definitions have often left rural places questioning what is in their best interest when it comes to local and regional development.

Traditional rural economies were successful when they effectively captured the income generated from local farms, ranches, mills, fishing, and industries and provided products and services that met the needs of local residents. As rural economies began to undergo economic, social and demographic changes—such as industrial relocation, migration from urban areas, increased competition for development monies, and an increase in social pathologies such as rural crime—communities struggled to respond.

Rural community and economic development strategies that were established to address these changes typically focused on enhancing the profitability of agriculture and industrial recruitment. But these approaches have in many cases been unsuccessful, and found to be short-term solutions to long-term problems. Industrial recruitment, for instance, has played out in many places as a game of winners and losers, sometimes simultaneously, as rural communities used local and state resources to entice manufacturers to relocate to their communities.

Today, new models of rural economic development are emerging to deal with the changing landscape of rural economies. These models are linking past, current, and future strategies together as they attempt to provide rural communities an opportunity to create a new and invigorating future.

NEEDS-BASED VS. ASSET-BASED COMMUNITY DEVELOPMENT

One conceptual framework gaining ground in rural economic development is “asset-based” development. This framework, originally developed based on experiences in inner-city neighbourhoods, reorients development from a “needs-based” approach. Needs-based models seek to identify weaknesses in a local

community and then implement strategies to overcome those weaknesses. John Kretzmann and John McKnight, co-directors of the Asset-Based Community Development Institute at Northwestern University, suggest that this method of mobilizing citizens focuses on negative characteristics of a community and demoralizes local residents, thus limiting proactive action at the local level. They go on to suggest that focusing on local assets, instead of needs and deficits, allows residents to identify possibilities for change that they can control, and energizes residents to take action.

While the needs-based approach focuses on garnering external resources to solve problems, the alternative asset-based approach looks for residents' personal skills and dreams and links them to action through a public articulation of these local assets. The view of the individual is that of a producer or owner rather than that of a consumer or client. While the differences between owner and producer, and consumer and client may seem small, they provide a dramatic shift in where responsibility for the future lies. Financial resources are also viewed differently within the assets-based model; grants and loans, for instance, are seen as gap-filling instruments, rather than as guiding forces for the direction taken by the community.

The concept of asset-based community development is rather straightforward, even if its implementation can be difficult. In this approach, a community first organizes itself to identify local assets and, once these are identified, the community residents become mobilized and reorganize their local assets to create a positive future. Local assets may include individual, associational (voluntary organizations), institutional, economic (including hidden economic assets such as the transfer of wealth upon death), cultural and historic, and natural resource assets. Representatives of the community then map the assets for visual presentation to the community. Generally a large town hall meeting is organized and local residents collectively examine their community's assets and identify activities that are aimed at improving their lives. Examples of activities can include new businesses, recreational facilities, health care cooperatives, or other forms of community development.

Pursuit of these new activities often requires enhancements of community networks. When new relationships are built or emphasized in a rural community or region, they can develop new norms for interacting and increase trust among residents. These changes at the local level create an environment for mobilizing local citizens around their current assets, rather than dreamed-of assets that don't exist or that aren't under the control of local residents.

This model of self development has been used across the United States and in countries as varied as Romania, Australia, and India. The important point in the asset-based model is that mobilization of local citizens is a key component of local development efforts.

FOSTERING ENTREPRENEURSHIP IN RURAL AREAS

Drawing upon the concept of asset-based development, new models are emerging wherein many rural economic developers have begun drawing upon

local assets in fostering entrepreneurship within their community. These contemporary models of rural economic development have several methods in common. First, they view industrial recruitment as a secondary activity for successful rural economic development.

Second, they view local entrepreneurs as the foundation for developing a viable economy in the future. Third, they focus on local assets of the community and region. Finally, they pay particular attention to enhancing local and regional relationships and networks as they create their own future. Several of these models will be discussed below.

ECONOMIC GARDENING

The first model, known as “Economic Gardening”, evolved from a changing economy in rural Colorado. In 1987 a recession was occurring and the largest employer in Littleton, Colorado, laid off thousands of employees. According to local residents, there were nearly a million square feet of vacant retail space and downtown vacancies were approaching 30 percent. The town of Littleton began using local resources to grow their own jobs through entrepreneurial activity—Economic Gardening—instead of recruiting them from outside the community, or Economic Hunting.

The idea evolved from work by Dr. David Birch at MIT who argued that a majority of all new jobs in any local economy were produced by small local businesses.

The core elements of Economic Gardening are:

- (1) Providing information, infrastructure and connections for local growth companies;
- (2) Providing connections between industry and academia; and
- (3) Focusing on quality of life and amenities.

STRATEGIES AND PROGRAMMES FOR RURAL DEVELOPMENT

The rural economy is an integral part of the overall Indian economy. As majority of the poor reside in the rural areas, the prime goal of rural development is to improve the quality of life of the rural people by alleviating poverty through the instrument of self-employment and wage employment programmes, by providing community infrastructure facilities such as drinking water, electricity, road connectivity, health facilities, rural housing and education and promoting decentralization of powers to strengthen the Panchayati raj institutions, *etc.* The various strategies and programmes of the Government for rural development are discussed below:

Integrated Rural Development Programme (IRDP): First introduced in 1978-79, IRDP has provided assistance to rural poor in the form of subsidy and bank credit for productive employment opportunities through successive plan periods. Subsequently, Training of Rural Youth for Self Employment (TRYSEM),

Development of Women and Children in Rural Areas (DWCRA), Supply of Improved Tool Kits to Rural Artisans (SITRA) and Ganga Kalyan Yojana (GKY) were introduced as sub-programmes of IRDP to take care of the specific needs of the rural population.

Wage Employment Programmes: Anti-poverty strategies, like assistance to the rural poor families to bring them above the poverty line by ensuring appreciable sustained level of income through the process of social mobilization, training and capacity building. Wage Employment Programmes have sought to achieve multiple objectives. They not only provide employment opportunities during lean agricultural seasons but also in times of floods, droughts and other natural calamities.

They create rural infrastructure which supports further economic activity. It encompasses Swarnjayanti Gram Swarozgar Yojana (SGSY), Sampoorna Grameen Rozgar Yojana (SGRY) and National Rural Employment Guarantee Act (NREGA), etc. NREGA is an act of parliament. It is not merely a scheme or policy. It aims at enhancing the livelihood security of the people in rural areas by guaranteeing hundred days of wage employment in a financial year, to a rural household whose members volunteer to do unskilled manual work. The objective of the Act is to create durable assets and strengthen the livelihood resource base of the rural poor.

Employment Assurance Scheme (EAS): EAS was launched in October 1993 covering 1,778 drought-prone, desert, tribal and hill area blocks. It was later extended to all the blocks in 1997-98. The EAS was designed to provide employment in the form of manual work in the lean agricultural season. The works taken up under the programme were expected to lead to the creation of durable economic and social infrastructure and address the felt-needs of the people.

Food for Work Programme: The Food for Work programme was started in 2000-01 as a component of the EAS in eight notified drought-affected states of Chattisgarh, Gujarat, Himachal Pradesh, Madhya Pradesh, Orissa, Rajasthan, Maharashtra and Uttaranchal. The programme aims at food provision through wage employment. Food grains are supplied to states free of cost. However, lifting of food grains for the scheme from Food Corporation of India (FCI) godowns has been slow.

Rural Housing: Initiated in 1985-86, the IAY is the core programme for providing free housing to families in rural areas. It targets scheduled castes (SCs) scheduled tribes (STs), households and freed bonded labourers. The rural housing programme has certainly enabled many BPL families to acquire pucca houses. The coverage of the beneficiaries is limited given the resource constraints. The Samagra Awas Yojana (SAY) was taken up in 25 blocks to ensure convergence of housing, provision of safe drinking water, sanitation and common drainage facilities. The Housing and Urban Development Corporation (HUDCO) has extended its activities to the rural areas, providing loans at a concessional rate of interest to economically weaker sections and low-income group households for construction of houses.

Social Security Programmes: Democratic decentralization and centrally supported Social Assistance Programmes were two major initiatives of the government in the 1990s. The National Social Assistance Programme (NSAP), launched in August 1995 marks a significant step towards fulfillment of the Directive Principles of State Policy. The NSAP has three components: a) National Old Age Pension Scheme (NOAPS); b) National Family Benefit Scheme (NFBS); c) National Maternity Benefit Scheme (NMBS). The NSAP is a centrally-sponsored programme that aims at ensuring a minimum national standard of social assistance over and above the assistance that states provide from their own resources.

The NOAPS provides a monthly pension of Rs. 75 to destitute BPL persons above the age of 65. The NFBS is a scheme for BPL families who are given Rs. 10,000 in the event of the death of the breadwinner. The NMBS provides Rs. 500 to support nutritional intake for pregnant women. In addition to NSAP, the Annapurna scheme was launched from 1st April 2000 to provide food security to senior citizens who were eligible for pension under NOAPS but could not receive it due to budget constraints.

Land Reforms: In an agro-based economy, the structure of land ownership is central to the wellbeing of the people. The government has strived to change the ownership pattern of cultivable land, the abolition of intermediaries, the abolition of zamindari, ceiling laws, security of tenure to tenants, consolidation of land holdings and banning of tenancy are a few measures undertaken. Furthermore, a land record management system is a pre-condition for an effective land reform programme. In 1987-88, a centrally-sponsored scheme for Strengthening of Revenue Administration and Updating of Land Records (SRA & ULR) was introduced in Orissa and Bihar.

SCIENCE AND TECHNOLOGY FOR RURAL DEVELOPMENT

Ministry of Science and Technology plays a pivotal role in promotion of science & technology in the country. The departments has wide ranging activities ranging from promoting high end basic research and development of cutting edge technologies on one hand to serving the technological requirements of the common man through development of appropriate skills and technologies on the other.

Appropriate rural technology focuses mainly on those technologies which are simple and within the reach of the ordinary people for their own benefit and the benefit of their community and harness the local or regional capacity to meet local needs without increasing dependence on external factors.

A large number of governments, public and private non-government organizations are involved in developing technologies for rural areas. However, these technologies have hardly touched the lives of the rural population. Apparently, the problem lies not only in the generation, diffusion and adoption of technologies but also in poor documentation. Recently, efforts have been made by several organizations like NRDC, CAPART, TRCS, NIRD, DST, DBT,

CSIR, ICAR, KVKs and other voluntary organizations, *etc.*, to bring out a compendium of technologies for rural areas for wide information dissemination and public awareness.

Government schemes focusing on Science and Technology are:

S&T Application for Rural Development (STARD): Aims at facilitating development of promising S&T based field groups and innovative technologies related to rural development.

S&T for Women: To promote research, development and adaptation of technology, improve the life, working conditions and opportunities for gainful employment of women especially in rural areas.

S&T Application for Weaker Sections (STAWS): Aimed at the development of economically weaker sections of the society in rural and urban areas.

Tribal sub-plan: Aims at improving living conditions of scheduled tribes based on sustainable science and technology activities

Special Component Plan (SCP): Aims at improving the lot of the poor sections of SC community through intervention of Science & Technology.

Rural Development (Significant Achievements by CSIR);

- Swaraj- India first indigenous tractor to facilitate mechanized agriculture.
- Value addition through post-harvest technologies like essential oil/ menthol production.
- Cheapest water purification technology including terracotta purification disc, portable arsenic detection kit, ultrapore membrane-based purifiers for removing virus & bacteria.
- Over 365 technologies passed on to the rural masses through publications, training sessions, *etc.*
- Construction of around 30,000 dwelling units using cost-effective construction technologies.
- Reverse Osmosis plant for desalination in Andaman & Nicobar Islands, Gujarat, Rajasthan and Tamil Nadu.

It needs to be mentioned here that in a collaborative project jointly initiated by the Andhra Pradesh Government and Council of Scientific and Industrial Research in Karim Nagar, Central Food and Technological Research Institute, Mysore played a key role in establishing small-scale agro-based industries in that district for better livelihoods of the rural communities and promote the setting up and modification of existing rice mills units at Mulkanoor for better yields.

Rural Development is the main pillar of Nation's Development. In spite of rapid urbanization, a large section of our population still lives in the villages. Secondly, rural India has lagged behind in development because of many historical factors. Though, the 11th Plan began in very favourable circumstances with the economy having grown at the rate of 7.7% per year in the Xth Plan period, there still exists a big challenge to correct the developmental imbalances and to accord due priority to development in rural areas.

Ministry of Rural Development is implementing a number of programmes aimed at sustainable holistic development in rural areas. The thrust of these

programmes is on all round economic and social transformation in rural areas, through a multi-pronged strategy, aiming to reach out to the most disadvantaged sections of the society.

RURAL DEVELOPMENT - REVIEW OF XTH FIVE YEAR PLAN

- The approved outlay for Xth Five Year Plan was Rs. 1, 41,320 lakh. An expenditure incurred during the plan period was Rs. 30,580.31 lakh in 2002-03, Rs.33, 234 lakhs in 2003-04, Rs.69, 610.07 lakhs in 2004-05 and Rs.70, 299.70 lakhs in 2005-06.
- Approved outlay for Annual Plan 2006-07 for various schemes/programmes was Rs. 92, 070.39 lakh against which an expenditure of Rs. 1, 01,168.63 lakhs is anticipated.
- Target of constructing 2.83 lakhs houses was fixed. Against this target, 3.10 lakh houses were constructed under Indira Awas Yojana. During Tenth Plan period 2.11 lakh families have been benefited under Swarna Jayanti Gram Swarozgar Yojana. Out of this, 1.23 lakh beneficiaries *i.e.*, about 58 % are from SC/ST category. Under Integrated Wasteland 89 Development programme, 82 projects were sanctioned for 3.93 lakh hectare of land. Out of this, 1.50 lakh hectares land was treated
- During plan period, 1466 Micro Water sheds were sanctioned and 4.28 lakh hectares land has been treated. In Sampoon Grameen Rojgar Yojana, the GOI has allocated 17.28 lakh MT of food grains out of which 15.04 lakh MT food grains have been utilized. 6.95 lakh works were sanctioned out of which 6.25 lakh were completed and 176.23 lakh mandays were generated.
- Under PMGSY 13,500 Kms roads were completed. In Rastriya Sam Vikas Yojana, 12,504 works were sanctioned. Out of this, 11,496 works were completed. Under DPIP, 41,978 common interest groups of 2.84 lakh families were benefited during the plan period. M.P. Rural Livelihood project is under implementation in 827 villages of 8 districts. Under this scheme 4,000 families were benefited during the Xth Plan period.
- The state has been a frontrunner in implementation of NREGS. Nearly 1500 lakh mandays have been generated under Madhya Pradesh Grameen Rojgar Guarantee Yojana.

TARGET AND STRATEGY OF THE XITH FIVE YEAR PLAN (2007-2012)

- Adequate provision has been made for the state share in continuing Centrally Sponsored Schemes like Swarna Jayanti Gram Swarozgar Yojana (SAGSY), Indira Awas Yojana (IAY), Integrated Waste Land Development Programme (IWDP), Drought Prone Area Programme (DPAP), Mid Day Meal Scheme, DRDA Administration and National Rural Employment Guarantee Scheme (NREGS).

- Besides these, World Bank aided DPAP project is being implemented in 14 districts for the last 6 years. Support for this will continue under the second phase of the scheme in the eleventh plan. Similarly, M.P. Rural Livelihood Programme (MPRLP) is being implemented with the help of Department of International Development (DFID). Water and Land Management Institute (WALMI), DRDA Administration Yojana, Gokul Gram and Godan Yojana and community development programme are proposed to be continued into the XIth Plan.
- Besides these, the State Government is supporting 5 new schemes namely, State Rural Road Connectivity Scheme, C.M. Rural Housing 90 Scheme, Master Plan Scheme, SGSY scheme, Training IEC scheme and Sutradhar scheme.
- As a successor to Rashtriya Sum Vikas Yojana (RSVY), Backward Regional Grant Fund (BRGF) scheme will be implemented in 24 of the 48 districts.

NATIONAL RURAL EMPLOYMENT GUARANTEE SCHEME (NREGS)

- State of Madhya Pradesh has been the frontrunner in implementation of this scheme. NREGS was launched in 18 districts of M.P. from 02.02.06. The central share of the scheme is 90 %. The objective of the scheme is to provide a minimum of 100 days unskilled employment to adult members of rural families. 44.19 lakh families have registered, out of which 44.10 lakh families have been provided job cards.
- During the financial year, 1, 48,229 works have been sanctioned upto 31.12.06, out of which 74,185 works have been completed and 74,044 works are in progress. Of the total sanctioned works, 1, 11,327 works are of water conservation, while 22,593 are of rural connectivity. In this scheme, a provision of Rs. 282.29 crores and Rs. 1998.82 crores has been provided for the annual plan 2007-08 and 2007-2012.
- The target man-days for the year 2007-08 is 2,600 lakhs and for the XIth five year plan, it is 17,300 lakh man-days.

M.P. RURAL LIVELIHOOD PROGRAMME (MPRLP)

- An amount of Rs. 23.15 crores was available in the scheme for the year 2006-07 as per previous balance and other receipts in which state share is Rs. 0.49 crores out of which upto November 2006 Rs. 22.42 crores spent which is 96.05% of total available fund. For the year 2006-07 the target for livelihood programme is 25,000 families against which upto November 2006, the achievement is 16,700 families and the percentage is 66.80.
- For the year 2007-08, Rs.31.40 crores ceiling is proposed in which Rs. 0.80 crores is state share. Hence, accordingly for the XIth five year plan ceiling is proposed for Rs. 224.80 crores.

- For the year 2007-08, the target is 80,000 families, hence, accordingly for the XIth five year plan the number of beneficiaries is 3.20 lakh families.

DISTRICT POVERTY INITIATIVES PROGRAMME (DPIP)

The DPIP programme, which focuses its activities in over 53 Blocks in 14 districts of MP, will alleviate poverty by improving the capacity and opportunities for poor and disadvantaged people with special focus on women. The project period is 5 years. The overall project cost is Rs. 600 crores out of which World Bank loan would be Rs. 500 crores and the remaining amount will come from the Government of Madhya Pradesh and from rural communities as their contributions during project implementation.

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)

Pradhan Mantri Gram Sadak Yojna is being implemented in the state with effect from 25.12.2000. For the proper monitoring and implementation of the scheme, M.P. Rural Road Development Authority was formed. The objective of the scheme is that by the end of Xth five year plan, all villages having more than 500 habitants should be linked with major roads having 12 months connectivity. A distance of 26,544 km long road construction works were sanctioned upto September 2006 out of which 11,153 km roads constructions completed.

A number of 2,115 villages having more than 1,000 habitants and 576 villages having 500 habitants are linked with 12 month connectivity roads. Now this scheme is included in Bharat Nirman Scheme from 2006-07 onwards. Under this scheme, new and upgradation of 48000 km roads is proposed. By the end of 2009, all villages having 1000 habitants will be connected with newly constructed roads.

Rs.100 crores allocated for the year 2007-08 and for the XIth Five year plan, an amount of Rs. 500 crores is proposed. The state government target for the year 2007-08 is 4,000 kms and for the XIth five year plan 20,000 km accordingly.

BACKWARD REGIONAL GRANT FUND

- The scheme is sanctioned by the Ministry of Panchayatraj in 2006-07. The duration of the scheme is five years. For each district, every year about Rs. 15 crores will be sanctioned and this programme will cover 24 backward districts of the state. Total fund for this scheme is provided by the Panchayatraj Ministry, Government of India.
- For the year 2007-08, the plan outlay is Rs. 423.39 crores and for XIth five year plan outlay is Rs. 2,256.95 crores is proposed.

NEW SCHEMES PROPOSED UNDER THE XITH PLAN

Some new schemes viz., State Rural Road connectivity, State Rural Housing, State SGSY, Training, Master Plan and Sutradhar are proposed for XIth Five

Year Plan period. The provision made under new schemes for 2007-12 is Rs. 18,110.60 lakhs and for 2007-08 is Rs. 6,720.00 lakhs. Scheme-wise activities have been described briefly as follows-

- *State Rural connectivity:* Under PMGSY, the construction of all weather roads is not permitted if the villages are less than 500 meter away from the main route/road. Such left out roads and bridges will be covered and connected under the scheme with state support. During annual plan 2007-08, a provision of Rs. 25 crores has been made to construct such missing links.
- *Mukhya Mantri Awas Yojna:* In spite of the scheme being under Bharat Nirman, as against nearly 38 lakh houseless families in the state, annual allocation under Indira Awas Yojna is only about 46,000. At this rate, it will take about nine decades to fulfill the existing need. The State Government has decided to flag off the Chief Minister Rural Housing Scheme. The main objective of the scheme is to provide housing to the houseless SC/ST families. During annual plan 2007-08, a provision of Rs. 32 crores has been provided for constructing 12,800 houses.
- *State SGSY:* To strengthen the SHG movement, it has been decided to constitute SHG Federations on the basis of activity and the geographical location. Rs. 5 crores and Rs. 18 crores have been proposed for Annual Plan 2007-08 and XIth five year plan 2007-12 respectively.
- *Training IEC Scheme:* A New scheme will be initiated from 2007-08 for the training on project implementation and its monitoring. For this scheme, during 2007-08, Rs. 0.1 crore is proposed.
- *Working Plan for Water Storage:* It is a plan on the basis of a survey of the catchment areas and flow of water direction. On the basis of watershed specificities, identification and cost estimation of the probable water harvesting structures is done. On the basis of this study, the master plans have been prepared for all the districts of the State. On the basis of the master plan, works of nature of pond deepening and renovation, check dam construction and other watershed activity will be taken up in a planned and systematic manner in 14 districts not covered by NREGS and BRGF. For the implementation of works, according to the Master Plan, an outlay of Rs.5 crores is proposed for the 2007-08.
- *Sutradhar Yojana:* The establishment of the kiosks has been planned to facilitate access in rural areas to electronic communication and information and government schemes and programmes. These kiosks will facilitate provisioning of up to date information about Centre/State Government organizations and schemes. For this scheme, Rs. 0.1 crore is proposed for the annual plan 2007-08. An outlay of Rs. 7, 17,783.60 lakh for the XIth Five Year Plan is proposed. Out of this, Rs. 18,110.60 lakh is proposed under new state schemes. An outlay of Rs. 1, 29,196.60 lakh is proposed for Annual Plan 2007-08, of which Rs. 6,720.00 lakh has been allocated for new schemes.

SUGGESTIONS

Although concerted efforts have been initiated by the Government of India through several plans and measures to alleviate poverty in rural India, there still remains much more to be done to bring prosperity in the lives of the people in rural areas. At present, technology dissemination is uneven and slow in the rural areas. Good efforts of organizations developing technologies, devices and products for rural areas could not yield high success. Experiences of many countries suggest that technological development fuelled by demand has a higher dissemination rate. However, in India, technology developers for rural areas have been catering to needs (with small improvement), rather than creating demand.

There is no industry linkage machinery to create demand-based-technology market for rural communities. Besides, there is also an imbalance between strategies and effective management programmes. Propagation of technology/schemes for rural development is slow and there is a lacking in wider participation of different stockholders. An ideal approach may therefore, include the government, panchayats, village personals, researchers, industries, NGOs and private companies to not only help in reducing this imbalance, but also to have a multiplier effect on the overall economy.

India - Comparative Review of Rural Water Systems Experience: The Rajasthan Water Supply and Sewerage Project, and the Rural Water Supply and Environmental Sanitation Projects for Maharashtra and Karnataka

More than 70 percent of India's 990 million people live in half a million rural villages where water-borne diseases are a major health problem. To reduce this problem, over the past two decades India has implemented major investment programmes in rural water supply and sanitation (RWS). World Bank lending for RWS in India grew from a total of approximately US\$120 million in the 1980s to about US\$260 million in the 1990s. Three IDA-funded RWS projects have been completed and two are ongoing. Two of the completed projects, Rajasthan Water Supply and Sewerage (Cr. 1046-IN) and Maharashtra Rural Water Supply (Cr. 2234-IN), and one ongoing project, Karnataka Water Supply and Environmental Sanitation (Cr. 2483-IN), are the subjects of this Impact Evaluation Report (IER). The OED study was done in partnership with the Centre for Institutional Reform and the Informal Sector (IRIS) at the University of Maryland. IRIS staff carried out the data analysis, contributed sections to the report, and prepared a background paper on social capital.

The evaluation was conducted in two phases. During a pilot phase the study team reviewed available background data, developed and field tested the data sheets and questionnaires, elaborated household selection criteria, identified the appropriate sample size and composition, and conducted pilot focus group and community interviews. In the second phase, the study fielded teams of local researchers to administer questionnaires on the household and village levels (in two states, Karnataka and Maharashtra), collect secondary data, and

fill out technical data sheets on each district and village visited and the operations of its water system. Data were collected from 60 Indian communities (50 project villages and 10 control villages) through a survey of about 1,100 households. Villages were randomly selected from among those that had been in operation a minimum of six months. In Karnataka and Maharashtra the team also conducted a technical evaluation. In Rajasthan the study team only conducted two simultaneous participatory workshops for stockholders. In all three states the study team met with state and district officials and visited facilities constructed by the projects.

The evaluation shows that when pre-project social capital levels are high, communities generally have better performing schemes. The economic benefit of time saved in collecting water is estimated to produce a potential increase in household income of 30 percent. Finally, the impact on public health in those communities with the best-performing schemes is stronger than in communities with the worst-performing ones.

The evaluation also finds that Bank support for the rural water supply schemes in India is significantly improving the quality of life in project villages. The rural water infrastructure is in place and functioning, at a per capita cost that compares with cost indicators from other developing countries.

The achievements and impacts of the projects are considerable. Time required for water collection has been reduced by an average of 85 percent, system operation has improved about 50 percent, and system hours of operation have become much more regular, and the quality of water has improved. Over 80 percent of consumers in Karnataka and over 50 percent in Maharashtra rate the design of their new systems satisfactory. Sanitary conditions have improved substantially.

While the various schemes are helping to reduce the deficit in rural water supply and increasing water coverage, they have done little to foster local organizational capacity.

The results of this study show that involvement of users in the development, implementation, and O&M of water supply systems has not yet been sufficient to achieve a desirable level of sustainability.

Women, the primary water collectors in most rural households, have the most interest in ensuring that the water and sanitation service is designed to match their needs and performs well, and they need to be more involved than has been the case to date.

The study finds that project designers need to adjust the approach to service delivery according to existing levels of social capital. Special efforts may be necessary to motivate and mobilize community members if water systems are to operate sustainably in weaker communities.

Besides the general lessons generated by the study (inter alia on the importance of adequate social mobilization, project rules, and hygiene education; and the efficacy and effectiveness of the community-based approach), policy recommendations include the advisability of respecting beneficiary aspirations

for appropriate levels of service. Factors such as participation in multiple community activities by water committee members participation in system design, participation in system construction, improved beneficiary health, and satisfactory participation in the water group by women are all positively related to above-average system performance and should therefore receive special attention during water and sanitation project design.

RURAL DEVELOPMENT ACTIVITIES IN INDIA

The profile of livelihoods in India, especially in these states shows that agriculture and animal husbandry still remain the main sources of livelihood for rural communities, though there is a significant shift to non-farm sectors such as mining and quarrying, construction and manufacturing during periods of drought.

The ultimate goal is for communities to have the confidence to make informed choices from a range of appropriate options that leads to sustainable and equitable development.

SOCIO-ECONOMIC FACTORS AFFECTING RURAL LIVELIHOODS

The poor have meagre holdings or access to land, little or no capital and off-farm employment is seasonal. It is almost impossible for farmers to secure credit and loans needed to purchase agricultural inputs except at prohibitive rates from private moneylenders leading to risk-prone farming. Markets are under developed or difficult to access.

Extension services are few and far between, and development initiatives aimed specifically at their needs is sparse.

Few employment opportunities and low levels of education and skill result in low cash incomes. This in turn affects the ability to purchase basic needs (such as medicines, education for children, *etc.*). Women and children in particular are the hardest hit especially when access to safe and adequate sources of water are low, resulting in high vulnerability in terms of health. Women are also more affected by underemployment.

The relevance of this is all too clear when one realises that 29 percent of India's population still lives below the poverty line, earning less than US\$ 1 per day. A comparison with other countries in South Asia reveals that 33 percent of Pakistan's population is below the poverty line while it 34 percent for Bangladesh, 42 percent for Nepal and 25 percent for Sri Lanka.

Major components of AKDN's rural development programme include: institution building, social organisation, natural resource management (especially in the area of water management and water-use efficiency including in coastal areas), productive infrastructure development and human resource development (especially of women), enterprise promotion, increased agricultural productivity and credit and savings services.

PROMOTING SELF-RELIANCE

A central strategy of the rural livelihoods approach is to put people at the centre of development, thereby increasing the effectiveness of development assistance and therefore improving performance in poverty reduction. Involving the poor results in local empowerment, which in turn leads to opportunities for local leadership, including that of women, to emerge. These leaders play a critical role in bringing about and sustaining development and consequent social change such as pluralism, public participation and democratic principles. Village institutions form the basis of community organisation and function through 'Village Development Committees,' comprising of representatives of all communities in the village (including at least 30 percent women's representation). These Committees develop village development plans and work closely with the Panchayat (the lowest unit of the government that functions at the village level).

Other community organisations such as farmers' federations and women's self-help groups also facilitate the process of community driven development. These institutions work best if they have some independent means of sustaining themselves which is usually enabled by introducing them to micro-credit schemes. For example, a women's federation in Bharuch district in Gujarat state recently accessed a loan-based scheme for animal husbandry. Likewise, federations of farmers groups have considerably reduced agriculture input costs (seeds, fertilizers and pesticides) through bulk purchases based on demand from member institutions, simultaneously ensuring the quality of inputs supplied. These organisations have also contributed to improved cropping techniques, rational use of fertilizers and the adoption of appropriate low-cost technologies.

Communities eventually go on to form "apex institutions" (federations of various community institutions) at the block (a unit of a district) and "taluka" (a unit of a block) level. These institutions also act as forums where regional issues are discussed and solutions formulated.

These institutions also dialogue with the government and other agencies (including banks) to get access to and benefit from various schemes. The federations also serve as agriculture extension agents, and transfer information from agriculture institutes related to cropping practices, thereby ensuring that information reaches farmers in remote areas. Collective marketing of agricultural produce, and enabling member institutions to sell their produce at the best price possible is another important activity.

Farmers' federations and the women's federations have also led social campaigns in the regions such as reducing unnecessary expenditure on social customs, promoting the education of girls, anti-liquor campaigns, and the promotion of organic farming. Mass awareness campaigns by women's groups in Surendranagar in Gujarat for example, have led to a reduction in wasteful and extravagant expenditure on weddings and on social customs such as 'funeral feasts.'

SKILLS DEVELOPMENT

In addition to institution building, programme activities also include human resource development including skills development to build up the skills base of villagers, especially women. For example, in the Netrang programme area of Bharuch district, women have been trained to repair and maintain hand-pumps. In another area women have been trained as masons. Communities receive organisation and financial management training to support the effectiveness and sustainability of village-level institutions, and key resource people are provided with technical skills to plan, implement and maintain the development activities. The ultimate goal is for people in the participating communities to have the access, confidence and competence to make informed choices from a range of appropriate development options. In 2001 alone, over 300 training programmes benefited almost 6000 villagers, 64 % of which were women. These were essentially to increase awareness about savings and credit programmes, provide exposure to 'model' villages and orient rural communities to the principles of natural resources management. In addition, over 50 NGOs and 400 government staff have also been trained in various participatory processes.

CREATING RURAL ASSETS

Institutional structures are created at the village level through which the rural poor can prioritise their needs and decide how best to manage common resources. Communities build personal and community capital through efficient management of their natural resource base such as water storage and enhanced water use efficiency, irrigation systems, soil conservation or forestry. These efforts include the construction of small scale infrastructure, such as check-dams, irrigation canals and water harvesting structures or agricultural storage facilities.

Over 400 structures have been created for harvesting and storage of rainwater that is directly lifted for irrigation, or recharging the ground water aquifers for more rational extraction through wells. These have led to an additional 4000 hectares of irrigated croplands in the programme areas, which is being further expanded through the adoption of water saving devices such as drip irrigation and sprinklers.

Income growth is promoted by increasing agricultural productivity through improved farming methods such as using drip-irrigation, provision of better seeds, creation and improvement of markets, land development, micro-credit, increasing off-farm incomes and supporting enterprise development. Local capital is mobilised by promoting savings and developing financial services to enable broad access to credit. Programmes are designed to have a combined effect so as to create a critical mass of economic activities that raise living standards.

In Surendranagar area in Gujarat for example, it was found that a severely degraded natural environment would not allow rural communities to rear cattle and therefore the only viable option was to rear goats. The rural development

programme stepped in to help create a viable market for goat milk in the area and helped the community to get the government to set up a cheese making plant. In another water scare area, a women's federation lobbied with the government to buy them a water tanker which they now use to sell safe drinking water to local communities practically at their doorsteps and at fixed and mutually agree to prices. This has considerably reduced water scarcity in the area by providing households assured water supply and also saves women the time they earlier spent on collecting water.

BENEFITS AND IMPACT ON QUALITY OF LIFE

Assets thus created often result in more than just increased income generation. Development activities have ensured more water for drinking and irrigation, higher agricultural productivity and rural incomes (including household savings), greater resilience to droughts and the ability to manage the natural resource base better.

With over 10,000 households now accessing assured sources of safe drinking water, women have benefited significantly. Since they no longer have to walk long distances to collect water, the time saved can now be spent with family or education of their children. Alternatively they have more time for income generation activities. Health improvements due to improved diets and access to safe drinking water also lead to a reduction in the costs of medicines and trips to the doctor. Similarly, the number of days of illness has been reduced by 50 percent (down to 15 days per year, as compared to about 30 days per year earlier).

Simultaneously, literacy levels have risen by 10 percent (8 percent in the case of women). Growing gender sensitivity and changing gender equations is also evident from a phenomenal 350 percent increase in the expenditure incurred on medicines for women. School attendance levels show an improvement, especially in the case of girls who now no longer have to accompany their mothers at dawn to collect water. Impact studies conducted in some areas reveal an average increase of beneficiary incomes by about 60 percent, going up to 80 percent in some cases. More savings and increased access to credit reduces the dependence of the poor on local moneylenders. Even the landless benefit from increased demand for farm labour when improved agricultural practices results in two or three crops instead of just one every year, leading to, among other things, a reduction in migration. In 147 villages in four states, savings amongst beneficiaries was estimated to be approximately US\$ 0.6 million (28 million rupees approximately). As rural employment has improved, stress-migration levels have shown a marked reduction (down to 35 percent from 80 percent earlier). Even the duration of migration has reduced to 90 days per year (down from 150 days a year earlier).

SUSTAINABILITY AND PARTNERSHIPS

Long-term commitment is the key to creating sustainable impact. Consequently rural development programmes in India have now run 20 years

and helped create replicable models that can be quickly adapted to a variety of contexts; as well as long-term relationships with donor agencies and peer organisations for the mobilisation of funds, human resources and expertise.

In terms of organisational elements, programmes are usually area-based programmes that serve a defined population, are implemented over a long time frame and at a significant scale and are characterised by comparatively thorough coverage of all of the population within their target area.

Ensuring sustainable impact requires consistent efforts over considerable time periods. In the case of rural development programmes, this has meant at least ten years of concerted efforts at the grassroots level before results and subsequent impact on the quality of life of the poor is visible for all to see.

ECONOMIC DEVELOPMENT IN RURAL SECTOR

"Economic Development in Rural Sector" provides a comprehensive analysis of the economic dynamics and challenges facing rural areas, offering valuable insights for policymakers, researchers, and practitioners involved in rural development initiatives. This essential text explores the multifaceted aspects of rural economies, examining the factors influencing economic growth, poverty alleviation, and sustainable development in rural communities. The book begins by examining the unique characteristics of rural economies, including agricultural production, natural resource management, and access to basic services such as healthcare and education. It then delves into the various drivers of economic development in rural areas, including infrastructure development, technological innovation, and entrepreneurship. Through case studies and empirical research, "Economic Development in Rural Sector" highlights successful strategies and best practices for promoting economic growth and improving livelihoods in rural communities. It explores the role of government policies, community organizations, and private sector initiatives in fostering inclusive and sustainable development. With its interdisciplinary approach, the book addresses key issues such as rural-urban linkages, environmental sustainability, and social equity, providing readers with a comprehensive understanding of the complexities of rural development. It also discusses emerging trends and challenges facing rural economies in the context of globalization, climate change, and demographic shifts. Whether used as a textbook in rural development courses or as a reference guide for practitioners, "Economic Development in Rural Sector" offers valuable insights into the economic dynamics of rural areas and provides practical recommendations for promoting prosperity and well-being in rural communities.



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