

# Journal of Social and Economic Development

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**INSTITUTE FOR SOCIAL AND ECONOMIC CHANGE  
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## **JOURNAL OF SOCIAL AND ECONOMIC DEVELOPMENT**

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# **Application of New Institutional Economics to the Problems of Development: A Survey**

**Nisar A Khan, Saghir Ahmad Ansari\***

## **Abstract**

With neoclassical economics increasingly being questioned on its ability to provide answers to the many economic problems and issues in low- as well as high-income countries, the New Institutional Economics (NIE) provides an exciting and challenging new paradigm. Institutions do structure economic forces and play an important role in expanding human choice — a fundamental goal of economic development. This paper presents a survey of the application of the NIE to the problems of development. The majority of the quantitative and qualitative studies pertaining to the role of institutions in the development process found a strong positive correlation between the quality and performance of institutions on the one hand and development outcomes on the other. The survey shows that the three major themes of NIE, i.e., the transaction costs, property rights and collective action, can effectively address issues that have remained more or less puzzles when analysed using conventional approaches.

## **Introduction**

New Institutional Economics (NIE) is an emerging area of economics. It has gained wide popularity in recent years. Its importance can be judged from the fact that two leading institutional economists, Ronald Coase and Douglass North, were awarded the Nobel Prize in the years 1991 and 1993 respectively. Further, George A Akerlof, A Michael Spence and Joseph E Stiglitz were awarded the Nobel Prize in the year 2001 for their analysis of markets with asymmetric information, which is considered an important component of the New Institutional Economics literature. The New Institutional Economics is an interdisciplinary enterprise combining economics, law, organisational theory, political science, sociology and commercial life. It borrows liberally from various social science disciplines, but its primary language is economics.

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Institutions have completely been ignored in neo-classical mainstream economics. They are assumed away in the 'ceteris paribus' clause. As a result, neo-classical economics cannot answer questions like:

- (a) How do alternative sets of rules and economic organisations affect behavioural allocation of resources, and equilibrium outcome?
- (b) Why does the form of economic organisation differ from one type of economic activity to another, even within the same legal framework? In general, what is the economic logic of various contractual agreements, such as the firm, that is used for organising production and exchange?
- (c) What is the economic logic behind the fundamental social and political rules that govern production and exchange, and how do these rules change?

These limitations of neo-classical economics are now widely recognised. A growing number of scholars are engaged in research to respond to these limitations in a number of different ways. We see this evolution in several apparently different but fundamentally interrelated 'new' fields of economics: law and economics, political economy, behavioural economics, organisational economics, evolutionary economics, the economics of contracts, and new institutional economics. In some ways these fields are not "new" at all since their origin can be traced back to pioneering research, sometimes largely ignored at the time that was produced decades ago. However, in other important ways, these fields are indeed new. First, they do not reject the basic progress that has been made in the neo-classical tradition over the last fifty years but recognise both its strengths and its limitations. Second, they do not reject the basic analytical tools that have been developed over the last fifty years—mathematical modeling and econometric analysis—but use these tools to address a broader set of issues. Third, they supplement these methods of modern economic analysis with additional analytical and empirical methods and analysis, which include, for example, case studies and experimental methods, that are appropriate for addressing the relevant issues more completely. Fourth, they draw on scholarship from a broad range of social and behavioral sciences: history, law, political science, anthropology, psychology, sociology and other disciplines to address issues that neoclassical economics addresses poorly or not at all. Fifth, they recognise that economic theory and empirical regularities are often not 'generic' and are more or less relevant in different ways depending on economic, social, political, and legal attributes of different countries. One size does not fit all and, in particular, differences between developed and developing countries can lead "reasoning by analogy" to result in serious errors. Finally, rather than taking a position outside of economics and looking in at it, often critically, these efforts seek to be fully integrated into advances in economic theory, empirical methods and applications.

Now, increasing numbers of economists agree that institutions matter and matter a great deal in specific circumstances. Today even the World Bank and IMF, which used to dismiss institutions as mere 'details' that do not affect the wisdom of the orthodox economic theory, have come around to emphasising the role of institutions in economic development. For example, the IMF put great emphasis on reforming corporate governance institutions and bankruptcy laws during the 1997 Asian crisis, while a recent World Bank annual report (*Building Institutions for Markets*, 2002) focused on institutional development.

The literature on NIE is expanding rapidly. Besides economists, non-economists are also interested in the subject because economists have finally come out with a school of thought that will provide a forum for an interdisciplinary discourse on the problems of development.

However, the NIE is still at its formative stage and is far from well developed. NIE scholars are trying to define and redefine the scope of NIE studies to match the wide varieties of institutions and organisations in real life. As the exercise matures, more and more research gaps are identified. Periodic surveys of such an emerging branch of economics are important to capture the recent development in the subject. The present paper makes a modest attempt towards it by undertaking a survey of the literature and a review of the current state of NIE with a focus on its relevance to development problems. The survey will be useful for students and researchers by helping them to acquaint themselves with the essential features of NIE and its relevance to development problems.

The literature on NIE is quite large and it is beyond the scope of this paper to consider all aspects of NIE. The paper basically focuses on the term "Institutions", Old and NIE, ingredients of NIE and provides a survey of the literature on the application of the NIE to the problems of development.

### **Institutions: Conceptual Problems**

Institutions set the boundaries of acceptable human behaviour. They delimit the conventional do's and don'ts of human activities in a given situation and environment. They determine such small issues as whether it is permissible to drink tea in the same clean glass which your neighbour had used earlier or whether you should cover your head when seen in public; or such big issues as the way the country elects its rulers — by a presidential system or by a parliamentary system.

There is no consensus among economists about the definition of institution. Blaze (1973) noted, "while a single, all-purpose, definition of institution would be convenient, it does not exist and the literature, is not mature enough for its formulation at this time". Nabli and Nugent (1989) observed "the consensus on the centrality of institutions to development has not been matched by its definition. Various authors have used different definitions, each emphasising quiet different aspects or characteristics of the more general phenomenon."

The definition of an institution given by D North (1990) has wide acceptability. According to him, institutions are a set of formal (laws, contracts, political systems, organisation market, etc) and informal rules of conduct (norms, tradition, customs, value systems, religious and sociological trends, etc) that facilitate coordination or govern relationships between individuals or groups. Institutions provide for more certainty in human interaction. Pejovich (1995), in the same vein as North, defines institutions as ‘the legal’ administrative and customary arrangement for repeated human interaction.’

Informal rules have their origins in the experiences, traditional values, ethos, religious beliefs, ethnicity and other factors that influence the subjective perceptions individuals form to interpret reality. They are the part of the heritage or culture, which is transmitted from one generation to another through teaching and imitation (Pejovich 1995, Boyd and Richerson 1989). Formal and informal rules operate side by side.

North does not consider various types of organisations (economic, political, social and educational) as institutions. He writes, “If institutions are rules of game, organisations and their entrepreneurs are the players” (North, 1996). But there are other New Institutional Economists like Nabli and Nugent (1989) and Arkadie (1990), who opine that organisations are also institutions. They define institution as a set of constraints, which govern the behavioural relations among individuals or groups. Accordingly, both formal and informal organisations are institutions because they embody rules that govern the behaviour of individuals or groups.

There is also a difference of opinion among economists as to whether institutions can best be understood from a behavioural perspective or from rules perspective. Uphoff (1986), Lin and Nugent (1995) and others advocate the former approach. They say that institutions are complexes of norms of behaviour that persist over time by serving effectively valued purposes. North and his followers propose the latter view.

Institutions can also be defined in terms of their characteristics they possess like nature of the rules and constraints of institutions, their ability to govern the relations among individuals and groups and their predictability (Nabli and Nugent 1989, Lin and Nugent 1995).

Clague (1997) distinguishes between different categories of institutions. These are (i) the constitutional order, (ii) the institutional arrangements, and (iii) the cultural endowments.

Williamson (1996) distinguishes between institutional environment and institutional arrangement. The institutional environment forms the framework in which human action takes place. Williamson describes it as the set of fundamental political, social and legal ground rules that establish the basis for production, exchange and distribution. The institutional arrangement deals with the institution of governance. According to Williamson it refers to the modes of managing

transactions and includes market, quasi-market, and hierarchical modes of contracting. Clarifying the difference between institutional environment and institutional arrangement Williamson (1996) says, “mundane questions of whether to make or buy a component to be used in the manufacture of an automobile or whether to expand the hospital into outpatient and home health service are ones that arise at the level of governance. By contrast, composite economic growth and income distribution are more apt to be the objects of interest in an enquiry into the institutional environment.”

From the above, it is clear that there is no universal definition of institution. It depends on the type of discipline an author belongs and on the purpose of the study.

### **Old and New Institutional Economics**

Institutional economics is the school of thought that flourished in the 1920s and 30s. It saw the evolution of economic institutions as part of the broader process of cultural development. T. Veblen laid the foundation of institutionalism with his criticism of the traditional economic theory. It is known as ‘Old’ Institutional Economics. The need to redress the shortcomings of neo-classical economics later led to the origin of New Institutional Economics.

Old institutional economics that began at the turn of the twentieth century still continues. Some of the important economists who enriched it are T. Veblen, W. Mitchell, C.E. Ayres, A. Gruchy, M. Tool, W. Samuels, G. Colm, A. Morris, Copeland, J.K. Galbraith and G. Myrdal. Galbraith and Myrdal have been very effective in criticising conventional economics and focusing attention on the need to broaden the scope of economics to include an analysis of “ a much greater and very closely articulated process of change”. The group of economists mentioned above is a diverse group, but their work reflects several common themes mostly criticism of orthodox economics:

- (i) a focus on collective rather than individual action;
- (ii) a preference for an evolutionary rather than mechanistic approach to the economy; and
- (iii) an emphasis on empirical observation over deductive reasoning.

Whatever their contributions, old institutionalists are little known to most contemporary economists. Coase’s (1984) dismissal is typical: without a theory they had nothing to pass on except a mass of descriptive material waiting for a theory or fire. Langlois (1986), an ardent follower of the NIE says “ The problem with the historical school and many of the early institutionalists is that they wanted an economics with institutions but without theory; the problem with many neoclassicists is that they want economic theory without institutions; what we should really want is both institutions and theory”.

The term 'new institutional economics' was originated by Williamson (1975). NIE, which began to develop as a self-conscious movement in the 1970s, traces its origins to Menger's 1883 book on Problems of Economics and Sociology (1963), Coase's analysis of the firm (Coase, 1937), Hayek's writings on knowledge (Hayek, 1937) and Chandler's history of industrial enterprise (Chandler, 1962), along with contributions by Simon (1947), Arrow (1963), Olson (1965), Davis and North (1971), Williamson (1971, 1975, 1985, 2000), Alchian and Demsetz (1972), Macneil (1978), Holmström (1979), Barzel (1989), and others. Its best-known representatives are Coase, Williamson and North. Like its older counterpart, the new institutional economics is interested in the social, economic and political institutions that govern everyday life. However, the new institutional economics eschews the holism of the older school. NIE follows strict methodological individualism, always couching its explanations in terms of the goals, plans and actions of individuals.

NIE is a line of investigation that departs from but does not abandon neo-classical economics. In the words of Douglas North (1978) to abandon neoclassical theory is to abandon economics as science. The NIE attempts to save neo-classical economics by incorporating institutions into its analysis. Its critique of mainstream economics is largely a positive one. Thus, according to North (1995), "The new institutional economics is an attempt to incorporate a theory of institutions into economics. However, in contrast to the many earlier attempts to overturn or replace neoclassical theory, the new institutional economics builds on, modifies and extends neoclassical theory to permit it to come to grips and deal with an entire range of issues heretofore beyond its ken. What it retains and builds on is the fundamental assumption of scarcity and hence competition: the basis of the choice of theoretic approach that underlies microeconomics. What it abandons is instrumental rationality: the assumption of neoclassical economics that had made it an institution free theory".

Similarly, Rutherford (1996) says that NIE represents a loose collection of ideas aimed at bringing institutional characteristics back to core of economic analysis. In the mainstream neoclassical economics, full information and zero transaction costs are assumed whereas in the NIE asymmetry of information and positive transaction costs are assumed. In the former all allocation problems are solved by costlessly determined prices whereas in the NIE transaction costs would introduce non-price allocation methods and corresponding organisations. So the NIE is only an extension of, and not an alternative to, mainstream neoclassical economics (cf: Eggertsson Thrainn, 1990).

The NIE is a school of thought that has the potential of bridging the gap between economics and neighbouring subjects like political science, history, sociology and anthropology. According to Harris *et al* (1995) NIE is a body of economic theory, which ascribes an important role to ideas and ideologies, and one

that is accessible to other social scientists, seeming to open up the terrain of genuinely inter-disciplinary inquiry. North (1995) says that the NIE incorporates ideologies, ideas and politics into economic analysis without rejecting some of the fundamental postulates of standard neoclassical economic theory.

The subject matter of the NIE is much wider than that of standard neoclassical economics but narrower than that of Old Institutional Economics. Core fields of the NIE are transaction cost economics (Ronald Coase, Oliver Williamson), property rights economics (Ronald Coase, Armen Alchian, Harold Demsetz, Steven N.S. Cheung, Yoram Barzel), economic contract theory including law and economics of contracts (formal: Spence, Mirrlees, Joseph E. Stiglitz, informal: Oliver Williamson, Macneil, Steven Cheung, Victor Goldberg), collective action theories (Mancur Olson) and new institutional economic history (Douglass C. North, Philip T. Hoffman, Gary D. Libecap). NIE has been extended to fields other than economics such as sociology (Smelser and Swedberg; Powell and DiMaggio) and political science (Shepsle and Weingast).

### **Ingredients of NIE**

Different authors have identified different strands, themes or approaches in institutional analysis. Mathews (1986) has developed fourfold taxonomy of NIE in which institutions are viewed as property rights, as kinds of contracts, as conventions, and as governance structures. According to Nabli and Nugent (1989), there are two inter-related approaches to NIE, namely, the transaction costs and information costs approach and the collective action approach. Frant (1991) has identified three “precursors” of NIE. First is Coase’s (1937) focus on the importance of transactions and the related problems of whether to employ markets or hierarchies to handle transactions, which emphasised the costs attached to using the price mechanism. Second is the literature on the economics of property rights deriving from Coase (1960) famous paper on how the assignation of property rights influences outcome in the presence of externalities, which led to the so-called “Coase theorem”. And third is Alchian and Demsetz (1972) seminal attempt to apply the property rights paradigm to organisations engaged in productive activity, with the problems inherent in team production, “like shirking and monitoring”. Lin and Nugent (1995) note that NIE has two independent approaches, namely, the transaction costs approach (which analyses the demand for institutional innovations) and the collective action approach (which analyses the supply of institutional arrangements). Rutherford (1996) adopts a fairly broad view of the main elements of NIE by including the economics of property rights (Alchian and Demsetz ;1973), law and economics (Posner; 1977), rent seeking and distributional coalitions (Olson; 1982), agency theory (Jensen and Meckling; 1976), transaction cost economics (Williamson; 1979), game theory in institutional situations (Shubik; 1975), and the

new economic history of Douglas North (1981). Boston *et al* (1996) constrain their policy-oriented view of NIE to only two strands, namely, agency theory and transaction cost economics.

Notwithstanding the disagreement among economists about the major themes of NIE, we will discuss some important ingredients of NIE. However, we would like to point out that these different themes of NIE are inter-related.

One important theme is transaction costs which may be defined as all costs of entering into an agreement or contract like searching for trading partners, negotiations, verifying information, monitoring, controlling and enforcing the contract, etc. The purpose of institutions is to economise transaction costs. An institution which for given relative prices and technology minimised transaction costs is efficient. Property rights, the state, money market, capital market and legal system are institutions that save transaction costs and facilitate the development of a modern market economy.

Another concept is property rights which may be defined as an actor's rights recognised and enforced by other members of the society to use and control valuable resources. This theme is related to transaction costs. Well defined and properly enforced property rights may reduce conflicts and facilitate cooperation thus resulting in a reduction in transaction costs. In the presence of transaction costs, different system of property rights yield solutions of different efficiency. What is efficient in the presence of transaction costs may be quite different from that which is efficient in the neoclassical economics without transaction costs (Coase, 1960).

Incomplete information and asymmetries of information are the other important concepts. These concepts originated outside the institutionalists tradition. The transaction costs and economics of information are inter-woven. Searching for market information is not without cost and that may explain why we may have a divergence of prices between efficient markets and why capital markets are imperfect. The problem of adverse selection and moral hazards which were first identified in the context of insurance markets, have been found to be relevant for a large class of problem where asymmetries of information are present between the parties to a contract. These problems, moreover, may lead to 'market failure' unless incentive mechanism capable of overcoming them, such as appropriate forms of contract, is developed.

Collective action is also an important concept. It may be defined as the conditions under which groups of people with a common interest will perceive that interest and act to achieve it (Clague, 1997). It analyses the factors that promote and retard cooperation within groups to achieve a given goal. The major obstacle to collective action is that individuals' free-ride on others' efforts towards providing the common good. Free-riding occurs when there is disutility from effort and when individual effort is difficult to monitor and enforce. Under these conditions it is

difficult to assign rewards and punishments that provide individual group members with incentives to make effort towards the public good.

### **Application of the New Institutional Economics to the Problems of Development**

The NIE appears to be particularly relevant to the study of developing countries, where non-market institutions and market failure as well as state failure have been of particular importance. Harriss et al (1995) say that the NIE is a significant theoretical contribution to development studies and confirms the vitality of the substantive study of history for analyst and policy makers concerned with institutional change in the third world. Robert Bates (1995) noted that institutionalism now also plays (and will continue to play) a major role in the history of development. Nabli and Nugent (1989) commented in the concluding part of their work that the NIE has almost adequately explained the Tunisian cases but both the framework and its application have to be modified to better suit developing countries. Douglas North (1990), an economic historian, argues that the process of economic development involves replacing inefficient institutions with institutions that promote growth. He further notes that institutions that reduce transaction costs are characteristics of advanced societies while inefficient institutions are characteristics of less developed economies. North (1995) warned that it may not be appropriate to copy or transplant successful institutional models of other countries without considering whether they are needed by the people they are supposed to serve and without gauging the capabilities of governments and citizens. Shirley (2005) says that successful market economies are characterized by institutions that (i) foster exchange by lowering transaction costs and encouraging trust, and (ii) stimulate state actors to protect property and individual rights rather than expropriate and exploit them.

The economic development is now seen as a response to the evolution of institutions that support progressive social and commercial relationship. At its core, the hypothesis that differences in economic institutions are the fundamental cause of different patterns of economic growth is based on the notion that it is the way that humans themselves decide to organize their societies that determines whether or not they prosper. Some ways of organizing societies encourage people to innovate, to take risks, to save for the future, to find better ways of doing things, to learn and educate themselves, solve problems of collective action and provide public goods. Others do not. The idea that the prosperity of a society depends on its economic institutions goes back at least to Adam Smith, for example in his discussions of mercantilism and the role of markets, and was prominent in the work of many nineteenth century scholars such as John Stuart Mill: societies are economically successful when they have 'good' economic institutions and it is these institutions

that are the cause of prosperity. We can think of these good economic institutions as consisting of an inter-related cluster of things. There must be enforcement of property rights for a broad cross-section of society so that all individuals have an incentive to invest, innovate and take part in economic activity. There must also be some degree of equality of opportunity in society, including such things as equality before the law, so that those with good investment opportunities can take advantage of them.

NIE makes a radical departure from conventional theories of development in at least one important respect i.e. it attempts to provide some clues as to how to get the economy moving in crisis ridden or ailing economies. In this light, North provides three related propositions. First, he argues that privatization is not a panacea for solving poor economic performance as long as the informal norms and the enforcement characteristics of a country remain inefficient. Second, the heart of the development policy must be the creation of policies that will create and enforce efficient property rights. Third, adoptive efficiency (i.e. flexibility) rather than price (allocative) efficiency should be the guide to policy. That is, a government should be capable of making adjustment in the context of evolving technological and demographic change as well as shocks of the system. More concretely, North (1995) notes that 'getting prices right only has the desired consequences when agents have in place a set of property rights and enforcement that will then produce the competitive market conditions'.

Unlike today, the literature on the application of NIE was not very large earlier. Alston and others (1996) note that 'the field (NIE) is long on theoretical analysis but short on empirical work'. Similarly, Shirley (1997) observes that the field of applied institutional economics is relatively underdeveloped. We will attempt to undertake a survey of the application of the NIE to problems of development so as to highlight its usefulness in the study of development problems. The survey is divided into five parts. The first part deals with the qualitative and quantitative studies focusing on the role of institutions in the development process. Second part surveys the studies using general NIE framework (instead of a particular theme) to study specific development problems. Third part considers the applications of transaction cost theory. Fourth part looks at the applications of property rights theory and the last part highlights the applications of collective action theory.

## I

We will start with the qualitative comparative-historical studies focusing on the role of institutions in the development process. A qualitative comparative-historical analysis of institutions in the development process for Western Europe and North America has been tried by North (1981, 1990) and Greif (1989, 1992, 1997, 1998). North has pointed to the inevitable trade-off in the historical growth process

between economies of scale and specialisation on the one hand, and transaction costs on the other. In a small, closed, face-to-face peasant community, for example, transaction costs are low, but the production costs are high, because specialization and division of labour are severely limited by the extent of market defined by the personalised exchange process of the small community. In a large-scale complex economy, as the network of interdependence widens the impersonal exchange process gives considerable scope for all kinds of opportunistic behaviour and the costs of transacting can be high.

The central issue of economic history and of economic development is to account for the evolution of political and economic institutions that create an economic environment that induces increasing productivity (North 1991). Society had developed several types of institutions in different parts of the world for long-distance trade, credit etc., where the transactions are not self-enforcing. North (1990), Milgrom, North, and Weingast (1990), Greif (1992), and Greif, Milgrom, and Weingast (1994) have brought to our attention the importance of several such institutions like the Merchant Guild (for example, those in Italian city-states or inter-city guilds like the German Hansa), the Law Merchant system (like private judges recording institutionalised public memory at the Champagne fairs which provided an important nexus of trade between northern and southern Europe), and the Community Responsibility System in the Mediterranean and European trade during the late medieval commercial revolution in the period between the eleventh and the fourteenth century. These institutions facilitated economic growth by reducing opportunism in transactions among people largely unknown to one another and providing a multilateral reputation mechanism supported by frameworks of credible commitment, enforcement and coordination. Bayly (1983) cites many cases of caste-based (and sometimes even multi-caste) mercantile associations and *panchayats* (or local tribunals or arbitration panels), which acted much like the merchant guilds and the law merchant system respectively of medieval Europe, over a vigorous and far-flung mercantile economy. Credit instruments, like the *hundi* (or bills of exchange), even though their negotiability was not always recognised in formal courts of law (in British India), governed trade across thousands of miles. Grief (1989) has shown as to how the eleventh-century Jewish traders in the Mediterranean trade enforced codes of conduct by maintaining close relationship, using the threat of ostracism as a disciplinary device. In a study of 72 Chinese entrepreneurs in Hong Kong, Taiwan, Singapore, and Indonesia, Redding (1990) shows how through specific social networks of direct relationship or clan or regional connection they build a system dependent on patrimonial control by key individuals, personal obligation bonds, relational contracting, and interlocking directorships.

In Western societies, over time, complex institutional (legal and corporate) structures have been devised to constrain the participants to reduce the uncertainty of social interaction, in general to prevent the transactions from being too costly

and thus to allow the productivity gains of larger scale and improved technology to be realized. These institutions include elaborately defined and effectively enforced property rights, formal contracts and guarantees, trademarks, limited liability, bankruptcy laws, large corporate organisations with governance structures to limit problems of agency, and, what Williamson (1985) has called *ex post* opportunism (Bardhan, 2005). These institutions played a significant role in the economic progress of western countries. North and Weingast (1989) show how capital markets emerged in Britain after the Glorious Revolution of 1688 placed parliamentary limits on the authority of the Crown.

In the history of most developing countries, even when the indigenous institutions of a mercantile economy thrived, the process of development of sequentially more complex organisations suited for industrial investment and innovations as is familiar from the history of the West did not take place or was slow to come. In trying to answer this question, new institutional economics has explored a historical number of factors, most notably, colonialism, political competition or warfare, and beliefs or norms as listed in the table.

**Table: Why Do Some Countries Have Underdeveloped Institutions?**

Explanations	Summary	Authors
Cultural Heritage	Colonies inherited poor institutions from colonial masters. Colonizers adapted institutions to enslave natives & exploit opportunities for plantation agriculture or mining. Boundaries of African states contributed to ethnic conflict & unaccountable governments.	(North 1990,1994) (AJR 2001,2002, Engerman & Sokoloff 2002)
Beliefs and Norms	Beliefs or norms inhospitable to trust & markets raised cost of building institutions impersonal trade to encourage & investment	(Greif 1993, 1994, Knack 1997, North 1990,1994, 2005)

Source: Shirley (2005)

North provides a historical perspective on the influence of different paths of institutional change on economic development (North, 1990, 1995; North and Weingast, 1989). Institutional change is explained in terms of responses of powerful groups to changes in relative prices, technologies and transaction costs. These groups respond by modifying institutions in ways that they perceive to be in their interests and in different countries the same sets of changes in relative prices and in transactions technology may stimulate radically different types of institutional change. Much depends upon (a) the perception by different groups of possible

opportunities and threats posed to their interests by alternative paths of institutional change or stagnation, and (b) their political effectiveness (locally, nationally and internationally) in influencing the paths and pace of institutional change. Institutional change can take a broad ‘anti-development’ form (structuring transactions to create rents), or a ‘pro-development’ form (structuring transactions to reduce costs and thus promote trade and investment). There is a strong path dependency in these processes, as initial conditions play an important role in determining both the relative perceptions and power of different groups on the one hand, and the institutional and technological options that they face on the other. Engerman and Sokoloff (2002) have provided a great deal of evidence of how in societies with high inequality at the outset of colonization rules and institutions evolved in ways that restricted to a narrow elite access to political power and opportunities for economic development. Initial unequal conditions had long lingering effects, and through their influence on public policies tended to perpetuate those institutions and policies that atrophied development. D Acemoglu, S Johnson and J A Robinson (AJR 2002) developed a theory where the incumbent elite may want to block the introduction of new and efficient technologies because this will reduce their future political power; they give the examples from 19<sup>th</sup> century history when in Russia and Austria-Hungary the monarchy and aristocracy controlled the political system but feared replacement and so blocked the establishment of rules and institutions that would have facilitated industrialisation.

Attention to the institutions has become increasingly common in economic history and it has deeply enriched our understanding of how economies develop through time. Economic development is no longer regarded as a gradual, inevitable transformation from local autarky to specialisation and the division of labour. Instead development is seen as a response to the evolution of institutions that support progressive social and commercial relationships. Economic growth thus depends on the degree to which the potential hazards of trade (shirking, opportunism and the like) can be controlled by institutions, which reduce information costs, encourage capital formation and capital mobility, allow risks to be priced and shared and otherwise facilitate cooperation.

In recent years we have seen a number of macro-level empirical studies trying to determine the importance of geographical and institutional factors in explaining the differential economic performance in different parts of the world. However, it is worth mentioning that, similar to the broad spectrum of institutional theories, the empirical literature consists of approaches that differ not only in the research questions pursued and the methodologies deployed, but also in their conceptions of institutions. While institutional theories emphasis the importance of man made factors shaping incentives an alternative is to focus on the role of “nature”, that is, on the physical and geographical environment. Institutional hypothesis, relate differences in economic performance to the organisation of society.

Societies that provide incentives and opportunities for investment will be richer than those that fail to do so (Olson 2000). 'Geography hypothesis' explains most of the differences in economic prosperity by geographic, climate, or ecological differences across countries.

Acemoglu, Johnson and Robinson (AJR 2001) used differences in the mortality rates faced by European colonialists to estimate the effects of institutions on economic development. Europeans adopted very different colonisation policies in different colonies, with different associated institutions. In places where Europeans faced high mortality rates, they could not settle and they were more likely to set up extractive institutions. These early institutions persisted to the present. Exploiting differences in mortality rates faced by soldiers, bishops and sailors in the 17<sup>th</sup>, 18<sup>th</sup> and 19<sup>th</sup> centuries, AJR found large effect of institutions on income per capita. Once they controlled for the effects of institutions, they found that countries in Africa or those closer to the equator did not have lower incomes. McArthur and Sachs (2001) accept the AJR results about the importance of institutions, but argue that more general specifications show the disease environment and health characteristics of countries (their geography) matter for economic performance. Sachs and Warner (1995,1997) warn against the tendency to use institutions as a single-factor explanation of the complicated issue of economic development. Sachs (2003) argues that role of geography and resource endowment in development should not be underestimated: 'institutions matter, but not for everything'. Diamond (1997) has argued for the importance of geographic determinants of the Neolithic revolution, and linked modern prosperity to the timing of the emergence of settled agriculture. Myrdal (1968) has also emphasised the role of geographical factors in economic development.

AJR (2002) pointed out that many such geographically handicapped countries that are now relatively poor in the world were relatively rich in 1500 (the Moghal, Aztec, and Inca empires occupied some of the richer territories of the world in 1500, Haiti, Cuba and Barbados were richer than the US in early colonial times, and so on). This 'reversal of fortune' obviously has more to do with colonial history, extractive policies and institutions. Of course, geographical factors are more conducive to some types of institutions than others. For example, Engerman and Sokoloff (2002) emphasise the effects of geographical (and other factor endowment) preconditions on the evolution of particular institutions in the colonies established in the Caribbean or Brazil: climate and soil conditions extremely well-suited for growing crops like sugar that were of high value on the market and produced at low cost on large slave plantations led to systematic institutional differences in these colonies to those established (later) in the temperate zones of North America.

Rodrik, Subramanian and Trebbi (RST 2002) estimated the contribution of institutions, geography and trade in determining income levels around the world.

Their results indicate that the quality of institutions “trumps” everything else. Once institutions are controlled for, measures of geography have at best weak direct effects on incomes, although they have strong indirect effect by influencing the quality of institutions. They conclude that long run economic development requires market regulating, market stabilising and market legitimising institutions, which build resilience to shocks and facilitate socially acceptable burden sharing in response to such shocks. Easterly and Levine (2002) estimated regressions of the levels of income on various measures of endowments, institutions and policies. They found that institutions exert an important effect on development, while endowments do not, other than through their effect on institutions. Bleaney and Nishiyama (2002) indicate that human capital, institutions, specialisation in primary products, and changes in terms of trade all seem to be important determinants of growth.

Glaeser *et al* (2004) find that most indicators of institutional quality used to establish the proposition that institutions cause growth are constructed to be conceptually unsuitable for that purpose. They also find that some of the instrumental variable techniques used in the literature are flawed. Their study suggests that:

- (a) Human capital is a more basic source of growth than are the institutions;
- (b) Poor countries get out of poverty through good policies, often pursued by dictators, and
- (c) Subsequently improve their political institutions.

In spite of his reservations about the value of cross-national studies in giving us good insight into the mechanism of development or underdevelopment, Bardhan (2005) could not resist the temptation of conducting an empirical study on the lines of AJR (2001) and RST (2002). His study reconfirms the results of AJR (2001) in terms of the effectiveness of the colonial settler mortality variable as an instrument and the significance of the rule of law variable in influencing per capita income across countries. In addition to that he finds that the state antiquity measure (indicating a continuous history of state structure) can also sometimes act as an alternative good instrument, and that the proxy for democratic rights is a more significant determinant when literacy is the dependent variable, and is significant along with the rule of law variable in influencing other elements of or the composite human development index. This may suggest that some aspect of human development may be advanced by the progress of democratic institutions, as by the establishment of property rights protection.

Institutions once established have long-run effects on economic performance, and these effects linger even after the original institutions decay or disappear. Banerjee and Iyer (2002) have traced the significant effect of different land revenue systems instituted by the British in India during the early 19<sup>th</sup> century and discontinued after Independence, on present-day economic indicators in

agriculture. In explaining the divergence paths in North and South America since the early colonial times, Blockstette, Chanda, and Putterman (2002) have computed an index of state antiquity for a large number of countries; it shows that among developing countries this index is much lower for sub-Saharan Africa and Latin America than for Asia, and even in Asia the index for Korea is several times that for the Philippines (a country that lacked an encompassing state before the 16<sup>th</sup>-century colonization by Spain). Bardhan (2005) found that state antiquity has a highly significant positive association with the rule of law variable and ethno-linguistic fragmentation has a highly significant negative association with the rule of law variable. Commenting on these results Bardhan (2005) says, "this may suggest that continuity over a long period of some kind of supra-local bureaucratic structure over a particular territory may help the preservation of rule of law, whereas the collective action problems arising from social fragmentation may undermine it".

One can safely conclude on the basis of the above-mentioned studies that institutions have played an important role in the economic development. Even those who give more importance to geographical and other factors do not rule out the importance of institutions.

## II

Now let us move from cross-country studies to the application of NIE to specific development problems. Some scholars have applied the NIE to the problems of development without necessarily providing specific thematic framework like transaction costs theory or property rights theory. Feige (1990) elaborates the taxonomy of underground economics in developing countries using the general theory of NIE and shows the relevance of NIE to the analysis of the unofficial economy. Handouss (1995) in his study of Egyptian economy found that the incomplete nature of legislative reforms and deregulation have obstructed competition and raised transaction cost, thus slowing the pace of economic growth. Kalmonovitz (1997) investigates how institutions influence the pace of economic development in Columbia. His study suggests that the justice system of a country influences the behaviour of economic agents. Sullivan (1997) studied the linkage between the NIE and business sector. He observed that among other things, trust and a shared understanding are of central importance in improving the business climate in developing countries. Leitmann and Baharoglu (1998, 1999) find that formal rules are, in some cases, irrelevant and that in the absence of formal rules pressure arise that help to develop informal rules, which then result in certain behavioural pattern.

The study conducted by Clarence-Smith (1995), using evidence from cocoa-growing countries between 1870 and 1914, tests the hypothesis that institutions are not usually set up to be socially or economically efficient and that

they reflect the bargaining power of social and political actors. This study reinforces the argument that the state is a representative of the dominant interest groups within a society. Adams and Scaperlanda (1996) have shown the relevance of institutional economics to the study of global economic relations. Coney and Udry (2005) measure the effect of social learning in the diffusion of new technology in the production of pineapples in Ghana for export markets in Europe. They tested for social learning by estimating how farmers' input decisions respond to the actions and outcomes of their neighbours. They concluded that adoption of new technology that affects productivity and comparative cost is directly influenced by institutional factors like network of social learning. Berkowitz, Moenius and Pistor (2006) show in their empirical analysis that good domestic institutions may be less important for promoting exports from those countries that have signed a convention facilitating the enforcement of international arbitral awards like the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (thus reducing the function of national courts in trade disputes). Dorward, Kydd, Morrison and Poulton (2005) explore policy applications of 'new institutional economics' theory in relation to markets and economic development. They argue for application of an analytical framework which instead of looking at institutions primarily in terms of their contributions to making competitive markets work better, sees such markets as one form of institution fulfilling exchange and coordination functions in an economy. A key element in this is recognition of the importance of processes of change in nonstandard market arrangements in economic development, and there are strong theoretical, practical and historical grounds for more consistent policy in this area. Machiko and Ernest (2006) examine the source of financial market fragmentation in sub-Saharan Africa in the framework of institutional economics. Based on fieldwork data from Ghana, Malawi, Nigeria, and Tanzania, they analyse financial risk management, the transaction costs for loan screening and monitoring, and contract enforcement. Their study show how, faced with various institutional constraints, the range of clientele selected by formal and informal lenders becomes both narrow and at the extreme market-ends. Attempts have been made to quantify the impact of institutions like land tenure on productivity or of credit and risk-sharing institutions on consumption and productive efficiency (see Bardhan and Udry, 1999).

### **III**

The transaction cost theory, is, perhaps, the most widely used theme within the new institutionalist approach. It is a very powerful tool in the analysis of various aspects of development problems. Datta and Nugent (1989) used transaction costs framework to explain choices among different forms of contract in developed and developing countries. Nabli et al (1989) apply the transaction costs framework to

ownership form choices in Tunisian manufacturing industry and reveal the existence of opportunistic behaviour such as tax evasion, quality shirking and adverse selection. They show that transaction costs are capable of explaining the size and ownership form choices of private firms in various sectors of the Tunisian manufacturing industry. Matoussi and Nugent (1989) using the transaction costs approach explained as to why economic agents in certain sectors switch from wage and rent contracts to sharecropping contracts. Greenhill (1995), in a study of Brazilian coffee, demonstrates that institutions improve efficiency by reducing uncertainty in exchange arrangements. Wiesner (1997) attempts to link transaction costs with externalities and with rent seeking behaviour in developing countries with particular reference to Columbia. The study underlines the usefulness of rent seeking behaviour of economic actors in the analysis of development problems. Key *et al* (2000) estimate a model of supply response when transactions costs create a situation where some producers buy, others sell, and others do not participate in markets. They present two rationales for why producing households may have different relationships to the market: proportional and fixed transactions costs. Using data on Mexican corn producers, they estimate an empirical model that allows for separate tests of the significance of both types of transactions costs, revealing that both fixed and proportional transactions costs matter for the estimation. The results provide consistent estimates of supply elasticity and measures of the relative importance of factors determining both proportional and fixed transactions costs. Eleni (2001) quantifies the transaction costs related to search faced by traders in Ethiopia and analyses the role of brokers in minimising these transaction costs. The transaction costs of market search are significant in the Ethiopian grain market. Estimated as the opportunity cost of labour time spent searching for a trading partner and the opportunity cost of holding capital fixed during that search, these costs represent one-fifth of all marketing costs. Eleni demonstrates that traders minimise their transaction costs of search by using brokers, who enable them to exchange with unknown partners. She also shows that at the level of the grain economy as a whole, brokers significantly increase the total economic welfare by enabling a more efficient allocation of search effort by traders. Thus, traders with relatively higher search efficiency and lower search costs choose to search on their own, while traders with lower search efficiency and higher search costs choose to use a broker. Brouters and Nakos (2004) found that transaction cost theory did a good job of explaining small and medium sized enterprise mode choice and that small and medium sized enterprises that used transaction cost-predicted mode choices performed significantly better than firms using other modes. Hoff and Stiglitz (1990) and Conning and Udry (2005) explain segmentation into formal and informal markets typically observed in developing countries by the structural differences in the cost and risk characteristics of different types of transactions. Meshack, Ahdikari, Doggart and Lovett (2006) studied the transaction costs in community-based forest

management in four communities adjacent to the Ambangulu mountain forests of the north-east of Tanzania. They concluded that transaction costs are critical factors in the success or failure of community-based forest management and need to be incorporated into policies and legislation related to community-based natural resource management.

#### **IV**

Property rights is another theme of NIE which has been widely applied to various aspects of the development process. Garret Hardin's much cited and often criticised 'Tragedy of Commons' (1968) hypothesised that common resources lacking ownership were doomed to over exploitation. Common property rights were seen as the causal factor behind resource destruction because it would be in users' private interest to harvest the resources as soon as possible, before other users did so. When everybody owns the resource, nobody has incentive to conserve it for future use. Each user imposes an external cost on all other users in terms of reduced resource availability. In the absence of property rights, the externality of future scarcity is not internalised by individual users and the outcome is inefficient high intensity utilisation. The consequence is overgrazing, over fishing, appropriation of irrigation water by head-enders, clearing of forests and so on. Such resource use is inefficient because at lower intensity of use, resource stock and output would be higher and harvesting cost lower. Furthermore, overuse can endanger the sustainability of resource. Hazari and Kumar (2003) demonstrate that degradation of commons cannot be solved by just using the price system. Properly defined property rights and provision of basic goods in kind may resolve the problem of degradation of commons. The importance of protecting ordinary citizens' property rights is also evident from Olson's writing on governance. De Soto (2000) emphasises that the lack of property rights impedes the transformation of the wealth owned by the poor into capital. Proper titling could allow the poor to collateralise the land. In turn, this credit could be invested as capital in productive projects, promptly increasing labour productivity and income. La Porta et al. (1997,1998,1999) find that rights of minority shareholders and creditors are poorly protected in countries using the Latin legal system. As a result, ownership of firm in these countries is much more concentrated and capital markets are less developed than in common law countries that offer better protection of these rights. Olson (2000) says that fairly large informal sectors in most developing countries are much less productive than they would otherwise be, because the relatively poor and powerless individuals in these sectors have almost no legal rights. North and Weingast (1989) argue that Britain's 'glorious revolution' in the late seventeenth century restrained the King's and his government's predatory powers; this increased the security of property rights and led to the rapid development of capital markets

and economic growth. By contrast, Spain retained and practiced the powers of arbitrary expropriation, and therefore stagnated. Feder *et al* (1988) analyse tenure security and collateral empirically, using a sample of Thai farmers. One part of the sample were squatting inside a forest reserve, and hence were unable to obtain legal title to their land, even if squatters rarely are evicted in Thailand. The other part of the sample was farming under very similar conditions, except that they were settled outside of forest reserves, and therefore held title. Results show that in two out of three districts, titled farmers used more variable inputs, and had higher yields, relative to untitled farmers. Banerjee and Ghatak (1996) found that in West Bengal the operation *Barga* (registration of tenants) launched by the left front government accounted for a significant fraction of total growth in agricultural production during that time. Levy and Spiller (1994) find that an independent and well-regarded judiciary branch is vital for successfully restraining arbitrary exercise of powers by regulatory agencies. Timothy (1995) has found a strong correlation between property rights and investment or output. Cheung (1996) studies the process of regulation in a single market i.e. rental housing in Hong Kong. His study has revealed as to how in a complex world, actors may respond to regulations with adjustment at various unexpected margins and create outcomes that generate further institutional change. Clague et al (1997) using the property rights approach present evidence from cross country statistical analysis and explain differences in income growth rates and rates of investment in developing and developed countries. The study shows that differences in property rights and contract enforcement are, among others, important factors that explain as to why some countries prosper while others do not. Higgs (1996), using the property rights approach, analyses the causes and consequences of the regulations restricting the catch of salmon in the Pacific Northwest. He shows how government regulations can create a dynamic process that converges on high-cost outcomes. Riker and Sened (1996) found that new types of institutional arrangements are often needed to exploit the wealth enhancing potential of technological change. Berkes (1996) did not get any clear-cut verdict on the performance of natural resource management systems under different property rights regimes. Ensminger (1996) studies the relationship between culture and property rights. He finds that many top-down approaches to establish private property regimes for environmental resources have failed not only because they imposed high transaction costs but also because of their cultural ill-adaptability.

## V

Since Mancur Olson's Logic of Collective Action (1965), it has been impossible for economists and political scientists to conceive of political participation without reference to his powerful argument linking numbers of participants, public goods, and participatory outcomes. Olson argues that a firm

would not contribute or lobby to secure a collective good because the individual contribution is unlikely to make a difference to the outcome and because the individual cannot be punished for not contributing. At the same time, Olson observes, business is very active politically. When firms are divided into smaller, more concentrated markets the free-rider obstacle is mitigated, it is easier to coordinate political activity, and there is less diffusion of responsibility. When size varies among the firms, it may be that for the larger firm the gain from the collective good outweighs the cost of securing the good. Political activity “depends to a striking degree on the number of individuals in the group,” but it is not completely dependent as the group may have members with “highly unequal degrees of interest in a collective good”. Olson argues that the large amount of business political activity derives from the fact that multiple markets and related industries segment the larger business community. Political participation becomes rational in these smaller groups, with a small number of firms or a small number of oligopolistic firms for whom it is worthwhile to assume the cost of political activity. However, there is little empirical support for the above arguments. Hansen, Mitchell, and Drope (2005) say that most of the empirical studies suggest that market structure, measured by concentration ratio, does not influence political business activity.

Grissa (1989) using Olson’s interest group theory explains the determinants of both the level and the structure of interest rates in Tunisia. Wade (1988) shows how a common property resource system in India was managed entirely outside the formal governance system and how collective action was sustained by paying regular bribes to regional and national officials. Ostrom (1990) analyse the management of common pool resources with a view to avoid excessive consumption and high administrative cost. She questions the argument that the problem of over-consumption is solved by privatisation or enforcement imposed by outside force namely government. The solution offered by her for overcoming the above problems is the creation of stable institution of self-government. Ostrom et al (1994) find that the users of commonly held resources have in many cases overcome the incentives to destroy resources and have developed long-enduring institutions that enabled them to utilise these resources more effectively. Masako, Hayami and Masao (2005) examine factors affecting the success and failure of collective action toward the management of local commons. Using cross-section survey data on the activities of irrigators’ associations in the Philippines, regression analysis is conducted to identify factors underlying the success and failure in farmers’ organising collective action for the maintenance and operation of irrigation systems. They find that collective action is difficult to organise where (a) water supply is uniformly abundant; (b) water supply is greatly different between upper and lower streams in lateral; (c) the size of the association is large; (d) population density is low; (e) the share of nonfarm households is high; and (f) the history of irrigated farming is short. Their findings suggest that these difficulties can be overcome with adequate supports of

state agencies to promote community-level cooperation. Gadzikwa, Lyne and Hendriks (2006) analyse the Ezemvelo Farmers' Organisation (EFO), a certified organic smallholder group in KwaZulu-Natal province (South Africa), as an institution to improve smallholder access to a niche market by reducing unit production and transaction costs in the supply chain. Their results suggest that EFO is more likely to survive if it continues to secure fully subsidised information, transport, fencing, and certification services for its members, and if it improves the benefits of participating by synchronising harvest and delivery dates, negotiating price discounts for organic inputs, and by maintaining an office with telephone, fax and postal services. Kurian M, T Dietz (2004) discuss the importance of context specification in analysis of group heterogeneity through a discussion of elements of a joint management contract in Haryana (India), identification of key variables with a potential to explain collective action in irrigation management and construction of household endowment and water interest scores to account for the influence of group heterogeneity in facilitating collective action. In the process of applying household endowment and water interest scores, the authors highlight the role of local ecological variation and non-farm employment in influencing collective action. Proper specification of local context enables the researchers to rely on household endowment and water interest scores to predict conflicts and potential for irrigation service provision and compliance with irrigation service rules. Bsaies (1989) provides an institutional explanation for the failure to introduce modern secular education in Tunisia during the 19<sup>th</sup> and early 20<sup>th</sup> centuries. Brett (1995) using evidence from Uganda, argues that progressive change is not random, but a response to a widespread willingness among people to set aside self-interest and demonstrate high level of altruism where they can be made to recognise the need for and possibilities of collective action.

The above survey has highlighted some of the important applications of NIE to problems of development. It is not an exhaustive survey. The survey shows that authors of the applied work pertaining to NIE belong to different disciplines like economic history, political science, sociology, management and of course economics. This supports the statement that NIE represents the culminating intersection of a number of different lines of investigation, each interesting in its own right (Nabli and Nugent 1989).

The NIE, with its endogenous theory of institutions has certainly expanded the horizon of investigation and has come out with explanations for previously unexplained phenomenon ((Neelakantan 1992).

### **Concluding Remarks**

With neoclassical economics increasingly being questioned in its ability to provide answers to the many economic problems and issues in low as well as

high income countries, the NIE provides an exciting and challenging new paradigm. Institutions do structure economic forces and play an important role in expanding human choice - a fundamental goal of economic development. However, NIE is only an extension of, and not an alternative to, mainstream neoclassical economics. The literature in NIE is expanding rapidly and gaining increasing adherents and influence in economics, political science, law, strategy, sociology, growth and development, history and other disciplines. It is a highly diverse field and its many branches are rich in theoretical insight, relevant for policy and empirically useful.

Our survey of quantitative and qualitative studies pertaining to the role of institutions in the development process shows that majority of studies found a strong correlation between the quality and performance of institutions on the one hand and development outcomes on the other. The review of some selected applications of NIE to specific development problems reveals that the three major themes of NIE i.e. the transaction costs, property rights and collective action can effectively address issues that have remained more or less puzzles when analysed using conventional approaches. Moreover, NIE has the potential to explain and analyse problems that were traditionally considered as not being within the purview of mainstream economics.

However, the NIE is still far from being fully developed. Lack of a comprehensive theory and model is a weakness acknowledged by many NIE scholars. The above weakness means that the NIE faces many challenges ahead and much more work remains to be done. This is, however, what makes it an exciting and dynamic field with tremendous opportunities for improvement and refinement. To conclude we would like to say that looking at the volumes of research and interest of scholars in this emerging area, one can safely predict that the goal of having a good economic theory of institution is not far from realisation.

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# **Microcredit and Poverty Alleviation: The Grameen Bank in Focus**

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## **Abstract**

The Nobel Peace Prize to Professor Dr Muhammad Yunus and the concept of Grameen Bank (GB) has refreshed the public's interest in GB and microfinance in general. Looking into the GB model of microfinance, this article argues that there is a need to take stock of the services currently being provided by microfinance institutions (MFIs) for poor clients. The microfinance industry has reached a critical stage in its development, with MFIs focusing on financial sustainability through their credit-driven models, failing to make any significant achievement in poverty alleviation.

This paper examines microcredit's poverty-alleviating ability and argues that microcredit has insurmountable limitations as a model of sustainable poverty alleviation. Developing client-responsive, flexible, and quality financial and non-financial services is imperative now. Thus, the more appropriate and higher the quality of services on offer, the better will be the impact on poverty alleviation.

## **Introduction**

Poverty is generally considered the most serious problem on earth because it is the root cause of many other problems. About one billion people around the world live in poverty. Vast resources have been expended in the fight against world poverty, with generally mediocre results. Singapore, South Korea and Taiwan are among the few countries that have managed to lift themselves up out of poverty in the last 40 years. The globalisation model for economic growth has been the flavour of the season across the globe for some time now. However, the trouble with this model is that it favours the rich, the connected, the educated and the strong, pushing dozens of countries further into the mire of poverty.

With world peace and prosperity depending heavily on alleviation of poverty, focused efforts are the need of the hour to fight this problem.

Practitioners and policymakers who have been trying to improve the lives of the poor face an uphill battle. Reports of bureaucratism and unchecked corruption abound. And now, many believe that government assistance in the name of helping

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the poor often creates dependency and disincentives that make matters worse. Decades of aid and government-initiated development programmes have not helped the poor to improve their lot.

Under such sordid conditions, development aid, debt relief, and even favourable terms of trade do not and perhaps cannot solve poverty. They only strengthen the hand of the oligarchs and widen the income gap between the rich and the poor. Environmental improvements through transparency, anti-corruption, land reform initiatives are tough to implement without social upheaval if not bloodshed.

Poverty alleviation through microcredit is perhaps the only effective way to solve poverty in a contaminated social environment largely reluctant to the needs of the poor. The idea that the poor might improve their living standards by becoming microentrepreneurs and that financial institutions should support their initiative with small loans has found many supporters over the last decade. In recent years, microcredit or in its wider dimension microfinance, has become a favoured intervention for poverty alleviation in developing and underdeveloped countries. Today, there is scarcely a poor country or development oriented donor agency not involved in promotion of a microfinance programme.

Microfinance programmes are credited with an amazing array of beneficial impacts, but are also accused of promoting themselves as *panaceas*. In the microfinance process, poor households are given possibilities to improve their lives through their own labor. Access to microfinance is credited with reaching the poorest, increasing their income to have a sustainable impact in alleviating rural poverty, and with providing a cost-effective, sustainable development model that is applicable not just in developing countries, but also among poorer communities in the developed world. The remarkable successes that pioneer MFIs have had in extending and recovering millions of loans to the poor has attracted worldwide attention. Donors, governments, non-governmental organisations (NGOs), and some large commercial banks have redirected efforts and resources towards new microfinance and microenterprise development projects. In recognition of the importance of microfinance, especially the GB microfinance, the Norwegian Nobel Committee awarded the prestigious Nobel Peace Prize for 2006 to Muhammad Yunus and the GB.

The most effective programmes lend to women clients, with the added benefit of bolstering their independence and strengthening their role in society. Expect microfinancing to play an important role in helping to reconstruct Afghanistan, and in bringing its women back into economic life (The New York Times: 2002). In 1998, proclaiming 2005 as the *International Year of Microcredit*, the General Assembly of the United Nations requested that the Year's observance be a special occasion for giving impetus to microcredit programmes throughout the world (Virtual Library on Microcredit 2004).

Neither the growth nor the reception of the microfinance movement has, however, been without controversy. As with most other development efforts, particularly those that compete for scarce donor funds, there are disagreements over the appropriate role and vision of microfinance. Studies on the downside of microfinance (e.g., Hulme 2000; Rahman 1999) reveal the way in which some microfinance programmes can damage the prospects of the poor. There is, however, much evidence that it can help the poor. Such studies are a reminder that MFIs need to monitor their pros and cons, look to the future, and not rest on their laurels. The MFI industry needs to practice more humility about what it has achieved and deepen its understanding of the financial and non-financial service needs of the poor.

The rest of this paper is structured as follows: Section two highlights the statement of the problem of this subject; based on a yearlong field survey, Section three describes the methodology used in the study and details the success, though limited, of the GB microcredit in alleviating poverty; Section four explores the sustainability of the poverty alleviation impact of the GB; and Section five concludes.

### **Statement of the Problem**

The paper, based on a critical analysis of the GB's credit-alone policy, argues that the win-win rhetoric promising poverty alleviation with financial sustainability has moved far ahead of the evidence, and that even the most fundamental claims of success remain largely unsubstantiated. It has therefore become increasingly apparent that there is a need to take stock of the services currently being provided by the MFIs to their poor clients. This stock-taking, depicting the intent and content of MFIs, will help determine whether microfinance is a degraded palliative or really a panacea for poverty reduction.

There is little doubt that support for microenterprise has dramatically increased since the late 1980s. This paper critically examines the credit-initiated microenterprise development of the GB as a strategy to promote poverty alleviation. Satisfactory though the performance of the GB is in ensuring access of the poor, particularly poor women, to institutional sources of credit, and alleviating poverty to some extent, the paper argues that it could have been more impressive if the GB provided not only credit but also voluntary savings and other client-responsive, quality financial and skill-enhancing non-financial services. The traditional microfinance approach of the GB based on a credit-alone approach with compulsory savings services has not been able to alleviate poverty of its clients significantly, nor has it helped them achieve financial sustainability on their own. The incorporation of quality, flexible, and client-responsive financial and non-financial services in the analysis is central to this study.

Despite the success of the GB in delivering loans to poor women and bringing socio-economic changes to some of these borrowers, the research findings

of this paper suggest that there are still many borrowers who have been unable to improve their financial situation, and have instead become more vulnerable and trapped in the rigid, supply-driven, credit-alone system.

This paper suggests that the 'monotheistic microcredit formula' promoted as a panacea (Wright 2000; Wood and Sharif eds. 1997) is not only inadequate to meet the needs of the poorest, but is also monopolising resources that could, and perhaps should be used for other more pressing or important interventions. There is, however, a trade-off between the quality of the services (necessary for significant poverty alleviation) and the cost of providing such services (necessary for sustainability). Getting the correct balance, which is difficult though not impossible, is the only way to succeed in achieving the twin goals of poverty alleviation and financial sustainability.

The demand for microfinance services arises from the participation of the poor in microfinance programmes in the expectation that it will increase their income and sustain or create self-employment. The ultimate test of any institution is not whether it just exists or sustains itself, but more importantly, whether it manages to do something useful for its members. The GB's ultimate achievements must therefore be measured in terms of the nature and extent of the benefits that its members enjoy.

The success of the GB, as such, depends on whether participation of the poor does in fact reduce poverty in terms of raising their income and ultimately improving the levels of their standard of living. The central aim of the paper is to assess the extent to which this objective has been achieved. The basic research question of the paper is: Has the GB's microcredit programme with its credit-alone approach resulted in a substantial reduction of poverty, however measured, amongst the borrowers? Is the impact on poverty alleviation, whatsoever, sustainable over time?

With the growing interest among donors, governments, and practitioners in the merits of microfinance as a tool for reducing poverty and as a cost-effective instrument for achieving sustainability of the lending institutions, it is time to pause and examine these claims and concerns, and to try to separate reality from the publicity surrounding the microfinance movement.

## **Methodology Used**

### **Some Issues**

The microfinance movement was born of the idea to create new banks with a mission of poverty alleviation. Completing impact evaluations is an important way to determine if the mission of poverty alleviation is being achieved. There is no study yet that has achieved wide consensus as to its reliability; and this reflects the inherent difficulty in evaluating programmes in which participation is voluntary

and different clients use the services with varying degrees of intensity. While some observers have despaired at the impossibility of generating reliable evaluations, their despair is, as Aghion and Morduch (2005, 223) think, misplaced and too pessimistic. It is true that rigorous statistical evaluations are seldom easy. Still, a set of solid impact evaluations are within reach.

In recent years, donors are becoming more concerned about the quality of their interventions, and with the experience they have gained on the limits and possible negative effects of microfinance, the need for impact assessment has arisen. Reliable impact assessments can provide both donors and practitioners with evidence that interventions have a positive effect and that financial support is justified. At the same time, practitioners can assess to what degree, under what conditions, and through which mechanisms they can reach the poor. Impact assessment can also help to improve programme performance through a better understanding of clients' specific needs.

#### **Approach and Methodology Used in the Study**

One approach for evaluating impact on poverty is the control group method. This requires a before and after comparison of a population that received a specific treatment, and an identical population (or as near as possible) that did not receive the treatment. This conventional approach relies on quantitative data and structured interviews and is favoured by economists and project analysts. The alternative approach usually favoured by sociologists and anthropologists is to adopt a Participatory-based approach or Participatory Rapid Appraisal (PRA) techniques to evaluate a project. Both these approaches have their advantages and disadvantages. Though the former is time consuming and requires more resources in terms of time and budget, it relies on solid quantitative data; whereas the latter, though less time consuming and requiring lesser resources, relies largely on qualitative data and impressionistic accounts.

Poverty line based on household expenditure is also a widely accepted measure of poverty, as far as economic dimension is concerned. Expenditure is a good proxy of income. The standard practice is to record food expenditures using a recall period of one week, and to collect information on various non-food expenditures using a combination of monthly or yearly recall periods.

Several studies on rural poverty in Bangladesh used a consumption bundle providing an intake of 2,112 calories and 58 grams of protein as the norm, which by and large conforms to the minimum diet recommended by the Food and Agriculture Organisation of the United Nations (ILO 1986, 59). This is the standard practice in the Bangladesh development literature (Khandker and Chowdhury 1996, 12), which has also been accepted by the Planning Commission of the Government of Bangladesh. This study has used this norm as well as the control group approach in identifying the extent of poverty across different groups of population in the

sample areas. Given average village-level prices, the level of consumption that qualified people as poor was fixed at Taka 6, 250 per person per year. The figures include a 30 per cent provision of the cost of non-food items.

Although this approach has been criticised as it is undesirably simplified, reductionist, universal, standardised, quantified, and biased to the measurable, it has considerable strengths in terms of permitting quantitative comparisons and the analysis of changes in the access of different people to their most pressing material needs (Hulme and Mosley 1996, 105).

Besides using individual interview as the main method of collecting data, the survey took into consideration the participatory group discussion and key informants' interviews as well. Data were collected through a detailed structured questionnaire. The open-ended method was preferred over other methods (for example, discrete choice method) because of its inherent advantages, that this method would provide a crystal picture of the day to day harsh realities of poor people's lives. Even though poor households in developing countries consume a small number of goods, accuracy in reporting is a valid concern given the long recall periods. Even if consumption items can be accurately recalled, ways have to found to value home-produced foods when market prices are lacking; irregular weights and measures cause problems in the computation of quantities; and information on a number of high-value items is likely to be seriously deficient. To minimise the scale of these problems the recall period of the study was kept minimum i.e., 1997-1998. Extensive training was imparted to the research assistants. Moreover, multiple household visits, and cataloging of informal weights and measures were undertaken to minimise such problems.

The survey collected information from households in six project villages covered by the GB and six control villages outside the GB's area of operation. The sample households were classified into four groups: (1) GB-members in project villages; (2) non-participating households within the target groups of the GB project villages; (3) target-group households in the control villages; and (4) non-target-group households (those who own 0.5 acre or more) in both project and control villages.

A total of 300 GB borrowers, 50 each from 6 project villages and 30 non-members, 5 each from the same project villages, were randomly selected for interviews. Another 30 non-members, 5 each from 6 different control villages (where the GB has no credit operation) were interviewed to measure the extent of poverty in the absence of the GB. The selection of the control villages was more or less purposive, keeping in mind similarities of land distribution and occupational structure between the project and control villages.

To assess the impact of the GB's credit on the economic condition of the borrowers' households, a census on land ownership and occupation was undertaken in the project areas earmarked for the field survey. The households were then

randomly stratified into four land-ownership groups (large, medium, small, and marginal/ landless) and two occupation groups (farm and non-farm) within each land-ownership group. A proportional random sample was then drawn from each of the eight strata to get 50 sample households from each village. They were interviewed for an in-depth survey to collect information on employment, assets, income, expenditure, investment, and sources of credit to finance their working capital.

#### **Methods and Tools Used**

- a) Structured interviews with the GB members in GB project villages and comparable non-members in villages without GB branches,
- b) In-depth interviews with the group and centre leaders,
- c) Focused group discussions,
- d) Key informant interviews (village leader, teacher, village doctor),
- e) In-depth interviews with the GB officials,
- f) Documentary study (GB project documents, GB Annual Reports, Research Reports),
- g) Analysis of project data and secondary data, and
- h) Compilation and analysis of materials and secondary data.

#### **Sample Size and Sample Area**

The study undertaken from February 1997 through January 1998, is based on a sample survey of 300 households, located in three different regions of Bangladesh. As far as the field investigation is concerned, the selection of study area is very important. A schedule was worked out with the GB to choose 6 different project areas in three different zones, taking into consideration three different stages in the GB's development. The zones selected were: Tangail; Comilla; and Bogra. Tangail is the oldest zone and it has the highest number of profitable branches. Comilla is a comparatively new zone experiencing growth and with new branches opening. Bogra zone has been operational for some years and has branches moving toward the stage of profitable branches..

#### **Questionnaire**

The survey was carried out by three experienced research assistants, one each in three different zones. All of them had prior experience in interviewing and the objective of the study had been explained to them. After the first 50 interviews were completed, all the questionnaires were examined and the research assistants informed of any mistakes that had occurred. The questionnaires were pre-tested twice, changed and simplified. Care was taken to ensure that there were proper responses from the households selected for the interview. When the final questionnaire were handed in, less than 1 per cent of questions showed indications

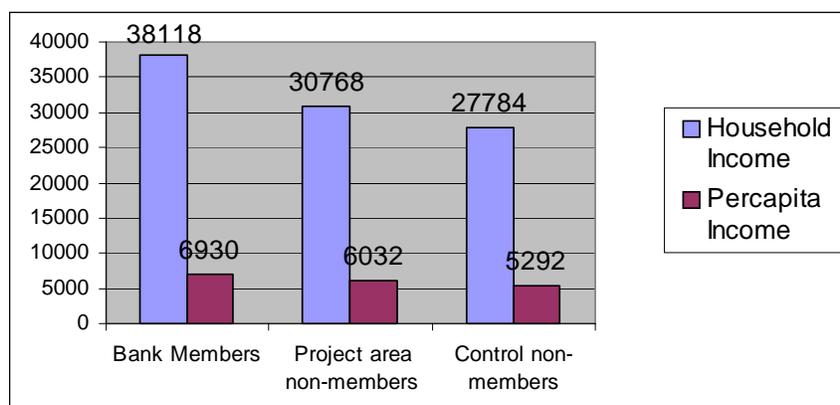
of having been improperly filled in. Data collected was analysed in terms of the objectives set for the study.

### Research Findings: Limited Impact on Poverty Alleviation

Yearlong field research on the GB, the pioneer of microfinance movement, demonstrates that the credit-alone policy of the GB does not, and perhaps cannot have any meaningful and significant impact on poverty alleviation.

Figure 1 shows that the yearly household income of the GB members is higher than those of comparable non-member households both in the project and control villages. On average, a borrower household is found to have a nearly 24 per cent higher income than the target group non-member households of the project villages and more than 37 per cent higher than the comparable households in the control villages (control villages are villages with similar socio-economic position except for the characteristic of not having a GB programme). The statistical test, one way analysis of variance, was used to find out the significant differences among the means of some variables. The mean differences in incomes among three groups: GB members; comparable non-members in GB project villages; and comparable non-members in control villages without GB project were statistically significant ( $P < 0.000$ ).

**Figure 1: Level and structure of household and per capita income of GB members and comparable non-members, 1998. (Figures in Tk.)**



However, the income impacts recorded above are only, to borrow the term of Hulme and Mosley (1996), a snapshot of a constantly changing situation and evidently different income-generating projects are achieving different results among the sub-groups of different poor households.

The increase in the incomes of borrowers is higher (though not as much as has often been claimed) and this was, perhaps, due more to an increase in the profitability of the assisted enterprise, rather than to incomes deriving from outside that enterprise. The higher incomes of the GB members compared to non-members in project and control villages stems overwhelmingly from non-farm activities usually financed by microcredit programmes of the GB.

Development cannot be effective and efficient if women, who constitute nearly 50 per cent of the population, are excluded from the process. Although women clients are often overlooked in the design of any development project, including small and microenterprise projects, they are a potentially profitable population. Many Asian families depend increasingly on women as income producers, as household incomes decline. Women who are the primary income earners head many of the poorest families. Under such conditions, well-designed microenterprise projects can make an important contribution to poverty reduction efforts.

The GB explicitly targets women. This is justified in that the incomes earned by women tended to be spent in ways that were more beneficial to the household than that of their male counterparts. Women spend proportionately more of their extra income on things that help develop human capital i.e., better nutrition for the family, better healthcare and education for children, and better sanitation. Moreover, when women earn, children learn. This gives rise to a new generation of efficient women to participate in economic activities, ultimately reducing the dependency ratio for new generations.

In order to evaluate the GB impact on human capital formation by GB female members, this study looked at 75 female GB members randomly selected from three projects, one each from three different zones. Forty five comparable female non-members from both project and control villages were also randomly selected to compare their performance with those of the GB female members.

The survey settled on four variables in evaluating the human capital formation efforts of the GB female members. They were: the activity ratio; the percentage expenditure on children's education; the percentage expenditure on family nutrition; and the percentage expenditure on family healthcare services. In general, the performance of the GB female members (Table 1) in terms of all the above variables was satisfactory compared to their counterparts in project and control villages.

The investment pattern of GB female members was more efficient in terms of human capital formation compared to comparable non-members. Their increasing expenditure towards their children's education and family healthcare clearly demonstrates that they are more concerned regarding the human capital formation of their family members. These investments have significant social returns and inter-generational payoffs. In terms of human capital formation, the GB female

members were more cautious than their comparable non-members in both the project and control villages.

**Table 1: Human Capital Formation Efforts of GB Female Members**

Indicators	GB Members	Target Group Non-members in project villages	Target Group Non-members in control villages
Activity Ratio	0.50	0.35	0.31
Expenditure on education for children	0.18	0.08	0.06
Expenditure on family nutrition	0.14	0.09	0.09
Expenditure on health services	0.11	0.07	0.09

Source: *Field Survey of 75 female members*

The productivity of GB female members was higher than those of their comparable non-members. The productivity of GB female members in most of the activities had positive rate of returns. Only a very few activities had negative rate of returns. The negative rate of return for female borrowers on their investments leads to a question, and perhaps a pertinent one. Do activities, which have negative returns to labour help rural poor women to alleviate poverty? The answer is not straight- forward. In developing countries, like Bangladesh, men are increasingly drawn into a world emphasising individual pursuit of wealth and happiness, whereas women besides their non-remunerative household works, are often left behind with their children and struggle to provide for them within a human economy frame of reference. In their effort to do so, women strive to maintain or create mutual support networks. Therefore, women's economic behaviour does not follow a purely economic rationality, aiming for the maximisation of individual profit or the pursuit of enterprise growth above all. Tinker (1995: 30-4) proposes that the yardstick of women's economic performance in microenterprises should be a human economic one because this takes into account women's multiple roles and their basic values. Such an approach to policy and programming would be more appropriate than the conventional liberal economic theories that give overriding importance to economic variables and tend to measure women on a men's scale.

This paper is also of the view that the rate of return needs to be evaluated keeping in mind what alternative income earning opportunities these women had before joining the GB. In view of the prevailing socio-economic conditions in rural Bangladesh, employment opportunities are often not available to women. Moreover, most of the rural female workers would not be available for work outside their homes, except in post harvest operations. The relatively low productivity of women may be acceptable in these cases and whatever they can earn from home-based

enterprises adds to the family income. If credit can generate self-employment for women, and if the employment generated a positive net return to the family labour, they would opt for credit. In an environment of acute unemployment without any system of social security, it is desirable though, but not necessary, especially in the short run for the rate of return on capital to be positive or productivity of labour to be higher than the agricultural wage rate.

However, in order to alleviate poverty significantly, women should increase their productivity on a sustained basis by enhancing their efficiency and improving their skills. The limited technology, if any, used by the poor women clients is generally very simple and consists of domestic appliances. This low technological level limits the potential of increasing productivity in their microenterprises.

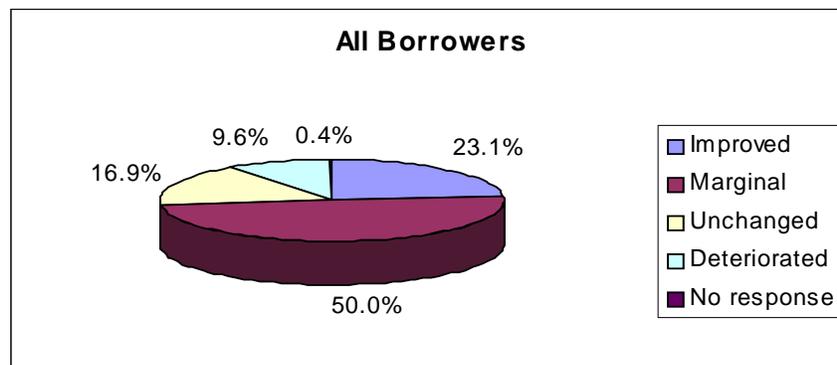
A major constraint on rural poor women's ability to earn more income is the length of time they spend on repetitive and un-remunerative domestic tasks. It is not uncommon for these unpaid chores to take up ten or more hours every day in rural areas (Carr 1995: 218). Of equal importance is the growing evidence that failure to recognise rural women as being overworked rather than simply underemployed can result in the collapse of projects aimed at increasing the productivity of their work.

Moreover, the low productivity of poor women in their microenterprises is also a result of market constraints. Chen (1996: 23) notes that women engaged in livestock raising, one of the most important sources of livelihood projects, face higher risks by investing in more than one cow since they do not have access to veterinary services. Given these constraints and an underdeveloped infrastructure, even with a rise in the price of milk, women will be incapable of increasing supply, hence supply is quite inelastic. Lack of proper product design also creates a glut of products of the GB-financed enterprises. Chen, who looked at 11 major studies on the GB, agrees that these findings indicate the presence of limits to the expansion of self-employment-induced enterprises within the existing configuration of demand and supply.

It may be said beyond doubt that the contribution of the GB in enhancing efficiency of the rural poor women is less than satisfactory and there is much room for improvement in its (GB's) efficiency-enhancing efforts. However, there seems to be a consensus around the view that the GB has enabled the poor rural women for the first time to engage in commercial income generating activities, be it livelihood projects or microenterprises. In the process, these women earn some income, though often less than their male counterparts, and contribute to the poverty alleviation efforts of their households. The underlying assumption of this study is that the GB could go even further in unlocking the creative and productive potential of the rural poor women through a properly designed and sensibly implemented women-friendly efficiency-enhancing programme.

The findings of the research reflect a comparatively better situation of the GB members than their counterparts. A closer look at the self-perception of the GB members (Figure 2), however, depicts a rather trivial picture of the role of microcredit in poverty alleviation. As noted earlier, the GB borrowers on an average appeared to be benefiting notably from credit. The borrowers experienced increases in income, equity capital, employment, productivity, and access to institutional credits.

**Figure 2: Borrowers' perception of change in their economic condition after joining GB, 1998.**



Due to differences amongst the poor in terms of economic and social endowments, however, all members of the poor did not experience identical improvements in terms of alleviation of poverty.

The figure depicts that 23 per cent of all borrowers had reasonably improved their positions, while 50 per cent borrowers had experienced a marginal improvement only. Nearly 18 per cent borrowers experienced no change, and 9 per cent of borrowers experienced further deterioration in their positions. The figure thus demonstrates that nearly 77 per cent of the borrowers did not experience any significant improvement in their positions as a result of their membership with the GB. Contrary to general findings of many empirical studies, the present findings are not the first to depict such a comparatively gloomy picture (Todd 1996: 220).

This trend in poverty alleviation is comparable with the studies that indicate that a decade of one's membership with the GB has done little more than keep one's head above water (Sobhan 1997: 132). This tendency, drawn essentially, but not conclusively, from the empirical findings, suggests important conclusion about the limitations of credit as a poverty alleviation strategy in Bangladesh.

The limited impact that microcredit services of the GB have in significantly alleviating poverty for less than 25 per cent of its clients demonstrates the need for a wider range of financial and non-financial services for the poor.

### **Sustainability of Poverty Alleviation Impact**

How effective are the GB microcredit programmes in reducing poverty in a sustained way is an important policy question that merits careful programme evaluation. An answer to this question will indicate whether the poverty alleviation impact is sustainable over time.

A sustainable poverty reduction can occur through a secular increase in income due to an increase in productivity. This increase in productivity may result from an increase in efficiency, which again may result from different efficiency-enhancing efforts of the lending institution: development of proper technology; training; product design; and marketing channels. There also needs to be a reasonable impact in the rural credit market to meet different financial needs of the rural poor so that the poor need not go to the informal lenders, and proper steps are taken to protect the poor from vulnerabilities.

Despite the operations of the GB and other MFIs in Bangladesh which have expanded over the years both in total volume of financial services provided and in number of clients served, the institutional sources cannot even meet one-fifth of the credit needs of the rural sector, let alone the needs for voluntary savings mobilisation. It is, therefore, not surprising that the non-institutional sources of finance still play a role in the rural sector of Bangladesh. However, given the limited role of the non-institutional sources in providing credit for investment on a sustained basis and their high interest rates, these sources of finance cannot be a perfect substitute for a formal financial system in Bangladesh.

The GB, despite being a formal financial institution, has incorporated some of the principles of the non-institutional sources of finance in its credit policies. The GB's microlending services had a positive impact both directly and, in some cases indirectly, by inducing informal financial institutions such as moneylenders, to lower the element of monopoly profit in their interest rate and widen their product-mix. In an environment of scarcity of capital and low credit-worthiness, the type of services offered by the GB to the poor, especially women are far more attractive than those of non-institutional sources of finance.

Nonetheless, this has by no means stopped the GB clients from taking loans from the non-institutional sources. Such loans were often necessary for members to maintain the regularity of weekly loan repayments of the GB and to meet contingencies caused by illness or the costs incurred by social obligations. Although the GB provides a competitive financial service for the poor, it is still not a substitute for the informal credit market in rural Bangladesh. Moreover, the productivity of female members is far below than those of their male counterparts leading to only marginal improvements, if any, in their poverty situation.

Be that as it may, this paper understands that the GB is performing relatively well and perhaps better than other specialised financial institutions operating in

oligopolistic competition in Bangladesh. The GB is a unique financial institution that has succeeded in providing credit, without collateral, to the poor, particularly poor women, with very low default rates. The important aspect of the GB is its outreach to women who constitute about 95 per cent of its membership.

Having said this, and despite this study remaining seriously sceptical about the marginal position of rural poor women microentrepreneurs, for many rural, poor women microenterprises are the only available means of livelihood. Despite low-productivity, the rural poor in Bangladesh carry on these activities, often sponsored by the GB and other NGOs. They do so because these activities help raise household incomes through employment of female labour, and male labour during off-peak agricultural seasons, which have no significant opportunity cost. Given their low productivity one should also consider what alternative avenues these poor women have had before joining the microenterprise programmes. The high and increasing levels of women's participation in the microenterprise sector, this study understands, may in many cases be a desperate attempt by women with few alternatives, rather than a conscious choice. The majority of poor women, though not interested in microenterprise schemes, were forced to undertake such a venture for survival.

This does not necessarily mean that resources should be directed away from other programmes towards Grameen-type operations. Microfinance programmes attract people who self-select into programmes because of their entrepreneurial ability. Not all individuals from target households, especially the extreme poor, may possess this ability. To meet the needs of poor people with different abilities, both self-employment programmes, financed by MFIs, and wage employment programmes, financed by formal finance or infrastructure development projects that promote broad-based economic growth, should be offered.

This paper does not in any way support the microcredit evangelists' unrealistic prescription of a worldwide blanket replication of the GB model, nor does it support their overly ambitious concept of alleviating rural poverty, which would lead to paradigmatic shifts in development discourse. There is not a GB blueprint that can be handed out universally and replicated. An approach or method cannot be replicated in a fixed, prescriptive way. Replication demands a lot of experimentation and adaptation. With proper modifications, where necessary, the GB approach has a fair chance of success in densely settled poverty-stricken areas in rural Asia. In Africa and Latin America, however, an appropriate delivery mechanism specific to each case has to be worked out through trial and error.

## Conclusions

It is a challenge for all directly or indirectly involved with the *microfinance movement* to constantly seek to improve the appropriateness and quality of the financial services available to the poor. After nearly twenty years of experimentation

and research and development, microfinance is poised to sour. Embracing pragmatism over principle and practice over theory, different MFIs should focus on the real job in hand: developing institutions that can create and provide the broad range of microfinancial services that will support poor people in their efforts to improve their poverty situation. Developing such flexible financial services is, however, a complex task and one that takes time-not the donors' prescribed time of 3 to 5 years. Microfinance is not a quick fix but the kind of slow, often frustrating step-by-step process that is usually the hallmark of real change.

In order to have a significant impact in the rural credit market, the GB needs to redesign its lending policies to incorporate flexibility both in the amount of loan disbursed and the repayment schedule on the basis of household resource endowment. Designing a differentiated and diverse lending policy sensitive to the individual absorptive capacity of different clients can provide a real choice to its member households. This may go side by side with its present group-based lending. This will enable the GB to compete more successfully with the informal lenders.

The judicious mixture of short and long-term savings products alongside the standardised loans would provide the GB's members with a range of convenient and useful services. The GB may also consider a very simple and highly standardised life insurance scheme for its poor members, which can be marketed from its existing modest branch offices. The proposed insurance would be very simple, requiring no medical check-up to go through and no complicated forms to fill in. The members may pay weekly or monthly for ten years and at the end of that term the members will get their money back with profits. In the meantime, should the person named in the insurance cover die, his/ her beneficiaries will receive the full amount just as if he/ she had been saving for ten years.

The combination of a standardised advance with an open access savings account and a contractual savings scheme as well as a life insurance is a very attractive package of financial services to the poor. It answers many of the criticisms made of the *minimalist* approach in credit.

Even once such a microfinance system has been implemented, there is a need for an on-going programme of product development to seek to improve the quality of services being made available to clients. This is the challenge for the future. The eventual impact of microfinance on poverty alleviation and the sustainability of MFIs will ultimately depend on organisations' systems and products. The more appropriate and the higher the quality of services is on offer, the better impact on poverty alleviation and financial sustainability.

While there are no magical strategies to reduce poverty, a set of measures, each measure with its own dosage and timing without distracting the greater emphasis on provision of microfinance services for the rural poor, may be undertaken. Such a set would include several of the following in one form or another, with greater or lesser intensity, and to be applied either immediately or in the future: encouraging

the participation of the poor in planning and implementation of poverty alleviation projects; provision of access to productive assets and public infrastructure to the poor; elimination of the bias against females in the access to resources through policy inducement; removal of policy bias against rural development; and finally, instituting a set of fair and effective laws and regulations governing resource use.

The real taste of microfinance depends mainly on two big ifs. If microfinance is meant to include only microcredit, it usually tastes sour. If, on the other hand, microfinance services include broad range of client-responsive, quality financial services, it does really taste sweet (Islam 2007: 167). The time has come to re-think the purpose and potential of microfinance, going far beyond microcredit for enterprise development to encompass the provision of demand-responsive, flexible financial services to poor people, regardless of whether they own enterprises.

Yunus's long-term vision is to eliminate poverty in the world. That vision cannot be realised by means of microcredit alone. Despite its limited impact on poverty alleviation, the Grameen movement has demonstrated the importance of thinking creatively about institutional innovations, and is forcing economists and other social scientists to rethink the traditional wisdom about the nature of poverty and its alleviation. In the end, this may prove to be the most important legacy of the movement. Moreover, the introduction of Grameen II might help the GB to achieve the apparently contradictory goals of significant poverty alleviation for its poor clients and financial sustainability of its own. This is a goal desired by many but achieved by very few.

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# **The Macroeconomic Determinants of Foreign Direct Investment in the Turkish Economy**

**Talat Ulussever\***

## **Abstract**

The amount of foreign direct investment (FDI) in the Turkish economy increased considerably over two decades and reached a historically highest level in the year 2006. With increasing FDI inflows and their effects on the Turkish economy, it has become critical to determine the factors that affect those inflows. In this study, we construct a single regression model and use data from 1960 to 2004 to estimate the determinants of FDI inflows into the Turkish economy. The findings of this study are consistent with the literature and show that the statistically significant determinants of FDI inflows into the Turkish economy are openness, growth rate of the economy, foreign capital stock, infrastructure investment, and economic instability.

## **Introduction**

In the literature, it is argued that foreign direct investment (FDI) has a significant impact on recipient economies and creates strong economic links between economies. Many studies in the literature show that “FDI triggers technology spillovers, assists human capital formation, contributes to international trade integration, helps create a more competitive business environment and enhances enterprise development.” (Foreign Direct Investment for Development; Maximising Benefits, Minimising Costs”, OECD: 2002, p.5.)

Thus, attracting FDI has become a fierce competition among host countries in the last two decades. Foreign direct investment (FDI) flows have been expanding at a faster rate than ever with increasing globalisation. International statistics show that the amount of FDI inflows into the developing countries increased remarkably in the 1990s and peaked at US\$ 180 billion in 1999. Moreover, the total FDI inflows worldwide increased in 2001 by 18% to US\$ 1.3 trillion.

Negotiations on a multilateral agreement on FDI have taken an important place both in the OECD and in the WTO. The agreements of international organisations, especially the agreements of WTO, on liberalisation of investment regimes and trade-related investment measures (TRIMS) have led to a vigorous

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expansion of investment flows into developing countries. The data supports the fact that WTO-induced globalisation process has been facilitating the FDI inflows.

It is claimed that globalisation helps economies gain through international investment. A World Bank survey shows how sound investment climate helps countries gain more from globalisation and proves how those countries that integrate with the global economy have grown faster than others (World Bank Investment Climate Survey).

With the experiences of several financial crises in the emerging markets, foreign direct investment (FDI) has proved to be durable during financial crises. For example, FDI was amazingly stable during the global financial crises of 1997-98 in East Asian countries. In contrast, other forms of private capital flows like portfolio equity and debt flows, and particularly short-term flows were subject to large reversals during the same period (Dadush, Dasgupta, and Ratha, 2000; and Lipsey, 2001). The durability of FDI during financial crises was also proven during the Mexican crisis of 1994-95 and the Latin American debt crisis of the 1980s.

FDI is considered as 'good cholesterol' as it grants the benefits enumerated earlier. A further benefit is that FDI is acknowledged to be "bolted down and cannot leave so easily at the first sign of trouble."

Hausmann and Fernández-Arias (2000) suggest why many host countries, even when they are in favour of capital inflows, view international debt flows, especially of the short-term variety, as 'bad cholesterol'. They claim that short-term lending from abroad is driven by speculative considerations based on interest rate differentials and exchange rate expectations, not on long-term considerations. Its movement is often the result of moral hazard distortions such as implicit exchange rate guarantees or the willingness of governments to bail-out the banking system. It is the first to run for the exits in times of trouble and is responsible for the boom-bust cycles of the 1990s.

This durability feature of FDI has led many developing countries to favor FDI over other forms of capital flows, furthering a trend that has been in evidence for many years (Basworth and Collins, 1999).

Besides these advantages, Feldstein (2000) noticed that the gains to host countries from FDI take several other forms:

- FDI allows the transfer of technology—particularly in the form of new varieties of capital inputs—that cannot be achieved through financial investments or trade in goods and services. FDI can also promote competition in the domestic input market.
- Recipients of FDI often gain employee training in the course of operating the new businesses, which contributes to human capital development in the host country.

- Profits generated by FDI contribute to corporate tax revenues in the host country.

As Ulussever (2004) mentioned, the pros and cons of FDI inflows into the developing countries as well as the underdeveloped countries have been discussed in the literature. However, in general, it appears that FDI inflows generate a net positive contribution to developing economies and the global economy as well. These positive contributions of FDI inflows into the host countries have made researchers start a new line of work to determine the factors that affect FDI inflows into the host countries.

### **FDI Inflows into the Turkish Economy**

The cumulative stock of FDI in Turkey was only US\$ 300 million in 1971, while the annual FDI inflows averaged about US\$ 90 million prior to 1970. However, after shifting from a protectionist trade regime to an export-oriented trade regime, Turkey started to attract relatively large amount FDI inflows starting from the mid-1980s. Turkey has increased notably FDI inflows over the past decade following the reforms and liberalisation of policy undertaken by the government since 1990's. Turkish Government's FDI promotion policies especially post-2003 increased FDI inflows drastically.

The annual FDI inflows into the Turkish economy grew rapidly from the mid-1980s and reached US\$ 1 billion in 1990, and since then the Turkish economy could attract FDI of US\$ 1 billion per annum on an average. This amount, however, was much less than comparable countries (Balasubramanyam, Salisu, and Sapsford, 1996). Main reasons of the low performance of attracting FDI can be listed as macroeconomic instability, heavy bureaucratic requirements, structural barriers, corruption, and political instability.

In accordance with generally accepted international standards, in FDI inflow ranking of 2000, Turkey should be between Brazil and China, with US\$ 33.5 billion and US\$ 105 billion of annual FDI attraction respectively. With respect to these standards, the minimum annual FDI attraction potential of Turkey is US\$ 35 billion according to 2002 World's Investment Report of the United Nations Conference on Trade and Development. However, the actual FDI amount was only US\$ 1,137 million in 2002. This volume jumped up and reached \$ 20.161 billion in 2006 due to the promotion policies.

Table 1 and 2 show sectoral composition of FDI and domestic investment data in Turkey from 1998 to 2006.

**Table 1: Sectoral Composition of FDI into the Turkish Economy**

Year	Industry (%)	Service (%)	Other (%)	Total (Million \$)
1998	58	38	4	940
1999	43	55	2	783
2000	54	45	1	982
2001	28	72	0	3,352
2002	29	71	0	1,137
2003	72	26	2	1,752
2004	19	75	6	2,883
2005	8	91	1	9,801
2006				20,161

Source: Central Bank, Republic of Turkey

**Table 2: Sectoral Composition of Domestic Investment in the Turkish Economy**

Year	Industry (% of GDP)	Service (% of GDP)	Other (% of GDP)	Dom. Invest. (% of GDP)	Dom. Invest. (Billion \$)	GDP (Billion \$)
1998	56.6	30.3	13.1	24	12,839.2	205,539
1999	58	30	12	20.4	16,930.6	199,154
2000	59	30	11	21.8	27,847.9	204,888
2001	60	29	11	17.2	32,409	153,523
2002	29	71	0	16.5	46,043	184,829
2003	72	26	2	15.5	55,618.3	239,822
2004	19	75	6	18	76,772.4	300,067
2005	8	91	1	19.8	95,307.1	362,614
2006				21.9	121,093.0	393,334

Source: Central Bank, Republic of Turkey; www.econstats.com; www.economist.com

Although there has been a lot of skepticism concerning the contribution of inward FDI to domestic investment, it is commonly accepted that FDI inflows usually brings to mind a noteworthy contribution to domestic investment. As it is seen in the table above, there is a positive correlation between FDI inflows and domestic investment in Turkey. The domestic investment and GDP in the Turkish economy has been following similar trend of FDI inflows into the economy. It looks like that the decrease in FDI inflows in 2002 and 2003 contributed to the decrease in domestic investment.

According to OECD, Turkey is seen as having a favourable investment climate and great potential to attract FDI when compared to many of the Central and Eastern European economies. In order to accomplish this, the Turkish government has been trying to improve the investment environment through enacting the Foreign Capital Law. The Turkish government has taken important steps towards

making Turkey a more attractive destination for FDI by forging ahead with such policies as new foreign investment law, simplification of procedures, the implementation of inflation accounting, coordinating efforts by different ministries, the establishment of foreign capital information agency, setting up a coordinating committee with membership of civil society organisations to address the multifaceted issues surrounding FDI, and designing an FDI promotion and investment plan within the frame of a national development plan. (Foreign Direct Investment in Transition Economies: Challenges, Policies and Good Practices, Istanbul, May 2003).

The objective of this study is to analyse the determinants of FDI inflows into the Turkish economy by using a single regression model. The plan of this study is as follows: Section 3 discusses the hypotheses about the determinants of FDI inflows into the host countries in the literature. In Section 4, we discuss the variables that affect the FDI inflows in the literature and determine the variables for estimation for the Turkish economy. Estimation model, techniques and data measurement are discussed in detail under Section 4. Section 5 presents and discusses the estimation results in detail. Finally, Section 6 provides conclusions and policy implications. The estimation results are provided in Appendix.

### **The Hypotheses about the Determinants of FDI in the Literature**

In the literature, there are many theories about the determinants of FDI. However, it is possible to categorise these theories under two groups. The first group describes FDI in the framework of a portfolio allocation. This group of theories claims that FDI relies largely on international differences in return to capital like interest or profit rates. On the other hand, there are some concerns with these theories in the sense that they may explicate international portfolio diversification, but not FDI by itself. The second group addresses the problem with the first group by pointing the position out of market imperfections that make production in the host country attractive compared to exporting.

In this perspective, a number of explanatory variables have been spelled out in various studies in explaining the determinants of FDI. One important factor is the state of openness of the host economy. If the host economy is somewhat closed on the current account, spurs are created for FDI as a means of avoiding the barriers to trade. On the other hand, a comparatively closed capital account such as tight restrictions on foreign ownership discourages FDI (Yang *et al* 2000:47). Balasubramanyam (1996) provides persuasive empirical evidence that states FDI is a major element of economic growth in developing countries, which have relatively open, export-promoting macroeconomic policies.

Trade barriers plays important role in case of openness of an economy. The higher trade barriers of host country are expected to have a positive effect on the foreign investors to produce locally in order to maintain the market. Trade

discrimination by means of high tariffs imposition and the use of non-tariff restrictions on trade cause the foreign investors to promote FDI to be able to make production behind the tariff walls. Some different proxies have been used for this variable in the literature. For example, Petrochilos (1984) used a proxy that was defined as the percentage of tariff revenue collected in 1961 for the Greek economy. Scaperlanda and Balough (1983) used a dummy variable as a measure of tariff discrimination in their study on the determinants of FDI in the EEC. Openness is defined as ratio of exports and imports to GDP. This measure gives an idea about magnitude of trade of a country with other countries. Torrisi (1985) defined "openness" by trade balance.

The logic behind that might be the fact that trade deficits may encourage FDI inflows with a combination of export diversification and import substitution policies. Openness also reflects the changes in government policies, which might provide more favorable environment to foreign investors. As mentioned in section 2, the Turkish government policies toward FDI have shown an augmented inclination to encourage more FDI into the Turkish economy.

Another factor is the wage differentials between the host and home countries with immobility of labour. In this regard, there are miscellaneous empirical results. While Schneider and Frey (1985), Culem (1988), Moore (1993), Love and Lage-Hidalgo (2000) have found that lower wages in the host country encourages FDI, Caves (1974), Swedenbourg (1979), and Kravis and Lipsey (1982) found that the wage differentials have no significant effect on FDI. Regarding wage differential, unit-labour cost was used as a measure for the unit input cost by Bajo-Rubio and Sosvilla-Rivero (1994) for Spain. Tu (1990) used wage rate differences between Taiwan and the averages of U.S and Japan as a proxy.

A variety of market characteristics including market size and growth in market size have been found to influence the inflows of FDI. The market size in conjunction with the growth prospects of the host country market are important 'pull' factors and theoretically positively related to the level of FDI flows (Dunning, 1993 and Chandprapalert, 2000). The market size hypothesis has considerably huge empirical support in the literature. It is captured in the variable aggregate demand, (AD).

The market size hypothesis implies that FDI will take place in an economy and transaction costs will be lower if the market of that economy is large enough to allow economies of scale. As measurement of market size, foreign investors' sales might be an ideal proxy. Yet, mainly due to data unavailability of sales, researchers have preferred to use GDP as a proxy for sales. For example, Torrisi (1985) and Bajo-Rubio and Sosvilla-Rivero (1994) used GDP as a proxy of market size for Columbia and for Spain respectively. Scaperlanda and Balough (1983) used GNP as a measure of output in their study. In fact, GDP has been used commonly as a proxy of market size in the literature.

Satisfactory public infrastructure facilities are quite important for existence and expansion of FDI. Williams and Scaperlanda (1995) claim that public capital, implying public infrastructure, affect the capital intensity of FDI. They found that government infrastructure is a powerful incentive to attract especially capital-intensive FDI.

Economic instability has been used as an important factor in determining the FDI inflows in the literature. It is commonly accepted that the presence of internal economic pressures such as inability to balance the budget, or to restrict the money supply or so on affect profitability expectations of foreign investors. The more stable the political economy is, the higher would be the inflows of FDI into the country. Although Torissi (1985) argued that political stability might influence the FDI inflows into the host country, since it is difficult to test it empirically, he did not use it in his study. In the literature, inflation rate is used as proxy for economic and political instability (Bajo-Rubio and Sosvilla-Rivero, 1994). The logic behind that idea is the fact that higher price levels may reflect significant instability in the economic and political system in a country. Therefore, it is reasonable to use the inflation rate as a proxy for both economic and political instability.

The growth rate of the host economy has same effect on the FDI inflows with market size hypothesis. The anticipated growth of demand for output increases the desired capital stock of FDI and the growing host economy may trigger higher FDI inflows. The foreign investor is expected to take advantage of the opportunity provided by a growing economy. New FDI inflows will take place once the size of host economy has reached the threshold level where production in host economy becomes more efficient and profitable. This variable has been used by Petrochilas (1984) and Scaperlanda and Mauer (1969).

The exchange rate, which has a similar function with the state of openness, is also spelled out in determining the FDI. The logic behind this argument is that FDI is often a long-term alternative to exporting from the home country to the host country and thus, along with tariff and other non-tariff barriers, the strength of the host country's currency is an important factor in determining FDI inflows. However, there has been ignorable empirical evidence of the importance of this variable.

The rate of return on FDI has also been incorporated in the most studies of the determinants of FDI as well. Young (1988) and Boskin and Gale (1986) have used realised after-tax rates of return on FDI to explain the level of FDI, while others have used the level of interest rates as a proxy for the return to FDI.

The tax policies are also spelled out as an important variable in determining of FDI. Tung and Cho (2001) found that tax incentives were effective in attracting FDI into China. Moreover, Boskin and Gale (1987) also found that tax incentive is an important variable in attracting FDI. On the other hand, Lim (1983) have found no effect of tax incentives in attracting FDI.

Caves (1971) and Trevino and Daniels (1994) credited firm size and profitability being catalytic to the scope of international expansion.

The selected hypotheses for the determinants of FDI inflows in the literature are summarised in table 3.

**Table 3: The Selected Hypotheses about the Determinants of FDI in the Literature**

Study	Subject Countries	Key determinants
Balasubramanyam (1996)	Several Developing Countries	Openness (Open and Export Oriented Policies)
Riedel (1975)	Taiwan	Openness
Erdal and Tatoglu (2002)	Turkey	Openness, Infrastructure Investments, Economic Stability, Market Size
Williams & Scaperlanda (1995)	U S	Public Infrastructure Investments
Bajo-Rubio & Sosvilla-Rivero (1994)	Spain	Economic Stability, Foreign Capital Stock
Scaperlanda and Balough (1983)	E E C	Market Size
Caves (1971)	Several Developing Countries	Firm Size, Profitability
Trevino & Daniels (1994)	Japan and U S	Firm Size, Profitability
Boskin, and Gale (1987)	Several Developing Countries	Tax Incentive Policy
Tung and Cho (2000)	China	Tax Incentive Policy
Williams and Scaperlanda (1995)	U S	Government Infrastructure Investment

Although there are prevalent studies of FDI in the US, Japan and Europe, this is unfortunately not the case in several countries including India and Turkey. Despite the fact that FDI inflows into Turkey and India increased drastically after the implementation of liberalisation policies, there are limited studies especially aimed to determine the factors of FDI inflows into those countries.

The reforms and liberalisation policies undertaken by the Indian government since 1991 have boosted outward investment from India notably over the past decade, and increasingly pushed outward orientation of Indian enterprises besides removing the policy barriers. Aforementioned policies have been accompanied by increasing FDI inflows into India as well. Thus, outward investment in India has emerged as an important mechanism of global economic integration of Indian economy besides growing proportion of trade and inward FDI (Kumar, 2006). India increased FDI inflows notably from US\$ 46 million in 1970 to US\$ 3,351 million by 1997 and became the ninth largest recipient of such investment among the developing countries (World Bank, 1998:20).

Kumar (1994) and Kumar and Siddharthan (1993) are two important studies that examined the role of FDI in India's export performance based on data until the early 1980s. Basu, Nayak, Archana (2005) examined empirically, on the basis of an inter-industry analysis, the time effects of the variables influencing the FDI inflows to India during the post-reforms period.

Anand and Delios (1996) compared FDI inflows from Japanese MNCs in India and China and attributed the relatively slow growth of FDI from Japanese MNCs in India as compared to China, to the desire to gain only market access in India. Feinberg and Majumdar (2001) spelled out the restricted policy environment towards FDI and weak property protection rights for sources of significant R&D spillovers in Indian pharmaceutical sector.

There are many studies that have aimed to determine the factors of FDI inflows into the host countries in the literature. However, to the best of our knowledge, a few studies have been done regarding the determinants of FDI inflows into the Turkish economy and our study is the first one that tries to analyse the determinants of FDI with macroeconomic perspective and time series data in the Turkish Economy. As Erdal and Tatoglu (2002) revealed, the studies done regarding the determinants of FDI inflows into the Turkish economy have relied more on collection of survey data using managerial perceptions for measuring the explanatory factors (Erdilek, 1982; Tatoglu and Glaister, 1998).

### **Framework for Estimation of FDI inflows into the Turkish Economy**

#### **A) Variables for Estimation**

Depending on the studies mentioned above, we analyse the following factors spelled out in the literature.

1. The market size is expected to have a positive effect on real FDI inflows. This is called the market size hypothesis, which implies that FDI will take place as soon as the market is large enough to permit capturing economies of scale.
2. Openness of the economy is also expected to have a positive relationship with the FDI inflows. Foreign investors are expected to increase their investment in more open economy since open economy provides more confidence for foreign investors, thereby resulting in increased inflows of FDI.
3. Wage differential, which defined as the wage ratio between home to the host country wage rate, is expected to have a positive relationship with real FDI since a higher wage ratio is expected to attract higher inflows of FDI into the host country. Foreign investors are expected to increase their

investment in a developing country to take advantage of the wage differences.

4. Public infrastructure in the host country is expected to have a positive relationship with real FDI inflows. The more public infrastructure investment attracts the more FDI inflows into the host country.
5. Economic stability is also expected to have same effect with openness on the host country. Instable economies put internal economic pressures on foreign investors and affect their profitability. Thus, more FDI inflows are expected when the host economy is more stable.
6. The growth rate of the economy is expected to attract the foreign investors' attention to capture more investment opportunities in such a growing economy. Therefore, it is expected to have a positive relationship between the FDI inflows and growth rate.

### B) Estimation Model

Based on the discussion above, we write the following regression equation to determine the factors that affect the FDI inflows into the Turkish economy.

$$\ln fdi_t = \beta_0 + \beta_1 \ln gdp_t + \beta_2 \ln wd_t + \beta_3 \ln open_t + \beta_4 \ln fk_{t-1} + \beta_5 \ln gi + \beta_6 \ln gr + \beta_7 \ln cpi + e_t$$

where  $\ln$  denotes natural logarithms, and  $fdi$  is real foreign capital inflows,  $gdp$  is real gross domestic product,  $wd$  is wage differential,  $open$  is openness of the economy,  $fk_{t-1}$  is lagged real stock of foreign capital,  $gi$  is public infrastructure investment,  $gr$  is growth rate of the economy, and  $cpi$  is consumer price index.

### C) Estimation Techniques

In section 3, we discussed possible variables that affect the FDI inflows and created a regression equation for our research purpose. The most common estimation method used in single-equation regression analysis is the ordinary least-squares (OLS) method. On the other hand, the generalized least-squares (GLS) method becomes a suitable alternative when autocorrelation exists in the error terms.

There are some assumptions, which are required to hold for the estimation made by OLS to be considered the Best Linear Unbiased Estimator (BLUE). With these assumptions, OLS estimators are unbiased, efficient, consistent, and normally distributed. If these assumptions are not hold, especially "no serial correlation between the error terms", the OLS estimation becomes inefficient and biased. When autocorrelation exists in the error terms, the GLS estimator becomes the BLUE. While the OLS method is consistent and GLS is efficient, as we mentioned above the OLS becomes inconsistent when error terms have time pattern. Yet, this makes GLS inefficient.

We estimate our regression equation by using OLS method first. If the Durbin Watson (DW) statistic indicates autocorrelation, we will re-estimate the equation by GLS method. If DW statistic falls into the inconclusive region, then the null hypothesis of no autocorrelation will be rejected (Intriligator, Bodkin and Hsiao, 1996).

#### D) Data Measurement: Sources, Characteristics and Limitations

In this study, we use annual time series data extending from 1960 to 2004 for the Turkish economy. The data are collected from the International Financial Statistics of IMF, State Institute of Statistics and State Planning Organization of Republic of Turkey.

The variables are in real terms, using 1994 prices. By following the common approach in the literature, we use the Turkish real GDP as a measure of the market size of the Turkish economy and the consumer price index (CPI) for price deflator. We use the ratio of French and U.S average wage rates to the Turkish rate in this study due to the fact that France and U.S are two major home countries for FDI in Turkey. Openness is defined as the ratio of exports plus imports to GDP. Since there is no direct measure of the stock of foreign capital, this variable is proxied by the accumulated sum of FDI inflows since 1960. We use consumer price index as a proxy for the degree of macroeconomic instability.

### Estimation Results

In this section, the estimation results will be presented and discussed. As mentioned before, the estimation is utilised by using OLS and GLS methods. The OLS and GLS estimation results are presented in Table 4.

**Table 4: Macroeconomic Determinants of Foreign Direct Investment in the Turkish Economy: Estimates Based on OLS and GLS Models**

**Table 4A: OLS Estimates of the Model**

Explanatory Variables	Coefficient Estimates	Standard Errors	t-value
<i>Intercept</i>	-10.23	2.01	-5.09
<i>Lngdp</i>	1.85	1.09	1.70**
<i>Lnopen</i>	3.57	0.52	6.87*
<i>Lnwd</i>	0.21	0.36	0.58
<i>lnfk</i>	3.06	1.65	1.85**
<i>Lngt<sup>t-1</sup></i>	0.63	0.17	3.71*
<i>Lngr</i>	0.23	0.11	2.09**
<i>Lncpi</i>	-1.52	0.66	-2.30*
	<b><math>R^2 = 0.96</math></b>	<b><math>DW = 1.46</math></b>	

**Table 4B: GLS Estimates of the Model**

<b>Explanatory Variables</b>	<b>Coefficient Estimates</b>	<b>Standard Errors</b>	<b>t-value</b>
<i>Intercept</i>	-10.09	2.35	-4.29
<i>Ln<sub>gdp</sub></i>	1.18	1.11	1.06
<i>Ln<sub>open</sub></i>	3.55	0.62	5.73*
<i>Ln<sub>wd</sub></i>	0.29	0.35	0.83
<i>ln<sub>fk</sub></i>	2.45	1.81	1.35**
<i>Ln<sub>gi</sub><sup>t-1</sup></i>	0.59	0.18	3.28*
<i>Ln<sub>gr</sub></i>	0.17	0.10	1.70**
<i>Ln<sub>cpi</sub></i>	-1.55	0.82	-1.89
<b><math>R^2 = 0.94</math></b>		<b><math>DW = 1.54</math></b>	

Notes: (\*) Significant at 5% level, (\*\*) Significant at 10% level.

**Table 4C: OLS Estimates of the Model (gdp Excluded)**

<b>Explanatory Variables</b>	<b>Coefficient Estimates</b>	<b>Standard Errors</b>	<b>t-value</b>
<i>Intercept</i>	-12.09	1.52	-7.95
<i>Ln<sub>open</sub></i>	3.75	0.51	7.35*
<i>Ln<sub>wd</sub></i>	0.19	0.29	0.66
<i>ln<sub>fk</sub></i>	2.22	1.01	2.20*
<i>Ln<sub>gi</sub><sup>t-1</sup></i>	0.72	0.17	4.24*
<i>Ln<sub>gr</sub></i>	0.29	0.09	3.22*
<i>Ln<sub>cpi</sub></i>	-1.79	0.59	-3.03*
<b><math>R^2 = 0.98</math></b>		<b><math>DW = 1.35</math></b>	

**Table 4D: GLS Estimates of the Model (gdp Excluded)**

<b>Explanatory Variables</b>	<b>Coefficient Estimates</b>	<b>Standard Errors</b>	<b>t-value</b>
<i>Intercept</i>	-10.98	1.76	-6.24
<i>Ln<sub>open</sub></i>	3.52	0.55	6.40*
<i>Ln<sub>wd</sub></i>	0.33	0.36	0.92
<i>ln<sub>fk</sub></i>	1.65	1.11	1.49
<i>Ln<sub>gi</sub><sup>t-1</sup></i>	0.29	0.18	1.61**
<i>Ln<sub>gr</sub></i>	0.19	0.09	2.11**
<i>Ln<sub>cpi</sub></i>	-1.29	0.69	-1.87**
<b><math>R^2 = 0.95</math></b>		<b><math>DW = 1.51</math></b>	

Table 4E: OLS Estimates of the Model (wd Excluded)

Explanatory Variables	Coefficient Estimates	Standard Errors	t-value
<i>Intercept</i>	-12.95	2.02	-6.41
<i>Lngdp</i>	1.85	1.10	1.68**
<i>Lnopen</i>	3.49	0.51	6.84*
<i>lnfk</i>	3.21	1.49	2.15*
<i>Lngt<sup>t-1</sup></i>	0.61	0.15	4.06*
<i>Lngr</i>	0.27	0.10	2.70*
<i>Lncpi</i>	-1.79	0.73	-2.45*
<b><math>R^2 = 0.98</math></b>		<b><math>DW = 1.47</math></b>	

Table 4F: GLS Estimates of the Model (wd Excluded)

Explanatory Variables	Coefficient Estimates	Standard Errors	t-value
<i>Intercept</i>	-11.97	2.30	-5.20
<i>Lngdp</i>	1.69	1.14	1.48
<i>Lnopen</i>	3.39	0.62	5.47*
<i>lnfk</i>	2.68	1.71	1.57
<i>Lngt<sup>t-1</sup></i>	0.59	0.17	3.47*
<i>Lngr</i>	0.18	0.09	2.00**
<i>Lncpi</i>	-1.57	0.81	-1.94**
<b><math>R^2 = 0.95</math></b>		<b><math>DW = 1.55</math></b>	

Notes: (\*) Significant at 5% level, (\*\*) Significant at 10% level.

Table 4A shows that the Durbin-Watson statistic obtained from the OLS method is 1.46, which falls into the inconclusive area. Then, we re-estimate the equation by using GLS method (Table 4B). By comparing the results of OLS and GLS methods, it is seen that the t-statistics have decreased in GLS method mainly due to increased estimates of standard errors. This is expected because OLS underestimates the standard errors of the parameters when serial correlation is the case. In fact, adjusting for serial correlation is necessary to avoid making mistakes of inference due to t-statistics that are very high.

The results in Table 4A suggest that the degree of openness, economic instability and public infrastructure investment are statistically significant determinants with 5% significance level, while growth rate of the economy lagged foreign capital stock, and GDP are statistically significant determinants with 10% significance level. All coefficients are consistent with the hypotheses. The coefficient of wage difference is not found to be statistically significant. As a result, using the

OLS method, six variables are found to be statistically significant with the expected signs in explaining the FDI inflows.

In the case of the GLS method, four variables are statistically significant in determining the inflows of FDI into Turkey: openness, infrastructure investment, real growth rate and CPI. The Durbin Watson statistic is again in the inconclusive region indicating that nothing is gained by using the GLS method.

We extend our regression equation with alternative specifications basically by excluding a insignificant variable. This exclusion enables us to observe any differences in the results. In this exercise, (1) real GDP, (2) wage difference will be excluded. The results of alternative specification (1) are presented in tables 4C and 4D, specification (2) in tables 4E and 4F.

We obtain similar results in terms of the determinants of the FDI inflows into the Turkish economy. The results of the alternative specification suggest that the adjustments in the basic model do not exert any significant changes in terms of the determinants of the FDI inflows into the Turkish economy. The different specifications reveal consistent results.

The results of the alternative specifications show that both OLS and GLS estimates are consistent in terms of the significant variables. In each of the different specifications, GLS estimates demonstrate that the same four variables remain significant; openness, infrastructure investment, real growth rate and CPI. On the other hand, the OLS estimates show that two variables, namely, real growth rate and lagged stock of foreign capital became statistically significant even with 5% significance level.

The values of  $R^2$  in both methods are high mainly due to the fact that our equation model is auto-regression model. Typically, all autoregressive models produce very high  $R^2$  (Damodar N. Gujarati, 2000). The increases in Durbin Watson (DW) statistic from OLS to GLS method are not significant. That result implies that there is no gain in using GLS method. The signs of the coefficients and their statistical significance are consistent with other studies. As a result, it is possible to conclude that the important determinants of the FDI inflows into the Turkish economy are degree of openness, economic instability, public infrastructure investment, growth rate, lagged foreign capital stock, and market size.

### **Conclusions and Policy Implications**

In this paper, we analyze the determinants of FDI inflows into the Turkish economy. Our findings show that the determinants of FDI inflows that are statistically significant are; openness, growth rate, lagged foreign capital stock, public investment, economic instability, and market size.

The results of this study are consistent with the previous studies with some differences. Differences are mainly due to the using different variables, different econometric methods, different time periods, or different characteristics of economies.

Our findings propose that the degree of openness is an important determinant of the FDI inflows into the Turkish economy. Obviously a more open economy attracts more foreign investment. Riedel (1975) found a similar result as well. Erdal and Tatoglu (2002) also found the same result for the Turkish economy.

Public infrastructure investment is also an important determinant of the FDI inflows into the Turkish economy. Increased public infrastructure investment in transportation, utilities, and communication attracts FDI into the country. Williams and Scaperlanda (1995) asserted the same in their study. Erdal and Tatoglu (2002) also realised this for the Turkish economy.

Our findings show that economic stability is one of the factors that affect the FDI inflows into the Turkish economy. The negative coefficient in the estimated equation implies that an unstable economy will result in lower FDI inflows in Turkey. In other words, since the proxy used is consumer price index for economic instability, a lower inflation rate could attract higher FDI inflows. Our finding is also consistent with Bajo-Rubio and Sosvilla-Rivero (1994). Erdal and Tatoglu (2002) also found the same result for the Turkish economy.

We also found that market size is one of the determinants of the FDI inflows. However, this is not as strong as other variables in our equation except wage differential. This finding is also consistent with the findings of Scaperlanda and Balough (1983) and Bajo-Rubio and Sosvilla-Rivero (1994). Erdal and Tatoglu (2002) are in agreement on this for the Turkish economy.

The real growth rate has been found to have a statistically significant positive relationship with the FDI inflows. High growth rate of economy reflects rapid increase in average income that increases the demand for output of foreign investors too.

Finally, the existing stock of foreign capital has been found to have a statistically significant relationship with the FDI inflows into the Turkish economy. This result obviously proposes that the stock of current foreign capital in the country will affect the new FDI inflows. In other words, the higher current foreign capital stock attracts higher FDI inflows into the Turkish economy. This finding of our study is different from the finding of Bajo-Rubio and Sosvilla-Rivero (1994). They found a negative relationship between foreign capital stock and the FDI inflows.

The only insignificant variable in our analysis is wage differential. Since we measured the wage differential by using relative wages between the home and host countries, increasing labour costs in Turkey is not a serious obstacle for the expansion of FDI.

The findings of this study suggest that more economic, political and other necessary steps should be taken to attract additional foreign investments. Augmented increase of FDI inflows in Turkey as well as India in response to liberalisation policies can be taken as a signal that foreign investors have responded favourably to the liberalisation and FDI promotion policies.

Although the implementation of the free market economy and liberalisation and FDI promotion policies have augmented FDI inflows into the Turkish economy, Turkey is still far behind the level that can be reached. As mentioned before, the minimum annual FDI attraction potential of Turkey is \$35 billion according to 2002 World's Investment Report of the United Nations Conference on Trade and Development.

For the policy implication purpose, it is suggested that liberalisation and FDI promotion policies should be carried on with the improvement of infrastructure, establishing and keeping macroeconomic and political stability by strictly adhering to its structural economic and political transformation and providing tax and other related incentives to facilitate sustained increase in FDI.

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# **Social Cost-Benefit Analysis of Improved Water Quality in Rural Areas: An Exploratory Study in Coastal AP**

**V Ratna Reddy, M Kullappa and D Mohan Rao\***

## **Abstract**

*This study attempts to assess the costs and benefits of improved water quality in rural communities on the backdrop of a proposed water purification project in coastal districts of Andhra Pradesh. Important issues assessed include: i) Health sector benefits due to averted illness, ii) Patient expenses saved due to averted illness, and iii) Value of productive days gained due to averted illness. Both qualitative and quantitative information is being elicited from households in six villages in three districts. Group discussions, discussions with local doctors and Naandi Foundation were conducted to get an overview of the situation. Cost-benefit analysis has been carried out from the angle of social welfare rather than from a purely economic point of view. Besides, a willingness to pay survey was conducted to assess the ability of rural communities to pay.*

*Important conclusions of the study include:*

- i) All the sample tests for water quality and discussions with doctors confirm health and water quality linkages.*
- ii) Households incur substantial losses due to ill health and the resultant loss of working days. Losses are more in terms of medical expenses followed by working days lost and expenditure on water. Such losses are relatively more among Below Poverty Line (BPL) households and also among women.*
- iii) Households experience positive Social and Health benefits in the medium to long term.*
- iv) Poor are paying disproportionately higher proportion of their income towards improved water supplies. Hence, discriminatory*

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*pricing or cross subsidisation could be a desirable option in order to reduce the burden on poor households.*

- v) *The viability of the technology is limited to large villages (above 500 households) eliminating the small and medium villages that are in majority. Appropriate institutional arrangements for managing the existing distribution systems appear to be a better option in these villages. The existing systems are also cost effective when compared with the proposed new technology.*

## **Introduction**

Quality of water is of vital concern in domestic, agricultural and industrial use. All sources of water are susceptible to pollution from a variety of sources such as domestic waste, solid waste, agriculture activities, industrial effluents, etc. Externalities caused by the changes in the quality of water include disorders like diarrhoea, jaundice, dysentery, polio, gastroenteritis, allergies, skin rashes, etc. In India, 21 per cent of the communicable diseases are water-related. Every year seven-lakh people die due to diarrhoea alone (Pushpangadan, 2006). Often households use various methods to overcome the poor quality of water. It is observed that the transformation of water from poor to good quality improves the human capabilities (human capital), but the efficiency levels achieved vary across the states. The transformation efficiency of water characteristics into achieved capabilities (free from morbidity rates of water-borne diseases) shows that Punjab has the least efficiency while Kerala and Orissa have the best efficiency levels. The major reason for this transformation efficiency in Kerala may be due to the cultural practice of boiling drinking water before consumption. In the case of Orissa, it can be attributed to better hygienic water-handling practices. One such indicator, taking water from the storage containers using vessels with handles, is very high among households in Orissa (Pushpangadan, 2006). In the process, households incur costs to overcome the health impacts related to consumption of poor quality of water.

It is estimated that the cost of health impacts of water pollution in India ranges between US\$ 3,076 million and US\$ 8,344 million. This accounts for more than 2.5 per cent of the country's Gross Domestic Product (GDP) (Bradon and Homman, 1995). This study, however, takes only the domestic pollution of water, leaving out other types of pollution such as industrial, chemical, solid waste, etc. In the context of industrial pollution, the total costs due to health impact are estimated in the range of Rs 2,650 to Rs 3,000 per household per annum (Reddy and Behera, 2006). While these studies estimate the costs of water pollution, they do not discuss the costs of providing alternative sources of water. Comparing costs and benefits of improved water quality would help in formulating policies to support quality water supply programmes/projects. Here, an attempt is made to assess the costs

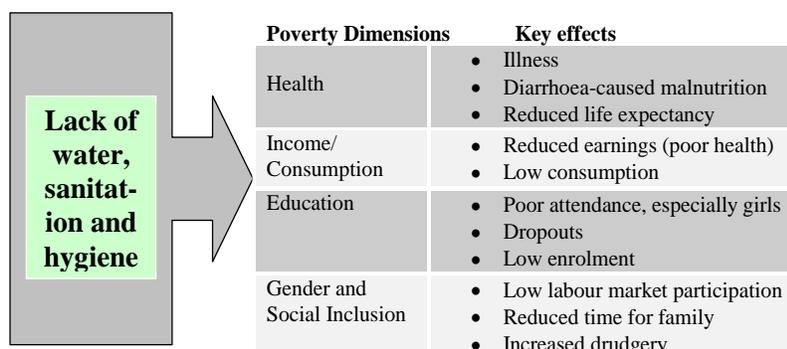
and benefits of improved water quality in rural communities on the backdrop of a proposed water purification project by the Naandi Foundation in the coastal districts of Andhra Pradesh.

The paper argues that households incur substantial health costs due to impure water supplies. The poor bear disproportionately higher costs than the rich. Appropriate policies and institutional arrangements are required to mitigate these impacts and improve the microenvironment in the rural areas. This calls for better understanding of various dimensions of drinking water contamination and its impacts. The important issues in this regard include: i) Health sector benefits due to avoided illness, ii) Patient expenses saved due to avoided illness, iii) Value of life saved, iv) Value of time savings due to access to water and sanitation, v) Value of productive days gained due to averted illness, vi) Value of days of school attendance gained due to averted illness, and vii) Value of child days gained of those with avoided illness. The cost-benefit analysis provides rationale for investing in a particular project; hence the cost-benefit analysis has been carried out in order to assess the viability of the purification techniques.

### **Water Quality-Poverty Linkages**

Water is life and water quality affects life in many ways. Lack of access to quality water affects the poverty dimension of households in four major ways, directly as well as indirectly. It affects the health and income levels of the household directly, while indirectly it affects child education, and reduces quality of life due to exclusion of women due to women's preoccupation with water (Fig. 1). Intensity of health impacts depends on the type of pollution and the exposure of the households to polluted water. Often, the poor get affected more due to lack of awareness and ability to mitigate water pollution. Besides, their weak metabolism makes them more vulnerable. Health impacts of poor water quality translate into high morbidity and mortality rates, malnutrition and reduced life expectancy. Income and consumption effects are directly linked to the health condition of the households, especially for the poor who depend more on their labour. Poor health reduces the labour market participation and earning capacity of the household. Low earnings result in low consumption, malnutrition and poor health. Some of the households tend to get into this vicious circle and into a debt trap in order to meet their health expenditure. In most regions, women and children, especially girls, are the main drawers of water. They not only spend more time in fetching water but are also more exposed to contaminated water. They walk long distances and wait for longer hours to collect water in the absence of access to potable water near their homes. In the process children, especially girls, are drawn away from schools and women are left with little time for paid work as well as household duties like taking care of the smaller children, etc.

**Figure 1: Linkages between Water Quality & Sanitation and Poverty dimensions**



Source: Adopted with modification from Bosch *et al* (2002)

There could be multiple pathways through which pathogens find their way in to water bodies (Figure 2). People get affect through direct consumption (drinking water, eating products like fish, etc) or get in contact with water (bathing, washing, cleaning, etc). The impact of direct consumption is termed as water borne and through contact is termed as water washed diseases. In rural areas households mostly depend on the local surface or groundwater sources. In some cases, water from these sources is treated and supplied as a public service. In the absence of public service people process the water in order to make it potable. In some instances people consume contaminated water due to lack of awareness regarding water pollution. Surface and groundwater bodies often get polluted through non-point sources, which are not conspicuous in general. While pollution due to domestic wastage and industrial effluent discharges in to surface water bodies is more conspicuous, their seepage into groundwater aquifers is less conspicuous. Similarly, pollution due to agro chemicals such as nitrate, pesticides, etc., that contaminates surface water bodies through runoff and groundwater through seepage is less understood (Bhatnagar and Sharma, 2002).

In general people determine the quality of water by its turbidity (colour), smell and taste. In the absence of such indications people tend to consume water irrespective of its quality. In the event of no choices people are forced to consume water irrespective of its apparently poor quality indicators. Choices are often limited due to low-income levels of the community or sections of the community or the physical or geographical attributes of the location. As a result of consuming poor quality water people incur losses or lose income or quality of life for reasons indicated in Figure 1. These costs vary from location to location depending on the

nature and intensity of pollution. Therefore, it is necessary to assess the costs and benefits at the local level in order to make appropriate policy interventions.

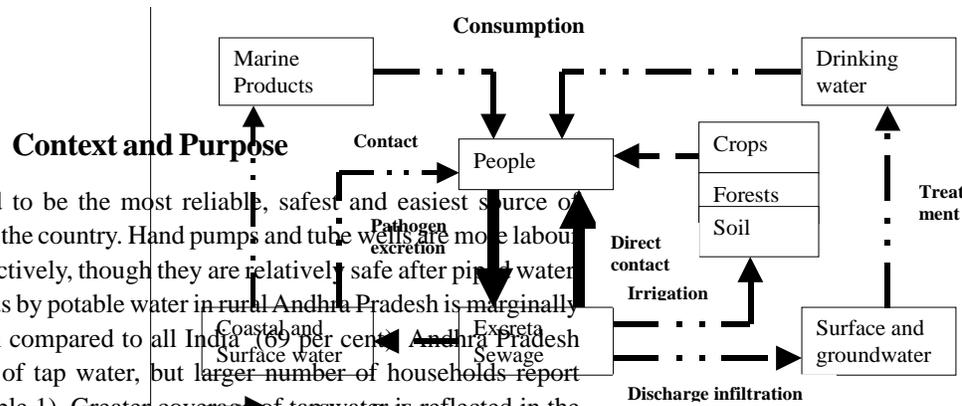
**Figure 2: Pathways of Human Exposure to Pathogens through Water Bodies**

Source: Bosch et al (2002)

**Context and Purpose**

Piped water is considered to be the most reliable, safest and easiest source of drinking water available in the country. Hand pumps and tube wells are more labour and capital intensive respectively, though they are relatively safe after piped water. The coverage of households by potable water in rural Andhra Pradesh is marginally better at 73 per cent when compared to all India (69 per cent). Andhra Pradesh (AP) has better coverage of tap water, but larger number of households report insufficiency of water (Table 1). Greater coverage of tap water is reflected in the proportion of households reporting availability of quality water. On the other hand, jaundice morbidity is on the higher side while diarrhoea related morbidity in children below 3 years is on the lower side in AP when compared to all India level. However, these aggregate figures may not hold good at the regional and sub-regional (district) levels.

For instance, it is estimated that 5,00,000 people live within areas with severe faecal contamination of >2,000 MPN/ml (against acceptable 100 MPN/ml) in the coastal districts of Krishna, East and West Godavari, Prakasam and Guntur in Andhra Pradesh. Rural communities need access to better water resources and need to be educated to make villagers aware of the risks posed by the consumption



of unsafe water. Incidence and intensity of water pollution is more among the poor households. In order to improve the quality of life in the rural areas in general and that of poor households in particular, a pilot project to provide safe drinking water in the rural areas of coastal districts is proposed. The objective of the project is to pilot an output-based approach to provide safe drinking water to 10,000 families (earning less than US\$ 20 per month) in the coastal area of Andhra Pradesh, through an innovative village-based public-private partnership model sponsored and executed by the Naandi Foundation.

**Table 1: Water Quality Indicators of Rural Andhra Pradesh, Kerala and India.**

Item	Andhra Pradesh	Kerala	All India
% Households with potable source	73.1	12.0	68.7
a) Tap	26.1	10.6	18.7
b) Tube well/Hand Pump	46.9	1.4	50.1
% Households with sufficient water from Potable source	57.9	8.8	61.3
% Households Getting quality water	67.2	10.1	59.6
% of people affected by Jaundice Morbidity (1998-99)	1.61	0.64	1.41
% of Children Under age 3 affected by Diarrhoea morbidity (1998-99)*	15.0	11.6	19.2

Note: \* Rural and Urban together.

Source: Pushpangadan (2006)

**Site Selection Criteria**

The proposed project envisages the selection of 25 villages in three contiguous districts of coastal Andhra Pradesh, namely, Guntur, Krishna and West Godavary. Villages will be selected where:

- Drinking water resources suffer from bacteriological contamination above the permissible limit of 100 MPN/ml;
- U V technology is capable of purifying water to make it fit for drinking
- Villages are willing to contribute a raw water source, a suitable site for the construction of the water purification plant, and there is a segment of the population that is capable of paying at least 20% of the total capital cost i.e. US\$ 10,000 towards the initial investment required to set up the water purification plant.

Naandi Foundation, the project sponsor, proposes a model whereby a participating Village Panchayat (Local Self-Government) earmarks a common water

source, as in-kind contribution, for the installation of the water treatment plant and storage tank. The Village Panchayat also contributes by fencing the tank to prevent the water from being used for bathing, washing or other purposes.

The expected benefits from the proposed project include<sup>1</sup>:

- Construction and installation of 25 UV water purification plants (with associated storage tanks) for each village. Each plant will have a water distribution point from which users will purchase water in jerry cans. The project does not envisage domestic connections.
- Registration of the households (represented as paid subscription fees); and
- Three months of billed user fee consumption (represented by number of sold water coupons).
- The project is expected to target majority of the households of the 25 selected villages. However the subscription subsidy will benefit approximately 400 eligible BPL households.
- The project will aid poor rural households to switch from water sources unfit for human consumption (currently exceeding the permissible pathogen levels of >100 MPN/ml) to safe water at affordable rates.
- Health benefits from reduced exposure to environmental risks posed by unsafe water and economic benefits from reduction in medical expenses to treat water-borne diseases, increased productivity and capacity to work due to fewer water-borne disease related to days off from work (especially for mothers of children under five who are prone to diarrhoea), and lower household expenditure on LPG/Kerosene for boiling water. Environmental benefits from UV technology, which is an energy efficient and non-polluting method of water purification as there is no wastage of water and no harmful by-products. Social benefits from equitable access to safe drinking water for villagers from varied castes, creeds and religions.

### ***Funding Structure***

The total project cost is US\$ 50,000 (Rs 22 Lakh) per village<sup>2</sup>. The Funding relies on a combination of community contribution, subscription fees and in-kind contributions by the public (Village Panchayats). In-kind contribution of the raw water source, land for the purification plant and storage tank, electricity and perimeter fence is to be provided by the village panchayat. Community contribution to cover at least 20% (US\$ 10,000) of total plant cost, is expected to be raised by the panchayat through its own funds or Zilla Parishat funds apart from the contributions from the households or individual donors. Individual consumers (members) are expected to buy water coupons for a minimum consumption of 30 litres for a price of Rs 2.20 (US\$ 0.0479). The balance 80 per cent of the initial investment required to set up a

plant will be supported by Naandi-Water health through project finance repaid through a combination of subsidy (from GPOBA<sup>3</sup>) and user-fees collected from the community. The loan repayment period is estimated to be 8 years. During this period, the assets belong to Naandi, and WHI has full operational responsibility. Thereafter, ownership of assets will transfer to the Village Panchayat, who may renew the operation and maintenance agreement with Naandi.

The duration of the project implementation is one year. The pilot project will test the viability of a well-targeted output-based aid (OBA) approach with full participation and ownership from the beneficiary community, a private operator and an NGO. The GPOBA partnership will help Naandi leverage the achievements of their experience of bringing safe water to villages. The GPOBA project will build on this experience and will test the potential for replication of the model, wherever this model is needed with an OBA approach. The lessons could be applied to the whole of the State of Andhra Pradesh and ultimately in the whole of India.

### **Approach**

For the purpose of evaluating the impact of improved water quality on households we have selected six villages in three districts of Guntur, Krishna and West Godavari. These villages were selected after consultations with the Naandi Foundation as being representative of the Three Project Districts. Naandi Foundation has initiated the process of establishing the water purification plants in these villages. Both qualitative and quantitative information is being elicited. Group discussions, discussions with local doctors and Naandi Foundation were conducted to get an overview of the situation. A structured questionnaire was prepared in order to elicit information at the household level. All the households in the village are grouped into two, namely, i) Above Poverty Line (APL) and ii) Below Poverty Line (BPL) categories<sup>4</sup>. Since the sources of water in all these villages are either public stand posts (located in respective locations) and open access canals or tanks, the caste-based distinction may not be that relevant. A sample of 15 households was selected from each group, i.e., a total of 30 households from each village. On the whole, we have collected detailed information from 180 households i.e., 90 from APL households and 90 from BPL households. Field visits and data collection were organised during September 2006. The sampling details are presented in Tables 2 and 3. Our sample villages are quite large in terms of number of households. As a result, our sample coverage is about 1 per cent of the total households. Average household size is about four (Table 3). While forward caste households are in majority in three of the villages, Scheduled Castes and Tribes and backward caste households are in majority in the remaining villages (Table 4). Greater proportions of households are poor among the backward caste households followed by Scheduled Caste and Tribe households.

**Table 2: Distribution of Sample Household by Economic Status**

Village	Mandal	District	Total no. of HH	Sample HH		Avg. HH Size	
				APL	BPL	APL	BPL
Nagayalanka	Nagayalanka	Krishna	2100	15	15	4.40	3.80
Pedavadlapudi	Mangalgiri	Guntur	3400	15	15	4.40	4.27
Pedapadu	Pedapadu	West Godavari	2150	15	15	4.67	3.87
Poolla	Bheemadolu	West Godavari	3130	15	15	3.93	4.60
Kovvali	Denduluru	West Godavari	2510	15	15	4.20	3.93
Denduluru	Denduluru	West Godavari	2505	15	15	4.67	4.80
	<b>All</b>		<b>15795</b>	<b>90</b>	<b>90</b>	<b>4.38</b>	<b>4.21</b>

Note: HH= Households; APL= Above poverty Line; BPL= Below Poverty line

**Table 3: Distribution of Household by Social Category.**

Village	Forward Caste		Backward Caste		Scheduled Caste & Tribe	
	APL	BPL	APL	BPL	APL	BPL
Nagayalanka	11	1	4	5	0	9
Pedavadlapudi	11	4	0	7	4	4
Pedapadu	5	0	6	5	4	10
Poolla	10	5	3	8	2	2
Kovvali	4	2	5	7	6	6
Denduluru	6	0	4	12	5	3
<b>All</b>	<b>47</b>	<b>12</b>	<b>22</b>	<b>44</b>	<b>21</b>	<b>34</b>

Note: HH= Households; APL= Above poverty Line; BPL= Below Poverty line

In order to estimate the impact of polluted water on household well-being the indirect methods of human capital (HC) and replacement cost (RC) approaches were used. Replacement cost approach states that if the environment has already been damaged, in order to restore it to its original state one has to spend some money. For example, the victims of environmental damage replace their environment by moving away from the affected area. The costs, which the victims incur by moving to a clean environment, are called replacement costs. One of the techniques adopted in the replacement cost method is that of direct observation of actual spending on safeguards against environmental risks (Winpenny, 1991 pp 48; Bateman *et al*, 2003). In the present study, the replacement cost method is used to estimate the expenditure on bottled water a household spends in order to avoid the ill-effects of polluted water. Data pertaining to the household's actual spending on purchase of drinking water are obtained for this purpose.

The human capital approach considers people as the economic capital and their earnings as return to investment. Environmental economics focuses on the impact on human health due to bad environmental conditions, and the effect this has on the individuals and society's productive potential (Bateman *et al*, 2003). Here the method would estimate the economic costs of illness of a productive human being. Two variants of this can be taken into account while measuring economic costs of illness due to environmental factors, first, the loss of earnings (working days) due to illness and second, the cost of medical treatment. In our study, we have calculated the loss of productive time and annual expenditure on healthcare, and then arrived at the total economic loss due to illness. However, it may be noted that we have not taken any help of medical science or epidemiological data to correlate the illness with pollution. But, the laboratory tests of various water samples from the villages suggest unequivocally that there are enormous possibilities of water related diseases. The linkages between water pollutants like arsenic and other metals and health hazards is well established (WHO, 2000; Sigal *et al*, 2003; Farid *et al*, nd; Adeel, nd)). Our discussions with local doctors also vindicated the linkage between water pollution and the prevailing diseases in the villages.

Besides, the direct approach of contingent valuation method (CVM) was used to collect the information on willingness to pay by asking the respondent directly to state the one time and user charges (amount of money) she/he would be willing to pay for getting good quality water for drinking. The response to CVM is quite good in all the villages reflecting the severity of water quality problems in these villages.

At the outset, it may be noted that in most of the enquiries of this nature there is a tendency on the part of respondents to over estimate the costs. Another important limitation is the absence of a controlled situation, as all the surrounding villages are facing similar water quality problems. Therefore, it is necessary to minimise the bias of overestimation. All efforts were made to minimise, if not eliminate, the bias, through cross checking and triangulation. Further, our discussions with the neighbouring villagers and medical practitioners have helped in cross checking the damage losses.

### ***Profile of the Sample Villages***

All the sample villages are large in size. They are largely irrigated and agriculturally developed (Table 4). Water is not a scarce commodity in these areas though water quality is of great concern. Despite the protected water supplies in all, except Pedavadlapudi, the villages, water quality is poor mostly contaminated with domestic waste, agricultural run off and even sugar industry in one case. The protected water supply schemes are poorly maintained and in need of maintenance, which could be the reason for water contamination. Most of the households in the sample villages suffer from common ailments like diarrhoea, viral fever, stomach

pain, joint pains, skin deceases, etc., that are associated with water contamination. Though people are not able to relate the diseases to water quality they are aware that the water they drink is not good. According to local RMP / Health Centres / local government hospital sources, in all the villages drinking water is contaminated and the diseases they get are due to water contamination though some are seasonal. In all the villages' people have expressed satisfaction with the Naandi plant and the contribution, which they fixed, are ready to pay. They are ready to pay Rs 1.50 per 20 litres can at the plant and more if supplied to their houses.

**Table 4: Basic Features of the Sample Villages**

Feature	Nagayalanka	Pedavadlapudi	Pedapadu	Poolla	Kovvali	Denduluru
1) Cropped area (acres)	300	2500	10,000	9303	7334	7086
2) % area irrigated	66	46	44	82	83	75
3) Major crops	Paddy, banana	Paddy, flowers, vegetables, banana	Paddy, Plamoline	Paddy, Fruits	Paddy, Fruits	Paddy
4) Important livelihood	Agriculture Fish/prawn cultivation	Agriculture	Agriculture	Agricul- ture	Agricul- ture	Agricul- ture
5) Source of drinking water	Handpump	Bore well	Public Tap	Public Tap	Public Tap	Public Tap
6) Quality of water	Poor	Poor	Poor	Poor	Poor	Poor
7) Water related Health Problems	Yes	Yes	Yes	Yes	Yes	Yes
8) Water markets	Yes	Yes	Yes	Yes	No	No

### Status of Drinking Water Supply

Multiple sources such as tap, hand pump, open well, bore well, tank, etc are used to meet the household water demand in the sample villages. Five major activities are considered for arriving at household consumption (demand) of water. These include washing, bathing, cooking, cleaning and drinking. Though the livestock's demand for water is also part of household water use, in the sample villages livestock are in general watered at the source. Hence livestock water use is not taken into account here. The per capita water use ranges between 47.8 (Nagayalanka) and 71.5 (Pedavadlapudi) litres per capita per day (lpcd) (Appendix Table A1). This is quite high considering that the WHO normative water requirement in rural areas is 40 lpcd without livestock. This higher water consumption in the sample villages could be due to the availability of water in plenty. Of this the share of drinking water ranges between 9 and 16 per cent across the sample villages. Washing and bathing account for more than 60 per cent of the household water use

in the sample villages. Proportion of households depending on purchased water ranges from 13 per cent (Poolla) to 24 per cent (Pedapadu).

In all the villages water sources are located relatively closer to the houses. Most of the households using hand pump or open well have them in their house itself. Even the location of the common taps is not far from their dwellings. As a result involvement of households in fetching water in terms of persons, time spent and distance, is not much. In fact, households indicated 'negligible' to the question on distance. On an average one person is involved per household in fetching water in all the sample villages (Table 5). Average time spent in fetching water ranges between 10 and 18 minutes per day across the sample villages. BPL households appear to be spending more time when compared to APL households due to the absence of in-house water sources. Women are the main fetchers of water. Women account for more than 70 per cent share in water fetching activity. This is true for all the households. Interestingly, there is low involvement of children in fetching water. This is mainly due to the higher economic well-being of these villages, where priority for education is greater. Moreover, greater abundance of water does not warrant children's involvement, as is the case in the scarcity regions (Reddy, 1999). Households spend Rs 5 per day on water in Pedavadlapudi village, while in Pedapadu and Poolla households spend between Rs 11 and Rs 21 per week. 50 per cent of the households spend money on procuring safe drinking water. BPL households seem to be spending more when compared to APL households in these two villages.

**Table 5: Time Spent in Fetching Drinking Water (Minutes/day)**

Village	APL		BPL		All	
	Total	Per HH	Total	per HH	Total	Per HH
Nagayalanka	230	15.3	295.0	19.7	525.0	17.5
Pedavadlapudi	17	1.1	17.0	1.1	34.0	1.1
Pedapadu	150	10.0	205.0	13.7	355.0	11.8
Poolla	140	9.3	120.0	8.0	260.0	8.7
Kovvali	205	13.7	230.0	15.3	435.0	14.5
Denduluru	155	10.3	185.0	12.3	340.0	11.3

### ***Quality of Water and Health***

General perception about the quality of water is based on the colour, smell and taste. Though most of the households or people complain that water quality is poor in this regard, majority of the respondents are not aware of the real quality in terms of contamination and its ill effects. Only 33 per cent of the households are aware of the contamination. Awareness is quite high in Pedavadlapudi followed by Poolla and Dendulur. Awareness is more among the APL households when compared to BPL households (Appendix Table A2). However, this awareness does not fully

translate into action for sourcing clean drinking water, which needs to be addressed through the use of a well-designed communication programme. Bacteriological analysis, however, indicated high-level contamination of Total Coliform, Fecal Coliform and E. Coli in all the villages (Appendix Table A3). Total coliform bacteria are commonly found in the environment (e.g., soil or vegetation). If only total coliform bacteria are detected in drinking water, the source is probably environmental. Fecal contamination is not likely. However, if environmental contamination can enter the system, there may be a way for pathogens to enter the system<sup>5</sup>. The main sources of contamination are domestic wastage (sewerage), agricultural runoff, etc. Agricultural runoff could be a serious problem in these villages as they practice high input intensive agriculture.

The extent and intensity of water contamination is reflected in the incidence of water related health problems. Here we are concerned with waterborne and water washed diseases, which include diarrhoea, cholera, joint pains, viral fever, etc. Across the sample villages 21 to 57 per cent of the households are affected by these problems (Table 6). Pedavادلapudi has the highest incidence followed by Pedapadu, Poolla, Kovvali, Nagayalanka and Denduluru. Fever is the single largest health problem in these villages. Pedapadu village even had the incidence of cholera. Incidences of health problems are more among BPL households when compared to APL households in all the villages, except Nagayalanka. This is also reflected in the number of persons sick and number of days sick per household (Table 7). Women are the worst affected due to their exposure to water when compared to men. Apart from being the main fetchers, women are also chief users of water.

**Table 6: Incidence of Water-Related Health Problems (% of people affected)**

<b>Village/Problems</b>	<b>APL</b>	<b>BPL</b>	<b>ALL</b>
<b><i>Nagayalanka</i></b>	24.2	22.8	23.6
Skin Problems	3.0	3.5	3.3
Diarrhoea	0.0	3.5	1.6
Joint Pains	10.6	1.8	6.5
Fever	10.6	14.0	12.2
<b><i>Pedavادلapudi</i></b>	56.1	57.8	56.9
Skin Problems	10.6	10.9	10.8
Diarrhoea	7.6		3.8
Joint Pains	19.7	21.9	20.8
Fever	18.2	25.0	21.5
<b><i>Pedapadu</i></b>	30.0	43.1	35.9
Skin Problems	0.0	5.2	2.3
Diarrhoea	4.3	5.2	4.7
Joint Pains	8.6	8.6	8.6

*Contd....*

Fever	17.1	15.5	16.4
Cholera	0.0	8.6	3.9
<b>Poolla</b>	15.3	36.2	26.6
Diarrhoea	3.4	2.9	3.1
Joint Pains	0	1.4	0.8
Fever	11.9	31.9	22.7
<b>Kovvali</b>	22.2	25.4	23.8
Skin Problems		1.7	0.8
Diarrhoea	3.2	1.7	2.5
Joint Pains	6.3		3.3
Fever	12.7	22.0	17.2
<b>Denduluru</b>	17.1	25.0	21.1
Skin Problems	1.4	4.2	2.8
Diarrhoea	5.7	5.6	5.6
Joint Pains	4.3	8.3	6.3
Fever	5.7	6.9	6.3
<b>All villages</b>	-	-	-
Skin Problems	2.54	25.48	3.36
Diarrhoea	4.06	18.83	3.62
Joint Pains	8.38	42.03	7.76
Fever	12.69	115.41	15.91
Cholera	0	8.62	0.65

**Table 7: Extent of Health Impact**  
(No. of persons and days sick per household Per year)

Village/Impact	APL	BPL	ALL
<b>Nagayalanka</b>			
No. of People Sick	1.1	0.9	1.0
%Female	63	46	55
No. of days Sick	2.9	4.0	3.5
%Female	70	43	55
<b>Pedavadlapudi</b>			
No. of People Sick	2.5	2.5	2.5
%Female	54.1	64.9	59.5
No. of days Sick	13.7	14.0	13.9
%Female	70.9	57.1	63.9
<b>Pedapadu</b>			
No. of People Sick	1.4	1.7	1.5
% Female	57.1	60.0	58.7

Contd....

No. of days Sick	5.9	4.8	5.3
%Female	63.6	59.7	61.9
<b>Poolla</b>			
No. of People Sick	0.6	1.7	1.1
%Female	44.4	56.0	52.9
No. of days Sick	2.5	6.9	4.7
%Female	51.4	56.3	55.0
<b>Kovvali</b>			
No. of People Sick	0.9	1.0	1.0
%Female	50.0	60.0	55.2
No. of days Sick	6.3	5.7	6.0
%Female	52.1	66.3	58.9
<b>Denduluru</b>			
No. of People Sick	0.5	1.2	0.9
%Female	62.5	55.6	57.7
No. of days Sick	2.2	8.2	5.2
%Female	60.6	59.3	59.6
<b>All villages</b>			
No. of People Sick	1.2	1.5	1.3
%Female	55.2	58.6	57.1
No. of days Sick	5.6	7.3	6.4
%Female	63.9	57.6	60.4

### **Social Costs and Benefits of Improved Water Quality**

Measurement of benefits from any programme or project is a complex issue, especially when environmental and social benefits are involved. It is difficult to value some of the benefits such as social benefits and ecological benefits. Therefore, we have restrained ourselves to the monetarily measurable economic benefits to the households, which are measured in terms of direct medical expenses incurred by the households and the working days lost due to ill health or sickness. On the other hand, we have included the household expenditure (expected) on the cost side making the assessment of the project from the social welfare point of view rather than looking at the investment from the economic angle. Moreover, households are more concerned about these benefits rather than ecological and social benefits. As indicated earlier, no children are involved in fetching water and hence the loss of schooling is not included here. Similarly, time spent and distances walked for fetching water are marginal and there are no net gains in this regard. We have already discussed the extent of water buying and costs incurred by the households, which are mitigation costs.

**Table 8: Medical Expenses Incurred Due to Drinking Water-Related Health Problems (Per Household per year)**

<b>Village/Health Costs</b>	<b>APL</b>	<b>BPL</b>	<b>All</b>
<b><i>Nagayalanka</i></b>			
No. of days Sick	2.9	4.0	3.5
No. of Visits to doctor	1.0	0.7	0.8
Medical Expenses	228.0	373.3	300.7
<b><i>Pedavadlapudi</i></b>			
No. of days Sick	13.7	14.0	13.9
No. of Visits to doctor	2.8	2.1	2.5
Medical Expenses	906.7	620.0	763.3
<b><i>Pedapadu</i></b>			
No. of days Sick	5.9	4.8	5.3
No. of Visits to doctor	1.0	1.3	1.4
Medical Expenses	463.3	305.3	384.3
<b><i>Poolla</i></b>			
No. of days Sick	2.5	6.9	4.7
No. of Visits to doctor	0.8	2.1	1.4
Medical Expenses	190.0	569.3	379.7
<b><i>Kovvali</i></b>			
No. of days Sick	6.3	5.7	6.0
No. of Visits to doctor	1.0	1.2	1.1
Medical Expenses	573.3	354.7	464.0
<b><i>Denduluru</i></b>			
No. of days Sick	2.2	8.2	5.2
No. of Visits to doctor	0.6	1.3	1.0
Medical Expenses	3800.0	253.3	5550.0

While number of people sick indicates the extent of health problems, number of days sick indicates the intensity of the health impact. Similarly, number of visits to doctor and the related expenditure also reflects the intensity of the problems, as people tend to visit doctors only in the case of severe health problems. The number of days sick ranges between 3.5 to 14 days per household across the sample households. On an average, number of visits to doctors ranges between 1 and 2.5 per household (Table 8). In the case of both the indicators Pedavadlapudi ranks first. Intensity of health problems appears to be more among BPL households. As a result, BPL households visit doctors more frequently than their counterparts in four of the six sample villages and they also spend more on medical expenses in three of the villages. On an average, households spend between Rs 300 and Rs 763 per year on medical expenses (Table 8).

Severe sickness not only results in medical expenses but also affects the households/ individuals income flows due to their inability to work. When the sickness is debilitating inability to work extends beyond the days of sickness. Data on days they are unable to work indicates that in most of the cases people had to take rest beyond the actual sickness period. Average number of days unable to work ranges between 5 and 17 across the sample villages (Table 9). Here also females loose more number of days than males, which may be due to their general body conditions and low resistance or weakness. Using the maximum prevailing wage rates (Appendix Table A4), in the respective villages for males and females we have estimated the loss of income at the household level. Income losses per household per year range from Rs 300 in Nagayalanka to Rs 1029 in Pedavadlapudi (Table 10). Average loss of income per household is more in the case of BPL households in four of the six villages, as they depend more on casual labour.

**Table 9: Loss of Working Days (per year)**

<b>Village</b>	<b>APL Per HH</b>	<b>BPL Per HH</b>	<b>ALL Per HH</b>
<b><i>Nagayalanka</i></b>			
Days Unable to work	4.7	5.8	5.3
Male	1.4	2.7	2.0
Female	3.3	3.1	3.2
<b><i>Pedavadlapudi</i></b>			
Days Unable to work	13.3	20.1	16.7
Male	5.7	8.7	7.2
male	9.6	11.4	10.5
<b><i>Pedapadu</i></b>			
Days Unable to work	8.8	8.1	8.5
Male	3.7	2.9	3.3
Female	5.1	5.3	5.2
<b><i>Poolla</i></b>			
Days Unable to work	3.5	8.8	6.2
Male	1.6	4.0	2.8
Female	1.9	4.8	3.4
<b><i>Kovvali</i></b>			
Days Unable to work	10.9	7.1	9.0
Male	5.7	3.0	4.3
Female	5.3	4.1	4.7
<b><i>Denduluru</i></b>			
Days Unable to work	3.2	9.5	6.4
Male	1.3	4.6	3.0
Female	1.9	4.9	3.4

**Table 10: Loss of Income due to Loss of Working days Per Household on account of Unsafe Drinking water**

Village	Wage rate	APL		BPL		Total	
		Per HH	Loss of income	Per HH	Loss of income	Per HH	Loss of income
<b>Nagayalanka</b>		4.7	263.0	5.8	344.0	5.2	300
Male	70	1.4	98.0	2.7	189.0	2.0	140.0
Female	50	3.3	165.0	3.1	155.0	3.2	160
<b>Pedavadlapudi</b>		15.3	879.0	20.1	1179.0	17.7	1029
Male	70	5.7	3990.0	8.7	609.0	7.2	504.0
Female	50	9.6	480.0	11.4	570.0	10.5	525
<b>Pedapadu</b>		8.9	426.0	8.2	386	8.5	406
Male	60	3.7	222	2.9	174	3.3	198
Female	40	5.1	204	5.3	212	5.2	208.0
<b>Poolla</b>		3.5	180	8.8	452	6.2	318
Male	65	1.6	104.0	4.0	260.0	2.8	182.0
Female	40	1.9	76	4.8	192.0	3.4	136
<b>Kovvali</b>		11.0	554	7.1	344	9.0	446
Male	60	5.7	342	3.0	180.0	4.3	258
Female	40	5.3	212	4.1	164	4.7	188
<b>Denduluru</b>		3.2	173.5	9.5	541	6.4	361
Male	75	1.3	97.5	4.6	345	3.0	225
Female	40	1.9	76	4.9	196	3.4	136

**Table 11: Total Household Income Lost Due to Poor Quality of Water (Rupees per year)**

Village	Medical Expenditure			Loss of Income			Exp. on Water			Total		
	APL	BPL	ALL	APL	BPL	ALL	APL	BPL	ALL	APL	BPL	ALL
Nagayalanka	228	373	301	263	344	300	0	0	0	491	717	601
Pedavadlapudi	907	620	763	879	1179	1029	606	0	304	2392	1799	2096
Pedapadu	463	305	384	423	386	406	346	208	276	1232	899	1066
Poolla	190	569	380	180	452	318	380	208	294	750	1339	992
Kovvali	573	355	464	554	344	446	0	0	0	1127	699	910
Denduluru	253	370	312	173	541	361	0	0	0	426	911	673

Total costs of water pollution are arrived at by adding all the three costs viz., medical expenditure, loss of income and expenditure on water. In the case of expenditure on water the total expenditure of households buying water is taken as the expenditure of the sample households (15). Accordingly the average expenditure

per household per year is calculated. Hence, the expenditure figures shown in the final table (11) are lower than the figures shown earlier. Together, the average household losses per year range between Rs 601 in Nagayalanka and Rs 2,096 in Pedavadlapudi (Table 12). These losses in a way can be termed as benefits of improved water quality in these villages. It is assumed that households will save on all these costs once they start using good quality water supplied by the proposed water purification plant. On the other hand, there would be some costs that are to be incurred by the households and the society at large in order to provide and use the improved quality water. Now we turn to comparing these costs and benefits at the household level.

#### ***Measurement of Costs and Returns***

The costs of water purification plant are one time costs. These costs are mainly incurred on machinery and construction of the plant, etc. These costs include contribution from the village panchayat, membership fee and member household's contribution towards water coupons. Actual costs of plant establishment are obtained from the Naandi Foundation, which is the executing agency. The plant costs are same across the villages. The capacity of the plant is purification of 2500 litres per hour. At full capacity utilisation it can meet the drinking water demands of about 2000 households requiring 20 lpcd. It is assumed that the works carried out through this one time investment would last for 15 years. The proposed project is initially targeting to serve 500 households in each village. Gradually the coverage is expected to cover the entire village i.e., increasing the coverage to 750 and later 1000 households. All our sample villages have more than 2000 households. Based on these three coverage targets the investment on water purification plant and the expected benefit flows, we have assessed the costs and benefits of the proposed plant. Three cash flow measures viz., net present value (NPV), benefit-cost ratio (B-C Ratio) and the internal or economic rate of return (IRR/ERR) are estimated using the following formulae (Perkins, 1994):

NPV=

BCR=

$$IRR = NPV = 0$$

Where,

NPV = Net Present Value

BCR = Benefit cost ratio

IRR = Internal Rate of Return

$B_t$  = Project benefits in period t.;

$C_t$  = Project costs in period t; one time investment or expenditure on tank restoration;

r = Financial or Economic discount rate (2.5%);

n = Number of years the project will operate (15 years)

We have used the discount rate of 2.5 per cent<sup>7</sup> as the project provides environmental and social benefits. The incremental benefits accruing to the households are assessed in terms of increased health benefits and reduced costs of water purchase. These aspects were discussed in detail in the previous sections. The benefits are also assumed to continue as long as the life of the plant i.e., 15 years. Further, these benefits and costs are assumed to be constant over the period of 15 years. The one time capital cost of the plant is Rs 22 lakhs. These costs include contribution from the panchayat and the households also.

We have included the user charges as part of the total costs. Users have to pay for the water. While users save on the purchase of water from outside, they pay to the village water plant. Since we are including the savings on water purchase on the benefits side, we have to include the cost of water to the households on the cost side. These costs are at Rs 1.5 per 20 litres, which is being implemented in the Bomminampadu project. User charges include the operation and maintenance costs and also the interest on capital. In order to avoid double counting we have deducted the operation and maintenance charges from the user charges. Operation and maintenance costs include the running costs (electricity and labour) that are reported from Bomminampadu project. The important assumptions include:

- a) At least 500 households will be covered in all the villages.
- b) Continuous and constant health costs/benefits over the period of 15 years.
- c) The O & M costs observed in the pilot project (Bomminampadu) are valid for other villages as well.

The costs and benefits at the discount rate of 2.5 per cent and for three levels of coverage (500/750/1000 households) are presented in Table 12. The costs, capital and user charges remain constant across villages as well as for different levels of coverage. For, the installed capacity of the plant is good enough to serve 2000 households in each village. On the other hand the value of benefits increase with the level of coverage in the same proportion.

**Table 12: Costs and Benefits of Water Purification Plant at 2.5 % discount Rate Over 15 years (in million Rupees)**

	Nagayalanka	Pedavadlapudi	Pedapadu	Polla	Kovvali	Dendulur
<b>Costs</b>						
Capital Costs	2.2	2.2	2.2	2.2	2.2	2.2
User Costs	3.396	3.396	3.396	3.396	3.396	3.396
Total costs	5.596	5.596	5.596	5.596	5.596	5.596
<b>Total Value of Benefits</b>						
500 Households	4.808	16.768	8.528	7.936	7.28	5.384
750 Households	7.212	25.152	12.792	11.904	10.92	8.076
1000 Households	9.616	35.136	17.056	15.872	14.56	10.768

The economic viability of the water purification plant is reflected in the cash flow measures, which are often used to take investment decisions (Table 14). Cost-Benefit (C-B) ratios vary across villages and scenarios. The economic viability of the water purification plant is reflected in the cash flow measures, which are often used to take investment decisions (Table 13). Net Present Values (NPV) and Benefit-Cost (B-C) ratios vary across villages and scenarios. At the present level of coverage (500 households) all the sample villages except two have favourable NPV and B-C ratios at 2.5 per cent discount rate (Table 14). When the coverage is increased to 1000 households both the cash flow measures are favourable in all the sample villages (Table 13). Pedavadlapudi has recorded highest net benefits followed by Pedapadu, Kovvali, Polla, Dendulur and Nagayalanka. The C-B ratios indicate that at the present level of coverage water purification plants are viable in all but two-sample village. This is mainly due to benefits from the project (less income) (see Table 12). Therefore, increasing the number of households covered in these villages makes economic sense but also helps in improving the microenvironment and social welfare. When all the households in a village are covered it has positive externalities in terms of controlling contagious diseases. The internal rates of return (IRR) are quite high in most of the villages. IRR is the rate at which money can be borrowed for the project without making it unviable. In majority of the cases the economic returns are higher than the prevailing market interest rates.

The estimated B-C ratios are comparable with the earlier estimates of WHO (Hutten and Haller, 2004). The WHO study estimated the B-C ratios for the WHO sub-region (SEAR-D) 13 in which India is included. The estimated benefit cost ratios for SEAR-D range between 2.9 and 9.41 depending on the type of intervention. In the present case, the benefit-cost ratios range between 0.86 and 6.28 depending on the level of coverage and the extent of water contamination and its impact.

**Table 13: Cash Flow Measures: Benefit-Cost Ratios and Net Present Values (in Rupees)**

	Nagayalanka	Pedavadlapudi	Pedapadu	Polla	Kovvali	Dendulur
<b>Net Present Value (NPV)</b>						
500 households	-1019093	8983486	2092077	1596966	1048329	-537364
750 households	991459	15995328	5658214	4915548	4092593	1714053
1000 households	3002011	24345308	9224351	8234129	7136856	3965470
<b>Benefit-Cost ratio (B-C Ratio)</b>						
500 households	0.86	3.00	1.52	1.42	1.30	0.96
750 households	1.29	4.49	2.29	2.13	1.95	1.44
1000 households	1.72	6.28	3.05	2.84	2.60	1.92
<b>Internal Rate of Return (IRR)</b>						
500 households	-8%	57%	12%	9%	6%	-4%
750 households	6%	155%	33%	28%	23%	10%
1000 households	17%	893%	59%	51%	43%	23%

### Improved Water Quality and Willingness to Pay

Given the situation in the sample villages, households are willing to pay (WTP) for improved water quality. Not a single household has expressed 'no' to the WTP question. This is true for both capital costs and membership fee, which is fixed at a nominal level<sup>8</sup> and user charges. Majority of the households are willing to pay Rs 30 and above as membership fee. Majority of the APL households are willing to pay Rs 40 and above (Table 14). In the case of user charges all the households are willing to pay the present Rs 1.50 per water can. Most of the households prefer house delivery of cans and they are willing to pay extra for the transport. Among APL households 82 per cent are willing to pay Re. 1 extra (i.e., Rs 2.5/can), which is being charged in the Bomminampadu project. In the case of BPL households only 52 per cent are willing to pay this price. When asked about the possibility of increasing the water price in future more than 80 per cent of the households, APL as well as BPL, are willing to pay another Rs 0.50 per can of water. Only 8 per cent of BPL families are willing to pay Rs 1 extra in future, as against 19 per cent in the case of APL families. The differences between APL and BPL households in the WTP bids are due to the differences in ability to pay.

Ability to pay is examined by looking at the household income and expenditure figures. The average cost a household is willing to pay towards the membership or capital cost is Rs 39 and Rs 29 for APL and BPL households respectively (Table 15). And the WTP for user charges is Rs 2.4 and Rs 2.3 per can of water for both the categories. When user charges are annualised they work out to be Rs 888 and Rs 825 respectively for APL and BPL households. Though the

difference between the bids of APL and BPL households is marginal in absolute terms, in relation to their income and expenditure BPL households are willing to pay substantially greater proportion of their income towards quality water. As a proportion of their incomes BPL households are willing to pay 4.8 per cent against 0.93 per cent in the case of APL households. This is quite substantial by any standard, as it is often assumed that households are willing to pay 3 per cent of their income. In terms of expenditure also BPL households are willing to pay more than their counterparts (Table 15). Such high willingness to pay also tends to underscore the need for safe drinking water in these villages.

**Table 14: Willingness to Pay Per Can of 20 Litres water (% Households)**

Costs in Rs	Nagaya lanka		Pedavadla pudi		Pedapadu		Polla		Kovvali		Dendulur		All	
	APL	BPL	APL	BPL	APL	BPL	APL	BPL	APL	BPL	APL	BPL	APL	BPL
<i>Capital Costs(Membership fee)</i>														
Rs 20	13	33	0	27	07	27	13	33	0	33	0	0	06	26
Rs 30	27	47	33	53	20	66	47	54	60	53	20	53	34	54
Rs 40	47	20	53	20	59	07	27	13	40	14	60	47	48	20
Rs 50	13	0	07	0	07	0	13	0	0	0	07	0	08	0
> Rs 50	0	0	07	0	07	0	0	0	0	0	13	0	04	0
<i>User Charges</i>														
Rs 1.50	100	100	100	100	100	100	100	100	100	100	100	100	100	100
<i>Home Delivery</i>														
Rs 2.00	33	80	13	53	0	40	33	53	13	40	0	20	16	48
Rs 2.50	67	20	80	47	100	60	60	47	87	60	100	80	82	52
Rs 3.00	0	0	07	0	0	0	07	0	0	0	0	0	02	0
<i>Future Support for price rise</i>														
Rs 0.50	67	60	80	100	73	93	100	100	87	100	80	100	81	92
Rs 1.00	33	40	20	0	27	07	0	0	13	0	20	0	19	08

However, this could turn out be an extra burden on these households, which are finding it difficult to meet their ends. In fact, the expenditure of BPL households in some of the villages overshoots their income<sup>9</sup>. In other words, part of their expenditure is being met through borrowings. In this regard it may be desirable to follow discriminatory pricing or cross subsidisation methods in order to ease the burden on the BPL households.

**Table 15: Average Willingness to Pay for Water and Household Income and Expenditure**

Costs in Rs	Nagaya lanka		Pedavadla pudi		Pedapadu		Polla		Kovvali		Dendulur		All	
	APL	BPL	APL	BPL	APL	BPL	APL	BPL	APL	BPL	APL	BPL	APL	BPL
Average	36	29	44	29	41	28	34	28	34	28	47	35	39	29
Capital Cost														
Average	2.3	2.1	2.5	2.2	2.5	2.3	2.4	2.2	2.4	2.3	2.5	2.4	2.4	2.3
User Charges														
Annualised user charges (Rs/year/HH)	852	767	900	815	913	840	864	815	888	840	913	876	888	825
Annual Income (Rs/year/HH)	38067	15600	94666	19667	109000	15492	97000	18733	120333	14433	113800	19933	95477	17309
Annual Expenditure (Rs/year/HH)	24976	17297	25962	18976	25820	17293	22260	18847	21061	17963	30091	19378	25028	18292
User Charges as % to Income	2.2	4.9	1.0	4.1	0.84	5.4	0.89	4.4	0.74	5.8	0.80	4.4	0.93	4.8
User Charges as % to Expenditure	3.4	4.4	3.5	4.3	3.5	4.9	3.9	4.3	4.2	4.7	3.0	4.5	3.5	4.5

While the benefits from the water purification plants are substantial and the proposed investments are viable when they are utilised fully, there is need for looking at these investments from the cost effectiveness angle. For, welfare benefits can be maximised if the benefits accruing to the households through these plants can be achieved at a lower cost. Moreover full capacity utilisation is possible only in the larger villages, leaving out large number of villages that are in need of quality water. There fore, it is necessary to explore the comparative costs other water treatment methods domestically available vis-a-vis the present one. The possibility of improving the existing water treatment plants in five of the six villages, to meet the required quality standards needs to be examined. Presently they lack proper maintenance and up keep.

### Conclusions

In this study an attempt is made to assess the costs and benefits of supplying improved quality water to the households. The study estimated the cost of / benefits from poor / improved water quality using human capital approach and replacement cost approach. The limitations of the study include: a) lack of control

situations to compare the benefits of improved water, and c) water-borne and water-washed diseases could not be clearly segregated. For, improved quality of drinking water can only address the water borne diseases effectively. As a result, the estimated benefits could be on the higher side. Important conclusions of the study include:

- a) In all the sample villages, households complain about poor quality of water in terms of water turbidity and bacterial contamination.
- b) Moderate prevalence of water borne and water washed diseases are observed in all the sample villages. People are not able to fully relate the diseases with water quality though tests for water quality and discussions with doctors confirm the health and water quality linkages. This calls for a well-designed awareness programmes on part of the project planners.
- c) In three of the villages households, including BPL, buy water from outside, though most villages are equipped with protected water supply schemes.
- d) Households incur substantial losses due to ill health and the resultant loss of working days. Losses are more in terms of medical expenses followed by working days lost and expenditure on water. Such losses are relatively more among BPL households and also among women.
- e) The cost-benefit analysis is carried out from the angle of social welfare rather than from purely economic point of view. When aggregate household benefits due to improved water quality are compared with costs, at the proposed level of coverage the purification plants bring in positive Social and Health benefits in the medium to long term as well.
- f) Considering the poor quality of drinking water available coupled with high degree of willingness to pay, introduction of pay and use safe drinking water could have multiple adopters in these villages. Almost all the households are willing to pay higher prices for water. Significantly, a large number of the households prefer door delivery of water cans and they are willing to bear the extra transportation costs.
- g) Poor are paying disproportionately higher proportion of their income towards improved water supplies. Hence, discriminatory pricing or cross subsidisation could be a desirable option in order to reduce the burden on poor households.
- h) On the whole the proposed plants could initially target only the drinking water needs, which account for 10-15 per cent of the total water requirement, which can effectively address the water borne diseases thus resulting in benefits accruing to the individuals and households.
- i) The proposed programme does not appear to have any major adverse effects on the immediate/local environment in the Villages that it will be implemented.

## Notes

- <sup>1</sup> All these benefits are proposed and should be taken as achieved. Often, these benefits are achieved partially, as evident from past experience.
- <sup>2</sup> The cost is const in all the sample villages, as their water source (canal water stored in the tank) and the size of the plant are same. The plant size can serve 2000 households.
- <sup>3</sup> The Global Partnership on Output-Based Aid (GPOBA) is a multi-donor trust fund administered by the World Bank which aims to fund, design, demonstrate and document OBA approaches to support the sustainable delivery of basic services to those least able to afford them and to those currently without access.
- <sup>4</sup> The grouping is based the government of Andhra Pradesh norms. Accordingly each households gents a white or a pink card to collect ration. All the white card holders are categorized as BPL households and Pink card holders belong to APL category.
- <sup>5</sup> Fecal coliform bacteria are a sub-group of the total coliform group. They appear in great quantities in the intestines and feces of people and animals. *E. coli* is a sub-group of the fecal coliform group. Most *E. coli* are harmless and are found in great quantities in the intestines of people and warm-blooded animals. Some strains, however, may cause illness. Confirmation of fecal coliform bacteria or *E. coli* in a water system indicates recent fecal contamination, which may pose an immediate health risk to anyone consuming the water (<http://www.doh.wa.gov/ehp/dw/Programs/coliform.htm>).
- <sup>6</sup> Attributing the medical expenses to poor water quality is difficult in the present context due to non-availability of control villages. However, our interviews with the local medical practitioners along with the water quality tests (see Appendix Table 4) in some of the villages have confirmed the linkages.
- <sup>7</sup> We have used the discount rate of 2.5 percent though the prevailing market rate of interest is quite high (10 percent) because the project is being financed (repaid through a combination of subsidy from GPOBA), at this rate.
- <sup>8</sup> Intially it was set at 20 percent contribution from the households, but dropped latter. Presently, Naandi foundation is planning to collect only nominal membership i.e., as low as Rs 10 per household.
- <sup>9</sup> Note that getting accurate data on household income and expenditure is tricky. But this is true in all the surveys.

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## Appendix

**Table A1: Household Water Consumption by Activity  
(Litres per capita/day)**

Village	Total			Per HH			Per Capita			Share of Water use		
	APL	BPL	ALL	APL	BPL	ALL	APL	BPL	ALL	APL	BPL	ALL
Nagaylanka	3465	2412	5877	231	161	196	52.5	42.3	47.8	100	100	100
Washing	1285	465	1750	86	31	58	19.5	8.2	14.2	37	19	30
Bathing	915	865	1780	61	58	59	13.9	15.2	14.5	26	36	30
Cooking	195	212	407	13	14	14	3.0	3.7	3.3	6	9	7
Cleaning	580	415	995	39	28	33	8.8	7.3	8.1	17	17	17
Drinking	490	455	945	33	30	32	7.4	8.0	7.7	14	19	16
Pedavadlapudi	4705	4585	9290	314	306	310	71.3	71.6	71.5	100	100	100
Washing	1840	1520	3360	123	101	112	27.9	23.8	25.8	39	33	36
Bathing	1340	1390	2730	89	93	91	20.3	21.7	21.0	28	30	29
Cooking	180	425	605	12	28	20	2.7	6.6	4.7	4	9	7
Cleaning	890	820	1710	59	55	57	13.5	12.8	13.2	19	18	18
Drinking	455	430	885	30	29	30	6.9	6.7	6.8	10	9	10
Pedapadu	4545	3762	8307	303	251	277	64.9	64.9	64.9	100	100	100
Washing	1380	1230	2610	92	82	87	19.7	21.2	20.4	30	33	31
Bathing	1170	1065	2235	78	71	75	16.7	18.4	17.5	26	28	27
Cooking	410	260	670	27	17	22	5.9	4.5	5.2	9	7	8
Cleaning	970	865	1835	65	58	61	13.9	14.9	14.3	21	23	22

contd...

Drinking	615	342	957	41	23	32	8.8	5.9	7.5	14	9	12
Poolla	4307	4350	8657	287	290	289	73.0	63.0	67.6	100	100	100
Washing	1250	1445	2695	83	96	90	21.2	20.9	21.1	29	33	31
Bathing	1350	1300	2650	90	87	88	22.9	18.8	20.7	31	30	31
Cooking	415	290	705	28	19	24	7.0	4.2	5.5	10	7	8
Cleaning	860	815	1675	57	54	56	14.6	11.8	13.1	20	19	19
Drinking	432	500	932	29	33	31	7.3	7.2	7.3	10	11	11
Kovvali	4270	4205	8475	285	280	283	67.8	71.3	69.5	100	100	100
Washing	1470	1435	2905	98	96	97	23.3	24.3	23.8	34	34	34
Bathing	1195	1350	2545	80	90	85	19.0	22.9	20.9	28	32	30
Cooking	280	240	520	19	16	17	4.4	4.1	4.3	7	6	6
Cleaning	735	685	1420	49	46	47	11.7	11.6	11.6	17	16	17
Drinking	590	495	1085	39	33	36	9.4	8.4	8.9	14	12	13
Denduluru	4665	4865	9530	311	324	318	66.6	67.6	67.1	100	100	100
Washing	1375	1500	2875	92	100	96	19.6	20.8	20.2	29	31	30
Bathing	1450	1650	3100	97	110	103	20.7	22.9	21.8	31	34	33
Cooking	300	310	610	20	21	20	4.3	4.3	4.3	6	6	6
Cleaning	1060	985	2045	71	66	68	15.1	13.7	14.4	23	20	21
Drinking	480	420	900	32	28	30	6.9	5.8	6.3	10	9	9

Table A2: Perceptions of People (in percentages)

Perceptions	Nagayalanka		PVadlapudi		Pedapadu		Polla		Kovvali		Denduluru	
	APL	BPL	APL	BPL	APL	BPL	APL	BPL	APL	BPL	APL	BPL
<i>Awareness of drinking water Contamination</i>												
Yes	6.7	6.7	93.3	86.7	33.3	6.7	46.7	13.3	19.9	6.7	46.7	26.6
<i>Purchase of mineral water during functions.</i>												
Yes	6.7	0	46.7	6.7	33.3	0	26.7	19.9	0	0	19.9	13.3
<i>Awareness about Naandi foundation</i>												
Yes	0	6.7	80	53.3	80	46.7	33.3	33.3	46.7	40	40	33.3
<i>Intention to buy water from the new scheme</i>												
Yes	100	100	100	100	100	100	100	100	100	100	100	100
<i>Processing of water (present)</i>												
No	100	100	86.7	100	100	100	93.3	100	100	100	80	93.3

**Table A3: Bacteriological Analysis of Water Sample**

<b>Parameter</b>	<b>Unit</b>	<b>Value</b>	<b>Permissible limits (BIS 10500)</b>
<b>Nagayalanka</b>			
Total Coliform	MPN/100 ml	> 1600	50
Fecal Coliform	MPN/ 100 ml	> 1600	50
E Coli	Confirmative Test	Present	Absent
<b>Pedavadlapudi</b>			
Total Coliform	MPN/100 ml	> 1600	50
Fecal Coliform	MPN/ 100 ml	> 1600	50
E Coli	Confirmative Test	Present	Absent
<b>Kovvali</b>			
Total Coliform	MPN/100 ml	> 1600	50
Fecal Coliform	MPN/ 100 ml	34	50
E Coli	Confirmative Test	Present	Absent

*Note:* Presence of E.Coli can cause bacterial diseases in human beings

**Table A4: Prevailing Wage Rates in the Sample Villages**

<b>Village</b>	<b>Male</b>		<b>Female</b>	
	<b>Maximum</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Minimum</b>
Nagayalanka	70	50	50	40
Pedavadlapudi	70	50	50	40
Pedapadu	60	40	40	30
Poolla	65	45	40	30
Kovvali	60	50	40	30
Denduluru	75	60	40	30

# **Multi-Perspective Evaluation of Community Development Programmes: A Case Study for a Primitive Tribe of Orissa**

**B K Mangaraj and Upali Aparajita\***

## **Abstract**

In a welfare economy like India, sponsored development actions are being carried out not only by the government but also by various Non-Governmental Organisations. But all these actions need to be evaluated in terms of beneficiaries as well as national objectives. With various community development programmes in operation, suitable evaluation procedures for these programmes may be adopted for designing and strengthening further course of action after implementation. In this context, an evaluation will be more meaningful if it involves various stakeholders for evaluating multiple perspectives for development. A fuzzy-set theoretic approach has been presented for such a procedure along with an illustration from *Dongria Kondh Development Agency*, a micro-project operating in Orissa.

## **Introduction**

Evaluation literally means “assessing the value of”, and this process is normally carried out in all spheres of human life, either in informal or formal ways. The concept of growth and development is primarily dependent upon the result of this procedure and the information generated becomes the basic input for the development process. The evaluation of human activities is due to the evaluatory information that humans have utilised in most of their voluntary or involuntary activities. The logic behind this phenomenon is the input-output analysis over a period of time. This means that the output can be compared with the inputs from various angles for absolute human satisfaction. But when this ratio turns out to be unsatisfactory, needing some improvement in the course of action, then human behaviour changes. In this process, an individual makes some trade-off analysis over the satisfaction of some of his needs. In other words, satisfaction of some of the needs can compensate the loss incurred along other needs. The constant change

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in human behaviour is the result of this mechanism and the information-processing capabilities of the human brain. Human societies, where this activity has been carried out efficiently, are comparatively more developed. Hence, evaluation can be termed more as an “information-processing activity for assessment of the value of outputs with respect to inputs measured along a scale of human satisfaction.” For example, two societies may have different satisfactions over the same input-output due to their varying cultural orientation.

In the context of planned development, evaluation activity becomes a device to measure the input-output ratio of the developmental effort. Development planning is the careful analysis of the development objectives and the resource availability in a scientific manner. Therefore, the design of the evaluation procedure should also be based on similar factors. Besides, evaluation is dependent upon the type of the problem, the problem environment, and the expectation of the desired output. But, whatever may be the situation, this should be done in a systematic manner and in principle a wide range of methods may be used, from the most rigorous quantitative ones to purely qualitative assessments and personal interpretations. The objective is to generate information in the “direction of expectation”. This helps in getting an idea about the lag between expectation and achievement, which, in turn, decides the next course of action to meet future expectation or the desired development state. Here, the evaluator performs the key role as he perceives the situation, as well as, conceptualises the information on various activities involved in the process. The satisfaction of the performance level is purely dependent upon his designed yardstick.

Hence, in a planned development work, evaluation is a set of organised activities based on certain principles, methods and procedures to be carried out by an evaluator or a group of evaluators. The continuity of the development operation depends purely upon the effective information-generation mechanism of the evaluation models. The information-processing capabilities of the evaluation models justifies that these are information management tools of development. In the era of information technology, sophisticated tools can be designed to meet the growing demand in this area.

Community development programmes focus on the local people and their institutions. They are usually planned and implemented with some participation by the inhabitants and institutions of the respective communities, and even may be partly or wholly managed by them. One of the factors in such programmes, which often has an important bearing on evaluation, is a mix of external and internal stakeholders and interests, involving both local and outside resources. In this perspective, Dixon and Sindall (1994: 72) specify three community development categories:

- (i) Community-led Change – Wholly or mainly controlled by community actors
- (ii) Community Programme – Undertaken by an external agency in partnership with community actors
- (iii) Community Intervention – Done by an external agency with little or no involvement of local people in decision-making.

For all these categories, various evaluation procedures can be applied starting from locally-controlled ethnography to more conventional effectiveness-and-efficiency analysis. For the evaluation of a development programme under community-led-change, the opinions of the actors of development are the only meaningful information. The pooling of such information results in the evaluative information. For such a purpose, the information to be collected by any of the procedure discussed above using suitable scale of measurement. Depending upon the scales of measurement, appropriate measures of averages may be used for pooling such information, which is given in Table 1.

**Table 1 : Scales of Measurement**

Scale	Basic Comparisons	Measures of Average
1. Nominal	Identity	Mode
2. Ordinal	Order	Median
3. Interval	Comparison of Intervals	Mean
4. Ratio	Comparison of absolute magnitudes	Geometric Mean Harmonic Mean

In the context of endogenous development [Mexico Declaration (1982), UNESCO (1994)] in a simple societal system, the sponsored development programme is a community programme, where culture remains at the centrepiece of the development process. This is due to the fact that these communities are small, encysted and isolated, with low level of technology, literacy, nutrition, etc., who are to be developed at par with others [Mangaraj (1997 : 198)]. Community programme approach can raise their level of living in a “culture-specific manner”, which will not only be endogenous, but also be sustainable [Mangaraj (<http://expage.com/gacompass44/>, 2000 (a:49, b:48))]. For these types of programme, evaluation is really a tedious job as it involves the community actors as well as the expectation of the external agency sponsoring the development. In this perspective, multi-perspective evaluation is more meaningful as it incorporates multiple evaluation criteria along with multiple stakeholders in an evaluation framework. The following section presents a methodology for such an evaluation taking a case study of *Dongria Kondh Development Agency*, a micro-project operating in South Orissa.

## **Multi-Perspective Evaluation**

It is an information-processing activity for drawing information from various stakeholders regarding the effectiveness of the development programme along multiple evaluation criteria to accommodate various factors. From the point of view of development, this operation is to consider a holistic framework for evaluation. For example, the assessment of an income-generating scheme in tribal areas may be evaluated in terms of income-generating criterion only. But, a development scheme may be judged in terms of income-generation, employment-generation, community's involvement, women's participation, kinship dependence, etc., to have an overall assessment of development performance.

It has been observed for various rural developments programmes that the implementation of the programme has, no doubt, performed well in some dimensions, but, at the same time, had adverse effects on other dimensions. Overall, the net-output seems to be null or even negative from development perspective. Hence, unidimensionality in the evaluation procedure becomes a meaningless attempt irrespective of the approach being utilised. This necessitates the fact that multi-dimensionality is the basis for effective evaluation.

Besides, for the evaluation of a community programme, the judgements of the actors from the community as well as the external agency are meaningful information. The pooling of such information results in concrete evaluative information. The collected information may be either qualitative or quantitative, asking for the evaluation tool to be similarly framed. Both approaches have their merits as well as demerits.

Keeping this in view, a hybrid approach may be suitable where qualitative data has a quantitative framework for manipulation. The qualitative information in terms of "linguistic variables" with bounded domain can be collected through any qualitative inquiry, viz., questionnaires, schedules, RRA, PRA, etc., for a meaningful assessment. This is due to the fact that evaluation for a larger area with the operation of various evaluation criteria becomes a difficult job in a purely qualitative approach. Hence, an approach based on fuzzy logic (Zadeh (1965 : 338)) may be considered, which can handle qualitative information in the form of linguistic variables for data analysis. As it is known that linguistic variables can be converted as fuzzy sets, this can be operated by fuzzy logic similar to that of human logic. The advantage of this approach is that even large amount of qualitative data collected for the purpose can be amenable to computer-based processing. (Mangaraj and Upali (2004:116)).

An evaluation criterion, according to a stakeholder, may be considered as "important" for development. But, "important" is a "fuzzy concept" which might mean "highly important", "moderately important", "less important", etc. Thus, for example, according to him, marketability may be viewed as "highly important" while "women's participation" may be considered as "moderately important" for

development. Again, for a person, a criterion judged as “moderately important” for development may be seen as “highly important” by another person. This necessitates a pooling process for averaging the judgments of the stakeholders for knowing the various level of “importance” for the criterion as enumerated below:

P	:	Absolute important (100%)
VH	:	Very highly important
H	:	Highly important
M	:	Moderately important
L	:	Lowly important
VL	:	Very lowly important
$\phi$	:	Not important (0%)

In case of use of linguistic variables in the expression of judgments of stakeholders which can be structured in an ordinal scale, “median” seems to be an appropriate average, For example, let  $S = \{s_0, s_1, \dots, s_L\}$  be the ordinal scale of linguistic information to measure the effectiveness of various development schemes being used by an evaluator. This scale of linguistic variables is linearly ordered as:  $s_0 < s_1 < s_2 < \dots < s_L$ . No other structure is assumed to exist on  $S$ . This means that,  $s_i$  belongs to  $S$ , where,  $S = \{\phi, VL, L, M, H, VH, P\}$ , signifying

$\phi$  = none      VL = Very low      L = Low      M = Medium  
H = High      VH = Very high      P = Perfect.

If the stakeholders assign VL, L, VH, VL, VH to some issue, then assigning  $\phi = 0, VL = 1, L = 2, M = 3, H = 4, VH = 5, P = 6$ , the arithmetic mean for the series becomes  $20/6 = 3.22$  which does not represent any ordinal number in the scale  $S$ . For this, median is between  $s_2 = L$  and  $s_5 = VH$ . Hence,

$$\text{Med (median roundup) } s_t \text{ for } t = \frac{2+5+1}{2} = 4, \text{ which is } s_4 = H$$

$$\text{Similarly, Med (round down) } s_t \text{ for } t = \frac{2+5-1}{2} = 3 \text{ is } s_3 = M,$$

$$\text{otherwise } t = \frac{i+j}{2}, \text{ for } (i=j) \text{ is even}$$

where  $i$  and  $j$  represents the indices of  $s$  for which the median is to be determined. Hence, median becomes the suitable operator for averaging qualitative information.

Consider, an evaluation situation which involves  $n$  number of regions  $R_1, R_2, \dots, R_n$  to be evaluated for  $m$  number of developmental schemes  $P_1, P_2, \dots, P_m$  based on  $k$  number of criteria  $C_1, C_2, \dots, C_k$ . These schemes can be evaluated based on the opinion provided by the evaluators regarding how well the schemes perform

on the basis of the criteria as well as the importance of the criteria with respect to the overall development. The next section presents a methodology, which assesses the performance of the schemes with respect to the overall objective based on information generated by the evaluators through various qualitative inquiries.

### Multi-Perspective Evaluation Using Fuzzy Sets

When encountered with the problem of selecting a few from many, an evaluator needs to develop a ranking structure for the alternatives, based on either ordinal, ratio or interval scale. This case may be a bit simpler when the alternatives may be judged based on one criterion which becomes the sole representative of the overall development objective. But, in complex situations, the overall objective may be represented in terms of multiple criteria, viz; economic, political, social etc., which may be put in the same level or even multiple level of importance as perceived by the evaluator as shown in Fig.1.

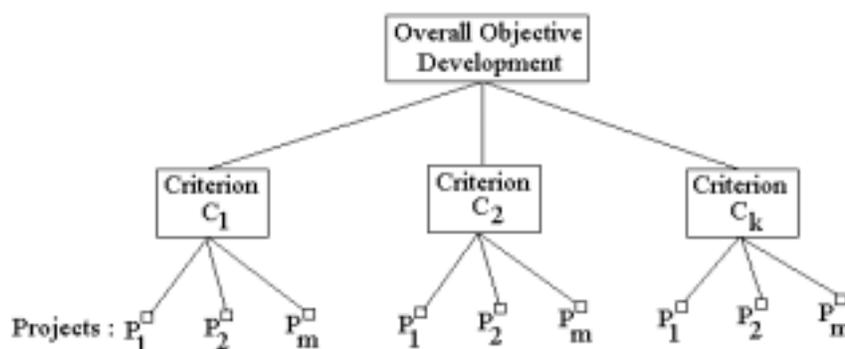


Fig. 1 . Hierarchical Structure

Suppose there are projects  $P_1, P_2 \dots P_m$  to be ranked from best to worst. A study to accomplish this can be designed by an evaluator who will employ the testimony of several stakeholders in various fields (say,  $n$ ) e.g.,  $E_1, E_2, \dots E_n$ . These stakeholders are to supply information about the projects for each criterion, say social, economic etc., viz;  $C_1, C_2 \dots C_k$  and also information about the importance of the criteria with the respect to the overall development objective. The evaluator has to select from  $P_1, P_2 \dots P_m$ , those projects, which best satisfy the criteria. Here, the stakeholders will be using an ordinal scale, and not an interval scale. Only ordinal or qualitative information will be required from the stakeholders.

No doubt, there exist some methods to find alternatives when the judgement associated with the utility or benefit of the schemes can be expressed in quantitative terms, or in interval or ratio scales. Some of the important studies in this area are by Thurstone (1927 : 273), Satty (1977 : 234), Shepard (1972 : 21), Krantz (1972 : 168) etc.



for each criterion  $C_k$ , where  $1 \leq k \leq K$ . Similarly,

$$T = \begin{matrix} & C_1 & E_1 & E_2 & \cdot & \cdot & \cdot & \cdot & E_n \\ C_2 & & & & & & & & \\ \cdot & & & & & & & & \\ \cdot & & & & & & & & \\ \cdot & & & & & & & & \\ C_k & & & & & & & & \end{matrix} \quad \lambda_j(C_k) = b_{kj} \in S \quad \text{kxn}$$

Given the data  $T_k$  and  $T$ , the evaluator has to complete the final ratings of the projects given by  $W = (W_1, W_2, \dots, W_m)$  where  $W_i \in S$ . Projects  $P_i$  receives rating  $W_i$ ,  $1 \leq i \leq m$ . Here, also the same scale  $S$  has been used for the final ranking of the projects. If the evaluator first averages across the stakeholders, then the matrices  $T_k$ ,  $1 \leq k \leq K$  are used to compute matrix  $M$ , where,

$$M = \begin{matrix} P_1 & C_1 & C_2 & \cdot & \cdot & \cdot & \cdot & C_k \\ P_2 & & & & & & & \\ \cdot & & & & & & & \\ \cdot & & & & & & & \\ \cdot & & & & & & & \\ P_m & & & & & & & \end{matrix} \quad m_{ik} \in S$$

and matrix  $T$  is used to produce matrix  $N$ , where

$$N = \begin{matrix} C_1 & \cdot & & & \\ C_2 & \cdot & & & \\ \cdot & \cdot & & & \\ \cdot & n_k & & & \\ \cdot & \cdot & & & \\ \cdot & \cdot & & & \\ C_k & \cdot & & & \end{matrix} \quad n_k \in S$$

The averaging procedure is accomplished by using functions

$$F : \prod S \longrightarrow S \quad \text{and} \quad G : \prod S \longrightarrow S$$

where  $m_{ik} = F(a_{i1}^k, a_{i2}^k, \dots, a_{in}^k)$  and  $n_k = G(b_{k1}, \dots, b_{kn})$

The  $k^{\text{th}}$  column of  $M$  gives the ranking of the projects for criterion  $C_k$  across all the stakeholders. Also,  $n_k$  in  $N$  is the weight for criterion  $C_k$  obtained from all the stakeholders. The computation of the  $W_i$  from  $M$  and  $N$  is now a one

stakeholder problem. Now  $m_{ik}$  and  $n_k$  need to be combined to obtain the weighted ranking for each project and each criterion. Let ,

$$\lambda : S \times S \rightarrow S, \text{ and define } p_{ik} = \lambda(m_{ik}, n_k)$$

The  $p_{ik}$  are the result of combining a criterion's weight  $n_k$  and a project's ranking based for that criterion. Next, it needs to average across all criteria. Let,

$$Q : \prod S \rightarrow S$$

and define  $W_i = Q(p_{i1}, p_{i2}, \dots, p_{ik})$

The function  $Q$  aggregates across all criteria to obtain the final ranking  $W_i$  for project  $P_i$ . At this point  $\lambda$  and  $Q$  need not be same functions. The averaging procedure discussed above have some of the properties as:

- (i) If for any project  $P_i$ , some of the stakeholders, for any criterion, raise their  $a_{ij}^k$ , then  $m_{ik}$  will not decrease. Similarly, if some stakeholders raise their  $b_{kj}$ , for any criterion  $C_k$ , then  $n_k$  will not decrease. This property may be called as "the positive association of individual and group preferences".
- (ii) The  $m_{ik}$  and  $n_k$  do not change if the stakeholders are renumbered. That is, no stakeholder can be dictator.
- (iii) If  $a_{sj}^k \geq a_{ij}^k$ ,  $1 \leq j \leq n$ , then  $m_{sk} \geq m_{ik}$ . Similarly, if  $b_{sj} \geq b_{ij}$ ,  $1 \leq j \leq n$ , then  $n_s \geq n_i$ .
- (iv) Suppose new projects  $P_1^1, P_2^1, \dots, P_r^1$  are added to the set of projects. If  $m_{sk} \geq m_{ik}$  for the set of projects  $P_1, P_2, \dots, P_m$ , then the same is true for larger set of projects. If new criterion  $C_1^1, C_2^1, \dots, C_r^1$  are added to the set of criteria and  $n_s \geq n_i$  for the set of criteria  $C_1, C_2, \dots, C_k$ , then the same is true for larger set of criteria (Independence of irrelevant projects and criteria).
- (v) If some project  $P_i$  and criterion  $C_k$ , a majority of the stakeholders have  $a_{ij}^k = s_t$ , then  $m_{ik} = s_t$ . If for some criterion  $C_k$ , a majority of the stakeholders have  $b_{kj} = s_t$ , then  $n_k = s_t$  (majority rule).
- (vi) If for some project  $P_i$  and criterion  $C_k$ , some stakeholders increase their  $a_{ij}^k$  and  $n_k$  remains unchanged, then  $W_i$  will not decrease. If for some criterion  $C_k$ , some stakeholders raise their  $b_{kj}$ , but do not change their  $a_{ij}^k$ , then  $W_i$  will not decrease.
- (vii) The  $W_i$  do not change, if the criteria are re-numbered. Therefore,  $\lambda$  and  $Q$  will have the following properties :
  - a)  $Q$  is non-decreasing in each variable
  - b)  $Q$  is symmetric
  - c)  $\lambda$  is non-decreasing in each variable.
- (viii) If  $a_{sj}^k \geq a_{ij}^k$  for all  $j$  and  $k$ , then  $W_s \geq W_t$
- (ix) Suppose new projects  $P_1^1, P_2^1, \dots, P_r^1$  are added to the set of projects. If  $W_i \geq W_j$  for the set of projects  $P_1, P_2, \dots, P_m$ , then the same is true for the larger set of projects.

- (x) If for a majority of criteria  $P_{ik} = S_t$ , then  $W_i = S_t$ .
- (xi) If for some project  $P_i$ , a majority of the stakeholders have  $a_{ij}^k = s_t$  for all criteria  $C_k$  with  $k \in O$  where  $O$  is a subset of  $\{1, 2, 3, \dots, K\}$  with  $|O| \geq K/2$ , then  $W_i = S_t$ .

There are many types of averaging functions. For example,  $F$  and  $G$  could be maximum(max), minimum(min), mixed or median operator. The max. and min. operators do not seem to be appropriate for averaging the stakeholders. Similarly max., min. and mixed operators do not satisfy majority rules. Hence, if the averaging procedure is required to satisfy the above properties, then the averaging functions must be median operators. When the number of stakeholders( $n$ ) is odd, a majority of stakeholders will be simple majority. That is, if  $n$  is odd, a majority is at least  $(n+1)/2$  and if  $n$  is even, a majority is at least  $(n+2)/2$ .

When  $n$  is odd, then the median operator  $Med. (x_1, x_2, \dots, X_n)$  has been defined for ordinal data. When  $n$  is even, some thing must be done to break ties. If all the  $a_{ij}^k$  and  $b_{kj}$  are numbers, then averaging  $a_{ij}^k$  and  $b_{kj}$  is a reasonable method for averaging the stakeholders. Since, we cannot compute the numerical average of  $S_i \in S$ , the median operator appears to be a good procedure of averaging the stakeholders to produce matrices  $M$  and  $N$ .

When  $n$  is even and  $x_i \in S$ , the median of  $x_1, x_2, \dots, x_n$  lies between  $s_i$  and  $s_j$  in  $S$ , then  $Med. (x_1, x_2, \dots, x_n) = s_t$  where  $t = (i+j)/2$  if  $i+j$  is even. When  $(i+j)$  is odd, we may round up or round down. That is,  $Med. (x_1, x_2, \dots, X_n) = S_r$  for  $r = (i+j+1)/2$  or  $r = (i+j-1)/2$  when  $(i+j)$  is odd. We may write  $Med^u$ . when we round up and  $Med^d$ . when we round down. For example, when,  $S = \{\phi, VL, L, M, H, VH, P\}$  and assume that the stakeholders assigns VL, L, VH, VH, L, VH to some project. In this case, , the median is between  $s_3=L$  and  $s_6=VH$ . Then  $Med^u$ . produces H and  $Med^d$ . gives M for this project.

Similarly,  $Q$  could be the median operator while satisfying the above properties. But the function  $\lambda$  has to satisfy the following three properties.

- (i) Symmetry :  $\lambda(x,y) = \lambda(y,x)$
- (ii)  $\lambda(x,x)$  is strictly increasing
- (iii)  $\lambda(S_0,S_0) = S_0$  and  $\lambda(S_L,S_L) = S_L$

where  $S_0$  and  $S_L$  represent the lowest and highest possible ranking by the stakeholders, i.e. if for some criterion  $C_k$  a project receives the lowest possible ranking  $S_0$  and that criterion also has the lowest possible weight, then when these are combined, the result  $p_{ik}$  is the lowest possible ranking. Similarly when the highest possible ranking  $S_L$  and  $S_L$  are combined, the result will be the highest possible ranking. But, the max. and min. operators do not appear to be appropriate operators for combining ranking  $m_{ik}$  and the criteria weights  $n_k$ . A mixed operator can be an appropriate one for the purpose which can be defined as:

$$\text{Mix}(x_1, x_2, \dots, x_n) = \begin{cases} \min(x_1, x_2, \dots, x_n) & \text{if all } x_i \geq S^* \\ \max(x_1, x_2, \dots, x_n) & \text{if all } x_i \leq S^* \\ S^* & \text{Otherwise} \end{cases}$$

where  $S^* \in S$ . Let,  $l = L/2-1$  if  $L$  is even and  $l = (L+1)/2$  if  $L$  is odd. Generally, a value of  $S_i \in S$  greater than or equal to  $S_l$  is considered a “good” rating and a  $Z_i < S_l$  is a not good or “bad” rating. A majority of the weights  $n_k$  for the criteria should be in the good category. Otherwise, the evaluation should be redesigned and employ criteria better suited for the overall objective of development. Based on this, a mixed operator can be utilised for the purpose, which can be stated as:

$$\text{MM}(x,y) = \begin{cases} \max(x,y) & \text{if } x,y \geq S_a \\ \min(x,y) & \text{if } x,y \leq S_a \\ \text{Med.}(x,y) & \text{Otherwise} \end{cases}$$

where  $S_l < S_a < S_L$ . The Med. Operator may be the round up Med. or the round down Med. For example, if  $S = \{Q, VL, L, M, H, VH, P\}$ , then  $S_a$  could be H or VH. Considering  $S_a=H$  for the above scale, a  $\lambda$  table using a mixed operator and a median (round up) operator can be given as in Table 2.

Table 2 :  $\lambda$ -table

	$n_k$						
	Q	VL	L	M	H	VH	P
$M_{ik}$	$S_0$	$S_1$	$S_2$	$S_3$	$S_4$	$S_5$	$S_6$
$Q=S_0$	$S_0$	$S_0$	$S_0$	$S_0$	$S_0$	$S_3$	$S_3$
$VL=S_1$	$S_0$	$S_1$	$S_1$	$S_1$	$S_1$	$S_3$	$S_1$
$L=S_2$	$S_0$	$S_1$	$S_2$	$S_2$	$S_2$	$S_4$	$S_1$
$M=Z_3$	$S_0$	$S_1$	$S_2$	$S_3$	$S_3$	$S_4$	$S_5$
$H=S_4$	$S_0$	$S_1$	$S_2$	$S_3$	$S_4$	$S_5$	$S_6$
$VH=S_5$	$S_3$	$S_3$	$S_4$	$S_4$	$S_5$	$S_5$	$S_6$
$P=S_6$	$S_3$	$S_4$	$S_4$	$S_5$	$S_6$	$S_6$	$S_6$

Hence, this methodology finds out the overall ranking of the development projects based on criteria in terms of linguistic variables. As it is normally difficult to assign priorities in the numerical scale, this methodology is quite appropriate for real-life implementation. The stakeholders from various fields can give their assessment regarding criteria and projects in this subjective scale which is amenable for averaging. The fuzzy-set approach has been utilised to convert the linguistic variables to such a form which is subjected to various aggregation operators. Once the project gets a ranking based on the scale, it helps in modifying planning strategy

for development. The following section shows the application of the above methodology for performance evaluation of Government-sponsored schemes in a primitive tribal group in Orissa.

### **Performance Evaluation of Development Schemes**

In the context of endogenous development in a tribal society, culture-specific evaluation can be possible only when it is done in a multi-perspective framework (Mangaraj & Upali (2005 : 116)). The basis of such an evaluation process is based on multiple indicators, viz., utility level, social involvement, utilisation of knowledge, marketability, women's participation, resource utilisation, etc., which cover all aspects of development. Apart from multiplicity of problem dimension, the source of data has been considered from all the stakeholders starting from beneficiary level at one end, to the external agency at the other. These inputs can be considered for evaluating the schemes in a framework of multiple stakeholders and multiple dimensions.

The *Dongria Kondhs* are a primitive tribal group of the Kondhs, the largest tribe in Orissa. They inhabit the Niyamgiri hill ranges which stretches from Therubali of Rayagada district to Lanjigarh of Kalahandi district along the Waltair–Raipur South–Western Railways. They live in settlements situated over high plateau, spurs and valleys, ranging from 2000 ft. to 5000 ft. above sea level.

The hill slopes are clearly marked by swidden plots and horticultural plantations. Altogether, there are 120 *Dongria* settlements located in 4 CD Blocks, viz., Bissamcuttack, Muniguda, Kalyansinghpur and Lanjigarh with two operating micro-projects, one operating at Kurli (Bissamcuttack & Muniguda) and other at Parsali (Kalyansinghpur & Lanjigarh). Every *Dongria* settlement has a cluster of houses linearly arranged in two rows along a main street. The settlements have their own boundaries with specific places for shrines, dormitory, burial ground, etc.. The guardian shrine of the village, “Jatrakudi” is situated at the eastern boundary of the village and protects the village from all malevolent spirits. Each settlement is part of a territorial boundary called “Mutha” which is co-terminus with a particular clan. Each Mutha is divided into extended lineage group called “Punja”, whose main functionaries are Mandal, Bismajhi, Jani and Pujari. The *Dombs*, a scheduled class community, live a little away from every *Dongria* settlement. They work as messengers, weavers, sweepers and cattle herders for the *Dongrias*.

The evaluation process has been carried out taking 16 development schemes into consideration in the study area and evaluating them as per the principles described above. The various criteria of evaluation can be described as follows:

**1. Utilisation:** Utilisation of assistance is an important criterion of performance evaluation in the sense that, sometimes, beneficiaries do not utilise the assistance provided to them due to certain compulsions. For example:

- (i) A beneficiary who has been assisted under a horticultural scheme could not utilise the amount for the purpose and spent it to repay his consumption loan from the bank.
- (ii) In another incidence, a beneficiary under a similar scheme had to pay the assisted amount for settlement of bride-price in the village *Khambesi*.

Hence, to measure the performance on the assistance utilisation criterion, a linear function may be defined as:

$$\mu_u = \frac{\text{No. of Beneficiaries utilised the assistance}}{\text{No. of Beneficiaries assisted}}$$

where  $\mu_u \in [0,1]$  is the utilisation function and linguistic variables can be defined to measure the performance on this dimension as

Linguistic Variables	Value of the Utilisation Function
O	$\mu_u = 0$
VL	$\mu_u \in (0, 0.2]$
L	$\mu_u \in (0.2, 0.4]$
M	$\mu_u \in (0.4, 0.6]$
H	$\mu_u \in (0.6, 0.8]$
VH	$\mu_u \in (0.8, 1)$
P	$\mu_u = 1$

where  $\mu_u \in (a, b]$  means that  $\mu_u$  takes the values from a to b but  $\mu_u \neq a$ .

**2. Social Involvement:** In the individualism-collectivism dimension, *Dongrias* score very high in collectivism due to the fact that it is a typical characteristic feature of every simple society. This phenomenon can very well be observed from various social and economic activities of the *Dongrias*. For example:

- (i) During the death rituals of the *Dongrias*, all the kins are informed personally about the demise. The dead body is kept till the time all the kins assemble, each bringing with them a log of wood for the funeral pyre.
- (ii) The collectivism dimension can also be vividly observed in all aspects of economic activities of the *Dongrias*, viz., cleaning and burning of the forest cover, digging and hoeing, sowing of seeds and weeding operations, watching the crops from wild animals, harvesting and storage etc., in shifting cultivation. The laborious and time-consuming operations are made possible due to the active participation of not only the kin members but also the fellow villagers. Unlike other labour co-operatives, where there is cash remuneration, here it is in the form of a village feast given by the concerned household.

For endogeneity, when development has to be considered in the framework of culture, the impact of development assistance should also be measured along the

dimensions of culture. In that case, any development scheme should be viewed in terms of the performance of cultural attributes or dimensions. To measure the social involvement generated by the scheme, the various linguistic variables can be described as follows:

$\phi$	:	None
VL	:	Individual level
L	:	Family level
M	:	Taking the help of kins
H	:	Taking the help of kins as well as the <i>dombs</i>
VH	:	Village level
P	:	Village level along with other external agents.

**3. Utilisation of Knowledge:** Knowledge is a vital component for successful implementation of any development scheme. For societal development, this knowledge is a combination of both indigenous as well as modern knowledge. As the launching of any scheme in tribal area is associated with imparting technical knowledge through various training and demonstration, the effectiveness of this technical knowledge can only be observed when it is found to be gained by the community in the context of their indigenous knowledge. For example:

- (i) The *Dongrias* had already the indigenous knowledge that the soil in the swidden plots loses its fertility at a faster pace due to the natural terrain and hence has to be replenished at frequent intervals. Therefore, all the combustible materials are chopped down, scattered over the plots to be properly dried and burnt down by them. The resultant ash when cooled is mixed with the soil as it is ideal organic manure. Later, when these swidden plots are used for horticultural plantations, the ready acceptance-level of the technical knowledge was quite high. According to them, through soil testing, the deficient nutrients in the soil can be remedied by the addition of the requisite chemical fertilisers.
- (ii) On the other hand, although traditionally they collect different types of honey from the forest, the scheme of providing bee-boxes and its requisite technical training were, in most of the cases, not accepted by the *Dongrias*. As narrated by most of them, the technical knowledge of various processes of honey collection was not worth their labour, as the boxes were placed in the villages instead of forest; the yield was very low and some, even, complain about the differing taste of honey. In most of the cases, the technical knowledge provided to them was not compatible with their indigenous knowledge.

To measure the knowledge utilisation level of the *Dongrias* across several villages for the schemes, the various linguistic variables to know the satisfaction level of the performance can be described as follows:

$\phi$	:	No knowledge
VL	:	Some indigenous knowledge
L	:	Sound indigenous knowledge and no technical knowledge (modern knowledge)
M	:	Sound indigenous and no acceptability of technical knowledge even if it is available
H	:	Sound indigenous knowledge and some acceptability of technical knowledge
VH	:	Synthesis of sound indigenous knowledge and technical knowledge
P	:	Perfect knowledge (indigenous and technical)

**4. Marketability:** In the era of liberalisation and globalisation, marketability of indigenous products is a major criterion of development. Human needs and wants can only be satiated if their products can be marketed properly in a money economy. In tribal societies this angle cannot be isolated and if their goods and manufactured items can get proper value in the market, then they can be part of the general mainstream keeping their identity intact. For *Dongria* society, this is not an exception and some marketing efforts have already been done by them. For example:

- (i) The deeply ingrained view that they were the kings of their land prevented the *Dongria Kondhs* to market their own produce. The *Dombs* were the mediators between the *Dongrias* and the traders. Initially such transactions were made anytime to meet the social demand. With the passage of time, they carried head-loads of horticultural and forest produce to the market themselves and sold these to the traders. In both the cases, the *Dongrias* were cheated and never got the appropriate price for their produce.
- (ii) With the establishment of Niyamgiri Fruit Growers Co-operative Society in the year 1979, the *Dongrias* realised the actual worth of their produce in monetary terms. They also understood that, not only production but also proper marketing strategy would enable them to get the right price for their produce. Soon, they found that all the produce could not be purchased by the society, and they ventured out in search of nearby markets in their vicinity where they bargained with the private traders to get the appropriate price.

Hence, to know the marketability effort of the *Dongrias* for their products, the various linguistic variables that can be explained to know the various types of marketing are as follows:

$\phi$	: Total subsistence and barter
VL	: Subsistence and forced exchange of produces (e.g. exchange crops to the <i>Dombs</i> before maturity for fulfilment of other social needs, i.e. forced exchange with the help of middlemen at a sufficient lower price)
L	: Subsistence and exchange of produce to be marketed at a price to the middlemen, e.g., to the <i>Dombs</i>
M	: Subsistence and marketing of produce by themselves to private traders
H	: Less subsistence with adoption of marketing strategy, e.g. a two pronged marketing strategy, i.e., Fruit Growers Marketing and/or Private traders
VH	: Less subsistence with enhanced marketing effort by capturing nearby markets
P	: 100% marketability of produce by using proper marketing strategy.

**5. Women's Participation:** It is now a well-known fact that the women's contribution to the economy of any community, though largely substantial, is hardly recognised due to the fact that their output is not accountable in monetary terms. In this context the tribal economy is not an exception. Debarring certain taboos existing in the *Dongria* society, where a woman is prevented from doing certain tasks like cutting a tree, building the roof of the house, etc., *Dongria* women actively participate in almost all the economic activities along with the *Dongria* men, be it, sowing, weeding, harvesting or even marketing of their produce. For example,

- (i) In most cases, collection of forest produce is done by women. Apart from all these activities, they also have specialised skills of preparing leaf cups, making ropes and mats, as well as embroidering the traditional *Dongria* scarves and drapes which they have learnt through their socialising process in the dormitory.
- (ii) Another noticeable feature is the exclusive ownership of turmeric plots by the *Dhangdis* (unmarried girls) where they take care of all activities from sowing to marketing independently without any help from any male family member, enabling them to be well conversant with budgeting of their finances and preparing themselves for the tasks ahead when they get married.

This shows the active participation of *Dongria* women in their economic development and the various types of participation labelled by linguistic variables can be denoted as follows:

$\phi$	: No woman participation
VL	: More men's participation with less women participation occasionally
L	: More men's participation with less women participation on a regular basis
M	: Equal participation of men and women
H	: More women's participation with less men's participation on a regular basis
VH	: More women's participation with less men's participation occasionally
P	: Full women's participation.

**6. Resource Utilisation:** For any developmental activity the optimal utilisation of resources is vital. With the introduction of various development schemes, which need both local and external resources, its utilisation level acts as a major performance indicator for successful implementation of the schemes. Initially, *Dongrias* were using their local resources and the resource utilisation pattern was reflecting their culture. In the changing circumstances, they learnt to tap the resources, which was available to them locally as well as to procure external resources. For example,

- (i) The *Dongrias* felt the need to tap the water resources from the hill streams through stone bunding and bamboo canals at the required time to utilise for their horticultural and agricultural operations, instead of solely depending upon the rains as was in the case of shifting cultivation operations.
- (ii) Similarly, to expand the agricultural activities and, at the same time, to make proper investment of the profit obtained from horticulture and agriculture, they began to procure agricultural lands in the plains below from the *Desia Kondhs* whose lands were being alienated by non-tribals.
- (iii) Various other external resources in the form of seeds and suckers, fertilisers and pesticides, embroidery materials, iron smelting units and various food processing units, etc., were also used.

Hence, to measure the level of external resources being used by the *Dongrias* in various schemes, the linguistic variables that can be defined for this criterion are as follows:

$\phi$	:	No resource; neither locally available nor externally procured
VL	:	Availability of little local resource
L	:	Availability of adequate local resource but no opportunity for procurement of external resources
M	:	Availability of adequate local resource but no utilisation of external resource even if available
H	:	Availability and utilisation of adequate local resource and utilisation of some external resource available to them
VH	:	Utilisation of adequate local resource and utilisation of some external resource purchased by them
P	:	Optimal utilisation of local as well as external resources.

Based on the above criteria, seven villages, viz., Khajuri, Kurli, Khambesi, Kadraguma, Patalamba, Radanga and Bondili have been covered for the evaluation purpose of 16 development schemes, like, horticultural plantation, agricultural assistance, supply of bee-boxes, embroidery, etc. The data on the performance level of the schemes from the beneficiaries were obtained by pooling the information from ten of them randomly for the schemes in a particular village. This information

includes the internal information on the performance level of the schemes. Similarly, the external information includes the opinion of the other stakeholders, viz., special officer DKDA, Block Development Officers (BDO), the evaluator, Welfare Extension Officer (WEO), Project Officer (ITDA, ), etc., have been considered regarding the importance of the various criteria to the overall development of the area through these schemes. These two types of information have been pooled across the criteria and across the stakeholders in order to determine the performance status of these schemes in the study area. The evaluation model as suggested in the previous section can synthesise the information to generate the desired output. The highlight of this model is that it takes into account “linguistic variables” as inputs and processes them in a human-like procedure resulting in output in similar terms. The next section discusses the output of the evaluation model in the context of the evaluated micro-project.

### **Analysis and Discussion**

For culture-specific development of tribal societies, tribal administration has been carried out by various administrative units viz., Integrated Tribal Development Agency/ Project (ITDA/ITDP), Modified Area Development Approach (MADA), and micro-projects. The Government of India has identified 75 primitive tribal groups (PTG), who are to be developed through micro-projects. The aim of these micro-projects is to provide intensive thrust to individual households leading to their all-round development. In Orissa, 13 PTGs have been identified for whom 17 micro-projects have been formed. These micro-projects are contained within 20 CD Blocks, comprising 537 villages and around 14,000 households. As mentioned earlier, two micro-projects are in operation for the *Dongria Kondhs*. For achieving the intended development objective of the micro-projects, multi-perspective evaluation is more meaningful as well as essential. The multi-perspective evaluation model which has been discussed in section 3 has been applied to Dongria Kondh Development Agency (DKDA) for the various government sponsored schemes. The criteria for evaluation were arrived at by the evaluator through intensive PRA sessions in the seven evaluated villages. These sessions revealed the *Dongrias*' view of their felt needs, the shortcomings of some of the schemes as well as how best these can be remedied. Besides, these participative sessions highlighted their depth of their indigenous knowledge which could be made use of for the optimal utilisation of the local resources. The findings of the PRA sessions were also corroborated with the views of the other external stakeholders like VLWs of the evaluated villages, Special Officer and Welfare Extension Officers of the Micro-project, Block Development Officer, Project Officer (ITDA) from the monthly review meetings conducted by the District Collector. Therefore, the criteria for development were not left to the subjective choice of the

evaluator’s needs; rather the evaluator acted as the facilitator to moderate the views of the internal as well as external stakeholders and brought it to a focus. From this study, it can be observed that:

$$T_k = \begin{pmatrix} S_1 & V_1 & V_2 & V_3 & V_4 & \dots & V_7 \\ S_2 & & & & & & \\ \cdot & & & a_{ij}^k & & & \\ \cdot & & & & & & \\ \cdot & & & & & & \\ S_{16} & & & & & & \end{pmatrix} \quad 16 \times 7$$

where  $a_{ij}^k$  signifies that how well the scheme  $S_i$  performs based on criterion  $C_k$  for village  $V_j$ . Similarly,

$$T = \begin{pmatrix} C_1 & V_1 & V_2 & V_3 & V_4 & \dots & V_7 \\ C_2 & & & & & & \\ \cdot & & & b_{kj} & & & \\ \cdot & & & & & & \\ \cdot & & & & & & \\ C_6 & & & & & & \end{pmatrix} \quad 6 \times 7$$

where  $b_{kj}$  signifies the importance of developmental criterion  $C_k$  with respect development for the village  $V_j$ . Hence, one can find that:

- i)  $T_k$  : Performance of the schemes on the development criteria;
- ii)  $T$  : Importance of the criteria with respect to development.

Both (i) and (ii) jointly determine the contribution of development based on the performance of the schemes with respect to the criteria across the villages. Besides, it cannot be said that a scheme operated in the area is either successful or unsuccessful. To define the successful-unsuccessful dimension, the concept can be explained in the following format:

$\phi$	:	Totally unsuccessful
VL	:	Extremely unsuccessful
L	:	Highly unsuccessful
M	:	Moderately successful (equal success and failure)
H	:	Highly successful
VH	:	Extremely successful
P	:	Perfectly successful

Suppose a scheme’s performance level is VL, based on the above criteria across 7 villages. But if the importance of the scheme is VH, for the overall development, the contribution from the scheme to development cannot be considered

to be VL, rather M, obtained by  $VH * VL$ ; because this contribution is a joint effort of

- (i) Operation of the scheme whose importance to the development is VH; and
- (ii) Performance of the scheme whose overall contribution across the villages is VL.

This is due to the fact that the criteria considered may not contribute equally to the development process. Besides, this consideration may be with respect to various stakeholders. For example, two stakeholders may not view a particular criterion in the same importance level as far as development is considered. If the criterion had got the same priority irrespective of the stakeholders, then pooling their performance across several villages would have solved the purpose for evaluation. But since, for this evaluation, unequal importance level for the criteria by various stakeholders have been considered, this necessitates a pooling process of opinions along the criteria. Hence, the ranking of the performance level of the development schemes involves the following operations, viz.,

- (i) Pooling the performance level of the schemes across villages, criterion-wise. For example, table - 4 shows the performance level of the schemes village-wise for the utilisation criterion.
- (ii) Assigning the importance levels of the criteria along stakeholders.
- (iii) Averaging the performance level of the schemes along the criteria ( $m_{ik}$ ).
- (iv) Averaging the importance level of the criteria along the stakeholders ( $n_k$ ).
- (v) Aggregating  $m_{ik}$  and  $n_k$  through the 'Mix' operator to obtain  $p_{ik}$  for scheme i and criterion k.
- (vi) Aggregating  $p_{ik}$  across the criteria using 'Median' operator (Q) to obtain the ranking  $W_i$  for scheme i.

It can be observed from Table 3 that, the seven evaluated villages come under Kurli Gram Panchayat where the agency villages of the micro-project are identical with the Government revenue villages. From the inception of the DKDA, various development schemes as mentioned in the table were in operation initially on full assistance basis, which were eventually converted to subsidy basis. The number of stakeholders under DKDA was more or less proportional to the number of households in respective villages. But only in the Kurli Gram Panchayat, the number of stakeholders in Khajuri, Kurli, Khambesi and Kadruguma are relatively more compared to other villages due to their proximity to the agency centre. This is because of the fact that all the schemes were implemented first in these villages and the effectiveness of those schemes was reflected on rest of the villages. It is precisely for this reason that these villages were termed "model villages". As a result the rate of implementation for certain schemes increased, while it decreased for some other schemes with the passage of time. Besides, the utilisation level for some schemes was quite high for some programmes, like horticultural plantation, where the

stakeholders had some prior knowledge of this activity. It was also observed that the rate of utilisation of the developmental schemes increased among the *Dongrias*, when some of their social demands were met through the consumption loans provided by the DKDA. In the initial stage, when the assistance was provided in cash by the agency, it was spent in various social activities, like, paying bride-price or meeting expenses in religious occasions. In case of assistance in kind, either it was sold to *Dombs* for a very less price, or even utilised for social occasions, for example, goats and hens provided in form of assistance were utilised to meet the religious as well as various other social demands. Therefore, it was noticed that the effectiveness of the development schemes became visible after the agency DKDA tackled some of their social problems, viz., (a) paying bride-price as marriage payments in some cases, (b) settling the clan-feuds, or even, (c) recovering the mortgaged properties from the *Dombs* and providing them with alternative viable economic pursuits. In fact, these three social problems reflected the true conflict in the *Dongria* psyche which hindered the path of development. Solving the first problem helped in settling down the wayward *Dongria* youths who were channelised towards the more useful economic pursuits. Similarly, settling clan-feuds freed the village and clan functionaries to divert their attention towards political power which could be effectively used for their economic uplift. Sorting out the third problem prevented large-scale inter-group clashes between the *Dongria Kondhs* and the *Dombs* by clearly demarcating economic boundaries of both the groups. Hence, for economic development, some sort of social orderliness is a must, which has been observed from the development programmes of the *Dongria*. At the same time, it was also observed that the social articulation initially started with the launching of any new economic development programme, but with the success of the programme, this force gradually lost its strength. For example, the plantation programme in this area started with the people from their family and kin level and was extended to village and inter-village level due to the original clan-based nature of the *Dongria* villages, but gradually with the success of horticulture, the social involvement in the programme reduced to even individual level as has been observed in the model villages.

Another important aspect, which has been observed from the implementation of the schemes, is the impact of modern education. No doubt, indigenous knowledge is carried from generation to generation through the twin processes of enculturation and socialisation. But the spread of modern knowledge could only be possible through formal education. It has been observed that the model villages were in an advantageous position in the context of formal education because of two important factors, namely,

- (a) The establishment of Ashram school at *Kurli* long before the establishment of DKDA schools, and

- (b) The involvement of Mala Apa (a social worker) in educating the *Dongrias* the tenets of modern knowledge, who was also staying at Khambesi.

This has led most of the villagers in the model villages as second-generation learners compared to the first-generation learners in other villages. But, it has been observed that the acceptance of modern knowledge in certain aspects was quicker in areas where the *Dongrias* had some prior indigenous knowledge. Hence, indigenous knowledge, at times, acted as a growth-positive factor and sometimes as growth-negative factor in the acceptance of modern knowledge. In case of horticulture programme, it acted in growth-positive manner, whereas in case of drinking water programmes through dug-wells, it acted in a growth-negative manner, because, the *Dongrias* believed that by digging wells, they were hurting “Dharani” the Earth Goddess who was the symbol of fertility and fecundity. Hence, hurting her would incur her wrath which would destroy the peace and prosperity of their community.

For successful implementation of these schemes, resources both locally available as well as externally procured were required and the *Dongria Kondhs* are in touch with the outside world to avail the resources required by them. In case of various horticultural as well as agricultural activities, they are in touch with the outside society for procuring fertilisers, hybrid saplings, better agricultural implements, etc., and also for availing other assistance, viz., soil testing, marketing of their produce, etc.. During the initial years of the schemes, no doubt, they were getting all sorts of assistance from the DKDA, but gradually with the implementation of these schemes, they availed the resources which were not available to them locally for a price. This resource-acquiring trend developed a typical behaviour among *Dongria* regarding acquiring of land ownership. For example, when the State of Orissa declared the ownership of shifting cultivation land as state land since these were situated in the Reserved and Protected Forest Areas, the *Dongria*, ownership to land was jeopardised as they were prevented from continuing shifting cultivation. To regain the ownership of their land, they resorted to extensive horticultural and agricultural cultivation. This practice stems from their belief in “usufruct rights”, i.e., gaining ownership of land through plantation of fruit-growing trees. The practice also suited the Government because of the following factors:

- a) Shifting cultivation was minimised in the process.
- b) Forest cover was regained.
- c) Soil erosion was minimised
- d) The economic standard of the people was raised.

Due to these facts, the utilisation of land-based resources increased than non-land-based resources and the related economic activities, like animal rearing (goats & hens), bee keeping, etc.

Although some of the marketing activities of the *Dongria Kondhs* were taken care of by the Government-operated TDCC and fair price-shops, these were given an impetus with the *Dongrias* themselves becoming the active members of the Niyamgiri Fruit Growers' Society and subsequently becoming its owners. Since horticultural produce were of perishable nature, transportation and communication facilities were not up to the mark due to the difficult terrain and roads, they decided to process the same and then market it. So, they started the canning and food preservation unit to prepare jams, sauces, pickles and squashes. These two units operated at Chatikona, rather than at Kurli so as to avail effective railway communication to market their manufactured produce. Thus, the Niyamgiri Fruit Grower Society led to a major improvement in their livelihood, and at the same time, minimised the exploitation of the *Dombs*.

It was also noticed that the marketing activities were enhanced by the women's active participation in the process, right from the harvesting to marketing of the produce. The role of the marketing agents has been taken away from the *Dombs* by the *Dongria* women. Large-scale consumption of liquor prepared by the *Dombs* were also prevented by the *Dongria* women. In recent years, the *Dongrias* not only perform the marketing job themselves, but also adopt various marketing strategies to sell their products for an optimal price. Besides, forest collection of Minor Forest Produce (MFP) which is the exclusive prerogative of the *Dongria* women, was given an enhanced thrust in the present day demand for organic food items. The *Dongria* women were quick to take up this opportunity and market their collected MFP for a better price.

The criteria for development which have been already discussed in detail in Section 4 may not have similar importance for the stakeholders. For this reason, various external stakeholders like, SO, BDO, evaluator, WEO, PO have been consulted regarding their perception and views on these criteria. The importance of the criteria in terms of linguistic variables in the same scale has been taken for consideration (Table 5). The performance of the schemes by the stakeholders along the said criteria has been pooled by using a "Median" operator (Table 6). Similarly, the relative priority structure of the criteria by the stakeholders has been computed by pooling the opinions of the stakeholders along criteria (Table 7). The component-wise weights of the various schemes along with their relative weights have been computed based on the discussed methodology and has been presented in Table 8.

The final results obtained in Table 8 are absolutely compatible with the observations that have been already described above. The high success schemes were banana, pineapple, mustard and turmeric plantation along with horticulture assistance where the activities involved in the schemes are basically community-based and the women's participation along with men is quite substantial. The scheme concerned with spinning was highly unsuccessful due to the *Dongria* belief that this was primarily the work of the *Dombs*. But, the *Dongria* women who knew

weaving prior to the implementation of the scheme, picked up embroidery activities effectively. In spite of this they were not able to derive any economic benefit from this activity; rather it was utilised as social adornment and gift items. The bee-keeping activity was not very successful due to the reason that the bee-boxes were kept near their huts in the village and the amount of honey collected was not satisfactory. Traditionally, they were honey-collectors from the forest, which needed no conscious effort on their part for its collection. But, when the honey collected in the boxes were found to be not satisfactory compared to their effort, amount collected and varieties, than those collected from the forest, this scheme could not arouse much enthusiasm among them and, as a result, it was not very successful. The rest of the schemes, which, no doubt, attained some success, could not be as highly successful as the schemes described above. This was because of the fact that the social factors overrode economic ones, leading to under-utilisation of development assistance provided in the schemes.

### Conclusion

The present paper highlights a fuzzy logic-based methodology for multi-perspective evaluation and its implementation for the evaluation of development schemes operated by *Dongria Kondh* Development Agency (DKDA). This methodology has the capability of evaluating multiple projects operating in multiple areas based on multiple evaluation criteria. The advantage of this methodology is that an evaluator can be fed with the data regarding the performance of the development schemes in various *Dongria* villages in an “effectiveness measure” scale through linguistic variables. For example, the effectiveness may be “low”, “high”, “very high”, etc.. This effectiveness can be measured through several evaluation criteria, which, in aggregated form, represents a multi-perspective framework. Here, the measurement of the effectiveness can be done in two dimension, viz.,

- i) Importance of the evaluation criteria with respect to the overall development across several stakeholders.
- ii) Effectiveness of the developmental inputs with respect to the development criteria.

These information need to be collected in the “effectiveness measure scale”, which then can be processed through the computer-based software. This will help to determine a ranking structure for the development schemes in terms of their effectiveness. The effectiveness values associated with the schemes can give a feedback regarding the next course of action to be taken, either to improve the effectiveness of the poorly performing schemes, or to find out the underlying cause behind this performance.

To conclude, it can be inferred that all development projects have economic, social, religious and political ramifications. In other words, culture should be the guiding principle or the centrepiece of any development initiative as has been envisaged by UNESCO's World Decade For Cultural Development. Hence, ideally, a well-designed development project should achieve results in all the above dimensions. This necessitates the building of indicators in all these dimensions, which may be termed as "culture-specific development indicators". When the achievements may be measured along these culture-specific indicators for performance evaluation of any development project, it can be termed as multi-perspective evaluation. The culture-specific development strategy along with multi-perspective evaluation leads towards sustainable development in the long run.

For a long time, the usual practice has been having development projects evaluated either by specialised officers from the concerned institutions, or by evaluators deputed by the higher authority not directly linked to the concerned local institutions. However, the resulting evaluations were unidimensional and target-oriented and did not take into account the opinions and views of stakeholders. This was because a collective opinion was difficult to obtain due to non-utilisation of an aggregation procedure to pool these viewpoints. But the multi-perspective approach to evaluation mitigates this difficulty and allows participation of both internal and external stakeholders in the evaluation process.

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**Table 3: No. of Beneficiaries**

Sl. No.	Scheme\ Village	Khajuri	Kurli	Khambesi	Kudra guma	Pata lamba	Radanga	Bondili
1.	Lemon plantation	42	36	45	22	13	24	13
2.	Orange plantation	40	32	42	24	15	26	14
3.	Banana plantation	47	33	47	23	14	22	12
4.	Pineapple plantation	43	35	46	26	17	27	15
5.	Mustard plantation	49	37	50	28	16	31	18
6.	Spices plantation (cardamom, pepper corn)	39	28	40	25	14	29	13
7.	Insitu plantation (Turmeric)	45	30	42	23	12	23	11
8.	Insitu plantation (Ginger, Garlic)	51	32	49	28	17	33	17
9.	Backyard plantation (vegetables)	47	25	43	27	15	22	14
10.	Agriculture input assistance	35	33	45	28	16	27	14
11.	Horticulture input assistance	51	39	56	30	19	33	17
12.	Supply of goats	40	29	45	22	14	26	13
13.	Supply of cocks & hens	46	30	49	23	15	24	15
14.	Supply of embroidery	43	28	51	20	12	27	14
15.	Supply of bee-boxes	47	30	46	23	16	25	16
16.	Supply of spinning materials	35	31	48	26	15	29	11

**Table 4: Performance level of the schemes based on 10 (ten) beneficiaries from each village based on ethnographic method (Participant interview)**

<b>• Internal Information</b>								
Criterion	Scheme\Village	Khajuri	Kurli	Khambesi	Kudra	Pata	Radanga	Bondili
				guma		lamba		
	1. Lemon plantation	VH	VH	VH	H	H	VH	VH
	2. Orange plantation	H	VH	VH	VH	H	H	VH
	3. Banana plantation	VH	VH	VH	H	VH	M	H
	4. Pineapple plantation	VH	VH	H	VH	M	H	M
	5. Mustard plantation	H	VH	VH	H	H	M	VH
	6. Spices plantation (cardamom, pepper corn)	H	H	VH	H	M	L	M
	7. Insitu plantation (Turmeric)	VH	VH	VH	VH	H	VH	VH
Utilisation	8. Insitu plantation (Ginger, Garlic)	VH	H	VH	M	M	H	L
	9. Backyard plantation (vegetables)	H	VH	VH	VH	VH	H	VH
	10. Agriculture input assistance	M	VH	H	L	M	VH	H
	11. Horticulture input assistance	VH	VH	VH	VH	H	H	VH
	12. Supply of goats	P	P	P	P	P	P	P
	13. Supply of cocks & hens	P	P	P	P	P	P	P
	14. Supply of embroidery	P	P	P	P	P	P	P
	15. Supply of bee-boxes	P	P	P	P	P	P	P
	16. Supply of spinning materials	P	P	P	P	P	P	P

**Table 5: Opinion of the External Development Experts**

<b>• External information</b>						
		Spl Officer	BDO	Evaluator	W.E.O.	Project Officer
		DKDA		(ITDA)		
1.	Utilisation	H	M	H	VH	VH
2.	Social involvement	VH	H	VH	H	H
3.	Utilisation of knowledge	VH	M	H	M	VH
4.	Marketability	H	H	H	H	H
5.	Women's participation	VH	VH	H	VH	M
6.	Resource utilisation	H	VH	VH	H	VH

**Table 6: Aggregation of performance of the schemes across criteria (m<sub>ik</sub>)**

Schemes\Criterion	Utilisation	Social	Utilisation of		Women's	Resource
		Involvement	Knowledge	Marketability		
1. Lemon plantation	H	L	H	H	M	VH
2. Orange plantation	VH	L	H	H	M	VH
3. Banana plantation	VH	M	VH	VH	H	VH
4. Pineapple plantation	VH	M	VH	VH	H	VH
5. Mustard plantation	VH	M	H	VH	VH	VH
6. Spices plantation (cardamom, pepper corn)	H	L	φ	VH	VL	VH
7. Insitu plantation (Turmeric)	VH	M	H	VH	VH	H
8. Insitu plantation (Ginger, Garlic)	H	L	φ	VH	VL	VH
9. Backyard plantation (vegetables)	VH	M	φ	VH	VL	VH
10. Agriculture input assistance	H	M	L	Q	VH	VH
11. Horticulture input assistance	VH	VH	VH	VH	VH	VH
12. Supply of goats	P	L	H	φ	M	M
13. Supply of cocks & hens	P	L	H	φ	M	M
14. Supply of embroidery	P	VL	H	φ	P	M
15. Supply of bee-boxes	P	L	M	φ		M
16. Supply of spinning materials	P	VL	VL	φ	P	VL

**Table 7: Relative Priority Structure of the Criteria (n<sub>k</sub>)**

Sl. No.	Criteria	Relative Priority (n <sub>k</sub> )
1	Utilisation	H
2	Social involvement	H
3	Utilisation of knowledge	H
4	Marketability	H
5	Women's participation	VH
6	Resource utilisation	VH

**Table 8:  $\lambda$ -table –  $\lambda(m_{ik}, n_k)$  : Evaluation of Schemes**

Schemes	Componential weights along the criterion ( $p_{ik}$ )						Relative Weight $Q(p_{ik})$
	I	II	III	IV	V	VI	
1. Lemon plantation	H	L	H	H	H	VH	H
2. Orange plantation	VH	L	H	H	H	VH	H
3. Banana plantation	VH	M	VH	VH	VH	VH	VH
4. Pineapple plantation	VH	M	VH	VH	VH	VH	VH
5. Mustard plantation	VH	M	H	VH	VH	VH	VH
6. Spices plantation (cardamom, pepper corn)	H	L	$\phi$	VH	M	VH	H
7. Insitu plantation (Turmeric)	VH	M	H	VH	VH	VH	VH
8. Insitu plantation (Ginger, Garlic)	H	L	$\phi$	VH	M	VH	H
9. Backyard plantation (vegetables)	VH	M	$\phi$	VH	M	VH	H
10. Agriculture input assistance	H	M	L	$\phi$	VH	VH	H
11. Horticulture input assistance	VH	VH	VH	VH	VH	VH	VH
12. Supply of goats	P	L	H	$\phi$	H	H	H
13. Supply of cocks & hens	P	L	H	$\phi$	H	H	H
14. Supply of embroidery	P	VL	H	$\phi$	P	H	H
15. Supply of bee-boxes	P	L	M	$\phi$	M	H	M
16. Supply of spinning materials	P	VL	VL	$\phi$	VH	M	L

# **Housing Problems of the Scheduled Caste and Scheduled Tribe Families in Karnataka: An Alternative Framework**

**M Mahadeva\***

## **Abstract**

Meeting the housing needs of the depressed sections has emerged as a major challenge. Social housing schemes, being the only avenue of meeting the housing and amenities needs, have been very ineffective in terms of the coverage due to inadequate financing by the government. Since public expenditure has not increased correspondingly to the housing needs during the '90s, the problem of housing of these sections has emerged as a major predicament for the state of Karnataka. Additionally, institutional inadequacies have further distanced the access to housing and amenities to houseless families. This paper documents institutional potentialities in the state to effectively address the problem besides suggesting a need-based housing development strategy — higher public expenditure, reorienting the existing institutional infrastructure and an integrated approach in meeting the total housing requirements of these families.

## **Introduction**

Related literature in the Indian context has rightly brought to fore the major failures and constraints in the housing sector. It has identified that India never had a well-defined housing policy or a housing finance system to guide and facilitate housing development until recently. In the absence of these critical dimensions, *ad hoc* approaches have been followed in order to supply housing units and housing finance to meet the critical needs of the people (Pugh 1990; Wadhva 1993; Mahadeva 1997; Pandey and Sundaram 1998). The so-called social housing programmes, as a conventional tool of the state, aiming at meeting the housing needs of the disadvantaged sections failed to live up to their own expectations for two main reasons: first, there have not been any concerted efforts to understand the housing problem *per se*; secondly, for want of adequate financing, social housing schemes have been ineffective. However, since the late eighties, the country has been able to evolve a national housing policy and organise a full-fledged housing finance system (GOI 1998, Mahadeva 2004a). As a result, “housing

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is a national agenda and the sector policy declared housing for all as a priority area and focused on the housing needs of citizens, in general, and that of the poor and the depressed, in particular". Further, to meet the housing financial needs of the backward areas (rural and semi-urban), sub-targets were fixed for scheduled commercial banks (Mahadeva and Thara Bai 2001). These initiatives have given some impetus in mitigating the housing problem in the backward areas, but have hardly brought about the needed change to a majority of the Scheduled Caste (SC) and Scheduled Tribe (ST) families. Unfortunately, these segments have been depending upon social housing schemes to fulfil their housing dreams. The housing finance market has been reluctant to extend its services to backward areas (Mahadeva 2007). These constraints, together with institutional failures, have ensured that the marginalised sections face the housing shortage continuously in huge order. The housing problem of SC/ST families constitutes more than half the problem both at the national and regional levels (Census of India 2001).

Karnataka state has been historically known for the presence of SC/ST families in large numbers (Hutton 1931), besides its several landmark initiatives, especially in the housing development administration. A host of social housing schemes have been introduced for the benefit of the poorer sections, which have become to some extent the main source of fulfilling the housing dream of the SCs/STs in the state (Mahadeva 2004b). However of late, growing housing needs of the poorer sections, resource crunch for the social housing schemes and mal-administration including corruption and other factors have impeded the progress. These supply constraints have not only contributed to a manifold increase of the housing needs of such families but have also emerged as one of the problems of the state. Being largely assetless and engaged in hereditary subsistence pursuits (GOK 1982), with some working as bonded labourers (although legally abandoned), meeting their housing needs by themselves is beyond the reach of the SC/ST families, as they struggle hard to earn a livelihood. Therefore, considering the housing problems of these families (exterior castes) in the state in its totality is the focus of this paper.

In the first instance, this paper assesses the housing shortage as faced by the SC/ST families using the methodology suggested by the National Buildings Organisation (NBO) (GOI, 1988). Secondly, district-wise housing shortage and deprivation of housing amenities have been worked out for all families in the state in general and for the Scheduled Caste and Scheduled Tribe families, in particular, separately. The problem and the levels of deprivation for rural and urban areas in the state have been presented separately. Also, various indicators have been identified to assess the functional performance of all the 27 Urban Development Authorities. Thirdly, non-availability of housing amenities (drinking water, household toilet, and electricity in combination within the residential premises) is the criterion used to assess their deprivation. Drinking water used from open wells, tanks, ponds,

lakes, rivers, canals, springs and non-availability of any latrine modes (pit, water closet and others) and electricity are considered as deprivation, as they are not available within the residential premises. In other words, households exposed to unsafe drinking water sources, without proper lighting and defecating outlet are considered deprived. Fourthly, the volume of public expenditure for the development of housing, SCs/STs/OBCs, provision of drinking water and sanitation is accounted by taking revenue and capital and plan and non-plan expenditure data for the state of Karnataka for 11 years. Similarly, to assess the institutions in the housing sector, financial viability in terms of the revenue surplus, investable funds, and resource mobilisation capacity are considered. Finally, an attempt is made to ponder over the financial requirements to meet the housing needs of the poor segments within the Scheduled Castes and Scheduled Tribes in the state with average unit cost of construction (Rs 46,748 in rural areas and Rs 1,44,565 in urban areas) on the basis of the NSSO results (58<sup>th</sup> Round).

### **Housing Problem**

Karnataka is the eighth largest state facing the housing problem with 4.38 percentage share in the total housing shortage of the country. Quantitatively, the state faces a housing shortage for about 6.62 lakh families, which is well above the average shortage (4.72 lakh units) per state in the country. In 2001, about 7 per cent of the total families were facing housing shortage in the state. The housing shortage by source and distribution clearly indicates (Table 1) not only that rural areas have registered higher incidence with 73.41 per cent (Mahadeva, 2004c) but also the precarious situation in a number of districts, which is a cause for concern. On the basis of the number of families and higher prevalence of dilapidated stock, nine of the twenty seven districts can be considered vulnerable, as they account for about 51 per cent of the total housing shortage in the state. Bangalore Urban district, with all the three wings of the government (Legislature, Executive and Judiciary) in the city limit, topped the vulnerable districts with a shortage of 9.37 per cent, followed by Belgaum (9.21 per cent), Mysore (5.59 per cent), Tumkur (4.98 per cent), Gulbarga (4.83 per cent), Bangalore Rural (4.68 per cent), Shimoga (4.38 per cent), Uttar Kannada (3.93 per cent) and Hassan (3.78 per cent).

Like any other part of the country, Karnataka too is experiencing both quantitative and qualitative dimensions of housing shortage. These shortages are respectively referred to as 'crowded dwellings' and 'dilapidated or deficient units'. The shortage on account of 'crowded dwellings' arises largely due to formation of large numbers of joint families than the residential housing stock. "Deficient dwelling" refers to the number of sub-standard (life-threatening and unsafe) and inadequate housing units largely constructed by poorer sections, without adhering to any standard norms or using any standard building materials. In fact, between

the two, dilapidated units constitute a major proportion in the total shortage. Non-durable and sub-standard materials are used to construct qualitatively challenged structures, which do not ensure dwelling round the year. Also, these structures fail to ensure even minimum in-house amenities like adequate living space, safe drinking water, sanitation, adequate/proper lighting, proper ventilation, privacy etc. Crowded living and unreasonable sharing of available services and filthy environment are other features of these unsafe houses. Unfortunately, notwithstanding their fitness, the poorer sections have resorted to such dwelling to protect themselves and their belongings.

Though, the entire state is facing the incidence of unsafe dwelling in different order, it is very alarming in Bangalore Urban district, which has registered a higher incidence of unsafe units with 7.82 per cent, followed by Tumkur (6.01 per cent), Mysore (5.81 per cent), Belgaum (5.61 per cent), Shimoga and Bangalore Rural (5.01 per cent each), Davangere, Kolar and Uttar Kannada (4.21 per cent each) Gulbarga, Hassan, Mandya (4.01 per cent each). Similar to that of the qualitative dimension of housing shortage, the state also experienced crowded dwelling. A little over 1.63 lakh families are dwelling with other families and are experiencing crowded living. Although, every district in the state has registered crowded dwelling, six of the 27 districts -- Belgaum, Bangalore Urban, Dharwar, Gulbarga, Mysore and Bellary -- have registered a higher incidence to the extent of over 56 per cent in the total. Further, rural areas of the state have been largely experiencing crowded dwelling and accounting for over 64 per cent in the total incidence of the state.

The Scheduled Castes and Scheduled Tribes being the major depressed sections in the state, more than half of these families lack agricultural lands (GOK 2003a) and other income-generating assets to meet their livelihood. When such is the case, affording a decent house by themselves is considered to be a distant dream for a majority of them. The reality of assetlessness prompted these sections to heavily depend upon state actions/ interventions to meet their needs, including housing. Housing being one of the basic needs (UNCHS 1996; Jorgensen 1977) and a socio-political empowering institution (Megbolugbe and Linneman 1993), its deprivation among SC/ST families is highly alarming and accounts for 51 per cent of the total housing shortage in the state (Table 2). In other words, 2.30 lakh SC families and 1.08 lakh ST families are facing housing shortage in the state. Especially, the plight of the SC/ST families in 11 of the 27 districts is even more alarming, as they constitute 65 per cent of the shortage in the state. Gulbarga leads the higher incidence districts with 7.99 per cent followed by Mysore (6.80), Kolar (6.21), Belgaum, Bellary and Bidar (5.92 per cent each), Chitradurga and Davangere (5.62 each), Bangalore Urban (5.33), Tumkur (5.03) and Bijapur (4.73 per cent). Further, the housing problem of the SC/ST families has emerged as one of the major problems of many districts of the state, especially among the vulnerable districts. In other words,

a major part of the housing shortage in the vulnerable districts is due to large-scale deprivation of SC/ST families. For example, in Gulbarga district, around 85 per cent of the problem is due to huge deprivation level of the SC/ST families, followed by Mysore (62.16 per cent), Tumkur (52.00 per cent) and Belgaum (33.00 per cent). The incidence of housing deprivation among the SC/ST families is largely prevalent in rural areas as 76 per cent of these families live in the countryside. Of the total housing shortage, rural families account for 85 per cent, as is evident from the table.

Further, the problem among SC/ST families is largely unsafe dwelling (54.14 per cent) in dilapidated units followed by housing adjustment in over-crowded units (45.86 per cent). Therefore, it reiterates that the problem should be arrested both by reconstructing or renovating the existing dilapidated structures and by increasing the supply of new housing units. It goes without saying that additional impetus to the most vulnerable districts must be given. It is also clear from the table that rural families are facing higher order of overcrowding as well as dilapidated living in as many as 11 districts of the state. If focus is on rural areas, more than 64 per cent of the total incidence can be arrested. In urban areas, though the incidence is not as challenging as in rural areas, still a good number of SC/ST families are facing the problem in varying degrees. Given the growing incidence of deaths in various parts of the state due to the destruction of these dilapidated structures (walls and roofs) during the rainy season, it is necessary to arrest the incidence of dilapidated dwelling on priority basis.

**Deprivation of Amenities:** Notwithstanding the proactive role of the state, efforts have yet to cover the whole population. About one-third of the families in the state have yet to get access to housing amenities safe drinking water, proper lighting (electricity) and sanitation (household toilets) within their houses or to experience quality living (Table 3). Though, a great deal of success was achieved in the supply of safe drinking water and provision of electricity, the position of the state in the case of sanitation development is far from satisfactory and has to go a long way. The coverage of families with safe drinking water and electricity was 84 and 79 per cent respectively, but only about 27 per cent in the case of sanitation. Despite widespread differences across districts in the provision of safe drinking water and proper lighting, Bangalore Urban District tops the rank in terms of highest number of families with all the three services within their houses. On the contrary, the deprivation levels are respectively higher in the case of Udupi and Uttara Kannada with 56 and 50 per cent of the total families. In these districts, a large number of families use unsafe water for drinking purposes. The position of the state is even more distressing with regard to coverage of families with sanitation facility.

The deprivation of housing amenities among the socially distanced sections (SCs & STs) is even more than the state level. The deprivation level is a little over 40 per cent and 43 per cent in the SC and ST families respectively, which are almost 7 and 10 percentage points above the state average. The table portrays clearly

that though in the case of safe drinking water the deprivation level of SC/ST families is less than the overall deprivation, in a number of districts, the position is very critical and needs aggressive measures to arrest the same. The incidence of using unsafe water for drinking purposes by the SC/ST families is more than the respective average in almost half the districts of the state. In a few districts like Gadag, Udupi, Dakshina Kannada, and Uttara Kannada and in Kodagu, a large number of SC/ST families (ranging from 45 to 85 per cent) are using unsafe water for drinking purposes from different sources. It only indicates that the existing drinking water interventions in these districts are inadequate to meet the total need of these families and suggests augmentation of the supply or development of independent sources in their habitations.

In the case of lighting, the coverage of SC/ST families is deplorable as compared to the overall achievement in the state. There have been subsidised electrification interventions by the state for socially and economically backward families. It is beyond doubt that subsidised electrification interventions (for example: Bhagyajyothi and Kutirjyothi) are the only avenues, as most of these families cannot afford the facility by other means. But, unfortunately, limited public resources have shortened the coverage of the target families even to provide single bulb connections. Therefore, keeping in mind the growing necessity of electricity and invisible benefits (educational improvements) that percolate to the families, it is necessary to increase the resource flow to implement these schemes effectively.

Cultural factors have generally hindered the installation of sanitary latrines within houses, in general, and SC/ST families, in particular. Given the economic benefit of using human waste as manure in the agricultural fields, most people defecate in a designated place in rural areas. However, it is equally important to bring about a decent living environment within households. Though, belatedly, the state has realised the necessity to create good living environment, the corroborative measures are yet to meet the challenging order of the society and of the depressed sections. Subsidised household sanitation being the only intervention for the weaker section, public expenditure needs to be stepped up in this regard in order to arrest the existing state of deprivation.

### **The Development Expenditure**

Ever since the adoption of the Constitution, one of the critical methods of meeting the social and economic needs of SC/ST families is financing the various development strategies by the government. Whatever little progress achieved by depressed sections in the country can be attributed to public financing hitherto. Thus, it is necessary to throw light on the public development expenditure trend (Revenue and Capital) in Karnataka during the 90s, for two reasons. First, public expenditure has a direct impact on the production of housing benefits and on the provision of amenities as well. Public financing determines the success or failure in

the housing sector and in the provision of amenities for the poorer segments, as they have neither capacity nor access to financial opportunities to overcome their housing problem. Secondly, to a greater extent, the welfare of the depressed sections lies in the volume of development expenditure of the state. Thus, it can be said that higher the development expenditure, higher will be the welfare of the depressed sections and *vice-versa*, as the development expenditure always enhances allocations for social services, which, in turn, has a positive impact on the welfare.

There has been a voluminous increase in the overall development expenditure and allocations on social services. The same have respectively increased from Rs 3,342 crore in 1990-91 to Rs 11,349 crore in 2000-01 (3.4 folds) and from Rs 1,557 crore to Rs 6,372 crore (four folds) (RBI 2004). But, in relative terms, there has been a sharp decline in the share of the development expenditure from 67 per cent to 58 per cent in the total revenue and capital expenditure, which also increased constantly in the state, during the period. It only makes a point towards the waning role of the state in the development sphere. However, against this striking feature, the social services expenditure in the total developmental expenditure has increased to 56 per cent from 47 per cent. Public expenditure has increased progressively on the development of housing, drinking water/sanitation and on the welfare of the SCs/STs/OBCs. Housing being a priority sector in the country, since the Eighth Five Year Plan period, the state has strived towards living up to the national goal by enhancing its allocations by almost 10 fold from Rs 28 crores to Rs 266 crores. Also, the relative position of housing allocations in the total social services and development expenditures has respectively increased from 1.8 per cent to 4.18 per cent and from 0.84 per cent to 1.99 per cent during the 90s. Similarly, the welfare of SCs/STs/OBCs has been given the impetus by increasing the public expenditure to Rs 474 crores as of 2000-01 (over 21 folds) as against a mere allocation of just Rs 22 crores in 1990-91. Public expenditure on drinking water and sanitation has also registered an increase of over 7 fold and has doubled their share in the social services and development expenditure, over the years, as part of the priority.

Karnataka has always been in the forefront in the provision of safe drinking water in rural and urban areas. Rural households are being supplied safe drinking water at 55 litres per capita per day, which is much above the normative level of 50 LPCD (GOK 1996a). In order to ensure regular supply, the state, over the years, has evolved three different strategies: (a) implementation of its own schemes; (b) implementation of centrally sponsored schemes, and (c) implementation of internationally aided schemes. Under the first, Piped Water Supply is in vogue in all villages with a population of 1,000 and above, Mini Water Supply in villages with 500 to 999 population and borewell with hand pumps in less than 500 population. Accelerated Rural Water Supply Programme (ARWSP) and Pradhan Manthri Gramodaya Yajana (PMGY) are the popular centrally sponsored schemes to augment the supply quantity and ensure recharge of groundwater level. Finally,

the state successfully implemented three important externally aided projects (The Netherlands, World Bank and Danida Assisted Rural Water Supply and Sanitation Programmes) and has met the drinking water requirement of 2,031 problematic villages spread over almost all districts of the state (GOK 2004). Importantly, the rural water supply strategies have successfully met the water supply norms of 55 LPCD of about 73 per cent of habitations in the state (GOK 2003b). Incidentally, initiation of the second phase of the World Bank and Danida assisted projects is itself a testimony to the successful implementation of the rural water supply in the state. Similarly, safe water is expected to be supplied at 100 LPCD, 80 LPCD and 70 LPCD respectively in City Corporation, city municipal and town municipal/ town panchayat areas (GOK 1996b).

Karnataka was one of the early states to provide household latrines in order to bring about sanitation in rural areas. The state is implementing two very ambitious programmes. First, under Nirmal Grama Yojana, poor and non-poor families would be provided with a capital subsidy of Rs 2,000/- and Rs 1,200/- to construct a household latrine. Beneficiaries can avail the subsidy through gram panchayats. The second initiative in that direction is the evolution of Swachha Grama Yojana for the overall development of villages with main focus on environmental sanitation. The scheme has five different objectives to attain: paving internal roads and streets, construction of efficient sewage and storm water drains, provision of community compost yards and removal of manure pits from the dwelling areas, provision of smokeless *chulhas* for all households and construction of household latrines, community latrines and latrines in schools. Villages with 400-500 households can take up the scheme and it is mandatory that the village community contributes 10 per cent of the capital cost of the scheme besides participating in preparing/implementing and maintaining the assets created. In the urban context, sanitation development is undertaken largely as part of the various slum improvement/ development interventions, as the problem is more conspicuous in slums. Community bathrooms and latrines, sewage, drains, storm water drains, solid waste management, environment improvement etc., are some of the important sanitation works undertaken under slum development interventions of the state and central governments.

Since the late seventies, the state has been taking an active role in the provision of electricity to all the households below poverty line including the socially and economically backward families. Of the total number of power connections of all categories (10,854,848), by the end of March 2000, domestic segment accounted for 72.41 per cent (or 7,860,385 connections). To meet the needs of the vulnerable groups, "single bulb" (Single Point Connection) schemes of Bhagyajyothi and Kutirjyothi (respectively of the State and Central Government sponsored) have been implemented between 1979-80 and 1988-89. These schemes, as non-metered category, accounted for a little over 21 per cent of the total domestic connections in

the state in the year 1999-2000. The households with single bulb scheme are expected to pay a small fixed charge of Rs 2.50/- per month irrespective of the number of units' of power consumed. What is significant to note is that these schemes are highly meritorious in the sense that but for these schemes, the beneficiary households would have gone without proper lighting. At the same time, the disappointing note is that only 12 per cent of the single point consumers are paying the nominal charges; owing to the callous attitude of the KPTCL towards the recovery of charges, these schemes constitute only 47 per cent of the total domestic power subsidy in the state (Vivekananda 2002).

### **Institutional Infrastructure**

Karnataka is one of the leading examples in creating institutional infrastructure in the public, cooperative and private domains for supplying the critical inputs (land and finance) for various sections to promote housing development. The Panchayati Raj Institutions (PRIs), as rural local bodies, have come to play a critical role in translating the state's commitment on housing and housing amenities in rural areas. In fact, the responsibility of identifying target people under various social housing schemes rests with the PRIs. Similarly, Karnataka Power Transmission Company Ltd (KPTCL) has been made responsible for supplying electricity to all the houses and to implement subsidised electricity schemes of the state from time to time in rural and urban areas. That apart, Karnataka being the first state to initiate cooperative housing movement in the first decade of the twentieth century, its societies have been into housing development activities. The state nurtured housing societies in their initial years to realise its commitment partly. Similarly, a number of public institutions have come into existence to meet the housing needs of the state from the early 60s. Finally, private housing finance companies or subsidiaries of commercial banks, insurance companies and private companies have largely come into existence since the late eighties.

In order to ensure orderly residential environment and smooth supply of developed lands in urban areas, **Urban Development Authorities (UDAs)** were created in every district headquarters of the State during the late 90s. These UDAs have been acquiring land to carry out residential and other infrastructure development (roads including ring-roads, market and commercial complexes) and promoting other economic activities. As depicted in Table 4, around a lakh of residential sites have been distributed by UDAs to various income groups including the weaker sections. Further, it is significant to note that all UDAs have been financially well managed and have registered revenue surplus to the tune of over Rs 2,512 million, at an average of Rs 89 million per UDA. The UDAs, in addition to their annual work schedule, can initiate other developmental works out of the surplus revenue generated. However, notwithstanding the revenue surplus, not all UDAs in the state are functioning uniformly in terms of executing their responsibilities. Some are

functioning very well in order to meet the growing public demand for allotment of residential sites and for other facilities and some are not due to non-availability of land. As far as land acquisition is concerned, during the period under review, Development Authorities in Bangalore Urban district, Mysore, Shimoga and Bellary have had a major share to the tune of over 56 per cent. These UDAs acquired land at an average of 1,978 acres, which was more than the average land acquisition of all the authorities in the state. It is needless to note that growing public demand for residential activities and availability of lands largely contributed for the active role of the UDAs in these areas. Similarly, in the case of site distribution, Mysore Urban Development Authority (MUDA) has topped other authorities by contributing almost one-fourth in the total, followed by 18 per cent by the Bangalore Development Authority (BDA). However, in the case of a large number of other authorities, the site distribution performance was far below the average of 344 sites per authority and per year. Further, in the total revenue surplus, BDA alone had more than 50 per cent share apart from a few authorities, which posted a revenue surplus over and above the state average.

Followed by the imposition of social responsibility on scheduled commercial banks in India, there has been a tremendous spread of bank branches across the country, including the rural areas. But, over-enthusiasm in branch expansion has not led to credit expansion in rural areas, especially for promoting socio-economic activities in the hitherto neglected areas and sectors. Housing being one such neglected activity, whose credit needs, has never been met by the commercial banks in full, despite fixing of sub-targets for resource deployment and major networking in rural and semi-urban areas. This is largely due to lowest credit package for the rural areas, which, in turn, has increased dependence of houseless families on the social housing programmes of the state. Karnataka is not an exception. Of the total number of 4,840 scheduled commercial bank offices, rural and semi-urban areas together account for 3,236 offices (66.72 per cent) in the state (RBI 2000). During the period under review, the total bank credit limits for housing and actual investment in housing have increased 6 fold each as against a 4-fold increase in the overall bank credit in the state (Table 5). These increases have not brought about the needed change in the rural housing credit needs. It is evident from the fact that rural and semi-urban areas have together account for a total housing investment of Rs 54 million (Rs 19 million in rural and Rs 35 million in semi-urban areas) or 5.50 per cent of the total bank credit to these areas of the state. These investments work out to about 27 per cent of the total housing credit limit of the scheduled commercial banks. Considering the rural housing requirement in the state, on the one hand, and commercial banks as main household saving mobiliser, on the other, more credit needs to be earmarked.

The position of Cooperative Housing Societies (CHSs), as far as housing development in the state is concerned, is not different from that of the two major

institutions (UDAs and SCBs) already examined. Rather, the apathy is more conspicuous in the case of cooperatives. Initiated to supply critical housing inputs (land and finance) to their members, CHSs have failed to do so, by and large. With over 1,278 primary housing societies in the state, the total working capital as well as the loans advanced to housing activities of their members has constantly increased by more than six and nine fold respectively as can be seen in Table 5. The same have increased respectively from Rs 24,580 million to Rs 83,942 million and from Rs 12,096 million to Rs 46,889 million during the period 1990-91 to 1999-2000. Also, housing loans as a percentage of the total working capital increased from 49 to 56 per cent. But, these increases have not brought about any major breakthrough in the coverage of members for housing benefits, as it continued to be as low as 24 per cent.

One of the major changes that took place in the housing credit market was the entry of subsidiaries (Housing financial institutions (HFIs)) from the late eighties. Commercial banks, insurance companies, and private companies have sponsored a large number of subsidiaries in Karnataka. National Housing Bank (NHB), as a designated apex institution, has approved as many as 65 HFIs to mobilise public deposits and invest the same in housing development in the state. The volume of resource mobilisation and the business in terms of loans sanctioned for housing activities are a testimony to the functioning of these subsidiaries. HFIs, till March 2001, had mobilised anything more than Rs 11,655 million and invested about Rs 19,994 million for housing activities of group, community and individuals in the state (NHB 2002). These performances, notwithstanding their nature of investment and clientele coverage, are achievements in themselves and they alone should speak of their professional approach, flexible attitude and so given the various fiscal incentives made available to these institutions (Mahadeva 2004b). However, one of the discouraging notes is the non-shouldering of the social responsibility by these subsidiaries. These subsidiaries owing to their large concentration of housing projects in the urban/ metropolitan centres, have continued to neglect or have hardly had any investments in backward and rural areas. In view of the large-scale business potentials in backward and rural areas and for having enjoyed a number of fiscal concessions and incentives, there needs to be some degree of social responsibility from these institutions.

## **Discussion**

Given the high order of qualitative dimension of housing shortage in the state in general, and more so of the SC/ST families in particular, the state needs to lay importance on quality improvement of the housing stock, especially the dilapidated ones. People (mostly poor families) living in qualitatively challenging or deficient houses have neither repaired them to improve their quality nor have rebuilt them, owing to their challenging economic condition. This has led to a

cumulative accumulation of dilapidated houses over the years. The state is also responsible in many ways for the accumulation of dilapidated houses. First, the public policy has not recognised the growing accumulation of dilapidated stock for a very long period, partly also due to lack of empirical research studies on the housing problem by its source. But in 1991, the Census accounted the housing problem for the first time that including the magnitude of dilapidated dwelling stock. But, this critical input has not been captured by the recent popular writings let alone be a basis for policy making in the state. Second, the housing development interventions from time to time in the state seem to approach the problem wholly by constructing new housing units. It is evident from the development strategies that there is no in-built emphasis to alleviate the incidence of dilapidated housing stock in the state. Third, similar to that of state failure, there is hardly any credit lending for the redevelopment of the dilapidated housing stock by the housing financial institutions, mainly commercial banks and cooperatives. Equally important is to address the problem of crowded dwelling, which arises due to ever increasing families, especially in the rural areas. Disproportionate supply of new housing units has left a number of families uncovered and led to housing adjustments, which have exerted pressure on the existing units as well as on the housing amenities. Therefore, considering the enormity of the problems (qualitative and quantitative) and the poor families facing them, it is high time to arrest the incidence with proper mechanism by the state, especially by evolving a need-based housing policy with a major focus on the improvement of rural housing conditions. Such initiatives are imminent, since socially distanced sections are facing the most part of the housing problem of the state.

The existing institutional infrastructure in the housing sector is distributed unevenly between the rural and urban areas. Excepting PRIs and the Rajiv Gandhi Rural Housing Corporation (RGRHC), all other institutions (Urban Development Authorities, Cooperative Societies, Housing Financial Institutions etc) are highly urban-focused in their operations.

As a result, the housing problem of the rural areas has been either left to itself or to the ambit of limited operations of the social housing programmes implemented through local governments. The other lamentable situation is that even the so called RGRHC, a designated agency for promoting housing activities in rural areas, is yet to become fully rural-oriented. Similarly, housing cooperatives being public interest organisations, have had only a limited coverage of rural housing operations in the country, in general, and Karnataka, in particular. Out of the total number of 1,278 primary cooperative housing societies in the state by the year 1999-2000, only 77 societies were functioning in the rural areas, which worked out to just 6 per cent of their total operations (NABARD 2001). When this is the situation of people-oriented institutions (which are supposed to represent the interest of the common man largely of rural areas), less said the better with regard to other

institutions, which are practically located in and catering to urban areas.

Secondly, given the huge order of deficient housing stock, housing development strategies and the existing institutions should have had redevelopment of the existing stock. Unfortunately, this did not happen. Had redevelopment of the dilapidated stock been a part of the overall development approach, the state would not have faced the present challenge. Moreover, it is important to note that the total requirement of housing units cannot be met only by supplying new units in the state as the same involves huge resource requirement for the development of new settlements with housing services displacement of existing habitations etc. Therefore, taking the quality improvement of the poor people, cost advantages and other social benefits into consideration, improvement of the existing bad structure needs to be the development approach in the state, in general, especially in the higher incidence districts. Further, reconstruction is necessary not just to ensure safe dwelling with assured services round the year, but also to bring about a hygienic living environment.

Thirdly, the present order of housing problem in the state is largely faced by the poor, in general, and depressed sections, in particular. But, given the inadequate role of the state, it is time to examine alternative methods of achieving social well-being of these sections. It is necessary to lay importance to economic empowerment of this section, which facilitates them to advance themselves in the socio-economic spheres, including addressing the housing problem with financial support from the market. This argument is advanced on the basis of whatever little success has been achieved in the housing front by persons from depressed communities, both in urban and rural areas with the help of education-employment linkage. For this purposes, the state needs to further strengthen the existing educational avenues for the depressed sections, as such opportunities will give them higher economic empowerment.

Fourthly, there can be an exclusive housing development institution for the benefit of the poorer sections including the depressed families, especially in rural areas on the similar lines of KSCB. Such institution can have the resource support of the state, commercial banks and other financial institutions of public sector. For this purpose, it is all the more necessary to make RGRHC as an exclusive institution for rural areas to take up housing development activities (new housing and redevelopment of existing bad stock) for the poor including the depressed sections. It is also equally important to make RGRHC a nodal agency to implement all the social housing commitments of the state since these schemes have a direct bearing on the depressed sections. Similarly, in the days to come, direct housing provisions have their own roles to play. If they are intended to be an effective means, then the state has to pump more financial resources (as indicated in the next section) to direct housing provisions to meet the total housing needs of those depressed families.

### Alternative Framework

Having understood the housing problem of the state in its totality (source and distribution) and especially of SC/ST families, evolving a need-based housing development strategy is necessary. In that, a priority needs to be drawn to replace or redevelop the existing challenging stock, especially in the rural areas, if at all the state is serious about ensuring safe dwelling to the deprived sections. This approach is not only more responsive from the demand side but also cost effective from the supply side, besides keeping community life unchanged/intact. This approach needs to be supplemented with necessary resource reallocation, both by the government and the housing financial institutions, as well. To facilitate the alleviation of dilapidated housing stock the financial allocations need to be earmarked separately for redevelopment purposes.

Further, to augment the resource application for redevelopment of the dilapidated stock, provision of fiscal incentives for the financial institutions needs to be considered by the state. Apart from the dilapidated dimension of the housing strategy, to arrest the existing incidence of crowded housing, there is no other alternative but to increase the supply of new housing units. This can be a reality only with increased financial allocation. The argument in favour of compartmentalised strategy both in the housing policy as well as in the financial resource deployment is well supported by the success achieved elsewhere, especially in North American and Western European countries. Redevelopment of the bad stock, in addition to the supply of new housing units, has been the housing development strategy (Boelvouwer and Heijden 1992; Wexler 1996; Mahadeva 2002, 2004c), with a view to increasing the life of the stock as well as to ensure safe dwelling. Similarly, separate financial earmarking of the grants and subsidies for renovation/improvement of the bad stock to ensure decent living, especially for the poorer sections is necessary.

It needs no special mention as to how important finance is in the production of housing benefits, especially to the poorer sections. It is argued that, "finance is the most important factor in housing development because, with adequate finance available, the other factors could be acquired" (Okpala 1994).

Further, "the way cities are built reflects the way they are financed, because methods of financing dictates mode of construction" (Renaud 1987). In other words, more the finance more will be the housing production and *vice-versa*. In Karnataka, if poorer sections, in general and low caste families in particular are facing housing problems in huge order, it is due to an ill financing strategy being followed coupled with *ad hoc* approaches ever since independence. If the state intends to bring about decent living with dignity in the poorer segment of the SCs/STs, ensuring housing for all the families is one of the avenues. Towards that direction, the state needs to earmark a total resource requirement of Rs 1,173 crore (Rs 737.41 crore, 63 per cent, for rural areas followed by Rs 436 crore, 37 per cent, for urban areas) (Table

6). In order to finance the alleviation of the dilapidated units, the resource earmarking can be in the order of Rs 793 crore (67.61 per cent in the total), which leave about Rs 380 crore (32.39 per cent) for the supply of new housing units in the state.

The resource requirement pattern depicts interesting scenario across the various districts in the state for housing the poorer segment of SC/ST families. Against an average requirement of Rs 43 crore per district (Rs 29 crore for replacing the dilapidated units and Rs 14 crore for the supply of new units), ten of the twenty-seven districts demanding for more funds, to alleviate the higher incidence of housing problem. For example, to provide decent housing facility to the poorer sections of SC/ST families, Bangalore Urban district needs about Rs 203 crore (around five fold average needs of the state), followed by Mysore (Rs 88 crore), Gulbarga (Rs 76 crore) Bellary (Rs 70 crore), Belgaum (Rs 70 crore), Davangere (Rs 55 crore), Bidar (Rs 54 crore), Bijapur (Rs 48 crore), Raichur (Rs 44 crore) and Kolar (Rs 44 crore). It is needless to mention that large portion of the resources required needs to be invested for redevelopment of the dilapidated units, in these districts. However, in all the other districts, the average fund requirements for housing the SC/ST families are less than the state average.

Given the housing demand of the weaker sections in the rural areas, the RGRHC has to be reoriented as a full-fledged institution to administer the housing commitment of the state and to implement all the social housing schemes. RGRHC needs to assess the rural housing needs by source and concurrently evolve housing development strategies from time to time, besides proposing special housing projects for the most vulnerable groups, especially the most backward areas.

Further, to meet the requirement of redevelopment as well as in the new housing streams, it is also necessary to empower RGRHC to mobilise resources from housing finance companies, commercial/regional rural banks on the guarantee of the state.

In order to ensure decent living environment for the poorer sections, it is necessary to provide housing and amenities (piped water, household toilet and lighting), simultaneously. Though, this approach is followed in the self finance constructions, especially in urban areas, the same is not the case under social housing programmes, meant for the rural areas of the state. The social housing stream being the only avenue of realising the housing dreams of the vulnerable mass, the state needs to integrate the cost of development of housing services into the unit cost of housing.

Further, to minimise the present deprivation of household toilets, the state needs to consider increasing flow of resources both by itself and by the external source. As in the case of drinking water, the state needs to plug the international assistance exclusively for the provision of household toilets in rural areas. In the case of lighting, success also lies in popularising the non-conventional source (solar energy) on incentive-oriented cost sharing basis, between the state and the users.

This alternative strategy will go a long way in view of the problems associated within the production and distribution of electricity like low capacity, low recovery of production cost, distribution losses and so on.

**Table 1: Housing Problem of Karnataka in Rural and Urban Areas by Source – 2001 (Figures in Lakhs)**

District	Housing Shortage								
	Crowded			Dilapidated			Total		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Bagalkot	0.02	0.02	<b>0.04</b>	0.07	0.04	<b>0.11</b>	0.09	0.06	<b>0.15</b>
Bangalore (R)	0.04	0.02	<b>0.06</b>	0.22	0.03	<b>0.25</b>	0.26	0.05	<b>0.31</b>
Bangalore (U)	0.03	0.20	<b>0.23</b>	0.07	0.32	<b>0.39</b>	0.10	0.52	<b>0.62</b>
Belgaum	0.26	0.07	<b>0.33</b>	0.23	0.05	<b>0.28</b>	0.49	0.12	<b>0.61</b>
Bellary	0.04	0.03	<b>0.07</b>	0.12	0.05	<b>0.17</b>	0.16	0.08	<b>0.24</b>
Bidar	0.03	0.01	<b>0.04</b>	0.13	0.02	<b>0.15</b>	0.16	0.03	<b>0.19</b>
Bijapur	0.02	-	<b>0.02</b>	0.14	0.03	<b>0.17</b>	0.16	0.03	<b>0.19</b>
Chamarajanagar	0.03	0.01	<b>0.04</b>	0.13	0.02	<b>0.15</b>	0.16	0.03	<b>0.19</b>
Chikmagalur	0.02	-	<b>0.02</b>	0.14	0.03	<b>0.17</b>	0.16	0.03	<b>0.19</b>
Chitradurga	0.03	-	<b>0.03</b>	0.14	0.02	<b>0.16</b>	0.17	0.02	<b>0.19</b>
Davangere	0.02	0.01	<b>0.03</b>	0.15	0.06	<b>0.21</b>	0.17	0.07	<b>0.24</b>
Dharwar	0.06	0.06	<b>0.12</b>	0.06	0.04	<b>0.10</b>	0.12	0.10	<b>0.22</b>
Dakshina Kannada	0.01	0.02	<b>0.03</b>	0.15	0.04	<b>0.19</b>	0.16	0.06	<b>0.22</b>
Gadag	0.01	-	<b>0.01</b>	0.04	0.02	<b>0.06</b>	0.05	0.02	<b>0.07</b>
Bidar	0.03	0.01	<b>0.04</b>	0.13	0.02	<b>0.15</b>	0.16	0.03	<b>0.19</b>
Gulbarga	0.09	0.03	<b>0.12</b>	0.15	0.05	<b>0.20</b>	0.24	0.08	<b>0.32</b>
Hassan	0.03	0.02	<b>0.05</b>	0.17	0.03	<b>0.20</b>	0.20	0.05	<b>0.25</b>
Haveri	0.04	-	<b>0.04</b>	0.11	0.02	<b>0.13</b>	0.15	0.02	<b>0.17</b>
Kodagu	0.01	0.01	<b>0.02</b>	0.08	0.01	<b>0.09</b>	0.09	0.02	<b>0.11</b>
Kolar	0.02	0.02	<b>0.02</b>	0.18	0.03	<b>0.21</b>	0.20	0.05	<b>0.25</b>
Koppal	0.02	-	<b>0.02</b>	0.07	0.01	<b>0.08</b>	0.09	0.01	<b>0.10</b>
Mandya	0.04	0.01	<b>0.05</b>	0.17	0.03	<b>0.20</b>	0.21	0.04	<b>0.25</b>
Mysore	0.06	0.02	<b>0.08</b>	0.22	0.07	<b>0.29</b>	0.28	0.09	<b>0.37</b>
Raichur	0.02	-	<b>0.02</b>	0.08	0.02	<b>0.10</b>	0.10	0.02	<b>0.12</b>
Shimoga	0.02	0.02	<b>0.04</b>	0.20	0.05	<b>0.25</b>	0.22	0.07	<b>0.29</b>
Tumkur	0.03	-	<b>0.03</b>	0.26	0.04	<b>0.30</b>	0.29	0.04	<b>0.33</b>
Udupi	0.01	0.01	<b>0.02</b>	0.17	0.02	<b>0.19</b>	0.18	0.03	<b>0.21</b>
Uttara Kannada	0.03	0.02	<b>0.05</b>	0.17	0.04	<b>0.21</b>	0.20	0.06	<b>0.26</b>
<b>Karnataka</b>	<b>1.04</b>	<b>0.59</b>	<b>1.63</b>	<b>3.82</b>	<b>1.17</b>	<b>4.99</b>	<b>4.86</b>	<b>1.76</b>	<b>6.62</b>

Source: Census of India (2001).

**Table 2: Housing Problem of the Scheduled Caste Families in Karnataka- 2001 (Figures in Lakhs)**

	Crowded			Dilapidated			Housing Shortage		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Bagalkot	0.07	0.03	<b>0.10</b>	0.05	0.01	<b>0.06</b>	0.03	0.01	<b>0.04</b>
Bangalore (R)	0.08	0.02	<b>0.10</b>	0.02	-	<b>0.02</b>	0.07	0.01	<b>0.08</b>
Bangalore (U)	0.15	0.03	<b>0.18</b>	0.01	-	<b>0.01</b>	0.04	0.13	<b>0.17</b>
Belgaum	0.12	0.08	<b>0.20</b>	0.11	0.02	<b>0.13</b>	0.06	0.01	<b>0.07</b>
Bellary	0.08	0.12	<b>0.20</b>	0.11	0.01	<b>0.12</b>	0.06	0.02	<b>0.08</b>
Bidar	0.14	0.06	<b>0.20</b>	0.12	0.01	<b>0.13</b>	0.06	0.01	<b>0.07</b>
Bijapur	0.15	0.01	<b>0.16</b>	0.11	0.01	<b>0.12</b>	0.03	0.01	<b>0.04</b>
Chamarajanagar	0.06	0.03	<b>0.09</b>	0.02	-	<b>0.02</b>	0.05	0.02	<b>0.07</b>
Chikmagalur	0.06	0.01	<b>0.07</b>	-	-	-	0.06	0.01	<b>0.07</b>
Chitradurga	0.11	0.08	<b>0.19</b>	0.10	-	<b>0.10</b>	0.08	0.01	<b>0.09</b>
Davangere	0.11	0.08	<b>0.19</b>	0.09	-	<b>0.09</b>	0.08	0.02	<b>0.10</b>
Dharwar	0.04	0.02	<b>0.06</b>	0.02	0.01	<b>0.03</b>	0.02	0.01	<b>0.03</b>
Dakshina Kannada	0.05	0.01	<b>0.06</b>	-	-	-	0.05	0.01	<b>0.06</b>
Gadag	0.02	0.02	<b>0.04</b>	0.01	-	<b>0.01</b>	0.02	0.01	<b>0.03</b>
Gulbarga	0.23	0.04	<b>0.27</b>	0.18	0.01	<b>0.19</b>	0.06	0.02	<b>0.08</b>
Hassan	0.09	0.02	<b>0.11</b>	0.04	-	<b>0.04</b>	0.06	0.01	<b>0.07</b>
Haveri	0.05	0.05	<b>0.10</b>	0.06	-	<b>0.06</b>	0.04	-	<b>0.04</b>
Kodagu	0.01	0.02	<b>0.03</b>	-	-	-	0.03	-	<b>0.03</b>
Kolar	0.15	0.06	<b>0.21</b>	0.11	-	<b>0.11</b>	0.09	0.01	<b>0.10</b>
Koppal	0.04	0.04	<b>0.08</b>	0.05	-	<b>0.05</b>	0.03	-	<b>0.03</b>
Mandya	0.05	0.01	<b>0.06</b>	-	-	-	0.05	0.01	<b>0.06</b>
Mysore	0.13	0.10	<b>0.23</b>	0.08	0.02	<b>0.10</b>	0.11	0.02	<b>0.13</b>
Raichur	0.06	0.06	<b>0.12</b>	0.06	0.01	<b>0.07</b>	0.04	0.01	<b>0.05</b>
Shimoga	0.08	0.01	<b>0.09</b>	0.01	-	<b>0.01</b>	0.07	0.01	<b>0.08</b>
Tumkur	0.12	0.05	<b>0.17</b>	0.06	-	<b>0.06</b>	0.10	0.01	<b>0.11</b>
Udupi	0.02	0.01	<b>0.03</b>	-	-	-	0.03	-	<b>0.03</b>
Uttara Kannada	0.03	0.01	<b>0.04</b>	-	-	-	0.03	0.01	<b>0.04</b>
<b>Karnataka</b>	<b>2.30</b>	<b>1.08</b>	<b>3.38</b>	<b>1.44</b>	<b>0.11</b>	<b>1.55</b>	<b>1.43</b>	<b>0.40</b>	<b>1.83</b>

Source: Census of India (2001).

**Table 3: Number of Families and Percentage Deprivation of Housing Amenities in Karnataka 2001**

District	State					Scheduled Castes					Scheduled Tribes				
	No of Families in Lakhs	Unsafe Water	No Proper Lighting	No Toilets	Deprivation of all the Three Facilities	No of Families in Lakhs	Unsafe Water	No Proper Lighting	No Toilets	Deprivation of all the Three Facilities	No of Families in Lakhs	Unsafe Water	No Proper Lighting	No Toilets	Deprivation of all the Three Facilities
Bagalkot	2.93	13.99	30.03	86.67	<b>43.57</b>	0.48	6.25	31.25	89.58	<b>42.36</b>	0.17	17.65	41.18	88.24	<b>49.02</b>
Bangalore (R)	3.84	2.60	13.08	66.15	<b>27.52</b>	0.78	3.85	23.07	79.49	<b>35.47</b>	0.15	-	20.00	73.33	<b>31.11</b>
Bangalore (U)	14.18	3.81	5.15	14.74	<b>7.90</b>	1.88	3.72	13.30	39.36	<b>18.79</b>	0.56	7.14	10.72	21.43	<b>13.10</b>
Belgaum	7.62	24.93	22.31	78.35	<b>41.86</b>	0.94	18.09	28.72	89.36	<b>45.39</b>	0.50	24.00	36.00	90.00	<b>50.00</b>
Bellary	3.68	6.25	26.90	72.83	<b>35.29</b>	0.70	5.71	40.00	84.29	<b>4.33</b>	0.66	9.09	37.88	84.85	<b>43.94</b>
Bidar	2.47	20.24	26.32	80.57	<b>42.38</b>	0.55	18.18	38.18	89.09	<b>48.48</b>	0.26	19.20	30.77	92.31	<b>47.43</b>
Bijapur	3.23	19.50	34.06	88.24	<b>47.27</b>	0.65	13.85	32.31	93.85	<b>46.67</b>	0.07	28.57	42.86	85.71	<b>52.38</b>
Chamarajnagar	2.03	0.99	35.47	81.77	<b>39.41</b>	0.48	4.17	39.58	85.42	<b>43.06</b>	0.24	12.50	50.00	87.50	<b>50.00</b>
Chikmagalur	2.40	17.92	23.33	57.92	<b>33.06</b>	0.48	16.67	35.42	79.17	<b>43.75</b>	0.11	-	36.36	72.73	<b>36.36</b>
Chitradurga	2.95	1.72	21.36	78.98	<b>34.02</b>	0.66	-	33.34	89.39	<b>40.91</b>	0.50	2.00	30.00	88.00	<b>40.00</b>
Davangere	3.34	4.19	17.96	66.47	<b>29.54</b>	0.65	3.08	32.31	84.62	<b>40.00</b>	0.40	10.00	27.50	85.00	<b>40.83</b>
Dharwar	2.90	13.45	17.24	54.48	<b>28.39</b>	0.28	14.29	25.00	64.29	<b>34.53</b>	0.16	18.75	31.25	68.75	<b>39.58</b>
D. Kannada	3.50	61.71	28.29	37.43	<b>42.48</b>	0.26	53.85	61.54	69.23	<b>61.54</b>	0.15	73.33	53.33	66.67	<b>64.44</b>
Gadag	1.80	12.22	21.11	83.89	<b>39.07</b>	0.27	85.19	33.33	88.89	<b>69.14</b>	0.11	18.18	27.27	90.91	<b>45.45</b>
Gulbarga	5.43	19.33	32.23	81.40	<b>44.32</b>	1.33	16.54	40.60	89.47	<b>48.87</b>	0.28	25.00	50.00	85.71	<b>53.57</b>
Hassan	3.60	6.94	16.11	72.22	<b>31.76</b>	0.65	7.69	30.77	86.18	<b>41.54</b>	0.09	-	22.22	77.78	<b>33.33</b>
Haveri	2.56	2.73	24.22	73.44	<b>33.46</b>	0.36	5.56	38.89	86.11	<b>43.52</b>	0.25	8.00	32.00	87.50	<b>42.50</b>
Kodagu	1.24	46.77	38.71	47.58	<b>44.35</b>	0.15	33.33	46.67	60.00	<b>46.67</b>	0.12	58.33	75.00	66.67	<b>66.67</b>
Kolar	5.00	3.00	14.20	66.60	<b>27.93</b>	1.36	2.21	23.53	80.88	<b>35.54</b>	0.46	-	23.91	82.61	<b>35.51</b>
Koppal	2.11	8.06	32.70	86.26	<b>42.34</b>	0.35	5.71	42.86	91.43	<b>46.67</b>	0.25	8.00	44.00	92.00	<b>48.00</b>
Mandya	3.69	6.50	21.14	74.53	<b>34.06</b>	0.52	5.77	30.77	78.85	<b>38.46</b>	0.07	14.29	42.86	85.71	<b>47.62</b>
Mysore	5.36	4.85	21.46	55.78	<b>27.36</b>	0.93	4.30	32.26	70.97	<b>35.84</b>	0.57	12.28	40.35	77.19	<b>43.27</b>
Raichur	2.98	23.49	35.23	84.56	<b>47.76</b>	0.59	22.03	44.08	91.53	<b>52.55</b>	0.55	29.09	52.73	94.54	<b>58.79</b>
Shimoga	3.31	27.49	21.45	51.66	<b>33.53</b>	0.56	16.07	32.14	73.21	<b>40.47</b>	0.15	20.00	33.34	66.67	<b>40.00</b>
Tumkur	5.45	2.94	19.82	74.13	<b>32.30</b>	1.02	2.94	33.33	85.29	<b>40.52</b>	0.44	4.55	27.27	84.09	<b>38.64</b>
Udupi	2.06	97.08	30.10	43.69	<b>56.96</b>	0.12	58.33	41.67	66.67	<b>55.56</b>	0.09	77.78	55.56	77.78	<b>70.37</b>
Uttar Kannada	2.66	66.54	19.17	65.41	<b>50.37</b>	0.22	45.45	31.82	81.82	<b>53.03</b>	0.05	60.00	40.00	80.00	<b>60.00</b>
<b>Karnataka</b>	<b>102.32</b>	<b>15.45</b>	<b>21.20</b>	<b>62.50</b>	<b>33.05</b>	<b>17.21</b>	<b>9.99</b>	<b>31.61</b>	<b>78.84</b>	<b>40.15</b>	<b>7.39</b>	<b>14.61</b>	<b>35.32</b>	<b>79.70</b>	<b>43.21</b>

Source: Census of India (2001).

**Table 4: Functional and Financial Performance of Urban Development Authorities in Karnataka During the 90s (Area in Acres and Rs in Crores)**

Sl No	Devt. Authorities	Establishment year	Planning Area (in Sq. kilometers)	Total Land acquired (Acres)	Average Land Acquired per year (Acres)	No of Sites distributed	Average No. of distributed per year	Revenue Surplus (1995-96 to 2000-01) (Rs in crores)
1	Bangalore	1976	8,700*	3,048.70	305	15,622	1,562	126.58
2	Belgaum	1988	182.07	907.22	91	7,438	744	4.02
3	Bellary	1988	NA	1,266.35	127	6,769	677	0.22
4	Bidar	NA	NA	122.51	12	864	86	7.51
5	Bijapur	1988	169.51	193.05	19	7,038	704	3.91
6	Cha.Nagar	1996	Town+27Vill	133.26	13	NA	NA	0.18
7	Chi. Maglur	1988	64.80	638.11	64	3,029	303	0.67
8	Chi. Durga	1988	City +21 Vill	309.40	31	753	75	3.08
9	Davangere	NA	NA	752.24	75	836	84	4.91
10	Gadag	1998	NA	292.58	29	NA	NA	11.27
11	Gulbarga	1988	City+32 Vill	644.10	64	6,813	681	9.76
12	Hassan	1988	City+42 Vill	NA	NA	2,795	280	36.57
13	Haveri	1998	NA	NA	NA	NA	NA	0.04
14	Hospet	1998	NA	NA	NA	NA	NA	0.22
15	H-Dharwar	1987	413.00	166.42	17	6,756	676	5.66
16	Karwar	1988	City +11 Vill	124.00	12	1,373	137	0.06
17	Madikeri	1988	NA	NA	NA	NA	NA	0.04
18	Kolar	1988	NA	546.56	55	6,137	612	6.17
19	K.G.F	1988	126.00	60.04	6	82	8	3.43
20	Koppal	1998	NA	NA	NA	NA	NA	NA
21	Mandya	1988	City+18 Vill	413.18	42	216	22	2.19
22	Mangalore	1988	306.00	29.00	3	396	40	0.01
23	Mysore	1987	495.32	21,28.07	213	21,713	2,171	16.83
24	Raichur	NA	NA	48.05	5	NA	NA	0.53
25	Ramnagar	1996	NA	92.32	9	NA	NA	2.14
26	Shimoga		City	1,473.24	147	2,564	256	3.21
Bhadravati Municipal Areas								
27	Tumkur	1988	75+24 Vill	640.42	64	1,565	156	0.71
28	Udupi	1998	NA	50.00	5	NA	NA	1.23
<b>Total</b>				<b>14,075.82</b>	<b>1407.58</b>	<b>92,759</b>	<b>9,276</b>	<b>251.15</b>

Note: Vill- Villages

Source: Compiled from the Annual Reports of the Department of Housing and Urban Development, Government of Karnataka, Bangalore.

**Table 5: Housing Investment by Scheduled Commercial Banks,  
Housing Co-operatives and Housing Financial Institutions  
in Karnataka During 90s (Rs in Crores)**

Year	Scheduled Commercial Banks			Co-operative Housing Societies			Housing Financial Institutions (HFIs)	
	Total Bank Credit	Credit Limit for Housing	Actual Investment	Total Working Capital	Loans Advanced to Housing	% in the Working Capital	Savings Mobilised	Investment in Housing
1990-91	92.15	3.20 (3.47)	2.86 (89.38)	2457.95	1209.62	49.21	NA	NA
1991-92	104.86	3.50 (3.34)	3.06 (87.43)	2764.32	1515.09	54.81	NA	NA
1992-93	107.90	3.76 (3.48)	3.39 (90.16)	3243.59	1549.55	47.77	NA	NA
1993-94	128.08	4.23 (3.30)	3.82 (90.31)	3309.26	1426.55	43.11	NA	NA
1994-95	153.63	4.61 (3.00)	4.21 (91.32)	3737.41	1575.55	42.16	NA	NA
1995-96	200.03	6.07 (3.03)	5.47 (90.12)	6489.99	3971.61	61.19	NA	NA
1996-97	232.13	7.01 (3.02)	6.35 (90.58)	6078.31	3815.80	62.78	607.75	624.00 (102.67)
1997-98	266.44	9.28 (3.48)	8.28 (89.22)	7111.32	4194.78	58.99	806.65	778.05 (96.45)
1998-99	322.16	13.38 (4.15)	11.93 (89.16)	7498.18	4300.55	57.35	829.40	1005.55 (121.24)
1999-2000	364.69	20.06 (5.50)	17.88 (89.13)	8394.23	4688.92	55.86	1165.45	1999.40 (171.55)

*Note:* Figures in parentheses are respectively percentages to total bank credit and credit limit for housing.

- Source:*
1. RBI, Banking Statistics, Banking Statistical Returns, 1991 to 2000, Mumbai.
  2. NABARD, Statistical Statements Relating to co-operative Movement in India, Part II : Non-Credit Societies, for various years, Mumbai.
  3. NHB, Report on the Trend and Progress of Housing in India, June 2002, Mumbai.

**Table 6: Financial Requirements to Meet the Housing Needs of the Poorer Segment of the Depressed Sections - Karnataka (Rupees in Crores)**

District	Financial Requirements								
	Crowded			Dilapidated			Total		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Bagalkot	5.75	14.46	<b>20.21</b>	6.08	14.46	<b>20.54</b>	11.83	28.92	<b>40.75</b>
Bangalore (R)	6.75	-	<b>6.75</b>	6.94	14.46	<b>21.40</b>	13.69	14.46	<b>28.15</b>
Bangalore (U)	12.06	-	<b>12.06</b>	3.34	187.93	<b>191.27</b>	15.40	187.93	<b>203.33</b>
Belgaum	11.93	28.92	<b>40.85</b>	14.20	14.46	<b>28.66</b>	26.13	43.38	<b>69.51</b>
Bellary	13.48	14.46	<b>27.94</b>	12.95	28.92	<b>41.87</b>	26.43	43.38	<b>69.81</b>
Bidar	12.74	14.46	<b>27.20</b>	12.15	14.46	<b>26.61</b>	24.89	28.92	<b>53.81</b>
Bijapur	9.60	14.46	<b>24.06</b>	9.23	14.46	<b>23.69</b>	18.83	28.92	<b>47.75</b>
Chamarajanagar	6.26	-	<b>6.26</b>	5.25	28.92	<b>34.17</b>	11.51	28.92	<b>40.43</b>
Chikmagalur	4.67	-	<b>4.67</b>	4.70	14.46	<b>19.16</b>	9.37	14.46	<b>23.83</b>
Chitradurga	13.46	-	<b>13.46</b>	14.05	14.46	<b>28.51</b>	27.51	14.46	<b>41.97</b>
Davangere	13.46	-	<b>13.46</b>	12.64	28.92	<b>41.66</b>	26.10	28.92	<b>55.12</b>
Dharwar	2.78	14.46	<b>17.24</b>	3.26	14.46	<b>17.72</b>	6.04	28.92	<b>34.96</b>
D. Kannada	4.02	-	<b>4.02</b>	3.93	14.46	<b>18.39</b>	7.95	14.46	<b>22.41</b>
Gadag	2.88	-	<b>2.88</b>	2.25	14.46	<b>16.71</b>	5.13	14.46	<b>19.59</b>
Gulbarga	17.06	14.46	<b>31.52</b>	15.87	28.92	<b>44.79</b>	32.93	43.38	<b>76.31</b>
Hassan	7.39	-	<b>7.39</b>	7.44	14.46	<b>21.90</b>	84.83	14.46	<b>29.29</b>
Haveri	7.20	-	<b>7.20</b>	8.44	-	<b>8.44</b>	15.64	-	<b>15.64</b>
Kodagu	2.23	-	<b>2.23</b>	2.63	-	<b>2.63</b>	4.86	-	<b>4.87</b>
Kolar	14.45	-	<b>14.45</b>	15.27	14.46	<b>29.73</b>	29.72	14.46	<b>44.18</b>
Koppal	5.76	-	<b>5.76</b>	6.77	-	<b>6.77</b>	12.53	-	<b>12.53</b>
Mandya	4.02	-	<b>4.02</b>	3.93	14.46	<b>18.39</b>	7.95	14.46	<b>22.41</b>
Mysore	13.97	28.92	<b>42.89</b>	16.23	28.92	<b>45.15</b>	30.20	57.84	<b>88.04</b>
Raichur	7.41	14.46	<b>21.87</b>	8.13	14.46	<b>22.59</b>	15.54	28.92	<b>44.46</b>
Shimoga	5.97	-	<b>5.97</b>	6.10	14.46	<b>20.66</b>	12.07	14.46	<b>26.63</b>
Tumkur	11.72	-	<b>11.72</b>	12.51	14.46	<b>26.97</b>	13.23	14.46	<b>38.69</b>
Udupi	2.08	-	<b>2.08</b>	2.45	-	<b>2.45</b>	4.53	-	<b>4.53</b>
Uttara Kannada	2.73	-	<b>2.73</b>	<b>2.41</b>	14.46	<b>16.87</b>	<b>5.14</b>	14.46	<b>19.60</b>
<b>Karnataka</b>	<b>220.92</b>	<b>159.06</b>	<b>379.98</b>	<b>214.85</b>	<b>578.35</b>	<b>793.20</b>	<b>435.77</b>	<b>737.41</b>	<b>1173.18</b>

*Source:* The total financial needs for housing the houseless families among the poorer segment of the depressed sections in Karnataka has been worked out on the basis of the average unit cost (Rs 46,748 in rural areas and Rs 1,44,565 in urban areas), as presented by the 58<sup>th</sup> round of survey by the National Sample Survey Organisation, for the year 2001.

## Appendix

### Institutional Infrastructure for Housing Development in Karnataka

Sl No	Agency	Year of Establish- ment	Functions	Area of Operation and Target Group
1	<b>Co-operative Housing Societies (CHS)</b>	1909	To acquire land and develop residential layouts for the members. To finance house construction of the members	Largely located in urban areas and members of the societies
2	<b>Karnataka Housing Board (KHB)</b>	1962	To prepare and execute housing schemes (composite, group housing to multi-storied the satisfaction of the labour housing). To develop sites and services and satellite towns	Urban areas and all income groups (Economically Weaker Sections, LIG, MIG & HIG).
3	<b>Karnataka Slum Clearance Board (KSCB)</b>	1976	To identify and declare slum areas To take up the socio-economic survey in the identified schemes To take up environmental improvement and re-development of the schemes To provide new houses and to upgrade existing houses of the slum dwellers To provide basic amenities (drinking water, toilets, street lights, drains, roads, community baths and toilets etc.)	All slum areas in urban areas and slum dwellers that generally consist of wage related migrants, casual wage workers, construction workers etc.
4	<b>Urban Development Authorities (UDAs)</b>	1988	To prepare development and action plans for the urban areas and residential layouts To provide residential, commercial, industrial and civic amenities To put up parks and play grounds To construct houses for EWS, LIG, MIG, HIG & commercial complex To develop major infrastructure facilities	All distinct head-quarters and all income groups
5	<b>Rajiv Gandhi Rural Housing Corporation Ltd. (RGRHC)</b>	2000	To implement housing programmes for economically and socially weaker sections and special occupation groups To organise bulk procurement of cost-effective materials To ensure smooth flow of funds and recovery of loans from the beneficiaries.	Rural and urban areas and all poorer sections including SCs/STs

*Contd...*

6	<b>Panchayati Raj Institutions (PRIs) &amp; Karnataka Urban Water Supply &amp; Drainage Board (KUWSDB).</b>	1975	To supply and maintain all drinking water supply schemes and to implement sanitation schemes. To provide drinking water and underground drainage facilities in 208 cities/towns @ 40 to 150 LPCD	Rural and urban areas to all and particularly for the poorer sections.
7	<b>Karnataka Power Transmission Company Ltd (KPTCL) &amp; Electricity Supply Companies (ESCOMs)</b>	2002	To transmit and supply electricity on retail basis of the Karnataka Electricity Regulatory Commission fixed price to domestic and other consumers. To implement the subsidised electricity supply schemes of the government.	Urban and rural areas & households of weaker sections

Source: Compiled from the annual and other reports of respective institutions and Economic Surveys of Govt. of Karnataka for different years.

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## Book Reviews

***New Development Paradigms and Challenges for Western and Central India (Two Volumes). R Parthasarathy and Sudarshan Iyengar (eds). New Delhi: Concept Publishing Company. 2006. Pp xxvii+393. Rs 1,500; and Pp xxvii+290. Rs 1,500.***

A study of India's achievements in aggregative and composite terms is necessary, but, given the extremely heterogeneous character of the Indian economy, it is not sufficient. It is essential to examine the development experiences of different states/regions in India in disaggregative form. Jean Dreze and Amartya Sen (1998) in a seminal work edited by them, have argued strongly for the study of India's development from regional perspectives. They demonstrated through their works (1996, 1998, 2002) that India can learn more from itself than from the experiences of other countries.

From the point of view of regional perspectives of India's development, the two volumes under review are the most useful and erudite addition to the existing stock of works on diverse and divergent development paradigms in India. These two volumes contain 25 essays (including an introductory note by the editors) that deal with the nature of development in Western and Central India in recent times. These writings are the result of a workshop held in 2003 to commemorate half-a-century of development partnership between the Ford Foundation and India. The Ford Foundation (FF-50) and the Gujarat Institute of Development Research (GIDR) jointly organised a national seminar on 'New Development Paradigms and Challenges in Western and Central India'. The papers included in these two volumes, *inter alia*, examine the paradigmatic dynamics of development experiences of states in Western and Central India.

The states put to focus and detailed study in these volumes are Gujarat, Maharashtra, Goa, Madhya Pradesh, Chhattisgarh and Rajasthan. The development experiences of these states within the region are so diverse that it will be wrong to treat all these states on an equal footing. Among the six states, the first two are industrially advanced and economically developed while the last three are agriculturally predominant and economically backward. Goa, a tourist paradise, has exhibited a distinct 'tourism-driven development model'<sup>1</sup>.

The focus in the present review is on inter-regional development diversities. In this review, an attempt is made to identify certain distinct development features

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<sup>1</sup> One of the neglected development paradigms by academics is that of Goa state's tourism-driven development model. It is one of the richest states in India with the highest per capita net state domestic product of Rs 49,673 in 2001-02 at constant prices as against the per capita net national product of Rs 17,822. (Government of India, 2004, Economic Survey: 2004-05)

of these states and examine a few development challenges confronted by them.

In the western part of the country, Maharashtra and Gujarat, have achieved significant growth in income. However both have miserably failed in the field of social development and gender-related development. All the states, except Goa, in this region are more patriarchal and andro-centric than their counterparts in South India. In the East, West Bengal has its own distinct development models. It lies somewhere in between the income development models and human development models.

Similarly, the social failure of the two richest states in India, namely Punjab and Haryana, is as massive as their economic successes. The states to the south of the Vindhyas have carved a niche for themselves in the field of human development and women's empowerment. The research papers in these two volumes are important from the point of view of understanding the nature of development experiences and the extent of development challenges of these states on the one hand, and on the other, it is important from the point of view of showcasing their successes so that other states/regions can replicate them in their own region / states.

The development models and paradigms each state exhibits is so diverse and multifaceted that there cannot be the Indian development model. The essays in these volumes have been organised into six parts:

- Part – I Economic Growth and Sustainable Development. (5)
- Part – II Urbanisation and Industrialisation. (4)
- Part – III Social Sectors. (4)
- Part – IV Management of Common Property Resources (CPRs) :  
Institutions and Innovations. (7)
- Part – V Watershed Development (WDP): As if People Mattered. (2)
- Part – VI Participatory Irrigation Management (PIM) :  
A Reform or Programme? (3)

The editors of these two volumes, Parthasaraty R and Sudarshan Iyengar, have in their introductory note tried to give a succinct account of the principal issues various scholars have raised in their papers and the development challenges they have identified in respect of Western and Central India.

One of the common features of all the six states in this region is the existence of vast dry land agriculture. Papers on watershed development programmes (WDPs) and management of Common Property Resources (CPRs) have been adequately dealt with. These two programmes have a crucial role to play in the development of agriculture in future in India.

Ravindra H Dholakia in his paper argues that Gujarat has not been a stranger to the components of New Economic Policy adopted by the Centre in 1991. It has been providing all kinds of support for private enterprises to grow and expand since its inception in 1960. Dholakia identifies four instruments used by the

Gujarat government to promote the private sector in the state. They are: providing tax and cost-related incentives; provision of infrastructure and input supplies; granting various approvals and clearances particularly to the small-scale, cottage and tiny sector units; and restoring the market forces in the land market in the state. Gujarat is on a strong ground in terms of growth. But the same cannot be said about the matters related to development.

Indira Hirway and Amita Shah in their respective papers examine the relationship between development and environment in the context of sustainable development on the one hand, and the relationship between natural resources and poverty on the other in the western and central India. Indira Hirway concludes that Gujarat's achievement in economic growth, however impressive, is far from being sustainable. One of the crucial issues brought to the fore by her is that Gujarat's performance in the '90s in the field of education and health has been negative.

Amita Shah in her paper shows that poverty reduction is not a simple affair. She emphasises the importance of area-specific approach to poverty alleviation. According to Shah, the role of agrarian relations, entitlements to forest resources and economic diversification are critical in the process of poverty reduction. In a short but sharp article, Pranab Mukhopadhyay highlights the peculiar problems confronted by one of the smallest but the richest states in India, namely Goa. In this state, the growth of tourist inflow has outstripped the growth of its resident population. In 2001, the resident population was 13.4 lakh while the tourist inflow was estimated to be 13.8 lakh. The author draws attention to the role and importance of panchayats at the local level in the management of natural resources here and other related issues.

### **Urban Development Dynamics**

Amitabh Kundu and Niranjan Sarangi in their elaborate study show the existence of a positive correlation between urban development and economic development. They examine this relation both at the state and district levels. H M Shivananda Swamy and K Mukundan, dealing exclusively with urban development dynamics in Gujarat, examine the problems being faced by urban centres in Gujarat and the strategies required to address these burning problems. They show that in Gujarat, industrialisation is the prime factor contributing to urban growth.

In her paper, Darshini Mahadevia argues that Gujarat's development is highly iniquitous and discriminatory: it favours the urban centres. Small and medium towns in the state are experiencing discrimination. Government policies favour metropolitan cities and large towns rather than small and medium towns.

Surjit Singh in his paper, 'The Institutional Finance in Rajasthan: The Recent Trends', analyses the growth of institutional finance in Rajasthan and the related issues and concludes that the performance of the banking sector and cooperative banks in this state has been disappointing. There are three papers that

deal with the healthcare sector and one with labour policy. Archana R Dholakia and Ravindra H Dholakia make an attempt to construct a model called the Basic Welfare Index to measure the welfare returns to government efforts. They come out with interesting conclusions. This model reveals that the Basic Welfare Index is more sensitive to expenditure by the government on human capital than that of the governmental expenditure on physical capital.

Ravi Duggal in his paper examines the health and healthcare in Western and Central India from the rights perspective. He argues that the world has moved beyond regarding only political rights as fundamental. It is increasingly recognised that the right to health and healthcare is a fundamental social and economic right. The author seeks an organised and integrated healthcare system based on the recommendation of the Bhore Committee Report of the 1940s. The present vertical healthcare system is programme-based and selective in nature. It is neither cost-effective nor people-oriented. He calls for a paradigmatic shift in health policy.

In an interesting article, Mirai Chatterjee argues that capacity building is an effective strategy for the removal of poverty. Tirthankar Roy in his paper 'Liberalisation and Labour in Indian Industry' argues that the effects of labour reforms on labour market are diverse and complex. The author maintains that the effects of labour reforms depend on the nature of labour markets.

### **Management of CPRs**

There are seven essays dealing with various dimensions of management of Common Property Resources (CPRs) in Western and Central India. These essays cover the states of Chhattisgarh, Madya Pradesh, Maharashtra and Rajasthan. The essays in this part are seminal, for the simple reason that they deal with a very important, but highly neglected component of development, namely CPRs. This aspect gains additional significance in the context of these states being primarily dryland predominant.

Dinesh K Morothia in his essay examines the institutional structures of the management of CPRs by different property rights regimes in Chhattisgarh. He draws attention to the importance of region- or area-specific management of CPRs. He concludes that 'distributed governance' is the most appropriate for designing the management programmes for CPRs.

P K Biswas in his study of 'Management of Forest as a CPR for Sustainable Rural Development' indicates the importance of people's tenure rights in sustainable forest management and sustainable rural livelihood (P:426). Rucha Ghate's study on the role of leadership in community-initiated forest management also indicates the significance of right to tenure in forest management (P:470). Her conclusion is that communities are capable of organising themselves for common purpose. Katar Singh in his article argues for larger budgetary allocations for the transformation of wastelands into socially productive fields. This is very important in the context of

the availability of vast tracts of wastelands in India which are physically suitable and economically viable for growing trees.

Neelima Khetan in her short essay provides an account of the working of an organisation called Seva Mandir involved in natural resource development in southern Rajasthan. Her conclusion is that the potential for a sustainable resources development and community participation hinges on the nature of the land tenure in the given area.

On the basis of an empirical study on the role of institutions in the development of pastureland in a village in Rajasthan, Sunil Ray argues that the potential of revitalised and renovated local institution is very great in the management of CPRs. Madhu Verma, Nishita Bakshi and Ramesh P K Nair examine the role of multiple stakeholders in the sustainable management of water resources in Madhya Pradesh. They show the importance of inter-linkages and benefits of integrated and sustainable management of wetlands. There is an article on Watershed Development Programmes (WDPs) and another on the principle of participatory management of CPRs. Mihir Shah and P S Vijay Shankar demonstrate the significance of WDPs for agricultural development, employment generation, poverty alleviation, food security, conservation of soil and water etc., They show the limits of trickle-down effects and adverse consequences of the policy of 'betting on the strong' on equity and social justice. According to them, the future of agricultural development in India largely depends on the development of dryland agriculture which in turn depends on WDP.

R S Deshpande and M J Bhende make a critical survey of participatory approach to WDPs. They deal with the evolution of participatory management programmes, types of participation, constraints and conflicts involved in participation and the role of institutions. It is rather very difficult to agree with the authors that WDPs undertaken by NGOs are preferable to state-managed WDPs. What is necessary is an integration of governmental efforts and efforts of NGOs in the process of the organisation and management of WDPs.

The authors also show that the participatory projects can succeed provided they take into account the existence of traditional village institutions such as panchayats, caste and community panchayats, temple trusts, cooperative societies etc. The involvement of these institutions, wherever possible, is necessary for the success and sustainability of the participatory management projects.

### **Water Scarcity**

Vishwa Ballabh in his paper argues that water scarcity is a phenomenon created by the privileged minority in the country. He identifies four users/sectors of water: rural domestic, urban domestic, industry and irrigation. These four sectors constitute four interest groups. In the distribution of water among these interest groups,

power relations play a crucial role. The final outcome, however, largely depends on the compromise reached by the contestants. The author shows that technocrats dominate policy-making and management. The role of stakeholders is rather notional.

Anil C Shah in his paper, 'Fading Shine of Golden Decade: The Establishment Strikes Back', argues that government departments are not supporting participatory management programmes in natural resources. This lies at the root of the failure of Joint Forest Management (JFM) Programme, Watershed Development Programme and Participatory Irrigation Management. He argues that the decade of 1990s was a golden period for PMPs. However, in the next decade PMPs started to lose their shine. The author argues that the principal objective of the establishment of ministries has been to scuttle PMPs.

The papers in these two volumes provide a snapshot on the changes that are taking place at the state level during the post-reform period. The 'state' is no longer a vital player in development. Market has emerged as a dominant player. It is interesting to know that in between the state and market, we have programmes being managed by people. But the development challenges to be addressed by the states in Western and Central India are: how to make development participatory and how to transform growth into development. The collection of papers in these two volumes draw our attention to the necessity of the formulation of a new paradigm which would help to make development pro-poor, pro-nature, pro-women and pro-people.

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***Workforce Development Networks in Rural Areas: Building the High Road.* Gary Paul Green. UK: Edward Elgar Publishing. 2007. Pp 160 (Hardback).**

Globalisation and technological changes are happening across the globe. However, the impact of globalisation and technological changes varies within each country and across countries.

In fact, the pros and cons of globalisation and technology in various sectors of the economy are most noticeable in the developing world. The book *Workforce Development Networks in Rural Areas: Building the High Road* speaks about the developed world realising the impact of globalisation, as well as the disparities in technological development within the economy.

This book is part of a project undertaken by Paul Green G, wherein he attempts to provide a new direction in assessing workforce development in rural areas of America. He examines the existing system and its advantages and disadvantages and also suggested how to improve different types of institutional functioning in the context of globalisation and technological changes which have made rural workforce in America inefficient due to rival pressures within the metropolitan areas and global competition. With the advent of globalisation and technological changes in the world, there is not much difference between rural and urban communities regarding telecommunication, availability of information and goods and services. The urban-rural gap has been gradually vanishing over the past century. Mass communication now provides rural residents with the same news and information that was once available only in the larger cities. However, one of the most persistent differences between rural and urban areas is the gap in wages and earnings as the author points out in this book.

Gary Paul Green has made an attempt to provide a clear picture of the rural labour market, networks and workforce development in the USA by taking both primary and secondary data of time series and across sections. In the introductory chapter, he bridges the wage differences between rural and urban areas. He analyses many others' studies, which highlight the various reasons for wage differences as well as quality of workers because products produced in rural areas in the USA are low-cost and inferior. He claims that there is no empirical support for residential preferences of rural communities to stay in rural areas rather than migrate to urban places for work. Ultimately, he says that rural communities play a very important part in promoting economic development in the USA. He also introduces the issue of the problems of rural areas in the new era in this chapter. He points out that there are many obstacles, such as government policy, training, cost disadvantages and training gap between rural and urban areas which are not uniform. He uses mixed methods to examine various issues in his study.

The book is organised into six chapters. The first chapter explains the structure and change in rural markets, especially major industries and occupational changes in rural America. In Chapter 2, he explains the rural labour markets, network and workforce development. In Chapter 3 he explains employer-training: individual investment in collective goods. He attempts to analyse community colleges and their role in skill development of rural areas by using survey methods based on primary data in Chapter 4. Chapter 5 deals with core studies of the three community-based organisations involved in training in non-metropolitan areas. The last Chapter deals with implications of the existing policies and suggests suitable policies for development of workforce in rural America.

Employment in rural America has shifted from the primary sector to manufacturing and service industries. Thus, he analyses education attainment in metropolitan and non-metropolitan areas by classifying them into: less than high school, high school, graduate and vocational courses of specific work-skill development. He narrates the education attainment difference in terms of age structure of population and factors responsible for such disparity between metro and non-metro areas. Until 1990, employment growth was more or less similar in both metro and non-metro regions. The pattern changed after the recession of 2001-02.

He analyses the occupational and industrial structure of metro and non-metro areas and finds that there are more service sector jobs in metro areas and extraction and production jobs in rural America due to wage disparity. He points out that again there is a greater demand for skilled labour in non-metro areas. He says that non-metro regions have experienced a shift from the manufacturing to the service economy and traditional family mining and timber industries have undergone considerable downsizing in the last several decades. He explains mismatching of skills in non-metro areas with a review of earlier studies. The author also finds that literature is unclear as to the consequences of globalisation and technological changes for low-wage workers in rural areas. He explains the labour market theories in the remaining part of the second chapter.

In Chapter 3, the author sketches the survey he conducted with 1,590 firms in non-metropolitan areas in terms of job training in the US in 2001. Formal training varies by industry. He concludes that employer-provided training is influenced by the characteristics of the firms, internal and external structure and the characteristics of the jobs and the workforce employed in the firm. He analyses the data on the basis of previous training skill, co-ordination with other employers, programme involvement, work with community organisation. He develops a multivariate analysis of training effects using econometric models. He finds that increasing competition from markets have made job training important for employers. In Chapter 3, he also speaks of the many obstacles in the system, such as specific training given by the firms to suit its requirement instead of general training etc.

In Chapter 4, he examines community colleges in rural areas and tries to give them a new role and challenges. In America, rural education community colleges provide two to four years' degree. He explains how community colleges function for regional economic development. He discusses the many empirical studies and highlights benefits and drawbacks of community colleges in skill training and in rural development in general. Business use of community colleges to provide contract training varies generally across firms and industry — manufacturing, healthcare, transportation, communication, utility and finance and insurance firms work with community colleges more frequently than do wholesale and retail trade, apparel making and construction firms. He examines the role of community colleges in rural areas in providing job training and delivery services to regional business. He analyses performance of community colleges on the basis of 338 samples drawn from national survey and finds that 49 per cent of colleges assess the training needs of the residents, but don't do it on a regular basis. About 57 per cent of college instruction is traditional classroom instruction, 40 per cent is on site (workplace) and 3 per cent is at other places. Around 82 per cent colleges conduct systematic assessment of business needs in their regions annually. About 14 per cent do it on biannual basis and 10 per cent of colleges rely on an advisory business committee to provide inputs on business training needs in their regions.

Apprenticeship programmes are very popular in providing experience and training in rural America. They provide linkages between training and labour market needs. They also provide the linkages between institutions and employers.

Another area of growth of community college is the business services. Around 51 per cent reported that their campus delivered a business service project during 2000-01. Among services, strategic planning, assessment of work skills, soft skill training and leadership training are very popular. As many as 94 per cent of colleges provide customised training programmes. Their programmes are developed with the cooperation of employers. He attempts to examine community college potential on the basis of the MDC (1998) report: 'Community colleges can potentially play an important role in rural development because of their linkages with a variety of regional organisations and institutions' (page 70). He finds that 85 per cent of community colleges have collaborated with community-based organisations (CBOs) in the past three years to deliver a training programme. The General Accountability Officer (2004) found that contract training was offered to small business (100 or few employees). Large firms are more likely to have reasons to provide training with community colleges. About 55 per cent of colleges have tie-ups with employers with consortiums. The advantages are cost, connections with workers and gaining expertise. Manufacturing and general work-skill progress are the most commonly offered programme with consortium. From this study he recommends that community colleges may be asked to develop training programmes and services for the firms because the labour force in the region needs to develop necessary skill.

In rural America, community colleges have historically struggled over their appropriate mission in providing education and developing necessary skill. This mission has to prepare their students for four years of college or vocational training for the local business. These issues are of much concern for producing efficient work force in rural America. There is also the issue of fiscal pressures on these colleges to seek new sources of revenue for the survival as highlighted by the author.

In the fifth chapter, 'Workforce Development Networks: Visible Hand at Work', he attempts to examine how workforce development networks are organised in rural America and points out that rural areas presently have some unique obstacles. In order to overcome these in the creation and maintenance of workforce development networks, he assesses the present situation. He looks into two aspects, namely, whether networks can successfully overcome the obstacles to enable employers to provide job training; and the factor influencing employer participation in collaborative efforts with community-based organisations to give a variety of services.

He also examines case studies based on a survey of employers' interviews, and as in the case of Rural Opportunities Incorporated (ROI), through interviews with workers and students. Thus, the author identifies three different organisation structures for workforce development networks: Rural Opportunities Incorporated (ROI), Mid-Delta Workforce Alliance and Wisconsin's Plastic Valley Association. He analyses each case study and draws a comparison among them in functions, types of training and number of workers trained. With just three case studies, he concludes that there is a need to develop social networks among business, training and education institutions and community-based organisations. He also argues that there is a need for public policy in workforce development. This is a good attempt at an in-depth study of these organisations to find out suitable solutions. However, a research based on three case studies may not be sufficient to draw inferences.

In the last chapter, he looks at the grassroots efforts to make differences in building a competitive labour force in spite of the numerous existing structural and institutional constraints. He explains that globalisation and technological change have placed a pressure on wages and demand for low-skilled workers in many rural areas. He suggests many solutions for the existing system to overcome obstacles in the structural organisation. He points out that the Workforce Investment Act has had many beneficial effects on training efforts. He recommends that workforce development networks should be built in collaboration with community-based organisations and community colleges rather than private firm participation.

Gary Paul Green's book tries to sketch the existing system of rural workforce development especially in manufacturing and service sectors. There is no analysis of agriculture and allied workforce problems and their wages and earning. Therefore,

this book does not provide a clear picture of the entire rural American community. However, it may help policy makers formulate innovative policies both in developed and developing countries. Despite its limitations, the book makes for a good read for policy makers, academicians and students of economics.

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***Manjappa D Hosamane***

***Colonial and Post-Colonial Geographies of India. Saraswati Raju, Satish Kumar and Stuart Corbridge (eds). New Delhi: Sage Publications. 2006. Pp 368. Rs 695.***

Geographers and anthropologists from India, Western Europe and the US have brought out a collection of essays with an aim to portray a new trend in research in human geography. It deals with issues such as politics of place and space, geography of works, production of urban spaces and urban policies, ideas about governance, citizenship and participation, politics and self-understanding of the rural and urban poor in India, India's political ecology and concerns about globalisation.

The choice of themes and the way they are discussed reflect the growing urge among geographers to deviate from the conventional description of resources and people over an area to in-depth study of specific themes or issues that concern humanity. Such an approach draws heavily on theoretical concepts and methodologies developed in other disciplines, in this case from sociology and anthropology, and paves way for interdisciplinary research. In this endeavour, the authors successfully stimulate the readers to explore a new paradigm in human geography.

There are 16 chapters in this book. Colonial geographies are dealt with in three chapters. M Satish Kumar traces the evolution of identifiable neighbourhoods in terms of Black and White towns in Madras city in the sixteenth, seventeenth and eighteenth centuries. He narrates the battles between the colonial authorities and different caste groups, which polarised the settlements of different castes in the developed areas. Alison Blunt considers the position of Anglo-Indian women in India before and after 1947. Anglo-Indian women embodied western modernity before Independence. After Independence, they developed complex attachments to India. Robert W Bradnoch traces the origin of the ongoing dispute over Kashmir to the legacies of the British rule in South Asia. He stresses the importance of its political location, along with Afghanistan, as a geographical buffer zone. He stresses the need to deviate from the absolute territorial sovereignty and to adopt more

subtle forms of sovereignty in which diverse interests of Kashmiris can be given legitimate expression.

Corbridge and Simpson consider how the members of Sangh Pariwar, through *yatras*, the demolition of Babri Masjid and the reconstruction of Bhuj after the devastating earthquake, have sought to reinvent India as Hindustan.

Saraswati Raju discusses the urban women labour market with reference to emerging global commodity chains. She argues that although vocational training and skill formation equip women to access emerging job opportunities in textile and garment manufacturing, institutionalised patriarchal and power structures create and perpetuate gender inequalities and put constraints on availing such opportunities by women. Her arguments may not explain the success achieved by educated women in IT sectors.

Vandana Desai discusses women labour market opportunities and empowerment and the role of NGOs in the context of globalisation. Her field study in Mumbai does not appear to answer some of the questions she raises in her conclusion. Chari traces the agrarian histories and practices that have transformed the industrial town of Tiruppur in Tamil Nadu. He analyses the innovative social organisation of the networked production and key forms of power over contracting in Tiruppur. He lucidly narrates the exploitive condition of labour and how the seasonality of work affects the labourers. He shows the validity of Marx's analytical tool for understanding how power over social labour creates conditions for accumulation of capital and surplus labour.

Martina Fromhold-Eisebith explores the emerging regional geographies of industrialisation in India with reference to info-tech sector. The IT boom is unevenly distributed over space with concentration in big metropolises. Nevertheless, there are signs of some trickle-down effects to the less advanced urban regions in the country. She cautions against the low growth in the vast low-performing regions. She pleads for a pronounced strategy of supporting a wider use of IT throughout the country, particularly in rural areas.

Production of urban space and urban politics are dealt with in two chapters. Stephen Legg provides an introduction to the debates on the (dis)continuities of Independence as a precursor to an investigation of Delhi's urban development in the post-Independence period. He shows that the Delhi Development Authority has a governmental prehistory that can be traced back to Delhi Improvement Trust. In the backdrop of post-Fordist urban space, Swapna Banerjee-Guha analyses the contemporary planning policy of Mumbai reconstruction. According to her, in the reconstruction policy, business and commercial interest rank high at the cost of poor and overall welfare of the society.

Craig Jeffery, Patricia Jeffery and Roger Jeffery show how young men perceive education, even though they don't get salaried jobs. Their study is based

on field research in villages of Quaziwala and Nangal in Bijnor district of Uttar Pradesh. Most of them, Jats, Chamars and Muslim alike, affirm education is a mode of social mobility and they maintain educated identity. Poor and socially isolated Chamars fail to find suitable subsidiary work. Poor but socially well-connected Muslims have managed to obtain skilled manual work by building on their links. Wealthy and well-connected Jat young men find status-preserving employment. Sadly, all of them consider menial handwork and work on land as demeaning.

Annapurna Shah gives an account of how poor people participate in a central-funded urban poverty alleviation programme, the Swarna Jayanti Rozgar Yojana, in the Diamond Harbour municipality in West Bengal. She shows that women are successful in running the programme and stresses the need for the continuation of the programme regardless of political change.

Glyn Williams and Emma Mawdsley offer a perspective on India's emerging political ecology. They argue that the first generation of political ecology movements in India, which centre around the marginalised people in rural areas, should be carried forward to address issues related to emerging environmental conflicts arising out of urban transformation. They stress the importance of the participation of middle class in the environmental movement. Paul Robbins, in his essay on Carbon colonies, clearly brings out the hangover of colonial policy on forestry on the global-scale climate exchange plan, which ignores local-scale costs. The climate forestry approach denies the locals their access to forest resources for sustenance. He condemns proposals for dealing with the effects of emissions from SUVs in USA by means of tree planting in India and other parts of the global south.

Richa Singh and Richa Nagar narrate their introspection and turmoil after publishing in Hindi 'Sangtin Yatra', that reflects on the internal processes and politics of NGO work in Sitapur district of Uttar Pradesh, and question the politics of knowledge production. That the aftermath of the publication could be countered with the support of national and international community illustrates how the networking across regional, national and international boundaries through modern technology sustains the urge "to re-examine and reconstitute the relations, conditions and processes of knowledge production". This essay stirs the reader to think beyond the conventional notions on equality, professionalism and knowledge production.

The interdisciplinary work throws new light on pressing contemporary issues as well as on issues during the colonial period. It is valuable not only for geographers but also for other social scientists concerned with society in the fast-changing world.

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***Social Security for the Old: Myth and Reality.* A B Bose. Institute of Applied Manpower Research. 2006. Pp 262. Rs 500.**

A B Bose has produced a valuable and comprehensive account for social security among the old age. This piece of research work makes an attempt to enquire into the contribution and behaviour of the aged people groups in developed and less developed regions during 1950 and 2000 and through 2050, focusing on old age, health security of family, care, shelter and policy for the aged population. The concern has been demonstrated by research projections, forecasts and exhaustive references.

The transformation in the demography affects society and economy. The elderly population in the world has been increasing rapidly: from 8.2 per cent in 1950, it has gone up to 41 per cent in 2000, and is projected to be 21.4 per cent by 2050. The percentage of aged population in developing areas has also been increasing, over and above the developed regions of the world. The proportion of senior citizens in India is very similar to that of other developing regions. This group is larger than the 0-14 year children population. According to the 2001 census, the elderly women group constitutes 51 per cent, which is 15 per cent more than the male population in the same age group. Nearly 47 per cent of males and 80 per cent of females in this group are illiterate. There is a considerable variation among senior citizens in different states.

There is a feeling of insecurity and disadvantage among the aged and there is an urgent need for organisation of this group to draw the government's attention to the needs of the elderly and also to make them avail the facilities.

The financial strength of senior citizens who have served in the organised sector is assured, but plans to provide financial security for retirees in the unorganised sector have remained virtually unimplemented. It is estimated that nearly 53 per cent of workers in India are self-employed while 33 per cent are in casual employment with no access to governmental social security facility. Also, about 25 per cent of the Indian population is considered to be below the poverty line.

Thus, the need of the hour is to provide a pension scheme for those senior citizens who have spent all their working life in unorganised employment. Every worker who has contributed to national production, even if he has worked in the unorganised sector, should be given an opportunity to get the benefit of provident fund and pension.

As far as health security is concerned, it is assessed that females have higher life expectancy than males and urban life expectancy is higher than that in rural areas. It is estimated that nearly half the population aged 60 or more suffers from some chronic disease or the other. Roughly 40 per cent of the aged in rural areas and about 35 per cent of them in urban areas have some kind of disability.

Given this scenario, it is important to note that the healthcare system in the country fails to provide adequate facilities, especially for the low-income rural people. Moreover, only a miniscule section of the Indian populace is covered by some form of health insurance, meaning that most healthcare expenditure is still borne by the individuals themselves. And with workers in the Indian unorganised sector not having any health security, the situation is grim.

Healthcare in India is currently under the domain of the private sector as public health facilities are woefully inadequate, making healthcare an expensive affair. There is a huge divide between rural-urban and public-private healthcare, which has been analysed in a systematic manner in this book.

Housing is a major issue facing senior citizens. An idea generated in this study suggests that old-age homes in rural areas are more conducive than in urban areas. Old-age homes can be resources for them to read, work and rest.

Though many policy measures have been made, most have not been implemented. The bulk of the aged in India are illiterate, unorganised and largely poor who live in backward areas. Attention should be drawn to the cause of the care of the aged, and governments, SHGs, NGOs, families and individuals should work unitedly towards this.

The final comment in this study on senior citizens is that they are a fairly large segment of the society, who have contributed to the development of the nation for decades. Though they have now ceased to contribute to the nation's growth, it is imperative to respect their capabilities, achievements, and contributions and they should be honoured in a proper and meticulous manner without hurting the group as a whole.

Bose has made an attempt to understand the problems of the old and his study is a source of many insights and ideas to extend services to this large segment of the society.

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***M Ramanjaneyulu***

## **Books at a Glance**

***Educational Infrastructure for Biotechnology in India.* R K Mishra, B Navin, P Geeta and Ch Lakshmi Kumari. New Delhi: Concept Publishing. 2006. Pp 232. Rs 400.**

The book is claimed to be an outcome of a research study conducted by the authors. Although it provides an executive summary in the beginning, nowhere do the authors make an attempt to describe the methodology adopted for the study, research questions, data and tools employed for gathering data. The study makes an assessment of the existing educational infrastructure for biotechnology (BT) education, research and industry in India with a special focus on Andhra Pradesh. The first chapter presents an overview of biotechnology in India, its growth over the years in a comparative perspective in relation to other national bodies across the states. While recognising various initiatives taken by the national government in promoting this sector, the authors highlight the need to undertake a survey to identify specific BT allocations at disaggregate level.

In the second chapter, the authors discuss the national policy perspectives on educational infrastructure for BT within the overall framework of the S&T policy with special reference to Andhra Pradesh. While describing the existing infrastructure and institutional development in India, the authors identify the human resource development in terms of higher education programmes, short-term midcourse training programmes, extension and outreach activities by various institutions and the Biotechnology Information Systems network (BTISnet). Chapter 3 presents an outline of the SWOT analysis of the education infrastructure for BT in India listing out various dimensions without actually undertaking any critical analysis based on empirical database. Chapter 4 provides a descriptive analysis of the education and training programmes for BT across Indian universities.

Chapter 5 presents survey results relating to education infrastructure based on the data gathered from various institutions/universities engaged in BT research. Although the authors claim that responses were gathered both in oral and written forms, nowhere in the book do they present the same or discuss the sample size and methodology of data collection. The results of the survey are not based on any statistical analyses as they are not presented anywhere. The authors fail to discuss issues relating to variations across institutions/universities in regard to education infrastructure for BT education and research. Similarly, the trends and patterns relating to students' participation in BT education and research and the availability of the faculty, a key input of BT infrastructure, are also conspicuously missing in the analysis. Chapter 6 presents a new framework for BT education in India and AP. Some of the conclusions drawn by the authors with reference to the admission

procedure, faculty and pedagogy do not seem to have been based on hard data. Similarly, the suggestions and recommendations presented in Chapter 7 by the authors are not based on any analyses of the empirical data gathered from various stakeholders engaged in BT education and research.

Overall, the book appears as if it was a mere compilation of the available literature relating to BT and description of some statistics from secondary sources.

— *MD Usha Devi*, Professor, CHRD, ISEC, Bangalore.

***Corporate Social Development: A Paradigm Shift. Debasis Bhattacharya. New Delhi: Concept Publishing. 2006. Pp 301.***

In the euphoria of globalisation, the corporate sector is being increasingly recognised as a partner of the government and the civil society in the process of social development. Besides pursuing business goals, the corporate leaders are making serious efforts to address social issues. The book broadly discusses the contemporary situation in corporate social responsibility (CSR) in India by providing a flavour of the present debate on 'the corporate as an instrument in civil society' for sustainable development.

The Indian corporate sector is very large and highly diversified. Major corporate houses, such as the Tatas, the Birlas, the Godrej family, the Bajajs, the Mahindras, and information technology giants Infosys and Wipro, have been contributing to the cause of social development for several years and implementing a wide variety of welfare programmes in the education, health and rural development sectors. The involvement of the corporate sector in providing funds, manpower, material and infrastructure for projects carried out by the NGOs has a variety of corporate benefits. It helps improve corporate relations with the community and with opinion-makers, enhances the corporate body's public image and improves recruitment and retention. The author has touched upon all these issues in detail.

Apart from individual corporations funding the social welfare programmes, a number of associations such as Confederation of Indian Industry (CII) and ASSOCHAM are involved in CSR. But a large number of corporations and associations do not disclose the amounts they spend on social development activities. The study largely ignores reasons for such lack of transparency in the spending of funds for social welfare and deals more with the history of CSR.

Dr Bhattacharya has limited his study to 16 corporate houses from five zones of the country and 16 non-governmental organisations. Based on case studies from corporate houses and NGOs, he makes an analytical assessment of the changing social development programmes vis-à-vis the beneficiaries and suggests some alternative strategies for funding. Though the book devotes a chapter to 'Current Approaches to Funding in Social Development', it does not address issues pertained

to duplication of work by corporate leaders. In fact, a good number of corporate leaders are duplicating the government programmes without any innovation. The study is also vague and does not provide any insights into the impact of investment on social development.

Many corporate leaders and social activists feel that all should join hands to take up wider social responsibilities through an effective public-private-civil alliance. CSR should focus more on the concept of social equity which is people-centric. The private, public and civic sectors should focus on common passions rather mulling over differences in ideology and methodology. The author has largely ignored these issues.

— *Nagesh Prabhu, Special Correspondent, The Hindu, Bangalore.*

***Striving for Sustainability – Environmental Stress and Democratic Initiatives in Kerala. Sri Kumar Chattopadhyay and Richard W Franke. New Delhi: Concept Publishing. 2006. Pp 350 + XXIV. Rs 700.***

Against the backdrop of the global environmental crisis, this book tries to examine the factors contributing to environmental degradation in Kerala state, and the responses of the state, the people and the civil society to the environmental crisis and ways of mitigating this. The authors explain in the preface the *raison d'être* for writing this book: "...to bring to the Indian and international environmental audience, the scope of Kerala's environmental decline along with the original and promising responses the state's people are making towards possible alternative that meets the basic criteria for sustainability".

The discussion in the book is conveniently organised into two parts. The first titled 'Kerala and the World Environmental Crisis', and the second on 'Kerala's Initiatives for Sustainable Development: Employing the Power of an Awakened People'. Part 1 consists of six chapters dealing with topics such as Kerala's experience against the background of the world environmental crisis, Kerala's environmental resources and ecological zones, factors responsible for land-use changes, landscape ecology and the environment in Kerala. These chapters document and present a wealth of information and data on Kerala's environmental resources and factors contributing to environmental degradation. Part 2 of the book is organised into five chapters dealing with topics like movements to defend Kerala's environment such as 'Save Silent Valley Campaign', the struggles of traditional fishermen vis-à-vis modern fishing trawlers, the movement of tribals to assert their rights over forest lands and resources such as the Muthanga Struggle, the struggle to protect groundwater against misuse by MNCs like Coca-Cola, the people- and local-level initiatives to protect the environment, etc. The book is illuminated by several case

studies and local-level experiences such as the participatory panchayat resource mapping, people's biodiversity registers, participatory water management, etc. The last chapter, aptly titled 'Consciousness versus Collapse – Local Democracy and Our Endangered Earth', makes a lucid presentation of the various debates about the role of markets in combating the environmental crisis, the nexus between poverty, inequality and the environment, the equation between ideology and the environmental crisis, the potential of community-based initiatives and the relevance of the Kerala experience for promoting sustainable development.

In the context of the increasing emphasis on decentralisation and grass-roots initiatives to promote sustainable development, this book assumes relevance. The book is most useful for researchers, policy-makers and others interested in protecting the environment and promoting sustainable development.

— *K N Ninan, Professor, CEENR, ISEC, Bangalore.*

***Privatisation in Developing Countries (Volume 1). Paul Cook and Colin Kirkpatrick (Eds). The International Library of Critical Writings in Economics. (Series Editor: Mark Blaug.) UK: Edward Elgar Publishing. 2000. Pp 694.***

The International Library of Critical Writings in Economics has brought out a series of volumes under the editorship of Prof Mark Blaug covering various aspects of economics. The collection includes landmark contributions by world authorities on the subjects. These volumes not only serve as essential reference works for students but also contain thought-provoking articles on the chosen themes. This volume, *Privatisation in Developing Countries*, edited by Paul Cook and Colin Kirkpatrick, deals with four important dimensions of privatisation in developing economies. It discusses the first dimension with some seminal contributions on 'privatisation and public enterprises in developing countries' by Nicholas Kaldor, Paul Cook, Colin Kirkpatrick and William Glade, to mention a few. It covers the debate on public and private enterprises and the role of crucial economic factors in them. The discussion also includes the issue of the efficiency of state enterprises and the role of privatisation in less developed countries. The second part outlines the theoretical perspective on privatisation with an excellent collection of articles culled from eminent economic journals. Specifically, George Yarrow's article, or *A Theory of Privatisation* by Maxim Boycko and others, or Stephen Martin and David Parker's *Conceptual Framework of Privatisation* should attract the attention of any serious reader. The third section has three articles dealing with 'public versus regulated private enterprises' and another dealing with the theory of regulation. The volume ends with a study on the comparative performance of public and private enterprises with contributions from Yair Aharoni and Robert Millward. This last

section brings out the comparative behaviour of the public and private enterprises and debates their efficiency. As a whole, the volume provides a thorough reading on privatisation and public enterprises in developing countries dealing with most of the relevant themes currently under academic discussion.

***A Prattler's Tale: Bengal, Marxism, Governance.* Ashok Mitra. Translated from Bengali original *Apila Chapila* by Sipra Bhattacharya. Kolkata: Samya. 2007. Pp 481. Rs 595.**

Rarely do we find a serious academician who has not read Ashok Mitra's incisive writings in economics either in the *Economic and Political Weekly* or in the form of books. His style is unique and is not jargonised in spite of his active involvement in politics and economic policy-making: he effectively shuts out the bureaucratic terminology. And he is at his best when he is writing in his mother tongue. His memoir *Apila Chapila*, originally published in 2003, shows how deeply Mitra nourishes his connections with native Bengal. He vividly brings to life the contemporary Bengal with all its nuances, nuisances and concurrent happenings. For the benefit of the English readers, Samya has brought out the timely translation of this excellent memoir in the form of a book, *A Prattler's Tale*... The book provides glimpses of the contemporary Bengal, including Mitra's perspectives on Marxism, Marxists, the politics of the Left Front and the happenings in the corridor of power. He traverses from serious Marxism to the nuances of governance with ease. He is frank about his agreements and disagreements with the set economic theories and values. At the same time, *Apila Chapila* gives valuable insights into Bengali life. There may be references to Sukhomoy Chakravarty, Amartya Sen and many academics who have made their mark in the economic, social and political fields. But Mitra deals with every personality and every happening — be it social, political or economic (and sweet or sour) — with a careful and in-depth analytical mind. His interpretations of the events are unique and therefore those who would like to understand Bengal and its social, political and governance culture must read this book. Even though translated from the original Bengali script, *A Prattler's Tale* portrays the author's vision and views truthfully. This book is not only readable but preservable, and it is readable to the last word.

# INDIAN JOURNAL OF AGRICULTURAL ECONOMICS

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**Special Issue in memory of the late Shri Tarlok Singh - I**

**Vol. 24**

**January - March 2006**

**No. 3**

*Approach to Ending Poverty and Deprivation*

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