

Journal of Social and Economic Development

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Individuals, Values, Inequality and Governance Brickbats and Bouquets for Developments in Mainstream Economics*

N S S Narayana*

Abstract

This paper surveys some of the controversial issues with regard to the treatment of the individual in economic theory. The discussion also includes personal and social values, inequality and incentive payments. It also discusses corruption and social costs as (un)ethical aspects of governance. Drawing attention to the divide made between orthodox mainstream economics and heterodox economics, the paper argues that mainstream economics too with the aid of the "representative individual" has been increasingly concerned with adequate treatment of real individuals. Methodologies such as aggregation over individuals pose the same problems for both schools of thought. When the social issues such as inequalities are to be analysed, neither framework may be adequate; and while specific modelling of individuals' psychological actions, which have economic relevance, is important, it is equally important to model the economic consequences of governments' actions.

Introduction

Like air, economics too touches every individual's life. However some critics usually point out that traditional micro/macroeconomic theories often work in terms of 'representative individual' or 'abstract individual', and the 'real individual' is hardly noticeable. How far the representative/abstract individual really represents the real individual - turns out to be an important question.

Such criticism is based on the view that the orthodox economics (mostly mainstream neo-classical economics) cannot capture the complex economic phenomena, which can be explained only when human behaviour personally as well as socially is adequately taken into account. Discussing the Walrasian system and capital theory, Joan Robinson (1970) said, "... the harm that the neo-neo-

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classicals have done is, precisely, to block off economic theory from any discussion of practical questions." This scepticism continues even today. Economists "tend to constrain their attention to a very narrow and empirically questionable view of human motivation." - Fehr and Falk (2002). Heterodox economists claim that their school of thought (largely institutional economics, Marxian and socialist economics, evolutionary economics, experimental economics, etc.) is better suited to explain the complex economic behaviour of the individuals. The divide in economics is sometimes expressed as 'Western economics' versus 'Eastern economics', with the former conceiving the economic activity as providing more and more goods to satisfy a set of given wants (i.e. material progress), and the latter as also concerned with traditionalism in addition to the wants satisfaction. See Vickery (1953) for more on this divide.

This paper mainly deals with the controversial perspectives as noticeable in the economic literature with regard to treatment of individuals, their values, whether inequalities are justifiable, and ethics of governance. In section 1 it covers treatment of individuals in economics, in section 2 individuality, values and inequality, and in section 3 corruption and social costs as unethical aspects of the governance. Section 4 summarises our main arguments. The discussion below does not cover philosophic perspectives on these issues; therefore Locke, Hume, Russel etc. are not woken up here¹.

I. Treatment of Individual in Economics

Which system individuals prefer?

We begin with the issue of individual preferences for economic systems. Discussing consumer's sovereignty, Joan Robinson (1964) distinguished between capitalist (market) and socialist systems with regard to how far they satisfy what exactly the individuals in a society demand. According to her, in capitalist system the production initiatives, usually lying with the producers, would not be responsive to consumer needs. She argued for developing a class of functionaries in a planned economy to satisfy consumers. "They could keep in touch with the demand through the shops; market research, which in the capitalist world is directed to finding out how to bamboozle the housewife, could be directed to discovering what she really needs; design and quality could be imposed upon manufacturing enterprises and the product mix settled by placing orders in such a way as to hold a balance between economies of scale and variety of taste. No one who has lived in the capitalist world is deceived by the pretence that the market system ensures consumer's sovereignty. It is up to socialist economies to find some way of giving it reality." Thus in Robinson's view, in a capitalist system, individual preferences are usually bypassed and / or constrained to the extent of consumers living according to the producer's preferences instead of their own. In other words, individuals as

consumers, though not as producers, are likely to lose their identity in a capitalist world. If Robinson's view is right, it seems then unfortunate that in recent times many socialist economies have either collapsed or have been adopting capitalist mode of development. Then there can be a dilemma here. Currently the enthusiasm towards globalisation by integrating domestic economies with the world markets is significantly noticeable in the developing world. Before 1995, the only notable regional free trade agreements (RTAs) were NAFTA, EU and MECOSUR (South America). Now 197 RTAs exist and many more are being contemplated, though the WTO already exists. The zeal prevails despite the fact that developing countries are facing a lot of hurdles in achieving their aim. Also important to note is that there is an increasing democratisation process taking place in the world. Robertson (2004) reports: "In 1980 only 35 per cent of the world's population lived within democracies; twenty years later 54 per cent did. In another twenty years the proportion will be higher still. Thus democracy is inevitable; it has become the universal modern condition. Even dictatorships have tried to claim modern legitimacy by renaming their countries 'democratic republics'". If democratisation and globalisation are simultaneous processes, then it indicates that, individuals left to their own choice actually prefer to rely more and more on markets. Then doesn't it mean that contrary to Robinson's view, non-market socialist systems actually do not serve to satisfy the consumers' preferences? We shall return to this point later.

Is the individual unidentifiable in economic theories at present?

John Rawls (1971) extensively discusses the principles of natural duty and obligations that apply to individuals in the context of social justice. However Rawls was a philosopher, not an economist, and his discussion was in the context of fairness, rights and justice. But mainstream economists have recognised the significant contribution made by Rawls, with numerous papers following. Be that as it may. Yet scholars have been arguing that economics pays very little attention to the theory of the individual and the nature of the individuality as endogenous to the economic process. Recently Davis (2003, pgs.190-191) has argued 'that, orthodox economics is now individualist in name only, and that, like the emperor of the famous fable, its past glories no longer really conceal its current shape and form.... just as the emperor was the last one to learn the truth, so it will be with mainstream economics.... heterodox economics may have a more promising future than most imagine.' He has developed an identity analysis consisting some tests to see whether an individual is identifiable in the present-day orthodox economics (which places great weight on individuals but treats them as relatively autonomous and atomistic beings) and heterodox economics (which places less weight on individuals regarding them more as embedded in social and economic relationships). Davis distinguishes between internalist (reflecting subjective preferences) and externalist

(external interpersonal relations) types of definition of the individuality. His analysis consists of applying two identity tests: (a) individuation test and (b) re-identification test. The former test relates to distinguishable peculiarities of an individual compared to all others at any given time period (analogous to an observation in cross-section data). The latter test is on tractability of an individual as changes occur over time (analogous to an observation in time-series data). Orthodox economics fails to individuate and to re-identify individuals, while heterodox economics succeeds. His main conclusion is that neo-classical and mainstream economics lacks an adequate conception of the individual, while heterodox economics offers elements of an adequate theory of the individual. There are critical assessments of Davis' analysis. Luchini and Teschl (2005) argue that Davis' description of the evolution of the mainstream economics is gloomy. They argue that if the material published in current journals is taken into account it is noticeable that there is a huge interest even among orthodox economists in developing micro-economic theories on more realistic grounds. Davis is of course aware of the nature of recent literature in game theory, bounded rationality, experimental economics, behavioural economics, evolutionary economics, institutional economics etc. But he cynically says that these new currents have only generated loosely related ideas still drawing on neo-classical assumptions and characterising individuals abstractly with little resemblance to human nature. See also Bigo (2005) and Bouvier (2005) for more comments on Davis (2003).

Purpose of theory

Our understanding of the purpose of any theory, whether orthodox or heterodox, is that it enables us to logically discern different situations (as in cross-section data), predict the future course of any given situation (as in time-series data), and finally to assess how the situations if expected to result in any undesired states in the future can be controlled and steered towards desirable states (policy analysis)². However, there is a view that "theory is an organised way of going wrong with confidence".³ Besides, as Frank Hahn points out, "neither is there a single best way for understanding in economics nor is it possible to hold any conclusions, other than purely logical deductions, with certainty.... Indeed, we are encompassed by passionately held beliefs. There are those with burning convictions in the virtues of 'small' models and in the absolute need for 'full' models; in the uselessness of mathematics in economics and in its absolute necessity; in the need to postulate 'market clearing' and in the meaninglessness of this postulate; in rational expectations models and in the madness of such models; in the absolute need for historical and institutional elements and in a purely analytical approach; in short run analysis and in long run analysis; in the uselessness of all theorising and in the uselessness of econometrics and fact collection; in short, in almost anything that

has been tried." (Hahn - 1984) Thus, which theory to believe in is a matter of subjective perceptions, beliefs and preference.

Often one may get confused regarding, what exactly is the feature that the heterodox group is against the orthodox economics? Is it modelling, the mathematics used, maximization of some function say utility, disuse of institutional features, oversimplification, micro-foundations of macro-economics, something else or all of them? Going through the literature, our impression is that heterodox group is more interested in case studies or special (not general) phenomena rather than overall phenomena, whereas mainstream economists are more interested in overall phenomena without loss of generality. Basically while developing a theory, some assumptions may become necessary and even essential to start with. However the theorist tries to ensure that there is no loss of generality. And gradually the assumptions are relaxed. Possibly, this is where the heterodox group is after the orthodox group, claiming that the loss of generality is generally substantial in the orthodox stream so much so that their assumptions are almost all wrong and when they are relaxed the entire orthodox theory collapses.

Some controversies on theories

Some completely contrasting and opposite views are presented below with regard to the state-of-the-art in today's micro/macro-economics - mostly in the authors' own words. Of course these views were expressed in different contexts; but since the issues are same, it may not be seriously wrong to put one view against the other. Also we believe that these views are "representative" views of the respective schools of thought.

Kirman (1992) critically looks at the shortcomings of present-day macro-economic models. Economists typically assume that, "the choices of all the diverse agents in one sector - consumers for example - can be considered as the choices of one "representative" standard utility maximising individual whose choices coincide with the aggregate choices of the heterogeneous individuals." "... This reduction of the behaviour of a group of heterogeneous agents *even if they are all utility maximisers*, is not simply an analytical convenience as often explained, but is both unjustified and leads to conclusions which are usually misleading and often wrong. Why is this? First, such models are particularly ill-suited to studying macro-economic problems like unemployment, which should be viewed as coordination failures." Further, Kirman argues "the way to develop appropriate micro-foundations for macro-economics is not to be found by starting from the study of individuals in isolation, but rests in an essential way on studying the aggregate activity resulting from the direct interaction between different individuals. ...it is clear that the "representative" agent deserves a decent burial, as an approach to economic analysis that is not only primitive, but fundamentally erroneous."

Kirman thus does not appreciate living with the representative individual, utility maximisation, an excuse for simplification of the models for analytical convenience, unsuitability of these models to study unemployment etc. His expectations from the macro-economic models seem to be different if not high. The basic point as we see in Kirman (1992) is that when real-life heterogeneity is accounted for in micro-economics, the resulting aggregate over all the individuals is a far cry from the behaviour of the "representative individual" as assumed in orthodox economics. Our impression however is that if there are some problems in adequately theorising, or developing suitable models, or aggregating over individuals to derive general overall phenomena, they pose same difficulties both for heterodox and orthodox groups. Mainstream economics has been attempting to solve the aggregation problem and may be even failing. Other streams of economics, to the best of our knowledge, have not even attempted this problem. In passing let it be mentioned that there is substantial literature on aggregation problems in economics, which is not reviewed here. Let us now present a counterview point about the aggregative result expressed by Streissler (1977): "The need for a sub-structure of macro-economic models built upon a foundation of individual optimisation is often argued. It is asserted that only the aggregation of individual optima can yield determinate macro-economic results. To my mind, this chain of reasoning, offered as a methodological rule without exception, shows important flaws. On the one hand, it is not at all certain that the individual behaviour of those who stay throughout with the decision group on which the economic aggregate depends over time determines the value of that aggregate; it can very well be that the *inflow and outflow of individuals* into and out of the decision group in question has a much greater effect. But even where individual behaviour in an approximately constant decision group is decisive, much more general types of regular behaviour within this group can, together with a constraint, explain the same result as that derived from rational individual optimisation."

Reacting to Lewbel (1989)'s observation that the representative consumer framework vastly simplifies a great deal of macro work and thought, and so is not likely to be abandoned, Kirman says, such a practice "corresponds to the behaviour of the person who, having dropped his keys in a dark place, chose to look for them under street light since it was easier to see there!" One may consider it as sheer bad 'poetry' and wrong analogy. Considering the developments in orthodox economics, it may be said that the orthodox economist is searching for his keys not under a fixed streetlight, but in the light of a torch in his hands! This becomes more evident as we move on.

Now, let us listen to Baumol. Baumol (2000) does not agree that the present-day macroeconomics is in terrible trouble. Elaborating on what one can and cannot reasonably expect from it, he says, "The genius of macroeconomics consists of felicitous oversimplification, which is traded off for concrete conclusions that are

much harder if not impossible to obtain from less simplified models. And macroeconomics has delivered on this promise, offering insight and understanding to economists and policy makers that were totally unavailable before. However, the very oversimplification that makes this possible means that the utmost caution is required in reliance upon and use of these conclusions. They must be labelled carefully to admonish the user to "handle with care" because, taken improperly, they can be dangerous to the economy's health. That is surely not a failure of macroeconomics, but one of its inherent features that was recognised from its beginnings. A second misunderstanding is the notion that it is desirable to impart great rigour to macroeconomic theory, perhaps even giving it strong microeconomic foundations. But such a move is likely to deprive the field of its very reason for being - the ease with which it can be used to derive concrete (if frequently controversial) conclusions such as results indicating public policies that promise to be useful in combating unemployment or inflation." - Baumol (2000).

It does not however mean that mainstream economists are against incorporating institutional features into economics. In fact they welcome. "... There are significant arenas (such as the construction and working of contracts and the operation of markets with heavy sunk costs) in which traditional neoclassical economics needs to be supplemented by the sort of institutional material supplied by these writers." - Baumol (2000).

There are several studies in the literature, which indicate that personal identities incorporated into theoretical models provide a lot more insights on the economic phenomena. Akerlof and Kranton (2000), Fehr and Falk (2002), Rabin (2002), Tirole (2002), etc. are some examples. Akerlof and Kranton (2000) develop game-theoretic models incorporating gender discrimination in the workplace, social exclusion and household division of labour. While admitting that their paper only scratched the surface of the economic implications of identity, they also point out that researchers "could consider why notions of "class" or "race" vary across industries; why might gender and racial integration vary across industries; what might explain the rise and fall of ethnic tensions. Such comparative studies would be a fruitful way to explore the formation of identity-based preferences." Should one consider this study as conforming to orthodox economics or heterodox economics? This study involves utility function, game theory, equilibrium etc. - thus one may categorise it as orthodox economics; but it also involves psychology and sociology employed by the heterodox economists.

However moving from formulations of theories to empirical verifications of them, policy analyses and ultimate ability to change the course of events is really long and tedious effort. Be that as it may. But most important to us is that any social theories formulated must first be testable theories. In social sciences two possibilities exist: One, it is easy to formulate purely imaginative non-testable theories. Two, since every individual is in some way different from every other individual (even in

the case of twins), there can be as many theories as the number of individuals. Therefore formulation of a unified general theory that satisfies one and all is a difficult task and demands a lot of compromise. Given this difficulty, for any testable generalised theory proposed, empirical counter examples can always be found in reality. That does not necessarily invalidate the general theory, and as Baumol (2000) cites an old Yiddish proverb, "for example is not a proof".

Justification of general theories

Blaug (2002) considers that Debreu's book *Theory of Value* is "probably the most arid and pointless book in the entire literature of economics". Davis (2003, pg.82) contentedly announces the "demise" of general equilibrium theory! In contrast, Hahn (1984) declares his attitude as: "if we did not have the Arrow-Debreu machinery there would be an urgent need to invent it because it gives us the best base camp for sallies into new territory. On the other hand it is only a base camp." Generalised theories and the associated theorems based on the behaviour of a 'representative individual' merely characterise particular situations (may be equilibrium situations) without operational implications [See Srinivasan (1998)]. They help a great deal for the analysts by providing a sort of reference benchmarks.

The principle of parsimony (Occam's razor instead of Anti-razors) is an important aspect of any model formulated, whether it is purely theoretical or empirical. Since every individual is different from every other individual, accounting for all possible heterogeneity / subjectivity in a generalised theory results in that much loss of parsimony. And, loss of parsimony results in loss of predictive power. "As students of the scientific method are quick to emphasise, a theory that can explain everything ends up explaining nothing at all" - Frank (2001) [quoted in Tirole (2002)]. Every individual's behaviour may form his/her own personalised theory and such a theory or model becomes practically useless and only becomes a case study. This aspect brings in two considerations: One, the vast data requirements for setting up an empirical model (after all, every testable theory requires empirical verification); two, the number of equations that need to be written up. In the case of India, with a 115 crores population, a computable general equilibrium model with 100 goods (supplies and demands separately accounted) would come to a minimum of 23000000000 equations! Imagine solving this system for prices even in a static context. That brings us to an important character of prices.

Heterogeneity in a social system prevails in several ways. Then why only account for heterogeneity among individuals! For a complete analysis of a system all sorts of heterogeneity needs to be accounted for. In economics, the other most important sources of heterogeneity are prices and wages. Often we treat price of any single good and wage rate as homogenous values at any given point of time. In reality, this can be true only in the case of administered prices and fixed wages. In

the case of non-administered prices, almost every vendor quotes his own price, which is likely to be different from the other vendors' quotations. Whether it is a vegetable market with numerous vendors or air-tickets market with oligopoly - this phenomenon is quite common which is also in a sense institutional aspect since prices contain a lot of information (quality, where you bought, when you bought etc.). But yet the heterodox economics seems to have ignored this heterogeneity. It is a matter of puzzle that in the case of prices and wages, the heterodox group hardly made any noise, and one "representative price" (or aggregate price) and one "representative wage rate" are usually taken to be satisfactory enough. On the other hand some general equilibrium models exist, which had worked in terms of price distributions rather than a single price. See Harcourt (1977, pg.93). But such models are only a few in numbers. Distinguishing between different kinds of prices such as open market, ration, procurement, harvest prices etc. has been common in India; and we are not referring to this kind of heterogeneity. We are referring to variations in prices quoted/realised by individuals in open market itself.

Harcourt (1977) in his introduction to the 'Microeconomic Foundations of Macroeconomics' says, " ... the fatal flaw in general equilibrium theory *for the present purposes* relates to the fiction of the auctioneer (in his role of disseminating freely information)" Some others criticise that the "representative individual" too is fiction. "The assumption of a representative individual is far from innocent; it is the fiction by which macroeconomists can justify equilibrium analysis and provide pseudo-micro foundations" - Kirman (1992). No doubt, the "representative individual" is fiction. Then, one "representative price" and one "representative wage rate" are equally fiction too, about which hardly anybody seems to object. We however take the stand that fiction need not be totally disregarded. In day-to-day life fiction plays an important helpful role. We are not referring to the novels and films from which we do derive some real pleasure. Nor are we referring to the "advaita" philosophy characterising the whole materialist world as a "*maaya*" (a kind of fiction); nor even to other philosophers, who argued that "self" is a fiction. Our reference is to some fictitious concepts in real life. The concept that east - west - north - south are fixed directions is nothing but fiction. 'Longitude' and 'latitude' are also fictitious concepts. So are calendars and names of the days associated with planets. Yet, they put us in desired direction, location and timing. God, hell and heaven are all fiction only. Yet most (wo)men have not dispensed away these fictions. Similarly, the concept of "production function" in economics is nothing but a fictitious construct. Economists do know this fact and all its conceptual shortcomings. Yet they have been deriving useful insights by estimating them. 'Money' too is only fiction causing illusions⁴. Yet, leave alone common people, economists have not given it up, nor even saints did. Is fiction any less in Marxian economics? Mark Blaug (1982) extensively discusses the fiction involved in Marxian economics. Thus the fact is, sometimes some fiction helps. Therefore it may not be

essential to emergently bury the "representative individual" as Kirman advises us above. When the "representative individual" becomes outdated he will anyway die a natural death. If there is an appropriate argument to give him up earlier, it can never be the fiction-based argument.

Should the individual be always identified?

Let us now consider partial versus general equilibrium models. While no doubt these two kinds of models have their advantages and disadvantages, an individual cannot be (rather, should not be) searched for in a general model. In general this is true with models both in orthodox economics and heterodox economics. Even in the Marxian economics (considered to belong to heterodox economics) dealing with aggregate problems the individual per se does not appear always. For example, in the case of Marx's Transformation Problem (dealing with the ratios of embodied labour between the various goods in comparison with their competitive relative prices), or in the case of "Simple Reproduction Model" (considered as Marx's version of general equilibrium model), no individual per se is identifiable. Yet these two models are not only academically challenging but also have tremendous philosophical underpinnings. Similarly in the Walrasian general equilibrium system, supposed to be a macro scenario developable from micro foundations, an individual per se is not identifiable.

There are some attempts to overcome this shortcoming (if it is so). For instance, the context of explaining why some countries have been growing faster than the others gave rise to a new school of thought, the endogenous growth theory (EGT). The traditional neoclassical growth theory (NGT) takes the individual decisions and institutional factors behind the capital accumulation and technical change (considered only at aggregate level) as exogenous, and also mostly ignores externalities. Treating them as endogenous is the essential innovation of the EGT. EGT recognises that decisions regarding human capital formation, innovation, technical change etc. have substantial power in explaining growth processes. Theoretically speaking, under EGT, individuals' behaviour can be taken into account and can be aggregated to the economy level. However that does not mean that studies using the EGT completely got rid of the representative individual. While there are anyway several more debatable issues with regard to the EGT and NGT, the point to note is that EGT takes a step forward in providing a framework to account for individual decisions. See Sandler (2001) for a brief exposition on the NGT versus EGT. Now there are attempts to develop a unified growth theory - see Galor (2004).

Kaldor (1972) viewed that the mathematics of general equilibrium theory is nothing but to prove existence theorems for a non-existing economic world. However, our belief is that the advantage of the general equilibrium framework lies in the rare

facility it provides to simultaneously and logically analyse the overall growth and income distribution. Moreover, neoclassical economics is not just general equilibrium theories and growth theories, but also consists of other areas such as disequilibrium theories, international trade theories, monetary theories, public finance etc., which are surely of some relevance for the existing economic world. The disequilibrium theories, covering the market situations when the prices are not market clearing prices, led to the conceptual development of schemes of quantity rationing, fix-price models and endogenous price setting models. The impressive aspects of the disequilibrium theories are, how individuals perceive the constraints faced by them, and how they respond. For a non-mathematical exposition of dis-equilibrium theories, see Hey (1981).

The above discussion implies that whether the individual is an identifiable entity or not has nothing to do with whether the subject matter is treated under orthodox economic framework or heterodox economic framework. It ought to depend on the nature of the issue being addressed.

In practice, while aggregating the individual decisions, in certain situations micro-details are more of nuisance value than of any help for forecasting purposes. For instance, in the case of forecasting food demand in India during the next Five Year Plan period the fact that many old grannies fast on Saturdays and Ekadasees becomes irrelevant, though theoretically (institutionally and psychologically) speaking such fasting would matter.

Typically a theoretical analyst would have written a consumption function as:

$$C_t = \sum c_{it} ; \text{ where } c_{it} = \alpha_i + \beta_i y_{it} + \gamma_i b_{it} \quad (\text{A})$$

where c_{it} and y_{it} stand for consumption and income, and b_{it} for personal behavioural characteristic of i-th household/individual; t=time period.

But empirical analyst would write the same thing as:

$$C_t = \sum c_{it} ; \text{ where } c_{it} = \alpha_i + \beta_i y_{it} + [\delta_i D] + e_{it} \quad (\text{B})$$

where e_{it} (the presence of which is the life of econometrics) accounts for all minor deviations accountable due to fasting on Saturdays and Ekadasses, further unexplained part if any, and estimation errors. A fastidious econometrician would also introduce some relevant dummy variables (D) if necessary. If the difference between the projections made under (A) and (B) is not significant enough, there is no worthwhile point in insisting on collecting the additional data on b_i . (B)'s projections to the future period will still safely lie in an acceptable confidence interval, provided the estimation methodology is appropriate. This point becomes even more emphatic if certain kinds of indivisibilities prevail in the system. For example, the investment required for obtaining either 230 million tons or 220 million

tons of food grains could be the same. Thus while dealing with problems that are aggregative in nature one need not consider every household's/individual's behavioural characteristics in the economy.

Progress card of mainstream economics and econometrics

Let us now turn to two other aspects. One is on the recent developments in mainstream economics and applied econometrics, and the other relates to a consequent personal interpretation. First, we take up recent developments.

Rabin (2002) says, "Economists are less and less employing bad economics to dismiss the relevance of good psychology, and more and more using good economics to absorb the lessons of the good psychology. Happily, the trend is towards integrating apparently true and apparently relevant new psychological assumptions into economic analysis." At the outset, I think there can be bad psychology too! Be that as it may. Fehr and Falk (2002) also acknowledge that during the last two decades economic theory has much progressed in modelling and understanding of incentives, contracts and organisations.

In recent times, both microeconomics and econometrics have substantially advanced moving in the direction of accounting for institutional features. In microeconomics, these refer to the theories on asymmetric information, moral hazard, principal-agent framework, signalling, team theory, incentives and organisation, rational expectations etc. Besides, endogenous growth theory and disequilibrium theories hold a lot of promise for future development. Looking at these developments, despite the negative accounts of them given by Davis (2003), Blaug (2002), etc., one may feel that mainstream economics after all has not been travelling in wastelands. Fortunately, econometrics has nothing to do with whether the subject matter is heterodox or orthodox economics. In econometrics, a significant fundamental achievement is the distinction between deterministic and stochastic processes. This distinction has led to the subsequent developments such as ARIMA models (implicitly relatable to order and chaos theories), co-integration and error-correction concepts, exogenous-endogenous factors, VAR and VEC models, (G)ARCH models and panel data analysis. The advantage of these developments is that now there exists tremendous scope for accounting individuals' behaviour provided relevant data exist.

For example, consider a fact about human nature described by Rabin (2002) - "For instance, our sense of well-being from our total consumption is not solely a function of its level, but also on how that level compares to what we are used to. And how we feel about not having an item depends not just on intrinsic taste for that item, but on whether or not we owned that item moments ago. And the related phenomenon of hedonic adaptation is a primary fact about human nature: Even for major life events, once a new steady state is reached, we tend over time to return to

previous hedonic level." Reading this, our immediate thought was setting up a VEC model with a trend variable in the relevant co-integrating equation!

Consider also the (G)ARCH models. Usually these models are used in financial markets. But they are equally applicable in the case of high frequency data such as heartbeat (bio-statistics), weather turbulence (oceanography), voltage fluctuations (electricity), etc. These models also provide scope for studying frequent variations in human emotions, measurable somehow (including whether such variations exist or not). Rabin (2002) says, "People in fact probably over-react to changes, especially losses, for a variety of reasons". One may note that the GARCH methodologies can study whether behavioural variations exist and if so whether they are asymmetric (TARCH and EGARCH models). Similarly, the techniques of panel data analysis are quite relevant for the kind of tests developed by Davis (2003) mentioned earlier. But as said above, for all such applications availability of right data is the precondition.

The other aspect relating to a personal interpretation concerns with the distinction between the deterministic and stochastic processes. Human nature is essentially a mixture of deterministic and stochastic components. All values, customs, traditions etc. get accounted for in the deterministic component. For example, being a vegetarian (due to either preference, value, or whatever) is a deterministic part of one's nature. However, where (s)he would have that vegetarian meal (at home or hotel H or restaurant R or just fast) is mostly stochastic part. Even this stochastic component becomes deterministic if there is a regular pattern involved regarding where (s)he eats.

Let E_i denote economic consequences of human actions. E_i may be expressed as a sum of two components, as

$$E_i = X_i + B_i \quad (1)$$

where

X_i = economic consequences of some relevant decision variables of i -th individual which have nothing to do with his/her personal behavioural pattern, and

B_i = economic consequences of behavioural pattern of i -th individual.

Summing over all the individuals:

$$E = \sum E_i, X = \sum X_i, \text{ and } B = \sum B_i \text{ so that}$$

$$E = X + B \text{ for the society/economy in aggregate.} \quad (2)$$

For simplicity, it is assumed that X_i and B_i are independent, and the assumption may be relaxed if required. Now B_i may also be expressed as a sum of two components, as

$$B_i = D_i + S_i \quad (3)$$

where D_i and S_i are respectively the economic consequences due to the deterministic and stochastic components of personal behaviour, assumed to be independent of each other.

Our beliefs are two kinds. (a): In any stable and civilised society, D_i is more predominant than S_i for each and every individual. And (b): a part of even S_i gradually gets transformed into D_i over time. Point (a) stems from our inability to view all humans in any society as only crazy animals. Even tribal groups in deep forests in India are quite a lot organized. Point (b) stems from the fact that over time all humans prefer to organise their lives, systematise their day-to-day operations, settle down comfortably, avoid major risks, etc. Thus the share of the D_i dominates in the B_i for all i in any given time period. Summing over all the individuals:

$$B = \sum B_i, D = \sum D_i \text{ and } S = \sum S_i \text{ so that}$$

$$B = D + S \text{ for the society in aggregate.} \quad (4)$$

Consequently, $E_i = X_i + D_i + S_i$

and $E = X + D + S \quad (5)$

Econometrically, $E_i = X_i + D_i + e_i$

and $E = X + D + e \quad (6)$

where e_i/e are the unexplained minor stochastic components and/or random errors.

Since the sum of deterministic components is also deterministic, D must also be deterministic. But, S the sum of stochastic components may or may not be deterministic and may remain stochastic even in the aggregate. Our contention is that since D the dominant component in B is purely deterministic component, even a simple specification such as a trend (as in time-series data analysis) or a relevant statistical average (mean, mode or median as in cross-section data analysis) would be fairly capturing a major part of the economic consequences of the human nature. Unless the S component is proved to be the dominant component in B , the analysis would not be too wrong, and the projections would likely be in an acceptable confidence interval. If there is an individual whose S_i dominates over D_i , that person would merely be a case study or an outlier who can also be identified in econometric analysis (using Mahalanobis' distance, Cook's distance etc.). And then correspondingly a special theory may be developed.

This section on treatment of individuals concludes by pointing out that one should be clear on where institutional features and personal preferences do matter for economic analysis, and when they can be kept in the background. The mainstream economists have indeed been willingly chiselling the "representative

individual" whenever and wherever required. While doing so, as Vickery (1953) says, "... somewhere down the line of the pursuit of knowledge there comes a time where the results cease to be purely abstract information and begin to have ethical implication. In economics this point is reached much sooner than in many other disciplines." As he rightly points out economic decisions involving income distribution, organisation, individual freedom etc. do involve ethical values. We now turn to some of such values and ethics.

II. Values and Inequality

How to define a 'value'? Evidently this is not that easy. More importantly, how does a 'value' come to be established? This section discusses some of these issues including social inequality. First, discussion of individuality and values follows.

John Stuart Mill (1929) extensively discussed individuality, and authority of society and government in limiting the individuals' behaviours⁵. According to him, individuality consists of freedom of thought and freedom to act. Individual liberty should not be hindered as long as personal actions do not cause nuisance to the society. "No person ought to be punished simply for being drunk; but a soldier or a policeman should be punished for being drunk on duty." Giving several arguments against social interference on personal conduct, he argued that, the odds are that the society interferes wrongly, and in the wrong place. Social customs are usually despotic, and hinder originality and human advancement. However, "on questions of social morality, of duty to others, the opinion of the public - that is, of an overruling majority - though often wrong, is likely to be still oftener right; because on such questions they are only required to judge of their own interests; of the manner in which some mode of conduct, if allowed to be practiced, would affect themselves." The issue of morality brings us to the values.

James Buchanan considers that values are a set of personal beliefs and hence are derived from individuals and there aren't any absolutes. He says, "value is relative, truth is not, at least within the realm of ordinary discourse." - Buchanan (1986, pg.52). He too discusses the institutional constraints on human behaviour. Let us "distinguish categorically between culturally evolved rules for behaviour, which we do not understand and which cannot be explicitly ('constructively') modified, which act as ever-present constraints on our ability to act, and the set of institutions within which we may act, always within these rules for behaviour. The culturally evolved rules of behaviour clearly impose constraints on this set of institutions, ..." - Buchanan (1986, pg.80).

Ben-Ner and Putterman (1998) distinguish between three types of personal preferences: self-regarding (purely personal aspects), other-regarding (aspects of others) and process regarding (behaviour while in groups). They consider process-

regarding preferences as values (codes of behaviour, mores, ethics etc.) and admit that their definition is quite narrow. They take these values as arguments in the utility function. Hechter (1993) defines values as relatively general and durable internal criteria for evaluation distinguishable from preferences. There are others who view values as principles for selecting good over bad among many choices. Some have taken them as simply constraints rather than arguments in the utility function.

We however believe that values determine individual preferences; and preferences determine individual actions / behaviours. Values consistently maintained by numerous individuals manifest in similar actions across individuals, and come to be established as institutions. That is, values to preferences to actions to institutions - is the chain. Besides, values may be considered as of two kinds: (a) personal values and (b) social values. Honesty, vegetarianism, dress preferences etc. are more of personal nature. Equity, peace, environment etc. are mainly concerns of the society, and therefore they may be treated as social values. Social inequality could be viewed in several terms: wealth, financial assets, purchasing power, race etc.

Our discussion here concerns with a specific issue with respect to income inequality. Is perfect equality (strict egalitarianism) in all aspects of life desirable / possible? Recent thoughts regarding income inequality and incentive payments are covered below with a brief summary of some literature in the context. While inequality is basically an aggregate feature, incentive payments made / received largely reflect on individuals' behaviours.

John Rawls, a philosopher, viewed that economic inequalities are justifiable provided they result in benefiting the least-advantaged in the society. Rawls' "Justice as Fairness" consists of two principles: that "all have the greatest degree of liberty compatible with like liberty for all, and that social and economic inequalities be attached to positions open to all under fair equality of opportunity and to the greatest benefit of the least well-off members of society. The first of these two principles is known as the liberty principle, while the second half of the second, reflecting the idea that inequality is only justified if to the advantage of those who are less well-off, is known as the difference principle." (Wikipedia, the free encyclopedia). See Rawls (1967, 1968 and 1971) for more details. It is needless to mention that all may not agree with the difference principle.

Some economists believe that some inequality is certainly necessary; but that is in the context of achieving high economic growth rates. Many of these economists believe that high growth and full employment are much more beneficial to the poor than mere redistribution mechanisms.

Tobin (1970) provides a discourse on the issue of inequality. Some kinds of inequalities are inherited and even might be accepted by the society⁶. He terms equality in having basic necessities of life, shelter, health etc. as specific

egalitarianism as compared to generalised equality, which is in terms of purchasing power. Some argue that specific inequality should be tackled through attacking generalised inequality rather than direct redistribution (i.e. provide cash incomes rather than directly providing food, shelter etc. so that markets allocate these goods efficiently). Tobin however argued that when commodities such as food, shelter, etc., which are essential to life, are scarce and in fixed supply, non-market egalitarian distribution of such commodities without worrying about efficiency is sensible.

Cohen (1995 and 2001), Voorhoeve (2005), Dietsch (2005), Macleod (2005), Thomas (2005) etc. have written on the issue - which income inequalities can be justified as incentive payments? We shall pick up only two of them for discussion below: Dietsch (2005) and Macleod (2005). How to define "incentives", "just price", "normal payments" etc. are set aside from the discussion.

Dietsch (2005) concentrates on the Rawls' difference principle, which implies that "the talented" may receive a bonus to the extent that the so induced higher productivity can be deployed to the benefit of the worst off group in society. Any bonus or incentive payment is some extra income. Do the beneficiaries of the incentive payments have a right to keep the extra income? Dietsch first distinguishes between talents (generic and innate such as intelligence) and skills (developed by training etc.). Talents and skills both lead to determine comparative advantages (CA), which can be (only) conceptually decomposed as the exogenous CA based on talent and endogenous CA due to skill. Then he also distinguishes between income inequalities based on exogenous versus endogenous comparative advantages of workers. He argues that society has a stronger claim on the returns due to skills than those due to talents. Income inequalities based on exogenous comparative advantage are legitimate and those based endogenous comparative advantage unjust. There can of course be several opposite view points. Dietsch himself has pointed out some of them; for example in the case of bargaining situations such distinctions hardly matter. There is some justification in Dietsch' arguments. Particularly, when the state has to spend several crores of Rupees to set up colleges to impart skills and to train pilots, doctors, professors etc. the society can expect some returns from them and hence there is no justification for them to keep extra income with themselves. They are merely doing their duty for which no bonus is necessary. But arguments may be extended further. For example, if the doctors etc. know that they cannot keep the extra incomes, would they have first acquired such skills at all? Besides, sometimes some strange situations may also arise. For example, when airhostesses in airlines and office secretaries in offices put in some extra work, the handsome of them may retain the bonus payments more than the others even though all of them are equally efficient!

Dietsch (2005) avoids a more important issue in this connection, which Vickery raised way back in 1953. Vickery (1953) did not distinguish between talents and skills but distinguished between inequalities inherited (such as through

inheritance of fertile lands) and inequalities resulting from talents. It was mentioned earlier that Tobin considered that some societies might accept inherited inequalities. Vickery argues, "On ethical grounds it is hard to see why an individual who has inherited a high IQ or a green thumb is more entitled to preserve for himself, as a matter of moral right, a larger share of the product of that capability than the person who has inherited a particularly fertile piece of land. Economically, the two cases are different in that it is ordinarily possible to transfer some of the land of the A's to the B's, while it is not possible to transfer skills in this way." Thus Vickery takes into account transferability of the unequally distributed factor and argues that ethical notions misapplied can be seriously misleading. That implies, Vickery's ethical grounds could be different from those of Dietsch. Besides, this raises an issue - should one be concerned with equality in output sharing or inputs sharing? Even if the inputs were transferable and shared equally, would output equality be ensured? Arrow (1971) analyses the concept of equality in public expenditure through the utilitarian approach. Specifically the issue is whether equality of expenditures on different individuals produces equality of benefits to them, or it depends on personal characteristics of the individuals.

Macleod (2005) addressing the assessment of the degree to which the provision of economic incentives can result in justified inequalities, argues that economic inequalities can be justifiable if they are (a) compatible with human dignity, (b) generated via suitably non-arbitrary factors, and (c) suitably proportional to the non-arbitrary factors which legitimate them. He brings the bargaining situations into picture when there is some extra hard work is involved, thus leading to the issue of incentive payments. He distinguishes between compensatory incentive payments (CIP) accepted by "fair bargainers" and non-compensatory incentive payments (NCIP) demanded by "hard bargainers". He argues that economic inequalities resulting from the CIP are generally justifiable, while those resulting from the NCIP may be justifiable only in non-ideal circumstances. For example in the case of emergencies and exigencies (such as say taxi drivers demanding exorbitant fares on a bunnh day, or doctors demanding huge fee for attending during night times) pragmatism may lie in resorting to the NCIP, though the beneficiaries do not deserve such payments. Macleod considers such inequalities generated by NCIP as permissible though not justifiable. However in our view, existence of hard bargainers and NCIP in a society basically indicates imperfections in the market. Second, not always such emergencies and exigencies could be natural; they can even be created artificially - for instance, as in the case of food grains hoarding by private traders creating artificial scarcity. Third, the difference between NCIP and CIP may in fact be treated as corruption in the case of public servants (more discussion on corruption follows later). Fourth, existence of corruption in the public sector basically indicates that individuals in the society are either willing to make such payments due to their personal gains or they think that the CIP are not really

at justified levels. Finally, existence of corruption may also denote lack of human dignity. In passing let us also mention that India is one of the highly corrupt countries in the world.

This section concludes by drawing attention to two statements made by Vickery (1953). One is on Western economics, where "the satisfaction of the desires and preferences of individuals comes close to being considered a final value. In the more extreme form of this approach, the world is represented by a model in which each individual exists in an isolated cell connected with the rest of the community only through the exchange of goods and services." The other statement is, "... even the most individualistic economist is compelled to go beyond the mere preferences of each individual in society if he is to make any but the most restricted recommendations as to policy, either individual or social.... There is.... a need for determining when individual preferences can be properly overridden by other considerations." We have no major disagreement on this. Assuming that by Western economics Vickery had meant neoclassical economics, we consider it only as a limitation of the framework. However we do not see, how the problem of overriding individual preferences or personal values in favour of social values or social objectives such as equality gets resolved even in the heterodox economics. That the heterodox economics treats individual as socially embedded is only a half-truth, in our view. At the most, the individual is treated as social group-wise embedded rather than socially embedded in this framework. Society consisting of several groups, and social equality are however far different from groups, group interests and 'within group' equality. Then, the problem remains the same for the heterodox school also - that is, how to override group preferences in favour of social objectives? In the neoclassical framework, social considerations can at least be brought in as constraints in optimisation. We don't see even that possibility in the heterodox framework. Thus, we return to the point already made - that is, social issues cause the same analytical hurdles for both orthodox and heterodox frameworks.

III. Ethics of Governance

The issue of corruption brings ethics of governance and modelling the government into picture. The discussion below is confined to the issues of corruption and social costs, which are basically features relevant to the public servants and policy makers. How do theories and economic models account for them?

Corruption

If an autorickshaw driver demands extra payment on a bundh day, it cannot be deemed as corruption. But if a sub-registrar seeks extra payment for registering a sale deed even as a part of his duty, it is nothing but bribe & corruption. That is,

any extra payments made over and above the "normal" levels in the private sector are the result of imperfections in the market. But in the public sector the same phenomenon becomes corruption.

The cancer of corruption is so widespread in India that it has become shameful if one is not involved in a scam, or not caught by Lokayukta, or IT officials did not raid houses! The most important difficulty in modelling government arises from the fact that governments (ministers) and government officers (including IAS & IPS officers, sub-registrars, police, revenue officials, municipal administrators and even judges⁷ - for that matter which department is free of corruption in India?) are susceptible for corruption. While earnings from regular salaries form a deterministic component, corruption earnings are stochastic component, which is always more difficult to model. But the economic consequences of corruption in an economy are quite substantial that cannot be ignored. Narayana and Parikh (1999) discuss the 'corruption' issue at length elsewhere.

All said and done, corruption is a problem of personal choice of the ministers and governmental officers, whether to eat from others' pockets or not. As said above, existence of widespread corruption itself is an indication of lack of personal ethics everywhere. Ministers and other politicians are known for their statements expressing concern over the 'corruption'. But no government could really eradicate this malady. If the government is really interested in wiping out the problem, and unable to do anything on its own, it could seek suggestions from the public and institute rewards to the person(s) whoever could design foolproof mechanisms that ensure corruption-less modes of public transactions with the governmental service departments such as municipal, revenue, banks, police, electricity, registration offices. Information technology and intelligent youth can significantly help the nation in this context.

Social costs: Fence eating away the crop

But when such phenomena prevail not only at personal levels but also even legally at the levels of systems in the public sector, the issue may be seen another way: 'fence eating away the crop'. Government departments, which are supposed to protect the weak and vulnerable sections of the population, in fact, end up harassing these sections in unjustified way. Consequently, the public sector organisations become not welfare improving but actually welfare worsening. First we present below some commonly experienced examples to make the point clear and later theoretical interpretations follow.

Consider the Bangalore Metropolitan Transport Corporation (BMTCL). Whenever the oil prices rise, the fares are hiked up overnight. But whenever the oil prices fall (once in a while they do), the fares are not reduced. The inefficiency of this public organisation can be glaringly noticeable especially when it comes to

serving the suburban areas. The BMTC sells the monthly passes to regular commuters. But the suburban commuters spend enormous time at bus stops waiting for the buses that hardly maintain their timings. Usually we think that a policy to 'sell and run away' is unethical. In the case of the BMTC, the policy to 'sell the passes but don't run the buses' is absolutely unethical. There is an irony here. Usually the public sector is supposed to coexist with the private sector in a competitive spirit. There are also other arguments that the public sector need not coexist, but the public policy should be to encourage an efficient private sector. It is the latter argument that prevails in the case of the BMTC. This public organisation, with its own utter inefficiency and always remaining publicly un-trustable, indirectly encourages the private operators, who provide punctual transport services at cheaper rates⁸. Being familiar with the public transport systems (PTS) in metropolitan cities namely, Bangalore, Chennai, Hyderabad, Delhi, Kolkata and Mumbai, in our view, the most disappointing PTS is the BMTC. So much for the credibility of the BMTC!

Revenue generation is agreeably a task for the governance. But can it be at the cost of public convenience? Look at the Indian postal department. It is substantially more expensive to send a registered letter through the government post office, than by a private courier service. Again it is a case of governmental inefficiencies indirectly promoting the private operators.

Let us consider another case; that is the Indian Railways (IR) in recent times. Many praise the Railway Minister (RM) that he put the railways on profit making track without raising the passenger fares. But in our view, the whole nation was cheated. The IR suddenly announced that more than 200 express trains are made super-fast trains, travel by which requires additional payment in the name of surcharge. Millions of passengers frequently travel by these "super-fast" trains. Often the experience is, significant delays in actual train arrivals and departure timings. Thus, again it is a case of 'sell at higher prices but don't run fast' as promised, which is unethical. The unethical part is not only the indirectly increased fares (including that the return journey tickets now cost more than the forward journey costs) but also the following feature: in the process of converting them to super-fast trains, the duration of the stoppages at various railway stations seem to have been reduced (i.e. from 2 minutes to 1 minute at small stations and from 10 minutes to 8 minutes at bigger stations and so on). If one accounts for the time saved in this fashion, it may be found that not only the trains do not really run fast but they also serve the passengers less and less causing more and more inconvenience. For all these 'managerial skills' in running the IR, which are unethical, some elite academic institutions specially honored the RM, and even asked him to teach his techniques to the management graduates! So much for the ethics of Indian Railways!

The government hikes up the prices of cigarettes and tobacco products in every budget, and has banned smoking at the airports, in flights and trains on

health grounds (many nations even more concerned with health than India did not ban smoking at airports and in trains but provide separate chambers for smokers). This is a dishonest situation. The main aim of hiking up the prices is revenue generation, and not a concern for the health of the nation. If health is really the concern, then why does the government spend crores of Rupees every year on tobacco research (note that there is a public sector Central Tobacco Research Institute)? There are arguments that the increased tobacco production is meant for exports and not for domestic purpose. This argument is ethically even worse implying that our business partners' health is not our concern. So much for the hypocrisy on the concern for health!

If examples are required for lack of ethics in governance, India is a fertile place to find them easily. The lack of ethics at the departmental levels itself is nothing but 'fence eating away the crop'. In India, the treatment that any common (wo)man as an individual gets from the government officials as well as from the government departments is if anything horrific. The irony is that one is even supposed to pay service taxes for all the ill treatment (s)he receives wherever (s)he goes! In our view, the 'service taxes', 'professional taxes', etc. are nothing but legalised bribes demanded by the government. They are legalised, for the reason that all such organisations are mostly known for their financial losses and some revenue has to be generated in some form or the other such as these taxes. In reality, inefficiencies and lack of expertise lead to increased costs of running these organisations, usually ending up in making losses.

The arguments above do not however mean that the government departments should earn profits and drive away the private sector. According to Srinivasan (2002), whether public sector organisations make profits or loss, is not the issue. The issue is, is there any social rationale for the government to run these enterprises? If any public sector enterprise exists solely for the reasons of social rationale, the losses or profits made should be financed or utilised in a non-distortionary fashion. Srinivasan argues that even if it is profitable, but earns less than the social cost of capital, it should be privatised. In our view, many Indian public sector departments not only end up making huge financial losses, but also the social costs of capital they use are substantial. This makes them unethical fences eating away the crop.

Let us now return to the point raised in the beginning - i.e. why do individuals prefer market oriented systems? More and more people in the world are claiming their individual rights, thus resulting in the increased democratisation. Concurrently, if the public sector is unreliable, untrustworthy and unethical in delivering the goods and services to the satisfaction of the people, they end up preferring market oriented systems driven by the private sector. For, most people believe that the scope for claiming their rights on returns to the money they spend is larger in the case of private sector environment than in the case of public sector environment.

Modelling the government

The above issues point out the difficulties in modelling the government. Theoretically, modelling government in a centrally planned economy is relatively not a difficult job, compared to modelling it in a mixed economy such as India or pure capitalist economies such as West European countries. Mainstream economic modellers of late have recognised that (a) generally the share of public sector economic activities is quite substantial despite strong arguments to favour private sector, and (b) traditionally, presence of the public sector has been quite ignored in economic modelling.

The ultimate point is that while specific modelling of individuals' psychological actions, which have economic relevance, is important, it is equally important to model the economic consequences of governments' actions. Some theories of state and government do exist, where political philosophers seem to be far ahead of economic philosophers in this regard. Economic modelling of government yet remains quite complex a job, though any government is actually a collective body. To the best of our knowledge, neither heterodox nor orthodox group economists have achieved a significant breakthrough so far in this important regard.

IV. Summary and Conclusions

This paper has surveyed some of the controversial issues with regard to the treatment of the individual in economic theory, and discussed personal and social values, inequality and incentive payments. It has also discussed corruption and social costs as ethical aspects of governance. Drawing attention to the divide made between orthodox mainstream economics and heterodox economics, the paper argues that, 1. There is no evidence that individuals actually prefer non-market systems to market-systems to satisfy their demands, 2. There is no way to accept or reject the views expressed by either of the groups with regard to the usefulness of the mainstream economics, 3. Fiction-based argument cannot be a reason to dispose of the "representative individual", 4. Along with its significant contributions in various other areas, mainstream economics too with the aid of the "representative individual" has been increasingly concerned with adequate treatment of real individuals, 5. Methodologies such as aggregation over individuals etc. basically pose the same problems for both the schools of thought, 6. While heterogeneity in a social system prevails in several ways with the individual heterogeneity being just one feature, several other important kinds of heterogeneity remain ignored even in the heterodox school, 7. Individual idiosyncrasies may not be relevant for aggregative analysis, and wherever they are important such theories become case studies and special theories rather than general theories, 8. Modern techniques of

applied econometrics are quite relevant for the subject matter usually covered under the heterodox school, and easily applicable provided, right data are available. Further, the paper distinguishes between personal values and social values, and argues that, 9. When the social issues such as inequalities are to be analysed, neither framework may be adequate, and lastly, 10. Modelling 'government' behaviour is as much important as accounting for individual behaviours, an aspect that the mainstream is at least aware of.

Several other important achievements of mainstream economics (e.g. the two welfare theorems) have not been covered in our discussion. By no means the paper anyway presumes that the discussion here is complete and conclusive!

Notes

- ¹ Locke and Hume were not only philosophers, but also wrote on economic issues such as property rights, money, trade and balance of payments etc. See Blaug (1986).
- ² Hahn (1984) views that understanding events does not mean that we can predict them. Therefore it implies that mere understanding does not lead to theory formulations.
- ³ Quoted by Cairncross (1981).
- ⁴ The concept of 'Money' has been an enigma not only for economists but also to intellectuals in several fields. For a mathematician's interpretation of it as merely a social construct, see Davies' (2003) elegant and brief discussion.
- ⁵ On the authority of governments over individuals' rights and properties, see also Thoreau (1948).
- ⁶ Tobin meant, American Society.
- ⁷ In India, judges enjoying the luxury of court holidays and summer vacations while lakhs of cases remain unsettled for years and decades, is socially unethical in our view. We also think that court delays are indirectly responsible for growing rowdyism and goondaism in urban areas - for example, land grabbing cases.
- ⁸ Suburban commuters circulate stories that the private operators see that the public transport buses are not run on certain routes during certain times.

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Children's Working World through the Lens of Class*

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Abstract

In mainstream approaches, children's labour is either to be banned or is not recognised. As a result, their association with the process of wealth creation and its distribution is occluded. In this paper, taking a class-focused Marxian approach, we question and critique the premise of this supposition on children's working world. As against the received rendition of children's working world, we offer an alternative method of locating and analysing the relation of children with the process of wealth creation and its distribution. Rehabilitating the children as an economic actor in the class-focused terrain opens up new avenues to ask and offer questions including policy-related ones that have hitherto been put aside from the discussion on children's working world.

Introduction

Like all social actors, children work. Children work individually and in groups. In the working groups, a child sometimes works among the community of children and at other times he or she works alongside adults. However, much of the work children perform is not recognised as labour.

Children's working world could be divided into two components: child labour and child work (Nieuwenhuys 1994, 2005). First, let us take child labour. What, in fact, is recognised as labour comes under the rubric *child labour* (work in the public space for money) that, in turn, is now considered a crime against our present understanding of 'humanity' and consequently banned. What comes to the fore in theoretical and policy discussions are questions of rights such as "whether child labour should be allowed or not?" and not the ongoing processes relating to children's economic role in creating wealth and their association with the distribution of that wealth.

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The other component of the performance of labour often known as *child work* (work that is either not paid or monetised) is not the subject-object of the ban and is instead forgotten; it is forgotten to the extent that it is *not* considered labour, not in any economic sense; instead a moral connotation is given to *the processes* pertaining to *children's work and the relationships they help shape*. Child work is thus conceptually dislocated from the economic terrain into a moral space comprising of, say, parents and children, masters and apprentice/students, community/tradition and children, and so on. This de-values and displaces children's work such that it no longer appears as labour. While children do perform labour and do create wealth at a more concrete level, these do not get registered in the domain of the knowledge of the economic. Such child-work could materialise in the household, in the agricultural sector and in the so-called informal sector.

Whether as child labour or child work, the labour of children is either rendered illegal (the banning of child labour) or is not recognised (through a displacement of children's everyday work into the moral space). Consequently, children remain de-recognised as economic agents, a deeply troublesome event that Nieuwenhuys 1999[1994] brings out clearly for us to contend with.

In recent times, the received understanding of children's working world is increasingly under challenge. The focal point of this challenge is the growing realisation that children *do* create wealth and, the displacement of children's working world into either a 'banned space' or a 'moral space' in effect occults children's role in the economy and the role of children in the production and distribution of wealth (Nieuwenhuys 1999 [1994], 2000, 2005, Zelizer 2002, Cohen 2001, Lavallette 2000, Becker 1998, and Morrow 1996). There is now a felt need to produce a theoretical framework that lays down children's role in the economy within which the role of children in the process of wealth creation and distribution could be explicated upon.

In line with the above concern, this paper's singular goal is to offer a theoretical framework in order to make visible children's role in the economy. In doing so, we wish to *foreground* the aspect of exploitation of children that as we shall argue helps sustain and expand the (adult) economy seen, in the hegemonic rendition, as fundamentally structured around the centrality of capitalism. This is unlike other more mainstream renditions of children (say, by the World Bank, ILO, etc) that discuss the labour of children without any reference whatsoever to the modes of exploitation that children are subjected to and the fruits of which accrues to different segments of society at the expense of children. Unlike the tendency in these treatments to reduce children's labour to the plane of rights or even future growth, we are determined to pose and explore children's role and place as a labouring subject in its intimate relation with the processes of wealth creation, appropriation and distribution. Moreover, the prevailing modes of exploitation of children could

be attributed as one among many reasons for the often discussed marginalised state of children in society.

To pursue our proposed goal, we take recourse to a class-focused Marxist approach pioneered by Resnick and Wolff (1987) in order to theoretically flesh out children's roles in the economy that helps, in turn, to locate and explicate upon the diverse roles children play in the process of creating wealth. In doing so, we also highlight the deep-seated organisation of children's exploitation imbued in the process of wealth creation. We are thus able to posit children's role in the economy; we are able to posit children as economic actors without reducing them either to a culturally defined 'moral space' (that excludes the possibility of children's work; that thinks children must not work; that thinks it is immoral on our part if our children work¹) or a politically defined 'rights space' (where child labour need to be banned). Instead, we argue that such kinds of cultural and political processes help secure and sanction children's economic role in the creation of the wealth that is appropriated, distributed and received by the adults. Children are not simply exploited, but done so with moral impunity.

The trajectory of the paper is as follows. First, we describe the conventional discourse on children's working world and point to its contradictions and limitations, especially regarding the occulting of children's role in the economy achieved through a displacement of children's work into the moral space. Second, to make the children's economy 'visible', we invoke a class-focused Marxist approach which makes it possible to locate and explain children's roles in the economy and especially in the creation of economic wealth without any kind of moral covering. Third, given this class focused economy, we describe the various settings in which the children are economically exploited and marginalised. In doing so, we show how the conventional rendition of children's working world that works with a moral covering is complicit in facilitating the process of economic exploitation and marginalisation. Finally, we discuss why and how class effects should be accounted for in the struggle concerning children's issue, if we remain committed to a fair and just society.

Disinterring the Children's Working World

Children have always worked; they have worked in their capacity as slaves, apprentices, labour rentals or lease, domestic servants, fostered children and workers. They continue to work as wage labourers in industry, agriculture, informal sector, household, temple, brothel, and so on. (see Stella 2000, Lavalette 2000 and Garet 2000).

We find children's working world breaking into two. First, the aspect of child labour in the public space working for money wage convention attests that such activities will procreate poverty in the long run and harm economic growth. Hence child labour destroys potential value.

Second, the moment of children's work within the household and 'traditional' sectors that is rendered value-less by virtue of their belonging to a pre-supposed 'familial-non modern' space that in turn is already de-valued in terms of (i) a modern capitalist economy that positions wage labour at the centre of its conception and (ii) by the socially constructed process of 'gender-seniority' that de-franchises 'household' work as feminine which in turn makes household work, including those performed by children, as non-economic or less valuable.

Yet a question haunts us. How did we arrive at such a conceptualisation of children's working world? In the following discussion, we contend that the two different yet related perspectives of capitalo-centrism and andro-centrism had played a central role in the evolution of the received conception of children's working world.

◆ *Capitalo-centrism and Children's working world*

Work in the *public space* has come to dominate the modernist conception of labour. This understanding of labour came to be seen as an indelible marker of a particular understanding of economy where wage labour is employed and produced goods and services are distributed through the market. This economy procreating in the public space came to symbolise capitalism. The economy, capitalism and public space got rolled over into one to form the meaning of a modern, real, economic space (see Chakrabarti, Cullenberg and Dhar 2007a for details). The rest of the economy including the private economy (inclusive of the household) and the so-called traditional 'third world' economy (inclusive of the family-based peasant agricultural economy) came to be defined as also judged in terms of or in relation to the modern capitalist economy. In this view, the non-capitalist economic organisations are either the same as, a complement to, the opposite of, or contained within capitalism. This way of looking at the economy from the presumed centrality of capitalism has been defined as capitalo-centrism (Gibson-Graham 1996). Resulting from such a capitalo-centric perspective, the non-capitalist economic structures (including economic organisations consisting of unpaid labour or labour remunerated in kind) are immediately subordinated in relation to capitalist organisations. Given this hierarchical relationship in which the centrality of capitalism is a pre-supposition, the private and the traditional ('third world') sectors that are overwhelmingly non-capitalist in nature came to be judged as rather valueless, that is, as not the site in which the maximum of wealth is created, not the site in which economic history is produced.²

With the economically valued public sphere that includes the labour market which is also considered the naturalised domain of the seniors (more specifically, the domain of the male) and with children conceived as the natural occupants of an economically de-valued private sphere, children working in the public space comes to be seen as an aberration; in turn, the category of 'child labour' as the 'illegitimate'

worker of the economy is produced. In recent times, a certain economic argument has supplemented this position.

Child labour is clearly detrimental to individual children, preventing them from enjoying their childhood, hampering their development and sometimes causing lifelong physical or psychological damage; it is also detrimental to families, to communities and to society as a whole. As both a result and cause of poverty, child labour perpetuates disadvantage and social exclusion. It undermines national development by keeping children out of school, preventing them from gaining the education and skills that would enable them as adults to contribute to economic growth and prosperity. (ILO 2002a:1)

Along with the World Bank, the ILO would consider child labour in the public space (as against children going to school) as detrimental to children's enjoyment of childhood (by foregoing the enjoyment of the value of leisure), as sustaining long run poverty (by foregoing the opportunity of higher income from education) and as hampering economic growth (by reducing potential productivity growth which would have been possible with an educated work force).

In this view, if our goal is growth of the economy in the long run, children should be 'prepared' to be a more productive future worker in the modern economy. Along with the pre-constituted domain of the public space as belonging to the seniors (principally, male), the general consensus that emerges from all these explanations is that child labour is illegitimate and harmful for the growth of the modern economy, and should be banned. In most countries including India, if old laws of child labour are seen as insufficient, new and more stringent laws are enacted though all such laws and their changes are contemplated within the paradigmatic form telescoping the World Bank and ILO position.

What is important in the discussion on children's working world is not the concrete reality in which child labour, that is, labour in the public space, is common but rather the discourse concerning child labour that gave shape to a specific knowledge of the economy which, in turn, debar the presence of child labour working for wage. The discourse of the child within the economy sets up the concept of child labour in order to ban it.

Despite being banned almost universally, there are now evidences that the violation of the ban on child labour is, at best, tolerated and at times even encouraged (see, for example, Ramanathan 2000 for the Indian experience on this). Morice (2000) makes the pertinent point that violation of the law regarding child labour discredits the law itself. The repeated nature of the violation makes society immune to the moment of violation; which reiterates, in turn, the possibility of accepting the moment of violation of the law as the rule rather than the exception.

So while we are called upon to abhor child labour, its presence is in fact tolerated by society. Thus the toleration of child labour goes on concomitantly with an effort at the level of knowledge and law to exorcise it.

Child labour emerges as a sign of abnormality and its conceptual strength lies in the very sense of illegality and illegitimacy it imparts to that phenomenon. Through the conceptual elaboration of child labour, through a certain incitement to discourse on child labour, one engages, in turn, in a discussion on abnormality, illegality and so on. This reiteration of the discourse of child labour takes attention away from the concrete economy in which child labour is always already present. The focus switches to either the cause of child labour (for example, 'third world' structure, poverty, delinquency, lack of education and so on) or on the appropriate punishment for the enterprises employing child labour including those related to internationally traded goods and services. What is consequently excluded from the discussion is the role played by children in the wealth creating process and hence in the growth of the economy.

Indeed, we go further and argue that the 'economic' justifications given for this rendition of child labour are moot. Take first the relation of child labour with poverty. As Nieuwenhuys (2005) argues, in case of the Western countries, the dramatic fall in child labour was made possible with a massive investment on education (especially, primary education) by the 'welfare' state that continued for decades. In this age of the neo-liberal economic regime marked by a severe control of state expenditure as part of its attack on the 'welfare state', what remains unanswered is how the conditions of existence needed to be in place to release the children from the burden of work in the public space is to be guaranteed for southern countries. Food subsidies, free education and health provisions that have to be guaranteed to poor households in order to ensure the release of children from their workspace were either never present or, when prevalent, are now under pressure from tight budget constraints and/or changed priorities. Given that the state is less inclined to tax profit and high-income groups even as it is determined to tighten its revenue deficit, the amount needed for such expenditures cannot but be under pressure. Therefore, the policy position of banning child labour in order to send the children to school and the stated policy position of cutting back on state expenditures as part of the neo-liberal regime are contradictory. Given that the latter currently comprises the dominant policy objective, unless researches have sufficient growth, state revenue generation takes place and priorities shift, shown that the structural adjustment program of cutting back on state expenditures could increase child labour (especially in countries with hitherto strong state investment in poor households) even when countries hold on to the stated position of condemning child labour. For instance, Verlet (2000) describes how the structural adjustment program adopted by Ghana in 1983 produced livelihood crisis in households of a

kind which forced generations of children to become enslaved as child labour. Some of these children ended up working in both public and private spaces while others had to shift their work schedule completely from the private space to become a full-time child labourer. Given that one policy objective (the neo-liberal one that drastically constricts the role of the state) is more dominant than the other (the one based on funding children's projected needs, which has to be state sponsored), the poverty argument for banning child labour finds itself, to put it mildly, in great difficulty.

Next, take the growth argument. The growth argument presumes that productivity of child labourers will be low, confirming the thesis that child labour is inimical to growth. However, the question of productivity is pertinent for jobs in which the children can be substituted by the adult with productivity effect; with this substitution, productivity will increase. This is especially true for those jobs requiring a certain skill that can be acquired through education and training. However, in cases where the children can be substituted without productivity losses, the employment of children is beneficial for enterprises and is growth-enhancing. It is to be noted that the market wage rate for children in such cases would in all probability be lower than what could be the case for an adult since by consideration of seniority (about which we will refer to later on) the market's determination of children's wage will remain low. Given that there are no productivity losses and due to the low wage of child labourers, it is all too logical for enterprises to create wealth by employing children. Moreover, because the child is unguarded (courtesy the illegality of child labour that renders discussion of children's performance of labour illegal), often, the children are made to work for longer 'unrecorded' hours that only increases the rate of their exploitation, enabling the employers to extract more wealth than they would otherwise do. Indeed, many of the enterprises exist and expand in the particular manner that they do because there is illegitimate child labour which can be accessed with considerable impunity. Child labour in this instance is growth-enhancing rather than growth-impeding. It is no surprise then that the call to ban child labour is not really emanating from the capitalists and other employers of labour who stand to gain most with the usage of child labour and, that too, in a scenario of its illegality.

If condemnation of child labour because it helps sustain long run poverty and impedes long run growth is problematic, then the only solid defence for banning child labour remains the 'rights' discourse which is basically the moral position that children ought not to work in the public domain; it is the realm of the 'adult male'; and work within 'adult male' domain would deprive the children of the joy of childhood. However, a question nags us: does enjoying childhood mean that children do not work?

While policy makers and 'rights' activists are universally united in their condemnation of child labour and in the need for banning child labour, they are not

for banning all kinds of labour of children; they are not for ban when labour is performed under the guardian. More specifically, they consider child work, that is, labour performed under the aegis of the parents or seniors, to be non-economic in nature and hence legitimate. Regarding this, the positions of both the ILO and the World Bank are stunningly similar. To begin with, the World Bank says:

Not all child labour is harmful. Many working children are within a stable and nurturing environment with their parents or under the protection of a guardian and can benefit in terms of socialisation and from informal education and training... (World Bank in Nieuwenhuys 2005).

ILO, on the other hand, has no problem with children's work involving

...activities such as helping their parents care for the home and family, assisting in a family business or earning pocket money outside of school hours and during school days (ILO 2002b; 15)

Even as these agencies would recommend the banning of child labour, they would render children's work under the guardian and within the perimeters of the home (or, as an extension, even the school workshop) non-economic (as if it was *not* labour). But a question persists: what justifies the labour of children under the cover of family as non-economic and the labour of children in the public space as economic, albeit an illegitimate economic activity? Which perception produces this devaluation of children's labour within the home? Which perception helps occult the equally apparent economic activities of children into non-economic nothingness? This takes us to the second point of our discussion, that on the conception of the child and its position in society which, as we argue, remains constituted by processes of 'gender-seniority' producing in turn the moral space of family and guardianship. When the question of the labour of the child impinges upon this moral space, child work loses its economic expression and gets fundamentally displaced into nowhere; it is like forgetting the fact that children do work at home, at least in economically disadvantaged households; it is like *backgrounding* of the labour of children in the private sphere through a *foregrounding* the labour of children in the public sphere.

◆ *Androcentrism and Children's Working World*

As with labour, the concept of child, too, underwent a radical displacement with the advent of western-styled capitalist modernity. This has to do with a culturally-produced meaning of what it is to be a 'child'; a meaning that became inalienably tied to meanings of 'gender' (meaning of 'man' and 'woman') and 'seniority' (meaning of 'adult' and 'child'). The meaning of 'gender' and 'seniority' was in turn tied to the

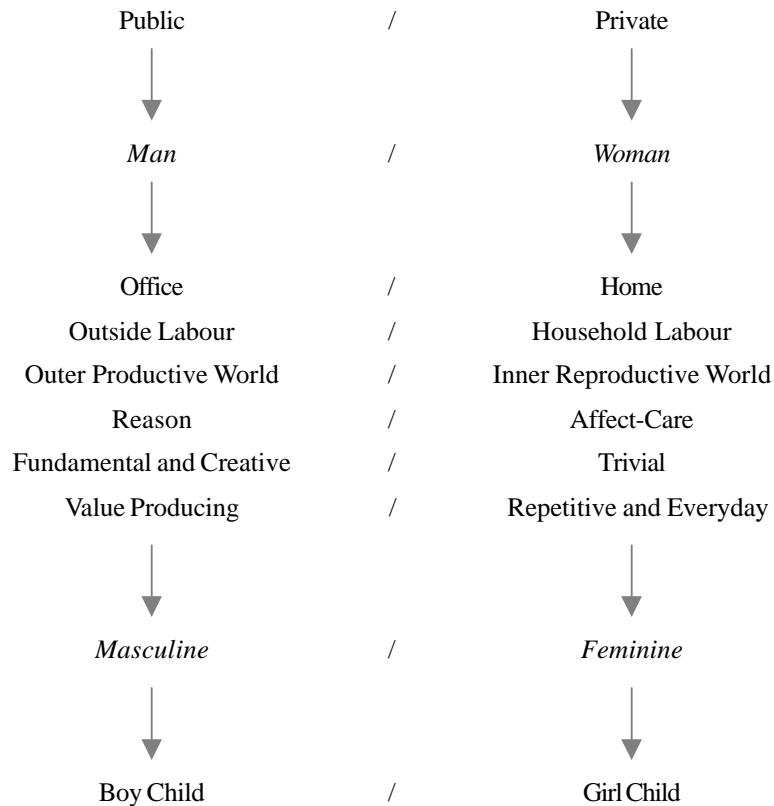
meaning of 'family-household'. This requires elaboration.

From 'radical feminist' discourses, we now know that the division between the meaning of 'man' and 'woman' is part of a broader androcentric (i.e. man-centric) understanding of gendering-sexualisation as also wor(l)ding that takes man as the centre to set up in turn the relation between the biological male and female. One of the divides or perhaps binaries more relevant to this paper that derives from an androcentric worldview is the strict 'public-private' divide. The production of spatial binaries is premised on the rather sedimented and secure belief that the domain of the public belongs exclusively to the man and the domain of the private belongs exclusively to the woman, such that public and man on the one hand and private and woman on the other form the two opposing arms of the binary.

The sedimentation of this conceptual opposition between the public and the private comes with the simultaneous over-valuation of the public domain - the public domain as fundamental, as one of *reason*, in sharp contradistinction to the private domain - the private as secondary, as one of mere affect, as the space of woman as also of the womanly, the private as the more inconsequential, the non-substantial space. The capitalo-centric vision of the economy that enables a public-private division concerning labour merges with this public-private division flowing from an androcentric worldview to produce what one could provisionally call a 'sex-gender economic system', where one has in mind the *economy of the sex-gender system*³ as also the *sex-gender of the economy*; one has in mind the *sexual economy of political economy* and the *political economy of a sexual economy*; one has in mind 'sex-gender-labour processes'. The 'sex-gender economic system' in general and the 'sex-gender-labour processes' in particular are fundamentally pertinent for understanding children's assigned position in the economy.

The association-identification of man with the public and woman with the private was conjoined with the concomitant construction of their respective representative set of images - images that in turn produce and fix the conceptions of masculine and the feminine. The image of woman came to be known by what was feminine; the image of the feminine came to be known by what woman was. Even while the images change from time to time, what does not change is the need to understand the woman and the feminine as the dependent, lacking, or even equal 'other' of the man and the masculine. This manner of viewing or perhaps conceiving-conceptualising the 'sex-gender economic system' in terms of the binary of the *ideal* (man-masculine) and the lacking/dependent/equal ideal (woman-feminine) worked in case of boy child and girl child as well. This fixes the specific types of labour that females and males are ideally seen as embodying in their capacity as adult workers, which, in turn, has a telling effect on the types of work that children, by virtue of their sex, performed. The sexual division of labour is thus a lingering process that materialises through childhood into adulthood. The division of the

world into a *gendered two* can be represented somewhat like this (the representation is a little straight; it is only to make sense of the dualisms that are at work):



Thus, as part of the overall discourse of androcentrism producing the duality of masculinity (as ideal) and femininity (as the lacking other), the girl child's labour is considered differently, and as inferior to that of the boy and, the adult female subordinate to that of the male. Sexual division of labour in so far as it fixes the types of labour performance produces a complex network of relationships between children and parents, between boy child-girl child and mother, between the boy child and girl child, and between the girl child-boy child-mother and the male member. Any attempt to understand the household including its economy must remain sensitive to these relationships and the contradictions, conflicts and struggles they harbour.

Furthermore, the 'sex-gender system' is in an inalienable relation with another system - the system of valuing seniority. Seniority represents the aspect of age hierarchy and is a "system...in which those in junior positions are unable to

achieve full social status in their own right" (Elson 1982: 491). Elson argues that children's work becomes inferior because children as juniors perform it and not because the job is inferior. Consequently, due to the marginalisation of children by the logic of seniority, children's work is rendered valueless or less valuable than adult work. Moreover, age - childhood and seniority - is also not given but socially constructed, and its construction could differ depending upon the sexes. One thus can have a *gendering of age hierarchy*.

For a girl, it may not be necessary to attain a certain physical maturity to be encouraged to be self-sufficient in her daily routine or to take on domestic responsibility...her training as a 'good' woman and the inculcation of feminine roles, may deliberately be stepped up even before she reaches the threshold of puberty. For marriage, sexual maturity may even be irrelevant...A boy's adulthood may, by contrast, be postponed for many years after he has become sexually mature, as is common practice with trainees in artisanal communities...This does not imply that a boy has therefore less power and influence than a girl of the same age, only that he is preparing to a higher position and that it will take him more time to reach there. The implications of the differential duration of childhood for boys and girls for the perception of what kind of work may be suitable to a child of either sex, are far reaching. Work undertaken by girls is often not perceived as child work for the simple reason that girls' childhood is so short. (Nieuwenhuys 1999 [1994], 24-25)

Thus processes pertaining to sex-gender, labour and seniority fix the type and status of children's work. Gender processes help determine the type of work and rank them (boys' work as different and superior to that of girls') while processes related to seniority makes children's work inferior to that of the adults. This means that layers of ranking and order fracture the labouring subject. By the constitutive relation between seniority and gender, the work performed by the girl child is subordinated to that of the boy child, the child to that of the mother or adult female, and the mother or adult female to that of the father or adult male in rank order. Layers of relation connecting economic work to processes of gender-seniority help shape a hierarchy of marginalised existences - from girl child as the most marginalised to boy child to woman. Once fixed and rendered legitimate, this cycle determines the type and status of work between the sexes and between the children and their parents from generation to generation. These economic practices, through their very doings, solidify the given meanings producing considerable effects not only on the sites where they materialise (such as household) but in other places (including the public domain) as well. Meanings relating to the type and status of work between

the sexes start acquiring a social dimension fixing the division between the permissible and impermissible whose effects are felt beyond the private perimeter of households.

Within such a setting, children are seen as an integral part and a responsibility of the parents and this minority status of the children give parents the right to decide on behalf of children how they will work, where they will work and under whom they will work. The sex-gender processes working along with the seniority based hierarchy perpetuates the occlusion of any discussion on children's work in the sphere of economic analysis. Even when children are seen as working outside the household, by virtue of the parent-child social contract such work comes to be seen from within the compass of this contract. Consequently, in the context of work taking place within and in terms of the parent-child contract, what gets demoted is any discussion on children's role in the creation of wealth and the economic exploitation they are subjected to as a result of wealth-creating economic activity.

Indeed, as children's working world zooms into the private space, the meaning of exploitation is unmoored from its economic connotation and gets situated in the parent-children paradigm. Labour and consequently exploitation in the economic sense disappears from the lexicon of child development and growth, and discussion on children including that on their work boils down to aspects like responsibility-obligation, care-duties, love-emotion and so on. The parents are supposed to show responsibility, care and love towards the children while the children must meet their obligation, fulfil their duties and have emotional attachments towards their parents. Children's work is thus not really labour in the sense of producing wealth but comes to be seen as part of a reciprocal obligation, that help keep the seemingly naturalised parent/senior-children moral paradigm in order and provide stability to the society at large. What disappears in the process is the economic role of children as creators of wealth and also the conceptual existence of private space as a contesting and conflicting economic reality within which the children work. Instead the private space we get is a moral space inhabited as if exclusively by responsibility-obligation, care-duties, love-emotion that thereby displaces, even occults, children's work and economic role in the context of the family, whether that be household labour or family-based peasant farming. The result is that children are exploited and marginalised; without any reference to such exploitation or marginalisation.

The knowledge created over 'child' and 'labour' which is a consequence of the overdetermined logic of capitalocentrism and androcentrism produced, in turn, a discourse of children's working world which got divided into 'child labour' as labour in the public space and 'child work' as labour taking place under the rubric of family or, by extension, under the cover and tutelage of the seniors; of which, 'child labour as labour in the public space' is rendered impermissible.

In this context, we agree with Nieuwenhuys's [1999(1994)] claim that the rather overwhelming nature of the moral paradigm which neutralises and occults-occludes the economic content of children's work is preposterous. This moral paradigm can be seen as masking the processes of exploitation and marginalisation of children and as excluding the topic and role of children from any discussion regarding the wealth they help create. However, Nieuwenhuys also suggests and correctly so that rejecting the moral space of 'family' with reference to child work requires that we need to look for ways to provide legitimate alternatives to conceptualise children's working world as economic work. This requires an alternative cartography of the economy that through its very process of re-constructing and re-conceptualising the children's economy would contest the received understanding of children's working world. By producing such a setting, we intend to conceptually unsettle all institutional sites in which children participate - family, school, community, religious places, enterprise and so on - and open them to the possible presence of economic exploitation, oppression, conflicts, and struggles that flow from the process of wealth creation and distribution. This is exactly what the class-focused economy in general and the class focused de-centered and disaggregated children's economy in particular offers.

The Class-Focused Approach and the Children's Economy

Taking off from Resnick and Wolff (1987), we offer a class-focused Marxian approach founded on the organisation of surplus labour as a terrain that helps produce a children's economy in which the rather skewed difference between the so-called valued work and non-valued work of children that is concomitant with the public-private division is abandoned. Our focus is to relate the processes of wealth creation, appropriation, distribution and receipt with the performance of children's labour which is exactly what the economic cartography opened up by the class-focused approach has to offer.

In the class-focused approach, class is defined as processes of performance, appropriation, distribution and receipt of surplus labour. Let us explicate. We begin with the labour process in which the total labour time exerted by the direct producers in the process of creating goods and services can be divided into necessary labour and surplus labour. Necessary labour comprises of the performance or 'doing' that pays off (in money or kind) for the socially determined basket of goods and services needed to sustain the worker or the direct producer. *Performance* of labour beyond necessary labour is called surplus labour.

In certain instances, surplus labour takes the form of surplus product if a product as use value is directly consumed without being exchanged, as is the case within household. In such cases, the use value (say, cooked food inside household) does not acquire a commodity form; the necessary labour equivalent goes to the

direct producer of the use value while the extra portion of use value (that does not go to the direct producer) represents the quantum of surplus labour that materialises as surplus product. One can, for example, have a situation where the surplus labour performed for creating food by, say, the housewife and children, takes the form of surplus produce, which could be appropriated through consumption by the non-labouring husband. This appropriated amount is beyond the food produce that housewife and children are allowed to keep for themselves (again through consumption) as their necessary labour equivalent. Consequently, the total produce created by the direct performers (in our example, the housewife and children) gets divided into the necessary labour equivalent of the produce accruing to direct producers (in our example, what the housewife and children consume) and surplus labour equivalent of the produce or what is the same as surplus product (in our example, the portion the male member appropriates through consumption).

At other times, surplus labour needs to be expressed in a situation when the use values are sold for a price, that is, the goods and services produced by the direct producers take a commodity form. Embedded in any commodity are *three forms of value* that, by definition, is a quantum of socially necessary abstract labour time (SNALT) - value of the means of production (the embodied SNALT that is simply passed on to the production of the new commodity), value of the labour power (the necessary labour equivalent of SNALT needed to reproduce the direct producer/worker) and surplus value (the surplus labour equivalent of SNALT) (Roberts 1987, 1996; Chakrabarti, Cullenberg and Dhar 2007a, Ch 2). While money payment to the value of means of production takes the form of constant capital, the money payment for the value of labour power is expressed as money wage and surplus value when expressed in money form is defined as capital. Thus surplus value (the embodiment of SNALT) or capital (the quantum of money also measured by SNALT) is only an expression of surplus labour.

Both surplus value (expressed as money) and surplus produce (expressed as use value) are measured in labour time (as SNALT) reflecting diverse appearances of surplus labour under varied social settings. Whether as surplus produce or surplus value, surplus labour is *appropriated* by some entity and *distributed* by the same. A question persists: if necessary labour equivalent of goods and services are accounted for in either use value form (as products) or money form (as wage) why should surplus labour be performed in the first place?

Surplus labour is needed to pay off those processes that provide the conditions of existence for the processes of performance and appropriation of surplus labour and, indeed, for the labour process as a whole. This means that the appropriators of surplus do not necessarily get to keep the whole of produced surplus all to himself; they might also have to distribute the surplus to those agents who activate processes that secure the processes of performance and appropriation

of surplus. It is to be noted that the set of conditions of existence within households or peasant family agriculture would not be similar to those needed to support a capitalist enterprise. As an example of condition providers, in the case of capitalist enterprise or typically any enterprise located in the public sphere, surplus value has to be distributed to those who activate the process of advancing loans (for which the moneylender/bank receive a payment), the process of realisation of the sale of produce (for which the merchants receive a payment), the process of land credit (for which the landlord or state receives a payment), the process of advancing money capital against ownership (for which the shareholders receive payments), the process of supervising the labour process (against which the managers receive a wage payment), the process of legalising the 'business' and getting police and administrative protection for running the 'business' (against which payments are made to the state) and so on. Such distributions and receipts of surplus labour makes possible the processes of performance and appropriation of surplus labour; each brings the other into existence.

The worth of surplus labour in money (as surplus value) or kind (as surplus produce) is the discretionary wealth of society available to be appropriated, distributed and received after having, first, deducted the payments of the direct producers of the wealth in the form of wages (again in money or kind), which, by definition, is the necessary labour equivalent and, second, the payments on account of the purchase of the means of production.

Summing up our analysis, we contend that there are four processes that are of interest to us - processes of *performance*, *appropriation*, *distribution* and *receipt* of surplus labour. These processes of surplus labour are defined as *class*.⁴ For convenience sake, class process is divided into fundamental class process (processes of performance and appropriation of surplus labour) and subsumed class process (distribution and receipt of surplus labour). The class-focused Marxist theory says that the Fundamental Class Process (FCP) is in a constitutive relation with Subsumed Class Processes (SCP) and non-class processes (the market exchange that takes place, the gender and caste meanings that are produced from processes pertaining to sex and race and so on).

The above-mentioned way of conceptualising the relation between the various kinds of class processes and between class and non-class processes is a component of the broader logic of overdetermination which says that no process occurs alone. Rather, every process is constituted (literally brought into existence) by other processes and a site is then defined as a cluster of processes that congregate in that site. With our focus on class process, we define *class enterprise* as a conceptual site comprising an overdetermined cluster of class and non-class processes. These non-class processes would include processes pertaining to market, gender, caste, religion, seniority, and so on. By virtue of being constituted by a web

of non-class and even non-economic processes, a class enterprise is a social institution.

In this context, *class struggle* is fundamentally not a struggle between two homogenous groups of people but rather a struggle *over* class processes; that is, over the existence, size, manner and form of performance, appropriation, distribution and receipt of surplus labour transpiring between socially contingent actors. Class struggles can potentially occur in industry, agriculture, informal sector, household, university, brothels, and indeed in any place where class processes materialise. Whether those who struggle over aspects of class processes are aware or unaware of these struggles as class struggles do not change the fact that their intervention produces effects on the class processes and therefore these are class struggles.

Regarding who appropriates the surplus, Marxists ask whether the direct producers of surplus, that is, those who exert surplus labour, are the ones who appropriate the fruits of surplus labour. Marxist theory uses the category of appropriation to differentiate the various forms of surplus labour in any institutional setting:

The essential difference between the various economic forms of society, between, for instance, a society based on slave labour, and one based on wage-labour, lies only in the mode in which this surplus labour is in each case extracted from the actual producer, the labourer. (Marx 1954/1867, p. 217)

There are then three possibilities. The process of appropriation can be exploitative if the direct producers who perform surplus labour are excluded from the process of appropriation of surplus labour. Instead, non-performers appropriate the fruits of surplus labour. The mode of appropriation is non-exploitative if the direct producers are not excluded from the process of appropriation; instead, they share in the process of appropriation of the proceeds of surplus labour. Finally, the process of appropriation is self-appropriating if both the performance and appropriation of surplus labour is done individually.

In any society, all these different organisations of performance and appropriation of surplus labour - exploitative, non-exploitative and self-appropriative - would co-exist in specific relations with a variety of subsumed class processes (that is, the different processes of distribution and receipt of surplus labour) and other non-class processes giving shape to the diverse institutional forms of the enterprises. Class enterprises with exploitative class processes are capitalist, feudal, slave and CA-type communitic class structures.⁵ Non-exploitative processes inflect communist class enterprises and the AC type communitic class enterprises.⁶ Enterprises with self-appropriating class processes are defined as independent class enterprises.⁷

The class-focused rendition of the economy would comprise of a specific *configuration* of class enterprises, that is, configuration of class and related non-class processes containing a complex array of overdetermined set of activities, practices and social relationships. This configuration of class enterprises and their evolution are specific to a particular socio-historical setting. Not only is the class-focused economy not a homogenous space, the very concept of an economy as such, existing somehow independently from the rest of the society, with its own independent 'economic' logic, cannot be sustained in *this* Marxist theory. What, when, where and how we produce, distribute and consume are not simply matters of economy but are grossly constituted by processes related to power (authority-hierarchy), culture (meaning) and nature. Consequently, by virtue of the fact that the economy cannot be reduced to any one type of class type such as capitalist or feudal, the economy is de-centered. Moreover, because each class enterprise is uniquely constituted by a specific combination of class and non-class processes, no one enterprise can be reduced to another. That is, not only are enterprises different in types but also in forms. For example, one capitalist enterprise is distinct from another capitalist enterprise. This non-reductive nature of enterprise means that the economy is not only de-centered but also inherently heterogeneous.

Given the decentred and heterogeneous economy, Marxian theory is however critical of certain kinds of social existence. In the context of children's working world, what Marxists describe as unethical and unjust moments associated with exploitation becomes especially relevant. Exploitation is relevant to children because it represents the quite common situation whereby the performers of surplus labour (here, the children) are *excluded* from the process of appropriation by the adults who appropriate the surplus. Marxian exploitation thus captures the economic event in which the wealth produced by the direct producer, here the children, are appropriated by the exploiting adults (who could be the capitalist in capitalist enterprise, feudal lord in feudal enterprise, master in case of slave enterprise or the 'head' of the family' in case of CA communitic enterprise). Exploitation (of children) can take place within the household (that is, the private space) where no money wage is paid or outside the perimeter of home-household (the public space) where money wage is paid. Marxists find exploitation *unethical* because it involves the theft of labour (children's labour in the context of this paper), really an act of looting (by adults in the context of this paper) without any recognition of doing so.

Moreover, exploitation is important because those who appropriate the surplus also distribute it. For example, under capitalist enterprise, exploitation entails that those who appropriate the surplus value are (productive) capitalists, either as individual appropriator (as owner operator) or as a group, such as partners in (limited and general) partnerships and the board of directors in modern corporations. This means that the initial right to distribute the surplus value lies in the hands of a

few productive capitalists. Since such decisions are going to reflect the interest of a few and not that of the broader community, the connection of appropriators/exploiters with the broader community becomes tenuous, and as such their decisions do not immediately reflect the aspirations of the broader community. Exploitation is *unjust* because it divorces the right to decision of the broader community including the direct producers from the question of distribution (of wealth qua surplus) and subsequently makes distribution with its widespread social impact greatly a matter of decisions of a few. In case of exploitation within household, it could be single member, say, the male member, or a few members (say, the parents) who excludes others including children from the process of distribution of the wealth created inside it. Exploitation, no matter where (in public or private space) and how they occur (in hostile or loving working environments), puts in a nutshell the element of exclusion pertaining to the appropriation and distribution of wealth.

Against exploitative arrangements, Marxists defend collective appropriation as in case of, say, communist class structure that describes a scenario where the direct producers and maybe even a broader community of people not excluding the direct producers share in the process of appropriation. To answer the question of *why collective appropriation*, we will first turn it around and ask *why not?* If one rejects collective appropriation, one also rejects the right of individuals to participate on an equal footing in making decisions concerning issues that are of central importance to their lives and that affect the better part of their waking hours. The standard answers given to deny such participation are either based on *property ownership* or *guardianship*. While the entire set of arguments regarding the defence of collective appropriation are argued for in Cullenberg (1992, 1998), we remain interested in the defence of exploitation based on the premise of *guardianship* as dealt in Cullenberg.

Guardianship can legitimately be put forward as a reason for nonparticipation in governing, as with children in a household. Dahl (1989) confronts this argument against democratic participation by arguing that collective associations should be governed democratically and that the justification for this claim goes back to the claim for *intrinsic equality*. Dahl defines intrinsic equality, following Locke, to be the "fundamental belief that at least on matters of requiring collective decisions . . . all persons . . . are, or ought to be considered, equal in some important sense" (1989, 85). Dahl anticipates an immediate objection to the claim for intrinsic equality, namely, why should we suppose that all members of an association are equally capable of participation in collective decision-making? What about women, children, the lower caste, the mentally disabled or the "ignorant" workers? Perhaps collective decisions should be made by guardians, the upper caste, patriarchs, despots, or capitalists in the best interests of their subject. In order to counter this argument, Dahl argues for the *strong principle of equality*: "If the good or interests of everyone should be weighed equally, and if each . . . person is in general the best

judge of his or her good or interest, then every . . . member of an association is sufficiently well-qualified, taken all around, to participate in making binding collective decisions that affect his or her good or interest" (ibid., 105). Dahl, thereby, squarely places the argument against collective appropriation on the shoulders of those who think that workers or members of a household are incapable of making decisions affecting their own best interests or welfare.

We take Dahl's *strong principle of equality* as a compelling argument for some form of democratic decision-making in a variety of associations and organisations. But what about economic organisations, such as those involving the children, where a case could be made that not all members specifically children are equally informed and skilled to make decisions on the allocation of resources, techniques of production, investment, financial management, and any number of other specialised and highly skilled decisions? That is to say, just as perhaps the most persuasive argument against democracy has been that citizens are not always competent to make 'informed decisions', many more would argue that workers including child workers are not in general qualified to participate in collective decisions at their place of work. The strong principle of equality, however, does not imply that all members be competent with respect to all matters, as members can delegate responsibility for various activities. All that is required is that, all members participate in deciding on the appropriation of surplus and its allocation. The collective may decide to delegate most allocative, financial, or production decisions to highly-skilled managers or parents/seniors, who then might insist on an authoritarian workplace structure, the subcontracting out of some production, the lowering of wages or highly-leveraged financing as a competitive strategy, or whatever may be deemed necessary. Again, the point is that the delegation of such decisions is collective and democratic. This issue is particularly pertinent to our discussion in the context of the argument already made whereby the children are excluded from any kind of, say, decisions concerning their own labour and from the processes of appropriation, distribution and receipt of wealth they help create. By the capitalocentric-androcentric logic, the right over decisions concerning children's labour and the wealth belong exclusively to the parents/seniors.

With this background understanding of a class-focused economic cartography, we are now in a position to think children's role in the economy, in short, children's economy. Children's economy is a subset of the class-focused economy consisting of all those class enterprises - comprising of class processes as well as related non-class processes - in which children participate and in doing so become an important subject-constituent of the wealth creating process in the society. Children are seen as participating in class processes (fundamental and subsumed) and related non-class processes in the public domain that could be producing commodity that embodies surplus value as also in the private perimeter of household producing use-value that embodies surplus produce. Children are

also vastly employed in the Southern countries in the fuzzy 'informal' site of household where goods and services are produced, not for distribution within household but to be sold in the market, domestic or international.

Notably, our class-focused approach with its focus here on children's economy helps reconfigure the moral private domain into an economic space as well in which children's work has economic value and within which conflicts, struggles and changes pertaining to children's life-worlds are important constituents of the specific formation of those sites and of other social sites that these already formed sites in turn help shape.

A Class-Focused Analysis of Children's' Exploitation and Marginalisation

Let us now discuss the various settings within which children's labour can be situated and analysed from a class-focused perspective. We want to contextualise children's labour in terms of the polymorphous class processes related to wealth creation and its flows. To help articulate children's relation to class-related wealth creation, we divide children's economy into four settings:

- children within non-household enterprise
- the family in which children are accounted as working is part of an unit working in non-household activities
- children within household, and
- 'independent' children such as street children.

Among these four, we focus on the first three. This is never to say that the last one is unimportant, but rather our focus on the first three is sufficient to highlight the importance of class in the life-world of children.

To begin with, a class-focused economy is a de-centered and disaggregated existence overdetermined by the presence of polymorphous organisations of surplus labour - capitalist, feudal, slave, communitic, independent and communist. Children's economy is a subset of the class-focused economy and captures the participation of children in fundamental class processes, subsumed class processes and non-class processes and as such they have an important role in the existence and transition of the class enterprises they are involved in. While it is possible for children to be within non-exploitative arrangements such as communist or communitic or even independent types, researchers have convincingly argued for the likely presence of children in what we construe as situations of exploitation. Consequently, exploitative class enterprises remain our focus.

1. Children within non-household class enterprise: Child Labour

Children work in class enterprises of various kinds that are either directly surplus value-creating activities or are activities that provide different conditions

of existence that constitute the process of surplus value creation. Such work is what generally comes under child labour. We look at the realm of children's role in the economy in which child labour is present.

Widespread evidences show that children are used in various types of value-creating activities indicating the pervasiveness of child labour (see the articles in Schlemmer 2000). These include children working within local enterprises disconnected to the chains or circuits of global economy and also local enterprises that are connected to the global economy. Children work in industry, agriculture, informal sector, temple, brothel, and so on. In all these sites, they perform surplus labour in the process of producing the commodity that is exchanged in the market. In an overwhelming number of cases, children are exploited and as such remain excluded from the processes of appropriating and distributing the produced surplus value. In the event of creating the wealth qua surplus value, the child may be paid the necessary labour equivalent, or, as is usually the case, paid below the necessary labour equivalent or not at all. If the children receive wage below the necessary labour equivalent or not at all, they are super-exploited. Other than being part of fundamental class process as direct producers of surplus value, children could also potentially take part in a host of non-class processes that help reproduce value-creating fundamental class processes and subsumed class processes. Children function in diverse class and non-class processes simultaneously.

While networks of exploitation pertaining to child labour are common even within Europe and North America (see Lavalette 2000 for instance), it is the presence of child labour in the South that has drawn most attention. The conventional argument is that because of the weak legal regulations as also widespread persistence of poverty and lack of education/skill formation, the presence of child labour and their exploitation is much more deep-rooted in the Southern societies.

For local enterprises, the logic of employing child labour is straightforward. First because child labour is illegal, they can be made to work for longer hours and thus higher rates of exploitation (the ratio of surplus labour to necessary labour) and higher profit can be generated from employing child labour. Second, because of the social construction of what it means to be a 'child' - 'child' as a defenceless object of supervision and surveillance - it is much easier to control child labourers than adult labourers. For example, in the current climate guided by the capitalocentric-androcentric logic that places children below the adults in hierarchies pertaining to aspects of mind (mental strength), body (bodily build), reasonableness and agency it would be considered inconceivable for children to form unions. Given that employers find the non-unionised workforce easier to manage than a unionised workforce and that too within an already-formed disciplinary matrix in which children are subordinated, child labour is welcomed. Third, again because of the social construction of what it means to be a 'child', children's necessary labour equivalent would be considered low and consequently they would be paid relatively lower

wages (as compared to adults) or none at all by virtue of the fact that they are juniors. This lower payment enables the employer to extract a higher surplus value *as profit*.⁸

Moreover, many researchers argue that the globalisation process backed up by the structural adjustment program is directly responsible for producing a massive household crisis in terms of income which ends up increasing the incidence of child labour (Gulrajani 2000, Verlet 2000). The children invariably end up in exploitative relations. The global capitalist enterprises (who might use the commodities produced with child labour as its own means of production in order to produce some other commodities) as well as global merchant enterprises (who buy and sell commodities produced with child labour) stand to gain from the lower unit value of the commodities that child labour make possible. They gain in two ways. First, the lower price of a commodity produced with child labour helps them stay competitive (an essential condition under global capitalism) and, second, lower price of means of production produced with child labour helps reduce the cost of production and therefore extract an increased amount of surplus value as profit.

Whatever the reasons, what cannot be doubted is the widespread presence of child labour in the Southern societies. Gulrajani (2000) tells us that some tens of millions of children are engaged in India in value-producing industries of, to name a few, match-making, fireworks, glass, diamond polishing, ready-made garments, leather goods and hand-knotted carpets. Some of these enterprises within which children work are themselves global capitalist enterprises while others are local enterprises connected to the chains or circuits of global capital. There are still other kinds of enterprises which are not connected with the circuits of global capital. Children work in these enterprises either as producers of surplus value or as providers of critical conditions of existence to the class processes.

Even in case of children moving from child work in the domestic/private sphere to the public space in order to become child labourer, the influence of family is important.

...domestic ideology serves to mask and legitimise such changes....In the vast majority of cases, the child's access to the labour market will be brokered by a family friend, parent or relative (mother, maternal aunt, elder brother). Channels of recruitment and exploitation techniques all capitalise on bonds of kinship and friendship (Verlet 2000, 69)

Findings reveal that children are usually asked to perform specific tasks 'reserved for children' though one can also come across cases in which they are asked to do jobs usually considered the forte of adult workers. More often than not, under the garb of family sponsorship, these children are, at worst, not paid at all or, at best, are paid less than the adult wage which is below the necessary labour

equivalent fixed for the adult male worker. Because of the moral covering the appropriated surplus thus defacto includes an additional portion of necessary labour equivalent of what the employers should have paid, that is the, children are super-exploited by the appropriators.

2. Children as part of a Working Family

We now move to another setting in which the children are considered as working within and as part of the family even as they are engaged in work in the public space. These activities can be within or outside the physical perimeter of household. One can easily find cases in which the family members perform labour to produce surplus in certain non-household activities such as agriculture or informal sector. The case of the peasant family comes readily to mind which has been romanticised in the discourse of economics (for instance, Chayanov's model). In such a setting of a family-based agricultural class enterprise, the class-seniority-gender axis operates in order to fix the type and status of work of girl child, boy child, female adult and male adult as well as the pattern of appropriation, distribution and receipt of surplus labour. Here, the produced surplus is usually appropriated and distributed by adult members of the family especially the male 'head' of the family. In class terms, such family-based economic units could very well resemble exploitative class enterprises such as capitalist, feudal, slave or CA communitic class enterprises within which children are exploited and these forms of exploitation in conjunction with non-class processes such as those pertaining to gender-seniority-caste stereotypes help reproduce the marginalisation of children.

Sometimes, we come across cases in which the family itself is hired out to work in class enterprises in agriculture and informal sector. Here the adults negotiate the wages with the moral covering that children (as juniors) are the responsibility of the adults and as such are not to be treated as economic actors. Moreover, who will do which work is overdetermined by gendered meanings that give shape to the division of labour between the girl and boy within the working family. Consequently, here too, we find that the axis of relationality between class-seniority-gender plays a crucial role in shaping the class-focused children's economy, the nature of children working world and the specific manner of children's exploitation and marginalisation. In most such cases of family-based children's work, it is perhaps not uncommon to find widespread children's work in unpaid form and, if paid, to be given a lower wage. The shadow of exploitation and marginalisation of children produced under the garb of the natural order of the family extends as the family enters into the public space. That is, as the purportedly 'private' space of the family enters the public space with its own moral moorings, it helps structure a pervasive network of exploitation and marginalisation in the public space.

Finally, the public space can enter into the private space as in the case of informal sector. With the implosion of informal sector within the perimeter of the

home-household, a 'domestication' of value-creating activities takes place producing a unique network of exploitation and marginalisation. Various forms of exploitation and marginalisation of children can take place either under the direct control of adult family members in which case the surplus is appropriated by a single adult member or a group of adults or it could occur in the name of apprenticeships or service providers in which case surplus is typically appropriated by the master or client. In the latter situation, the moral covering of the ideology of the 'family' again helps the master or client get the labour time of children free or at hopelessly reduced rates.

3. Children's Work in Household

We have already highlighted the importance of family and explicated upon the numerous ways in which children can work within a household setting. Within household-related economic activities, children may take part in both class and related non-class processes. For example, the children may be direct producers of surplus labour (cooking, washing clothes, cleaning rooms, etc.) and we have already elaborated upon how their performance of surplus labour remain constituted by processes pertaining to seniority-gender. One can also imagine children providing critical conditions of existence to the fundamental class processes within the household. For example, 'child rearing', such as an older sister attending to her younger brothers and sisters while her mother is involved in the direct production of surplus labour has been documented as a common set of activity; although such activity has been legitimised as the moral duty of the girl child towards her family. Indeed, much of what goes off as the daily chores of family life ranges from activities that are either directly producing surplus labour or are providing, its conditions of existence. We have already explained how the focus of the private space turns to moral questions such as duties-obligations-responsibilities, how the foregrounding of the space of the private in terms of moral questions occults-occludes the class-focused economy materialising within the very perimeter of the home-household and thereby helps mask the variety of class enterprises with their processes of wealth creation and varied patterns of exploitation and marginalisation of children.

A Reassessment of the Children's Struggle

There have always been attempts to involve children in various struggles. But these almost always have been struggles carried out over the so-called public domain and over issues pertaining to the concern of adults. Children's working world rarely becomes a social issue and a matter of struggle (Fukui 2000). Yet children have always participated in social struggles. Children, especially young children, have been recruited into organisations (youth organisations) with the purpose of being educated and have been trained to take up some identified big

'public' cause when they are adults. Or, sometimes, the 'public' cause may be so immediate that their utility lie in their instant use. To meet this exigency, children have been used at times of peace and at times as agents of violence. For example, the recruitment and use of children as soldiers is now well recognised. Children take part in mundane political activity, as also in revolution and in war, but invariably those concerns have been construed as adult concerns.

There have still been other attempts to invoke children in political struggles. For example, the rights discourse that calls for a ban on child labour is now well-known. Alternatively, in recent times, certain NGOs have started taking up children's cause. But what remains unclear in such struggles and the demands they raise is again the ambivalent approach towards the discourse of child labour. Often one finds that the NGO's struggle on behalf of children are premised on exactly the same moral argument that produces the problem in the first place. For example, child abuse is seen as an instance of oppressive behaviour by parents; here oppression is understood as a failure of their responsibility towards their children. As such, the solution calls for laws to be enacted against such abuses and the perpetrators booked. The same argument of moral responsibility is invoked against the employers for flouting the laws and in this regard attempts are made to highlight the horrors of the abuses faced by children at the hands of their senior employers. Important that these struggles are, they are accepting the discourse of child labour with its defence of a moral private space within which child abuse by parents/seniors/employers is an aberration needing corrective measures. However, an acceptance of this moral space means that what is glossed over is the children's economy containing abuses of totally different kinds: economic exploitation and marginalisation of children. This allows the wealth to be produced and then appropriated in a scenario from which, courtesy the capitalocentric-androcentric logic, the children are in all aspects excluded.

The children's economy produced through a class-focused approach, on the other hand, highlights children as participants in polymorphous class and non-class processes. No discussion on the economy is complete without one on the children's working world and their role in wealth creation. Accordingly, no institutions such as the household within which the children work can be kept secluded from the economic discussion of wealth creation and distribution. In our scheme, institutions such as household, school, workshop (employing apprentices) and enterprise are understood as open-ended unstable sites in which contestations, conflicts and struggles pertaining to children's working world are common.

In this regard, class struggles to change exploitative class enterprises towards non-exploitative class enterprises are important. Since those who appropriate surplus also distribute, non-exploitative class enterprise would mean that children as co-participants in appropriation will now have a say in its distribution. Not only would this put pressure on enterprises regarding what children receive in wage/

kind form, but may also have a substantial impact on surplus to be distributed for need-related purposes at the level of each such class enterprise (for instance, children may seek more surplus for their education or health or even for entertainment-related purposes). One can also imagine broad-based social struggles seeking a redistribution of surplus for various needs of children. This could be done by political organisations, NGOs, or even the state. For example, through such need-related struggles, the state could be forced to tax corporate capitalist enterprises so that a greater proportion of surplus in favour of identified children's needs (including their education) is now available. Such struggles would involve protracting distribution towards a satisfying of children's needs; it is only then that such distributions are 'fair.' In other words, class struggles over children's economy would call for changing the class enterprises towards non-exploitative class enterprise along with a distribution of surplus in favour of children's needs. In this context, the 'rights' of children would mean the right to live a life free of exploitation, oppression, and marginalisation. But, that demands first the recognition of children's economy and the right of children to be counted as economic agents.

Notes

- ¹ The question that haunts us in this context: why can't children work? Why this moratorium on children's work? Why is the question of children's work reduced, nearly, to a moral question? While it is a fact that children do work - at least they do work in some spaces (spaces that for a dearth of better terms can be called 'lower class', 'lower caste' spaces, at least the girl child does work even in upper class, upper caste spaces, if not the boy child), if not in all spaces - why do we continue to live under the weight of the moral imperative that children should not work?
- ² The so-called 'socialist' revolutions in many ways retained the priority of the public sphere as against the private sphere as the most important site of knowledge production and societal transition (see the exchange between Lenin and Kollontai on the question of 'woman' during the Bolshevik revolution). In conventional socialist literature, the challenge to capitalism or capitalo-centrism did not translate into a challenge to the public-private division, though the idea(l) of the public-private division is inalienably instilled with a certain capitalo-centrism and capitalo-centrism is inalienably imbued with a strict division between the (overvalued) public (dominated by adult males) and the (undervalued) private (occupied by females and by children).
- ³ For us a sex/gender system "is the set of arrangements by which a society transforms biological sexuality into products of human activity, and in which these transformed sexual needs are satisfied" (Rubin, 1975). Sex-gender systems are not a-historical emanations of the human mind; they are products of historical human activity. This enables for instance an analysis of the evolution of sexual exchange along the lines of Marx's discussion in *Capital* of the evolution of money and commodities. "There is an economics and a

politics to sex/gender systems which is obscured by the concept of 'exchange of women'" such that there is a need to think the "political economy of sex" (Rubin, 1975).

- ⁴ Our rendition of class departs from the conventional approaches on class in two fundamental ways: first, here, class is understood in terms of *process* of performing, appropriating, distributing and receiving surplus labor and not as a homogenous group of conscious actors, that is, as a noun, and second, class is moored to processes pertaining to *surplus labor* and not to processes concerning the possession of property or power as is usually the case with the more conventional approaches (see Resnick and Wolff 1987 Chapter 3, Chakrabarti, Cullenberg and Dhar 2007a chapter 2; 2007b)
- ⁵ Capitalist class process is defined as the performance (by direct producers qua productive laborers) and appropriation (by non-performing productive capitalists) of surplus value through a unique combination of commodity values comprising of labor power, of the means of production and of final produce. This commodity form could be market driven or state sponsored and, the appropriators could be privately placed or connected to the state.

Feudal class process refers to another exploitative arrangement where a 'serf'-like figure produces surplus labor which is appropriated by the non-performing 'lord', where the relations between the serf and lord, while not similar to the property relation governing the slave-master paradigm, is personalized; it is, as if, an attached form of bondage that is rooted in organic, natural or religious settings.

Slave class process is defined as appropriation of the slave's surplus labor by their non-performing masters, where the slave-master relation is based on the complete un-freedom of one set of human beings (slaves) by virtue of being the property of another set of human beings (masters).

CA-type communitic class process signifies a situation where work is done collectively in the sense of being shared (C) but one member (or a group) of the collective (A) appropriates the total surplus labor performed including his or her own. CA class process is exploitative since some of the direct producers are excluded from the process of appropriation. The critical feature that distinguishes this form of exploitation from other forms (such as capitalist) is that, unlike the productive capitalist, the appropriator here is also a direct performer of surplus labor. He appropriates the fruits of everybody's surplus labor including that of his own, while for the other exploitative cases (such as capitalist), the appropriator in his definitional capacity is not a performer of surplus labor and thereby only appropriates others' surplus labor. An example of CA communitic class process would be a family farm where the entire family ('head' of the family, brothers, sisters, children, wife, cousin etc.) takes part in the production process jointly without any remuneration at that level but only one person, say, the "male head of the family," appropriates the fruits of surplus labor of all including that of his own which he then partly or totally distributes among family members depending upon some norms or rules and the rest if any to others/outsideers depending upon the specific conditions of existence

that they provide to the family farm. CA is then exploitative since the surplus labor of others is appropriated solely by the 'male head' of the family.

- ⁶ AC type community class enterprise symbolizes a situation where the 'community of collective workers' appropriates the 'fruit' collectively while surplus labor is performed individually in distinctly different labor processes. Consider a situation where production of a homogenous product, say, chair, is performed individually (A) by many producers of chair. However, supposing that these individuals form a marketing cooperative through which they sell their produce and in the process collectively (C) gather the surplus value after deducting by some agreed- upon criteria the 'wage' payments to themselves (the respective producers). In this case, the economic organization resembles AC class process. In contrast, Resnick and Wolff have talked about two kinds of communist class process - type I, where "all adult individuals in society participate collectively in that class process as appropriators of surplus labor, but only some individuals (a small number) perform surplus labor" (1988, 21) and type II, where "only those particular individuals who perform surplus labor collectively appropriate it" (1988, 21). Elsewhere they argue that communist class process is characterized by the fact that "the direct producers collectively perform and appropriate surplus labor" (1987, 309). The crucial feature of a communist class process is that surplus labor is performed and appropriated collectively in some sense of being shared in a scenario where the direct producers are not excluded from the process of appropriation. When the collective of direct producers exclusively appropriates the surplus labor, it is type II and when a broader collective including the direct producers (containing additionally, say, the managers and other community members) appropriates, it is type I.
- ⁷ Independent class process is defined as a self-appropriating scenario where those who perform and appropriate surplus labor do so individually. There is thus neither a case of exploitation as in the case of slave, feudal and capitalist setting nor any question of sharing as in the case of communist (and AC communitic) setting. Independent class processes thus occur under the much-discussed setting of self-operating enterprises which could function within commodity or non-commodity conditions.
See Chaudhury and Chakrabarti 2000, Chakrabarti and Cullenberg 2003, Chakrabarti, Cullenberg and Dhar 2007a for a discussion on these class enterprises.
- ⁸ In class-focused Marxist theory, after having distributed the discretionary wealth or surplus value to the enterprise to various counts (managers, state, banks, merchants, etc.) what remains with the appropriators of surplus value is profit. Consequently, profit too is a component of surplus value or total discretionary wealth and is thus a part of the surplus value that has been appropriated. If the mode of appropriation were exploitative, profit would then be a portion of surplus value appropriated by the exploiter; profit would be premised on exploitation of direct producers. In case of children working in the public space, the profit that is derived from the total wealth is almost always a result of their exploitation. Not only are they excluded from the process of appropriation of the wealth they help create but these children in all probability never get to see the wealth.

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Educational Challenges and the Role of Teachers in Andhra Pradesh: A Case for Institutional Initiatives

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Abstract

All is not well with the elementary education system in the state of Andhra Pradesh, and this research paper is an attempt to understand the current status of the system and the ills that plague it. Although the problems in the educational system are multi-dimensional, in recent times, the issue of teacher performance has assumed significance. Educational inequality, quality and teacher performance seem to have challenged not only governments at all levels, but the people at large. Official records speak volumes on this predicament that affects the marginalised far more than others. In this context, this paper attempts to discuss all such developments that impinge upon the prevailing educational scenario in the State. As policies and programmes of the Union Government also impact the status of education at the state level, an attempt is made to delineate some national interventions. While presenting a critical review of certain institutional initiatives at various levels, this paper analyses immediate concerns that deserve the attention of State and non-State agencies. As part of assessing the contribution of several stakeholders towards strengthening school management, which is a major challenge, this study also explores other related issues.

There are several studies¹ undertaken on the issue of school education in India. Most of these deal with the financial dimensions that affect teacher performance. There are several studies² that depict how governments have remained indifferent to the demand of enhancing allocations for education and thereby caused the explicit decline of teacher performance in the state. While one can understand the governments' justification for failing to provide the required financial support, their inability to run and regulate the educational institutions as per the guidelines and service rules laid out for teachers cannot be condoned. That is to say, the government cannot shirk its responsibilities like school governance, teacher instruction and conduct of examinations. There are yet other studies³ on educational inequality, and the causes and consequences of teacher absenteeism. However,

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not many of these studies have examined how these teacher-related issues result in a host of problems in the educational system. This study brings into focus some aspects that have a bearing on the performance of teachers in the State.

The study is based on a number of published reports on the role of teachers in school education. Documents, review reports and press statements authored by donor agencies like World Bank and DFID, independent studies undertaken by scholars of international repute, NGOs, Teacher Unions and social scientists in the state and elsewhere, and numerous media reports have also been examined. Information has been borrowed from various research notes compiled by this writer for several other educational and political projects, undertaken previously⁴. All this has been substantiated with interviews with representatives of teachers' unions, teachers, educationists, government functionaries, representatives of NGOs and political parties.

This study has been categorised under five sections. The first part deals with the theoretical context wherein the problems of educational inequality, quality of education and teacher apathy have been posed. The main factors that account for educational inequality and affect the quality of education in the country and its reflections in the state of Andhra Pradesh are discussed in this part. In the second part, problems that undermine teacher performance, both at a social and state-level are examined. While the third part explains the implications of educational inequality in the State and elsewhere, besides the state-specific responses and their implementation, the fourth part delineates certain institutional level reforms. The concluding part sums up the findings that raise concern over the state of the educational system and lays down concrete suggestions for policymakers and academics to probe the subject further.

Educational Challenges

Most issues in the educational system stem from irregularities in economic structures and institutions of governance. Governance in the post-war era of state-regulated development has been the primary concern of State and Union governments with stakeholders remaining passive receivers of services. The modernists' emphasis on governmental institutions has been overtaken by post-modernists who focus on innovation in governance practices, framework and processes to prepare the educational sector for adversity. Given the scope of limited economic resources, the focus has been shifted from state-responsibility to stakeholder-responsibility, policy instruments, new institutional mechanisms and governance framework so as to face emerging challenges. In this perspective, the argument that the present educational crisis is more a crisis of governance rather than one that is attributable to a particular stakeholder holds good. As part of systemic crisis, this governance crisis refers to the range of political, social, economic

and administrative systems that are in place to adjust the development and management of resources and provision of services to different communities of society. In other words, it is a systemic crisis, and thus, not confined to one or more sectors as such.

Problems such as scarce and inadequate supply of educational infrastructure, inequitable distribution due to incompatible policy decisions have affected the content and quantity of supply to the stakeholders. Improving the quality of this service delivery, improving reliability and equity in distribution were factors advocating the transfer of the existing centralised systems to local clients. In view of that shift to stakeholders' involvement it was intended to advance the effectiveness, efficiency, equity and quality of educational service. A review of these reflections places the study in a proper context. A brief review of specific initiatives of the new system in AP⁵, in the past decade locates the institutional reforms, and explains the setting, which undermined the educational sector. Although there were several reforms introduced in different sectors in a big way, the educational sector witnessed no such experience.

A study⁶ that lists out a pluralist view of causes of educational deprivation in rural India identifies that several restraints of school participation viz., household resources, parental awareness, and school quality were important. The deteriorating conditions of rural schools cannot be studied in isolation. The shortcomings in health, education and employment generation are all mutually interrelated, and contribute to further inequalities. Unless these questions of social and economic equality are not addressed, there is very little one can do with regard to educational inequality. Since this problem is not confined to just a state or two in India, but to all third world societies, there were some attempts made in this direction. Thus, the pointer, UN Millennium Declaration (September 8, 2000, New York), articulated the Millennium Development Goals (MDGs)⁷, which include specific targets in the areas of poverty reduction, provision of education to all children among other things.

Educational development depends largely on the number of teachers, their qualifications and training, available textbooks, teaching instruments in schools, and their proper use in classroom activities. Further progress depends on the quality of teaching activity, which in turn depends on the actual working hours of the school, as well as teacher and student attendance. A well-managed school with basic infrastructure and motivated teachers can make a difference in the learning outcome of children. This is essential in state-aided schools that cater to the needs of marginalised children, especially in rural areas. Incidentally, the recent World Development Report⁸, urges policymakers to focus on early child development and formal education, as differences in 'cognitive development' take shape from inception. Such early child development initiatives could be crucial in providing equal opportunities. Thus, the report advocates the need of complementing school-access

with supply-side policies, including raising the quality bars of teaching, and demand-side policies, that enhance the parental capacity.

Thanks to NLM⁹, India has become the world's second largest education system (after China), with 108 million children aged 6-10 attending primary school. However, more than 23 million children are still out of school¹⁰. Two out of five first grade students fail to complete the primary cycles of 4 to 5 years. The dropout rate among poor children is about four times higher than among children from affluent families. Expectedly, the children from marginalised communities are at a greater disadvantage. There are large gaps in access to education, among the marginalised, that are sometimes gender-based. In the 1990s, the issue of access to primary school education received considerable attention in Andhra Pradesh¹¹. Acknowledged as a fast-performing state, Andhra Pradesh emerged as the fifth most populous state in India. However, one out of two people in Andhra is still illiterate and the state ranks 28th in terms of literacy levels in the country. Besides, the disparities between literacy levels of marginalised groups (such as scheduled castes (SCs), scheduled tribes (STs), backward classes (BCs), minorities, and rural women), and the rest of the population are glaring. Moreover, literacy levels vary to a great extent between regions as well as districts¹².

The main causes of low literacy are poverty, child labour, lack of access to schools, and adverse pupil-teacher ratio (PTR), poor infrastructure, low enrolment and large dropout rates. For instance, between Class I and VII, dropout rates are as high as 66 per cent. Among SCs and STs, the dropout rate is even higher, around 73 per cent and 82 per cent respectively. In fact, the parameters that measure literacy are found to be dubious, as observed in the Literacy mission programme. Indian illiteracy as per MHRD is only 37 per cent, whereas it is 60 per cent, as per the statistics of UNDP and UNICEF.¹³ In any case, mere enrolment does not imply access to education. It is a regular feature that children who continue to be on the rolls of school registers have been found to have dropped out¹⁴ from schools, on their own or otherwise, earlier. Economic problems (poverty, illiteracy, ill health,) social and cultural issues (caste, community, regional and gender discriminations) are considered to be the main factors that compound the problem of 'under-enrolment' and 'dropout'. Some field studies attribute the high dropout rates to irregular, and poor quality teaching..

But more than economic deprivation, social and gender deprivation affect the educational growth adversely. Thus, mere flow of funds, made available by governments, at home or abroad, cannot facilitate better schooling. Though education should help children gain self-esteem and self-confidence, discriminatory attitudes practiced in school affairs continue to affect them adversely. Children and parents have gone on record complaining against teachers and their complacent attitude, when marginalised children were treated differentially. Also, teachers were found to be regardless of the predicament of children who have to engage in their

traditional/occupational work before and after school. Casual and sarcastic comments on the wastage of time, effort on education, that these children will 'end up' doing what their parents do, dampen their aspirations. Besides, explicit casteist practices also have long-term effects on children. Sometimes, such practices compel these young minds to leave schools abruptly.

It is unlikely that teachers, who are divided along caste lines and lack adequate pedagogic skills, will be able to motivate school children using the "child-centered way of learning" recommended by the NCF-2005.¹⁵ Thus, the problem is severe in the case of SCs and STs in the state.

It seems that high incidence of absenteeism and alarming dropout rates are features of the educational scenario among tribals.¹⁶ The disparity among Indian States, in terms of tribal literacy rates, are very wide ranging from 82 per cent in Mizoram to 17 per cent in Andhra Pradesh.¹⁷ Several studies on the learning achievements of tribal children at primary classes have shown lower levels of achievement compared to non-tribals, although observed evidence suggests that tribal children possess the basic cognitive abilities and psychological dispositions for successful participation in schools. Tribal students have additional disadvantages arising out of social factors and location. Other barriers include negative parental attitude to education, lack of parental support in schoolwork, low level of motivation and poor self-esteem of children. Studies argue that tribal children can perform well in school if the intervention programmes directed at them overcomes their social deprivation.¹⁸ However, learning achievement surveys conducted in DPEP show that, in a majority of the districts, the gap between achievement levels of ST children and other children has been reduced to less than 5 per cent. Thus intervention initiatives will be helpful in generating and promoting a sense of competence, self-efficacy, self-respect, and positive self-image among ST children. School education system has been considered a state government's responsibility. The role of the Centre is confined to formulating broad policy frameworks in order to ensure quality, and setting norms for utilisation of resources through various sponsored schemes from time to time. Policies to improve the quality of teaching standards were decided by the National Council for Teacher Education (NCTE). Regulations relating to recruitment and service conditions of teachers were left to the discretion of state governments.¹⁹

A survey on infrastructure in elementary education in India, carried out by the National Institute of Education Planning and Administration (NIEPA), found that Andhra Pradesh has 5,344 schools without building. Even after two decades of nationwide initiatives to ensure that government schools had more classrooms and teachers, over 1,00,000, or nearly 10 per cent of the country's elementary schools, still have only one classroom. Around 42,000 of such schools across the country function without a building. This reflects the sorry state of affairs about various schemes that are yet to meet their target.

There are several studies undertaken in this area by the PROBE (1999), Bodha Shiksha Samiti (1999), Dayaram (2000), Pandey and Raj Rani (2003), Govinda and Josephine (2004) on the poor quality of teaching. There is also an acute shortage of teachers. Several Teacher unions have been protesting, citing this manpower shortage. They have also been critical of contract-teacher recruitment. There are 58 teachers for every 1000 students in the world, whereas the figure is 29 for India and just 4 for AP.²⁰ According to the Delors Commission report (UNESCO, 1996) that underlined the need of equipping teachers with required skills, 'Improving quality of education depends on improving the recruitment, training, social status, and conditions of work of teachers; they need the appropriate knowledge and skills, personal characteristics, professional prospects and motivation if they are to meet the expectations placed upon them'. Similarly, even the Indian Education Commission expressed such views long ago (in 1964-66), "A sound programme of professional education of teachers is essential for the qualitative improvement of education. Investment in teacher education can yield rich dividends because the financial resources required are small when measured against the resulting improvements in the education of millions."

Incidentally, the objective of 'para teachers' was to appoint them exclusively in remote rural and hilly areas, which are unattractive to the regular teachers. DPEP popularised the practice of contract teachers on fixed honorarium. The promotion of the alternative measures of teacher recruitment has pushed the issue of quality of education into the background. The government is justifying the scheme on economic and bureaucratic grounds.. Even the Sarva Shiksha Abhiyan (SSA) scheme endorsed the appointment and training of para teachers, (only in remote hilly, rural and tribal areas): "there will be 'no compromise on standards, even though payments of less than the State pay scale, as an interim measure, may be adopted in states with large scale vacancies.' The Committee strongly feels that, a child needs to be tended under well-trained hands to initiate him into the art of learning."²¹ The para teacher scheme was extended in the Tenth Five Year Plan and the SSA. It is not difficult to understand the true intentions of the government on the subject. Thus, there is an element of truth in the statement of critics 'that quality concerns are compromised and subverted by the government itself.'²²

Teacher-oriented Issues

Interestingly, teacher absenteeism is not confined to India alone. It seems to be prevailing through out the world, more so in the case of third world countries. Group discussions and personal interviews with teachers²³ reveal that, some of these teachers who aspired for a better salaried and powerful job (through the competitive exams) considered their present assignment as a stepping-stone. In the event of their failure to secure such job, they would be continuing as schoolteachers.

A more or less similar trend is visible in most other states of India. Pathetic teacher motivations, lethargy towards teaching and high 'teacher truancy' plague the educational system. Gone are the days of complaining about 'student truancy', in the corridors of schools and educational offices, now it is the turn of 'teacher-truancy'. There are several 'findings' reported in the media based on stray incidents, that cast a blind eye on the prevailing ground realities.

Another indicator of teacher apathy could be created on the basis of neglecting the practice of absenteeism, without taking any punitive action. It would be helpful if the erring teachers are punished, if not permitted to go unnoticed. A team of economists from Harvard University has studied the extent of 'teacher truancy' in Indian schools and the World Bank examined it in detail. According to Jeffrey Hammer, "It's just sad, what bothers me is that many teachers are taking government money and essentially doing nothing for it, and as always, the disadvantaged and poor suffer." Hammer's findings buttress the point of similar other studies²⁴ that were conducted in the country, way back in 1999 itself. These studies made the following incisive observations: "These include several cases of irresponsible teachers keeping a school closed or non-functional for months at a time, a school where the teacher was drunk, ... a head teacher who comes to school once a week, another head teacher who did not know the name of a single child in the school."

The problem of teachers abstaining for days together without official leaves sanctioned by authorities is also widespread, but mostly a rural phenomenon. Most of the schoolteachers do not live in the same village, where they work and prefer to commute from nearby urban or semi-urban locations. The problem is acute in the case of those who live more than 50 kilometres away from the school. Teacher-representatives, while agreeing in principle to live in villages, cited the problems of their stay and education of their children among others. They also questioned the 'double standards' of their colleagues in other government departments and also political functionaries, who are also inaccessible to the public. As against the popular observation, better pay does not lower absenteeism, the research revealed that, 'older teachers, more educated teachers and head teachers have better salaries but are also absent more frequently. Even the contract teachers, who are paid much less than regular teachers, have similar absence rates.' The World Bank report by Harvard experts also found that 'higher pay was not linked with lower absence rates'. This view dismisses the argument of lack of financial support causing the problem. The report points out the issue of governance at school level. To quote it further: "Teachers are less likely to be absent at schools that have been inspected recently, that have better infrastructure, and that are closer to a paved road."

Similarly, there are a couple of other studies that too belie the claims of 'high teacher salaries ensuring better teacher performance.' Grover and Singh²⁵, besides the World Bank teams, observe: "While it is often argued that higher

salaries of teachers would provide sufficient incentives for them to live in a village itself, in practice, however this is unlikely to solve the problem. This is because of their preference to live in urban Centres where they would have access to better facilities and living conditions. Unless better infrastructure and facilities are also made available in the villages themselves, the teachers are unlikely to live in the village for longer periods of time." Since some of them are found to be engaged in activities other than those concerned with teaching, their absence could not be condoned. This is a problem of a fraction of teachers 'from within', and thus deserve the attention of teacher unions, more than others. In other words, all these are contributing factors of an apathetic teacher. These include lack of proper supervision, dwindling strength in the schools, promoting private sector, neglect of teachers' role in educational planning, curricular design, lack of regular orientation/refresher classes, assigning non-academic functions during school days, working conditions in rural schools, commutation and transportation problems, political interference in the schools, lack of incentives and awards for better performance and failure to punish the guilty, lack of vigilance from PRI functionaries and parents, lack of student interest in teaching schedules and curricula, and of course, target-achieving strategies of the government. Thus, the symptom of teacher apathy is visible and sometimes, teacher absenteeism is glaring. Most of these affect the performance of teachers in the schools.

Teacher absenteeism has several dangerous implications in the education system. It is not just about the physical presence of a teacher, but also about his attitude towards his profession. And more than that, it is about undermining the career prospects of students. It reflects the sorry state of affairs, not just in the school, but also in the village as a whole. Once a teacher becomes apathetic, then his pupils will find wrong ways and means to spend their school time. Thus, the quality of education is determined by a variety of factors from 'within' and 'outside' the education system, but teachers and the teaching-learning process in classrooms certainly plays a crucial role. During the post independence period, all the Commissions and Committees on education, viz., the University Education Commission (1948-49), Secondary Education Commission (1952-53), Indian Education Commission (1964-66), various visiting teams and working groups of NCTE and UNESCO, National Commissions of Teachers, National Policy on Education (NPE, 1986) and Ramamurthy Commission (1991), and several state education commissions focused on the need of the 'professional preparation' of teachers and to continue with regular upgradation of their pedagogical knowledge, skills and attitudes for getting better the quality of education. The NPE maintains that 'a teacher education is a continuous process, and pre-service and in-service are inseparable components of this continuum.' Thus, this policy endorsed the issue of improving the 'working conditions of teachers in schools', including their 'social and economic status', and

leaving no scope for recruitment of teachers on contract basis.²⁶ Ultimately, such reports suggest the need of certain 'potential reforms' that include improving school facilities, increasing 'inspections', having more 'local control', among other things.

Very often, teachers have been criticised for not being professional in their duties. It is a fact that a majority of those who are recruited are ill-equipped and lack the necessary skills and training. Teacher recruitment is not based on any scientific methodology. It is enough if the teacher-aspirants are qualified in terms of age and degree criteria, and compete in an ad-hoc District-level Selection Committees. There are criticisms against this trend, as there are objections to the very course schedule per se. It was suggested that the duration of teacher education, that is, B.Ed, should be increased. At present B.Ed course is of just one-year duration, inclusive of few weeks of practical training.

State-specific Responses

Governance reforms initiated at the ground level would be incomplete, deficient and inconclusive if they are not supported by reform of basic institutional or organisational mechanisms of the executive structure. Piecemeal alterations in the laws, statutes, departments, functions and functionaries were sufficient to deal with changed contexts and conditions until recently. But that is to be changed, if the present system is to be reformed of its deformities. Ever since identifying education as a basic sector, policymakers have proclaimed several schemes to fulfil some of the salient features of its constitution. Accordingly, the Union Government allocated more funds for educational development in the very first five-year plan. Thereafter however, priorities of the policymakers were altered, and allocations were on the decline. Obviously, that policy-shift paved the way for the entry of private sector into education, all in the name of mixed economy! The post-Jometien summit developments in India witnessed a large number of interventions to achieve the goals of the UEE, like, the DPEP, the SSA among others. These initiatives concern the issues of enrolment, dropouts, access and quality in the school education in the country. Teachers and the quality of their teaching have been given high priority in this context. However, by appointing under qualified and untrained teachers, the objective of quality education was seriously neglected at the very onset of the scheme of DPEP.

Significantly, there is a widespread agreement today that access to education has improved in the last decade or so, and even poor parents want to enrol their children into schools. Enrolment is not a big issue anymore. There is also evidence that suggests proliferation of private schools everywhere, mostly in the urban areas, even in the scattered slums. These schools evoke positive response from the parents, be they poor or marginalised, and student enrolment is on the rise. According to an estimate²⁷, in addition to the expenditure of 3.3 per cent of GDP by

the government, the private sector is on record incurring an equal amount for education. Achieving universal elementary education, on the lines suggested by the governments, is one thing, but making it successful in terms of quality and equality is another thing. Incidentally, states are also uncomfortable with the recent right to education bill, as it burdens their governments. Some of the states contend that the Centre had already been collecting 2 per cent education cess to finance elementary education for two years, and thus it should not shirk its financial responsibility²⁸.

The education sector in the country exhibits both quantitative and qualitative problems of expansion. There is a problem of lack of teachers at primary school level. Thus it is necessary to convert most of the single teacher schools into 2-4 teacher schools at the earliest. Similarly, there is a relative share of women teachers in the total number of teachers that is gradually growing (34.5 per cent), but their proportional rise from SC (15.9 per cent) and ST (1.02 per cent) communities is not yet significant since 1986 in AP. Perhaps, increasing their number might reinforce certain amount of confidence among these marginalised communities. In view of increasing enrolment of girls and SC and ST students, it is necessary to enhance the strength of teachers from these communities. The Central government has proposed to implement a quality education scheme, whereby Dalit students would be trained to enhance their capacities to be at par with convent-educated students.²⁹

The Back to School programme: In 1987, the AP government decided to provide at least two classrooms for each school, under the programme of Operation Blackboard (OBB). Subsequently, in 1994, the government launched the DPEP aimed at providing additional classrooms. This was a very crucial intervention helping the dropouts to return to schools, besides improving the primary school system by training teachers, constructing and improving school buildings, and making school activities more attractive to induce children to stay in school. The programme, initially implemented in 42 districts in seven states, was later extended to 272 districts in 18 states. In 2001, the SSA was launched, which covered the remaining districts and a number of schools provided additional classrooms. Further, this project targets girls and children from marginalised groups such as SCs, STs and former child labourers. The DPEP strategy includes child-friendly experiment such as using the services of 'Education Volunteers'. This government experimentation showed that these volunteers were more successful than other activists. Because, being from the same rural background, they were able to use effective persuasion methods.

Of late, the governments are found to be heavily dependent upon several international agencies for funding state-education. Thanks to some international financial institutions, the subject has been attracting careful attention of several state governments. Added to this was the rise of popular awareness about education among all the communities including the marginalised. Alternatively, since the state

cannot remain a mute spectator to the rising expectations of these communities, its strategy of expansion of education, albeit quantitatively, evoked keen interest in them. Thus, the governmental priority towards establishing infrastructure facilities even in the nooks and corners of state became a reality within short span of time. But, that is not enough to remedy the prevailing problems, as there is a need of ensuring accountability. Thus, it was imperative on the part of government to delegate some responsibilities to the interested NGOs on the one hand, and involve the stakeholders including teachers, parents and political parties, on the other hand.

A significant development surfaced during the course of this study, besides those of several other studies,³⁰ about the changing social attitudes with regard to schooling in Andhra Pradesh. These revealed that sending children to school had become an increasing trend among communities. This transformation in social outlook and practices has occurred in the last decade. The Telugu Desam Party Government initiated several educational campaigns including the one that attracted the communities as part of Janmabhoomi. The trend is encouraging, as educational campaigns are being continued even in the present regime. The state seems to have followed a two-pronged approach to accomplish universal literacy. These include, re-orienting non-formal education system for dropout children, with a commitment to bringing them back into formal education pattern, as well as strengthening and expanding its adult literacy programme. Providing more teachers and training is a major element of the approach to strengthening primary education, which improves present teaching levels by lowering the PTR. Under the World Bank-funded Andhra Pradesh Economic Restructuring Programme (APERP), the Government has already committed itself to filling all existing primary teacher vacancies to achieve a teacher-pupil ratio of 1:45 by 2002. Thus, the services of 'Education Volunteers' are also used to supplement teachers' efforts in the classroom, as well as in working with the community to increase enrolment and prevent dropouts. Their services could increase local initiative to education since these volunteers were residents of the village.

The APERP project: Besides other initiatives, the state decided to implement the APERP project and thus commenced a comprehensive programme to provide in-service training among other programmes. This project included several features, as detailed in the following paragraphs, implementation of which might ensure developing education in the state. Every teacher can attend ten-day residential training programmes every year. Education Volunteers will receive at least 15 days of induction training. This training will include child-centred teaching and active-learning packages based on successive cycles of in-serves training for existing teachers can be developed for new teachers. Training institutions can be staffed with motivated personnel with rich experience at the primary school level. Schools can facilitate and monitor the use of improved methods of teaching learnt during

training. This would include helping teachers develop good training materials and providing effective master trainers and resource persons. Therefore, under the APERP, the state aimed at building around 25,000 school buildings by the end of 1999. But, only 1,112 new primary schools were established in backward areas, and several others in other areas to increase access to primary education. Several others are yet to be constructed in remote areas. The process seems to be still under progress. The state has also set up residential schools to offer quality education to poor and talented rural children. The Andhra Pradesh Residential Educational Institutions Society (APREIS) is now running 137 such schools and the Andhra Pradesh Social Welfare Residential Educational Institutions Society (APSWREIS) is running around 180 schools. This programme can be strengthened to achieve the goal of enhancing institutional capacity to ensure that children from disadvantaged groups complete a quality primary education.

Marginalized Groups: The government can pursue special initiatives to reduce the gaps between socially disadvantaged groups and backward areas and the 'mainstream' sections. Without specific interventions to tackle their problems, these groups are in danger of being left out of the programme. These problems can be addressed if the state ensures access to schools for SCs, STs, BCs, minorities, girls and deserted area children. In remote and tribal habitations alternative schooling Centres can be set up to provide basic education. Other interventions can be providing AWCs as crèches for infants, so that older girls can go to school. The state can ensure access to schools for SCs, STs, backward classes, minorities, girls and children with special educational needs. Andhra Pradesh's development goals cannot be achieved without harnessing the potential of its female-population. However, girls in the state lag well behind boys on all indicators of development, including education. The gap in enrolment between boys and girls and the dropout ratio for girls are increasing steadily. For instance, the 1991 census showed that only 33 percent of the state's women are literate compared to 55 percent of men. Thus, the state can undertake specific initiatives to encourage education for girls. This is possible if the girl child protection scheme (GCPS)³¹ is extended to a large number of families. Currently, covering around 50,000 girls, this scheme provides a fixed deposit of Rs. 5, 000 in the name of girl child on the condition that she does not marry until the legal age of 18. Promise of establishing 93 Kasturba Gandhi Balika Vidyalayas to encourage girl education since July 2006 in AP is a measure in that direction.³²

Institutional Initiatives

Teacher Unions: As demanded by the Teacher unions³³, there is a genuine need of establishing school boards, and streamline the educational departments among others. Perhaps such measures would not only ensure participation of

teachers and their representatives in decision-making, but also help in effective implementation. It is observed that teacher unions are found to be irresponsible on some occasions, but not so always. While they are entitled to fight for their rights and self-respect, they are bound to perform professional responsibilities. Of course, they should not be overburdened with numerous duties that disengage them from teaching activity. But, it is interesting to note that their unions were hardly opposed to any such monetary-assignment that was entrusted to the teachers!

In any system, there are different kinds of teachers performing differently. There should be a proper tool that evaluates their performance. Accordingly, their performance should be encouraged. It is unfair to brand all teachers as either apathetic or irregular. As there are quite good number of teachers still on the rolls of the schools, the system is yet not hopeless. Thus, it is mandatory on the part of not only government but also civil society to recognise such teachers and award incentives. Conventionally, the teachers' day has been organised on that day every year at all levels in the country. But then, the spirit of respect for teachers is conspicuously absent thereafter. There are allegations and criticism against some of those who are given the official teacher-awards every year. Some of the teachers unions³⁴ had on record opposed the selection criteria. Thus, there is a serious need of reviewing schemes of awarding incentives and disincentives, as is demanded by some teacher unions.

Stakeholders and PRIs: The policy of decentralisation envisages an important role for local governments in planning, implementing and monitoring of educational programmes and projects. The PRIs at the district, mandal and village level are to be assigned specific roles and functions in resource management and development in the state. The policy also reiterates its commitment of empowering beneficiary associations for planning, implementing and monitoring of development in rural areas. Stakeholder-communities at local levels are to be given adequate space and decision making opportunities by strengthening the institutional mechanisms, entitlements, orders and mandating authority to create an enabling and facilitating process for effective participation of communities and associations. Incidentally, rural schools are on the odd occasion accountable to parents and there is modest sense of ownership from communities. For basic education to be effective, besides school committees,³⁵ parents and communities need to become active stakeholders.

Viewed in this backdrop, in the village schools, the school committees³⁶ could involve the local community in increasing enrolment and improving retention. Therefore, approaches to solving these problems need to be rooted in specific local conditions like, raising awareness, providing incentives to attend school, providing free textbooks. The PRIs can make education a people's movement and enlist the support of local leaders, NGOs and teachers in creating awareness about the need to be educated. Further, under the DPEP, school committees have been charged

with the task of improving enrolment by undertaking suitable measures to encourage parents to send their children to school and instituting incentives and disincentives to eliminate child labour. But, the governments are less enthused about the role of school committees, otherwise known as village education committees (VECs) and thus interfering in a variety of ways!

NGOs: There are several studies, particularly by the NGOs like MVF, AKF and others, working on projects like child labour (NCLP) and Balajyothi, available on the subject arriving at multiple models that seek solutions of simple nature. Without incurring large amounts of budgetary allocations too, these models have discovered means of ensuring 'back-to-school' of dropouts. But, contrary is the argument from some of the educationists and teachers, who focus on attractive school conditions. There is very little one could do in the absence of basic facilities in schools, as are available in private ones.

Usually, the objectives of education programme are aimed at increasing access to education, to keep the children in school longer and to raise their levels of academic achievement. According to Dayaram of the AKF,³⁷ the first problem is the 'highly centralised governance'. Because he traced the problem of governance: 'it's true that we have fewer schools; we have bad quality schools, less teachers, bad quality teachers. But it is also true that lot of money remained unspent. It's a paradox that you have large amount of funds unutilised and, at same time, you do not have teachers and schools. So the issue is not just scarcity of fund, but in a major way of governance and inadequate capacities at different levels.' Further, as part of the programme³⁸, the communities have been made active stakeholders in the education process. Incidentally, the Andhra Pradesh State Education Department and the Aga Khan Education Service (AKES), India, an affiliate of the AKF, have signed a memorandum of understanding (MoU) paving the way for dissemination of the AKES whole school-based approach to primary schools of Maheswaram mandal (Rangareddy district) and Warangal urban. Regular interaction with the community stakeholders in the form of meetings enable them to take decisions for school improvement that include both infrastructure facilities and teaching processes, thereby consolidating the progress made in schools. Meanwhile the parents and guardians have been also mobilised to enhance their role as care givers. In order to educate girls, participation of mothers (an innovative concept of mother-teachers) has been prioritised. At the classroom level, a co-operative spirit among the students is encouraged allowing the expression and pursuit of natural curiosities, thereby enhancing cognitive and learning outcomes.

Achieving universal primary education for all requires, first, to bring all children to school and, second, to keep them there through the full course of primary education, i.e. a complete five-year cycle. The most recent data for AP indicate that the state is now successful in bringing all children to school but should be concerned about the rather low retention rates. Because in the past AP

was characterised by low enrolments and high dropout rates, completion rates that do not change quickly do not reflect any improvement the state has experienced in the last decade and even more so in the last 5 years. Child labour is a complex problem that is basically rooted in poverty. Overwhelming evidence from MVF suggest that 'children are not in school because they are needed as income earners'. MVF³⁹ has affected the educational scenario by collaborating closely with government schools. MVF work has been influential in making the government revamp thousands of Non Formal Education (NFE) Centres in the State into day Centres, as motivation Centres in the villages. MVF has trained NFE instructors to play the role of education activists rather than act as poor substitutes for teachers. On the one hand, an MVF activity exposes the severe limitations of the traditional NFE program and, on the other hand, reaffirms the role of formal school in making even the most difficult group literate. The government has also made a strong policy for the eradication of child labour.

Political Parties: It is very common for political parties to promise several things to several communities, not all people as such, on the eve of elections. Usually, parties are bound to compete with one another to offer populist policies very generously, however infeasible they might be. The 2004 electoral exercise in the state is a case in point. As part of election manifestoes⁴⁰, several parties promised very little as far as education, leave alone primary education, is concerned. For instance, the TDP claimed⁴¹ that the literacy rate has increased from 44.1 per cent in 1991 to about 73 per cent by 2001. Its achievements included increasing budget allocation from the Rs 1500 crore in 1994-95 to 3800 crore by 2002-03, towards construction of 45,000 school buildings, establishing 26,723 schools, recruitment of 1.76 lakh school teachers, improving sanitary conditions in about 55,000 schools, and distributing about 3 lakh bicycles to school going girls as part of the 'Soukaryam' scheme. In the two phases of the Janmabhoomi (Chaduvula panduga, Mallee Badiki and Akshara jyothi) programme, around 7,21,797 children were enrolled in schools. Expecting that the party would remain in power, it promised compulsory and free education for children up to 15 years of age, establishing a school for every 25 students in the radius of one kilometre and total literacy by 2006, among other things.

The Congress party, on its part, admitted that the literacy rate in the state (61.1 per cent) is less than the country's average (65.2 per cent), and observed that the poor are reluctant to go to school due to poverty. Thus it promised to check 'dropout rate' by continuing the existing mid-day meal scheme and several incentives to encourage school children. The party promised to ensure making the state as the top-ranking state in achieving literacy in the next five years, through large-scale investment in the education sector. Regarding other major parties in the elections, keeping in view of the changing situations, the BJP promised to make the state as a Knowledge society in the following way:

1. Implementing compulsory primary education for all 6-14 old children through SSA, quite effectively.
2. Ensuring cent percent literacy in a phased manner, with the cooperation of NGOs, Universities and colleges.
3. Increasing more residential schools in the tribal areas.

The CPM stated that the state lagged behind 27 other states in achieving literacy, and demanded a move against commercialisation of education. Interestingly, there is no other mention with respect to education, in its election manifesto.

Summary and Conclusions

Institutional reforms are essential not only to take advantage of the increased prospects thrown open due to expansions and improvements but also to situate the government system and machinery in the context of scarcity. Institutions and governing framework moulded in the era of less-demand and large quantity will essentially be ill-suited to tackle issues and problems arising in the period of high-demand and scarcity. In effect, the institutional reforms represent the second stage of the reform agenda that aim to initiate effective and efficient norms in the crumbling edifice in the state. Overall, there is some progress that has been uneven across the state, region-wise and otherwise. It seems that major variation across districts with literacy rates ranging from 29.6 to 71.52 per cent in 1991 and 45.53 to 79.04 in 2001. The most backward districts registered the most significant improvements. In 1991 literacy rates among STs (17.2 per cent) and SCs (31.6 per cent) were much below the state average, which should be a reason for concern. But the situation is even more miserable if one looks at the gender gap among these social groups. In 1991, only 8.1 per cent of women SCs were reported to be literate. In India, girls are less likely to attend school than boys, and even when they start school they are more likely to drop out. The gap in literacy rates between males and females in Andhra Pradesh is only slightly wider than the gap in India as a whole. To reach the goal of universal primary education, schools must first enrol all children and then keep them in school for the full course of the primary stage. The bigger challenge that AP faces now is to retain cent percent of the children through primary school education. The plan is to increase compulsory education through the first eight grades. The data seem to indicate that despite the fact that AP was doing a great job in bringing almost all children to school, it was failing to retain them thereon. Though the trend seems to be encouraging, the levels of wastage are still too high. The decline in illiteracy rates in the last decade may have a positive impact on the probability of achieving the other MDGs, vision 2020 and Tenth Plan. In any case, this is a simple projection, based on the, leave alone ground realities, available figures!

As far as suggestions for future are concerned, since the educational problem is embedded in the overall system, which is under tension from multiple

challenges at home and abroad, solutions cannot be simple and easy. Thus, the problem should be studied not only at macro-level, but also at very specific, micro-level and localised area so as to take hold of all the factors that are under study. More than quantitative approaches, qualitative studies of individual case study nature would help us in locating problems properly, and that helps us to overcome problem of making generalisations of any sort. To conclude, what matters for success in educational improvement varies considerably from one region to another even within the same state and districts within the regions. Thus, there is a need of explaining the problem of educational inequality, quality and teacher performance from several contributory angles, which are mutually interactive at times. Besides state and governance systems, social networks including stakeholders, NGOs, teacher unions, media are also expected to play equal role in addressing the problem over a period of time.

Notes

- ¹ Rudolf&Rudolf, 1972; SCERT, 1992; Tilak, 1996, etc.
- ² Pradan and Subramanian, 1999.
- ³ NCT, 1986; Rawat, 1994; PROBE, 1999.
- ⁴ Loksatta and LSE Doctoral project, and also as a political analyst for an MP in A.P
- ⁵ K C Suri's paper, published in the Jos moij edited book, Politics of Economic Reforms in India. SAGE Pub., pp 130-168.
- ⁶ Dreze&Kingdon 2001, Schooling Participation in rural India, Review of Development Economics, Feb., pp 1-26.
- ⁷ These MDGs are directed at reducing poverty in all its forms. In parallel, the Government of Andhra Pradesh has developed a plan in 1999, Vision 2020, which covers all aspects of social and economic development that chart closely with the MDGs as well as state-level development targets included in the Tenth Five-year Plan prepared by the Government of India. It is clear that the three set of goals, MDG, Vision 2020 and tenth Five-year plan, are all very similar.
- ⁸ WDR, 2006, p.16.
- ⁹ National Literacy Mission was established in May 1988, its goal is to attain a sustained entry level of 75%, by 2007.
- ¹⁰ Annual Report, 2003-4, of the MHRD.
- ¹¹ According to the reports of the World Bank (1997): Primary Education in India. New Delhi, Allied Publishers.
- ¹² For instance, while in Hyderabad district the literacy rate is over 70 per cent, it is around 30 per cent in Mahbubnagar. Thus, any strategy to raise overall literacy levels will have to focus on enhancing literacy percentages among disadvantaged groups and also in all the backward areas in the State. Further, students are found to be quitting the government schools, as is revealed by the press report in Andhra Jyothi, July 2006.

- ¹³ krishnan khanna, www.wakeupcall.org.
- ¹⁴ Walkout, as described by Prof. Anil Sadgopal of Delhi University, another member of the CIBE, who has also been a votary of common school system in the country.
- ¹⁵ A UNESCO report released in 2005 observed that 'higher-caste' teachers in the country physically and verbally abused 'lower caste' students. This is true in the case of rural and remote schools; as such incidents were reported even in the newspapers and media.
- ¹⁶ For instance, if there are 74.46 general category dropouts reported, there around 86.28 of them belong to STs according to certain studies conducted by Geeta Nambisan and Afonso Botelho, 2006.
- ¹⁷ As many as 174 districts (out of 418 districts in the country in 1991) in 1991 have ST literacy rate below the national average of 29.6%. Further, the data reveal that States, which are low in general and tribal literacy are also States with higher gender disparity. The female literacy among STs has increased from just 3.2% in 1961 to 37% in 1999-00. As per 1991 Census, female literacy of tribals is high in Mizoram(79%), Nagaland (55%), Sikkim (50%) and Kerala (51%), compared to Andhra Pradesh (8.7%),and Rajasthan (4.4%); India Education Report; 2002.
- ¹⁸ Sujatha,(1998); Singh (1996); Singh and Jayaswal (1981); Sinha and Mishra (1997).
- ¹⁹ Mishra, 2002.
- ²⁰ Vaartha, August 11, 2005.
- ²¹ The para 3.11 of the 149 Standing Committee Report (2004) on demands for grants of the Department of Elementary Education and Literacy (MHRD) presented to the Rajya Sabha on the 20th August 2004 states.
- ²² Several teacher leaders conveyed the feeling during personal communication.
- ²³ Several newly appointed teachers thro' DSCs, who are on the university campuses, felt the same.
- ²⁴ Based on a school survey of 188 government primary facilities in a state of northern India, the Public Report on Basic Education (PROBE) in India reviewed such studies.
- ²⁵ Grover and Singh, 2002; World Bank, 1997.
- ²⁶ Para teacher scheme, therefore, is the violation of very essence of NPE (1986) i.e. improving the quality and status of teachers. But then, the same central government went on encouraging such recruitments in several states.
- ²⁷ Krishnan Khanna op.cit.
- ²⁸ The Economic tTimes, August 1, 2006.
- ²⁹ V All India Educational Survey, Andhra Jyothi, September 15, 2006.
- ³⁰ Ramachandran 2002, Jha and Jhingran 2002
- ³¹ In case a girl drops out, the amount is refunded to the state. From the high school onwards, the girl student receives Rs.1000 per year and then Rs. 20,000 scheme should cover all girls needing such assistance.
- ³² The Hindu, October 24, 2005.
- ³³ Brief review of teacher journals in July-October 2005, reveals the fact.
- ³⁴ Through personal communication from such teachers.

- ³⁵ Experience shows that services for children, whether through the AWCs or the primary school, get utilized by the community only to the extent that the service delivered is perceived to be of value by the community. On the other hand, quality on such a large scale can only be assured through better community involvement, supervision and ownership.
- ³⁶ Besides Loksatta, Jana Vignana Vedika and Satyanveshana Mandali, the Save Education committee has also offered several suggestions to strengthen these committees, but in vain. The present regime has plans of politicizing them (through appointing sarpanches as its chairpersons), as against the past regime's strategy of weakening (by not transferring powers) them.
- ³⁷ An international-based Aga Khan Foundation (AKF) seems to have developed a Programme for Enrichment of School Level Education in India (PESLE), keeping these objectives in view. AKF programme is being implemented in 1,071 schools in the States of Andhra Pradesh, Gujarat, Maharashtra and Rajasthan involving 2, 27,500 students. Source: AKF Publications (Experiences in Education).
- ³⁸ Under PESLE project, AKF is currently working through Dr. Reddy's Foundation for Human and Social Development, providing education to working children of Hyderabad in collaboration with Andhra Pradesh State Police Department and the State Education Department; Society for All Round Development (SARD).
- ³⁹ The MVF approach to tackling child labour differs from that followed by the National Child Labour Eradication Program (NCLP) of the Government of India. Even the Bala Jyothi programme of NCLP agenda (Pratyamnyaya, another Hyderabad-based NGO) has been implemented in and around twin cities. NCLP provides support for the setting up of special schools for child laborers, financial incentives to parents and mid-day meals to attract children into schools.
- ⁴⁰ However non-serious these manifestoes may be, their promises are worth noting, as they are in black and white, and thus enforceable morally, if not otherwise.
- ⁴¹ According to Prof. James Manor, "It is surprising to note that the usual practice is to submit inflated figures on the government's ... achievements in their sectors. Officials at successively higher levels sometimes compound the problem as the data pass upward, by inflating things further to provide those still higher up with good news...Indeed, many bureaucrats believe that the CM finds this practice of manipulation convenient, that as one put it, "he wants only the figures and not the work". This is a serious matter for a CM who depends more heavily on quantitative data than almost any other leader in the LDCs".

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Competing Demand for Water in Tamil Nadu: Urbanisation, Industrialisation and Environmental Damages in the Bhavani and Noyyal Basins (1880s-2000s)

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Abstract

This article attempts to analyse, in a historical perspective (1881-2002), the emergence of competing demand for water caused by the diversion of river basin water to meet the demand of the urban domestic use and industrial needs and its consequential damage to the ecology and environment, which further aggravated the problem, in the Bhavani and Noyyal river basins of Tamil Nadu. It examines the diversion of water for the domestic and industrial sectors that caused a great threat to the ecology, environment and health of the people and to the flora and fauna of these regions, which further aggravated the competing demand situation leading to 'water market' in the basin areas. Further, it also analyses the role of the state, how it further motivated the competing demand for water, thereby neglecting the ecology and environment of these river basins. On the one hand, it provides water to the pollution-causing industries by diverting water from the river basins, where there is already an acute scarcity of water. On the other hand, the diverted water is getting polluted due to the ineffective pollution control measures of the state, further aggravating the situation for competing demand for water and worsening the environmental conditions in the river basins. In short, this article examines the proliferation factors for water demand creating competition in the basin areas and the consequence of environmental damages that not only created 'water market' but also posed great threat to the ecology, environment and people in the Bhavani and Noyyal river basins of Tamil Nadu since the late 19th century up till the early years of the 21st century (1881-2002).

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The Problem

Sustainable development is defined as meeting 'the (human) needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987:8). This concept implies that there is a limit on environmental resources and the ability of the biosphere to absorb human activities. These limits are seen to have roots in technological inadequacies and inequitable social organisation. Thus, sustainable development must entail a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional changes are made consistent to meet the future as well as the present needs (World Commission on Environment and Development 1987: 9).

In recent years, sustainable resource use has been emphasised invariably in the developed and the developing countries alike. It is believed that the sustainability can be ensured through the market mechanism. The role of market is the exchange of commodities (goods, services or resources) between producers/sellers and consumers/buyers within a specific geographic area during a given period of time. But the market mechanism has failed to ensure the sustainability of the resources. It is because the benefit of production or consumption is not included in the market price -- neither in the supply price nor in the demand price. In other words, the market is not taking into account the transaction cost while determining the cost or benefit of the goods. This spillover effect produces the externalities in the economic system. The entire process is known as market failure. For example, dyeing and bleaching industries use a large quantity of water and discharge almost the same amount into the Noyyal and other public places. This effluent discharge affects the ecology and environment in these geographical regions. Neither the producers nor the consumers meet the cost of the damages caused to the ecology and environment.

The basic theory of environmental policy defines pollution 'as a public "bad" that results from "waste discharges" associated with the production of private goods' (Cropper and Oates 1992:678). To control the pollution and protect the scarce resources, the theory stipulates imposing numerous taxes. Based on the theories, the state has imposed several restrictions by several laws and taxes. However, the state intervention has proved to be ineffective. The failure of the market led to a great threat to the ecology and environment of the basins and created scarcity of water as well as competing demand for it among different sectors. To meet the increasing as well as competing demand, water was diverted from the river basins and this has aggravated and extended the problem to the entire Bhavani and Noyyal river basins.

Competing demand for water among the different stakeholders led to water conflicts within the basin, between the basins of the state and between the states

and countries (Saravanan 2001). In the Bhavani basin, water conflicts existed among the farmers (Saravanan 2001). Conflicts emerged between the states of Kerala and Tamil Nadu to share the water resources.¹ Because, if the east flowing rivers are diverted towards the west, it 'will severely affect human communities dependent upon Bhavani all the way down to the Lower Bhavani dam and in a less drastic way further downstream in the Cauvery basin' (Satish Chandran Nair 2002)².

Recently, when Tirupur Exporters Association planned to divert water from the confluence of the Cauvery, the people of Erode, who were already facing an acute shortage of drinking water, opposed it. In this context, this article attempts to analyse the competing demand for water that has arisen owing to factors like urbanisation, industrialisation and environmental damages in the Bhavani and Noyyal river basins of Tamil Nadu from the 1880s till the early 2000s in a historical perspective.

In this article, an attempt is made to analyse the various demand factors, viz., population, in-migration, industrial growth etc, that have led to increased water requirements during the study period. Drinking water problem had emerged in Coimbatore towards the end of the 19th century (Saravanan 1998a). Water supplying schemes were initiated during the first quarter of the 20th century (Saravanan 1998a, Saravanan and Appasamy 1999). Tirupur, on the other hand, grew rapidly only in the second half of the 20th century and started consuming water not only for domestic purposes but also for a large number of upcoming bleaching and dyeing industrial units. According to the South Indian Hosiery Manufacturers Association (SIHMA) Bulletin, 750 dyeing and bleaching units existed in 1998. The ever-growing water demand in the two cities was due to the increasing population, caused by in-migration of people seeking employment opportunities and other business activities, as well as the residential and institutional developments.

During the 20th century, different kinds of industries and several infrastructural facilities were developed in Coimbatore and Tirupur cities. Consequently, the population has increased as a large number of people from different villages of the district, and from neighbouring districts and states migrated seeking employment in the industries and commercial activities. The rapidly growing water demand has produced a 'water market' for industrial water in Tirupur and for drinking water in the suburban areas of Coimbatore. With the increasing demand, water from the neighbouring Bhavani basin has been diverted to both Coimbatore and Tirupur, since local sources were inadequate to meet the demand. The latest proposal is a joint sector scheme to divert water from the confluence point of the Bhavani and the Cauvery to meet the industrial and drinking water demands in Tirupur, which is growing rapidly along with the hosiery industry.

On the one hand, the increase in population and development led to a sharp rise in demand for water in the domestic, industrial and agricultural sectors, and, on the other hand, with the increase in demand, the water is being polluted --

both the ground and surface water. This aggravates the water demand further. Historically, increasing water demand has been met through diversion of water from other places. However, new sources of water are unviable due to the non-availability of the surplus water.

There have been several studies focusing on labour markets, changing labour relations, cheapening of labour, feminisation of labour, and child labour problems in the Bhavani and Noyyal river basins since the last decade of the 20th century (Harriss 1982, Krishnaswami 1989, Cawthorne 1993 and 1995, Chari 2000, Neetha 2002). Till the '90s, the studies have focused on the labour issues and have not looked into the environmental problems.

This article discusses the major factors that have influenced water demand in Coimbatore and Tirupur, viz., a) population growth, b) growth of industries and other institutional establishments, and the consequences of ecological and environmental issues in these river basins. The article consists of seven sections. The second section gives the macro view of the competing demand for water. The third section focuses on demographic factors such as population growth, migration trends, and the occupational patterns of the Coimbatore and Tirupur cities and the urban agglomeration³ in the 20th century. The fourth section discusses the industrial development and the growth of water-consuming industries in the two cities. The fifth section is an analysis of the local water supply options for the two cities in meeting the growing demand. The sixth section deals with the ineffective pollution control measures and environmental damages, and the last section throws up some concluding observations.

Competing Demand for Water: A Macro View

At the global level, estimates show that the water demand has increased as a whole in different sectors of the economy during the 20th century (Meinzen-Dick and Appasamy 2002:2). Further, the demand for water will increase in general, and in the domestic and industrial sectors in particular, in the future. In the developing countries, competing demand for water among different stakeholders has increased, particularly during the last quarter of the 20th century. It is mainly due to the factors like urbanisation with in-migration, population growth, and industrialisation with water pollution. Urban water demand has increased due to the need for drinking water for the growing population and the economic activities (Meinzen-Dick and Appasamy 2002:2). This demand will increase further over the period. In short, the increasing demand for fresh water on one hand, and the limited as well as polluted water supply on the other, have made the situation much worse in recent years in most of the developing countries.

In India, the current domestic water use is about 25 BCM, while the consumption in the industry and energy generation is about 67 BCM; and it will increase to 52 BCM and 228 BCM respectively by 2025 (World Bank 1999:9). In

1990, water use in irrigation was 460 BCM and it is expected to increase to 770 BCM in 2025 (World Bank 1999:9). According to the National Commission for Integrated Water Resources Development (1999), the total water requirement for the country will be 694 km³ to 710 km³ in 2010, and 973 km³ to 1,180 km³ in 2050, depending on the low demand and high demand scenarios (GoI 1999:69). The water requirement for the domestic, industrial and power sectors may increase from 4.3 km³ in 2010 to 111 km³ in 2050; 37 km³ to 81 km³; and 19 km³ to 70 km³ respectively in the coming decades. Invariably, the demand for irrigation, domestic water as well as industrial water is expected to increase in different river basins of the country.

In Tamil Nadu, the demand for domestic water supply and industrial requirements will increase remarkably in future. According to the Institute of Water Studies (IWS), the Tamil Nadu government's estimate shows that the demand for water in the agriculture sector will decline and at the same time the domestic and industrial water demands will increase in the next four decades in the 16 major river basins in Tamil Nadu. Domestic water supply will increase from 1,088.21 MCM in 2004 to 1,793.67 MCM in 2044; the industrial water demand will increase from 808.54 MCM to 2,196.63 MCM for the same period. In other words, the domestic demand will increase nearly two-fold and the industrial demand nearly three-fold in the next four decades (Government of Tamil Nadu: 42.-44).⁴

In addition to the increasing demand for water in both the domestic and industrial sectors in different river basins, water pollution further aggravated the situation in many of the river basins. The problem has now been further exacerbated owing to the decline in water quality caused by pollution (World Bank 1999:7-14). According to the National Commission for Integrated Water Resources Development (1999) estimates for 17 categories of industries, the water requirement was 15,282.9 Mm³/year in 1997, the total wastewater generated being 3,878.3 Mm³/year (GoI 1999:157). Whereas, in the next 50 years (2050), the required water for these (17) industries will be 1,02,535.75 Mm³/year and the wastewater generation would be 66,408.38 Mm³/year (GoI 1999:454-55). Of course, this estimate has not taken into account the small and village industries. If these are included, the demand for water would increase manifold. In Tamil Nadu, nine major basins have been highly polluted by various industrial pollution activities (Government of Tamil Nadu:52).⁵

Water scarcity and its augment demand have become a common phenomenon in most of the developing countries in recent decades (World Bank 1993:2). Till recently, demand for water has led to numerous conflicts in basins as well as in delta regions among the farmers and the states (World Bank 1993:9). The issue has aggravated manifold due to the demand from different users like the agricultural and industrial sectors, besides the domestic consumers. The problem has now been further exacerbated owing to decline in water quality, caused by pollution (World Bank 1999:7-14).

In the Bhavani and Noyyal river basins, conflicts between and among farmers, municipalities, urban residents, the industry and the state had triggered a crisis since the late 19th century (Saravanan and Appasamy 1999:162). Such disputatious demand for water by different users, in addition to the pollution, has made the crisis a major focal point. Until the early '70s, the government had looked at the water diversion as a source of revenue not to be regulated due to objections raised by the farmers or from the environment point of view (Saravanan and Appasamy 1999:175). Though the state has enforced several pollution control Acts and rules for environmental protection since the '70s, it has not implemented them until recently.⁶ In fact, pollution control institutions have not implemented the Acts more effectively in the small-scale industries (Appasamy 2000:1).

In addition to this, water demand has been increasing drastically in the agriculture sector, particularly due to the Green Revolution technologies. Furthermore, the river basin water has been transferred to the urban areas to meet the demands of the growing population and industrial requirements. To make matters worse, the water used both by the people and industries is discharged as polluted water, affecting both the groundwater as well as the surface water (City Corporate Plan - Tirupur, Tamil Nadu Urban Development Project-II, 1999:63). Blomqvist rightly pointed out that "Bleaching and dyeing units do not bear the total costs of their activities but instead externalise them to other water users such as households and farmers" (Blomqvist 1996). Due to this, water has been diverted from distant places since the early 20th century. For example, Siruvani river water was being diverted to Coimbatore city to meet the water demand during the early 20th century (Saravanan 1999). In recent years, inter-basin transfers have also become a difficult task (Saravanan 2004). Because, "... taking water from one basin may harm the environment, and the pipes or canals may have to cut through forests, agricultural land or habitations, causing environmental or land acquisition problems" (Meinzen-Dick and Appasamy 2002:15).

On the one hand, Tirupur⁷ earns about Rs.5,000 crore of foreign exchange through the knitwear export⁸ and, on the other, it is using water resources in abundance and polluting them, which has gradually led to a decline of productivity, reduction in the ground as well as surface water and deteriorating health conditions (City Corporate Plan - Tirupur, Tamil Nadu Urban Development Project-II, 1999: 63). However, the export value has increased from Rs 9.69 crore in 1984 to Rs 5,000 crore in 2002-03. In 1984, 104 lakhs of pieces worth Rs 969 lakh were exported; it increased to 3,784 lakh pieces worth Rs 3,01,700 lakh in 1999 (Appasamy 2000:32). Proportionately, the share of Tirupur hosiery garment exports in the overall all-India exports has increased remarkably over the period: it was only 21.01 per cent in 1984, but increased to 50.91 per cent in 1998. The proportion of the value of the exports has increased from 10.86 per cent to 39.15 per cent during the period (Appasamy 2000:25). In 1999, about 3,784 lakh pieces of cloth worth US \$ 7,543 lakh were

exported; it increased to 4,255 lakh pieces worth US \$ 8,147 lakh in 2000.⁹ The Central Government's Export-Import Policy for 2003-04 has further encouraged the knitwear industry in Tirupur through a slew of supportive schemes.¹⁰

Although the knitwear industry provides employment for a large number of the people and earns huge foreign exchange, its consequences on the environment and the health of those engaged in the industry are immense. The industry affects the entire region immensely (Saravanan 2007). Reports from hospitals in the region substantiated '... widespread incidence of skin diseases and pulmonological disorders' (Krishnakumar 1998). Till recently, the pollution control measures were inactive. Even now only small quantities of industrial effluents are treated with the Common Effluent Treatment Plants (CETPs).¹¹ According to the Pollution Control Board estimation, about 80.7 million litres of effluent water was discharged into the Noyal river daily from dyeing and bleaching units in Tirupur and its vicinity, and another 30 lakh litres of untreated municipal waste water also found its way into the river (Gurumurthy 2002). Even after treatment, Total Dissolvable Solids (TDS) levels of these industries are more than double the permissible level of 2,100 ppm (Gurumurthy 2003).

In addition to this, a large quantity of firewood is used to process the fabric. Studies reveal that around 3,600 truckloads of firewood per month come from different parts of the state, the minimum distance of transport being 300 km.¹² After having a bird's eye view of the macro issues pertaining to the competing demand for water, let us see the issues involved in the Bhavani and Noyal river basins of Tamil Nadu.

Demographic Process in Coimbatore and Tirupur

The population growth in a city is not only because of the high fertility rate of the population but also due to (i) the change/extension of the geographical areas and (ii) increasing in-migration in search of employment and other economic opportunities/activities. This section examines the modes of extension of the geographical areas, population growth, trends of in-migration, out-migration, economic transformation, etc., of Coimbatore and Tirupur towns from the late 19th century to early 21st century.

a) Coimbatore

Coimbatore is known as 'the Manchester of South India' due to the concentration of textile industries. It is located in the south-western part of Tamil Nadu and lies between 10°50' North Latitude and 76°56' and 77°01' East Longitude. The process of urbanisation and industrialisation has led to the growth of peripheral areas which have become a part of the urban area over the period. Till the early 20th century, the city limits had not extended much. For example, the geographical area

of the Coimbatore city was only 25.9 square km (10 sq miles) consisting of 10 revenue villages in the 1870s. In fact, it became a municipal town only in 1866. It has increased considerably in the subsequent decades, particularly since the 1940s. After Independence, the extension of the geographical area proliferated vastly.

The total geographical area of Coimbatore city, which was 69.56 sq km in 1961, increased to about 105.6 sq km in 1991. The concept of urban agglomeration was introduced in 1971. The urban agglomeration area, which was 156.31 sq km in 1961, increased to 289.96 sq km in 1971 and to 317.23 sq km in 1991. Expansion of the city limits over the period brought more population and industries within the urban limits resulting in a steep rise in the demand for water.

Population Growth

During the 1870s, population in Coimbatore city was very low at 35,310, and the demand for drinking water was met through the wells. The Coimbatore city administration did not feel the need for diverting water from distant places or water sources (G.O.No.184 Mis, Local and Municipal [M], 14-2-1889). In the 1880s, when the water problem was discussed for the first time by the government, the Coimbatore city population was 38,967.

Since then, different water sources have been in consideration for supplying water to Coimbatore city (Saravanan and Appasamy 1999). Unfortunately, the schemes have not materialised either due to the high cost or bad quality of water sources (Saravanan 1998). Till 1931, the population growth in Coimbatore city was at a very moderate rate. For example, between 1871 and 1921, the decadal population growth rate was less than 20 per cent. Since 1930s, population growth has increased quite remarkably due to the in-migration and establishment of other business activities. In 1931, population in Coimbatore city was 95,198 and it went up to 5,65,293 in 1971 (see Table 1). The decadal population growth rate was very high at more than 50 per cent between 1941 and 1971. During this period, several panchayats, viz, Singanallur, Vilankurichi, Telungupalayam, Komarapalayam, Sanganur, Ganapathy, Peelamedu, were merged with the Coimbatore city. Though the population has increased, there has been a decline in the growth rate from 1971. For example, the decadal population growth rate, which was 54.12 per cent for 1961-1971, decreased to 24.63 per cent in 1971-1981; it again fell to 15.45 per cent in 1981-1991. The population growth rate was very low, at 13.08 per cent, in 1991-2001.

Until the process of industrialisation that emerged in Coimbatore, the neighbouring villages had remained isolated from the city. Since 1930s, the adjoining villages were also affected by the urbanisation of Coimbatore. For example, in 1921 the population of Coimbatore urban agglomeration area was 75,491, whereas in Coimbatore city it was 65,788. Population in both the city and agglomeration area has increased rapidly between 1941 and 1971 (see Table 1). The high population growth rate was due to two reasons: inclusion of more areas in the urban

agglomeration area and increased in-migration rate over the period. This is due to the growth of industrial employment and other infrastructural facilities, viz., educational institutions, business centres, recreational facilities and increasing floating population. The agglomeration population growth declined during the decade of 1981-1991 but increased in the subsequent decade. Extension of the city geographical area as well as the urban agglomeration led to the increase in demand for water in Coimbatore city and its peripheral regions.

Table 1: Trends of Population Growth in the Coimbatore City and Agglomeration Areas: 1871-2001

Year	Town			Urban Agglomeration		
	Area (Sq Km)	Population	Decadal Growth Rate (%)	Area (Sq Km)	Population	Decadal Growth Rate (%)
1871	-	35,310		-	-	-
1881	-	38,967	10.36	-	-	-
1891	-	46,383	19.03	-	-	-
1901	-	53,080	14.44	-	53,080	-
1911	-	47,007	-11.44	-	47,007	-11.44
1921	-	75,491	60.59	-	65,788	39.95
1931	-	95,198	44.70	-	108,023	43.09
1941	-	151,875	59.54	-	189,612	75.53
1951	-	231,554	52.46	-	287,334	51.54
1961	69.56	366,799	58.41	156.31	448,201	55.99
1971	103.09	565,293	54.12	298.95	736,203	64.26
1981	105.60	704,514	24.63	290.73	920,355	25.01
1991	105.60	816,321	15.45	317.23	1,100,746	19.60
2001		923,085	13.08		1,446,034	31.37

Notes: The following towns were merged with Coimbatore city at different periods of time: Singanallur (M) part with a population of 21,527 in 1941; 33,799 in 1951 and 66,318 in 1961 was merged with Coimbatore municipality; Vilankurichi (P) part with a population of 5,190; Telungupalayam (P) with 27,101; Komarapalayam with 14,224; Coimbatore non-municipality with 2,256; Sanganur with 26,099; Ganapathy (P) with 21,849 and Singanallur (M) with a population of 1,12,206 were merged with Coimbatore town in 1971; Vapplipalayam (P) with a population of 23,207 in 1961; Peelamedu (P) with a population of 8,297 in 1941; 13,947 in 1951 and 18,437 in 1961 were merged with Singanallur (M) in 1971; and with the merger of Singanallur (M) with Coimbatore (M) in 1981, the have also become a part of Coimbatore city.

Sources: Census of India (various years).

In-Migration

Till the early 20th century, the population growth of Coimbatore city was largely due to its natural increase. Extension of geographical areas and the number of in-migrants had hardly played any role in the population growth of the city. But this trend has changed after the emergence of industrialisation, particularly since the 1930s.

Table 2: In-Migration Details of Coimbatore City: 1931-1971

Details/years	1931	%	1961	%	1971	%
Total Migrants	-	-	126,802	44.29	291,540	30.60
From Coimbatore district	81,740	85.86	53,881	42.49	146,025	50.09
From Other Districts of the State	12,718	13.36	30,856	24.33	73,050	25.06
From Other States	594	0.62	40,751	32.14	70,935	24.33
From Other Countries	146	0.15	1,314	1.04	1,530	0.52

Note: Urban Agglomeration concept was followed from 1971 Census onwards.

Sources: Census of India (various years).

Due to industrialisation, a large number of people within Coimbatore district and from other neighbouring districts and the neighbouring state of Kerala, migrated to Coimbatore (Harriss 1982:994). This migration played a prominent role in the population growth of the city.

Emergence of industrialisation in these cities also resulted in a large-scale in-migration. However, it is difficult to estimate the actual number of in-migrants in Coimbatore city in 1931 since the number of births in Coimbatore city had not been enumerated in the Census. However, the available data ascertains the number of in-migrants from the other districts of the Presidency, states and other countries as well. According to 1931 Census, about 13 per cent of the in-migrants were from the other districts of the Presidency and only 0.77 per cent was from the other parts of the country and other countries. It seems that a large number of people could have migrated to Coimbatore city from Coimbatore district itself. About 86 per cent of the population in Coimbatore city, as per the enumeration, was from within the Coimbatore district.

The numbers of in-migrants have increased over the period in Coimbatore city. For example, the total population of Coimbatore city was 2,86,305 in 1961 of which, 1,26,802 persons accounting for 55.71 per cent were in-migrants. Of the in-migrants, 42 per cent had migrated from within Coimbatore district; 24 per cent from other districts of the Madras Presidency;¹³ 32 per cent from other states of India and a little more than one per cent from the other countries (see Table 2). The proportional rate of the in-migrants, however, has declined in Coimbatore city in

1971. This decline may be due to growth of agglomeration areas around the city. About 31 per cent of the population alone was accounted for as in-migrants. But of the migrants we could see the same trend of in-migration in Coimbatore city. In the 1991 Census, the in-migration details are not available for Coimbatore city, but are available only for the agglomeration area.

In-Migration in Agglomeration Areas

In the urban agglomeration area, the number of in-migrants has increased over the period. In 1971, the total number of population in the Coimbatore urban agglomeration area was 7,36,203, of which 2,91,540 (39.6 per cent) were in-migrants. Half of the in-migrants had migrated from within the Coimbatore district; 25 per cent from other districts in the state; 24 per cent from other states in India and 0.52 per cent from other countries.

Table 3: In-migration Details of Coimbatore Urban Agglomeration: 1971-1991

	1971	%	1991	%
Total Migrants	2,91,540	100	3,01,430	100
From Coimbatore	1,46,025	50.09	1,16,580	38.22
From Other Districts of the State	73,050	25.06	1,20,550	39.52
From Other States	70,935	24.33	64,300	21.08
From Outside India	1,530	0.52	3,580	1.17

Source: Census of India (various years).

The in-migration trend, however, has declined and the pattern also has changed in the subsequent decades. In 1991, the total population of the urban agglomeration areas was 11,00,746, of which, 3,01,430 (36.93 per cent) were in-migrants. Of the migrants, 38 per cent were from Coimbatore district; 40 per cent from other districts of the State; 21 per cent were of other states and a little more than one per cent from other countries (see Table 3). In the beginning, the migrant populations were largely from the native district and later on this trend has changed. The population growth with increase in in-migrants has led to emergence of slum settlements in the Coimbatore city. Consequently, the numbers of slums have increased over the period. At present, there are 43 slums within the Corporation area.¹⁴ According to the 2001 Census, 59,890 people (30,708 males and 29,182 females) are living in the slum areas of Coimbatore Corporation (Slum Population, 2001). It shows that the economic transformation in the Coimbatore urban agglomeration areas has attracted in-migrants not only from the district, a large chunk of them are from the other districts and states in recent years.

Out-Migration

Though the in-migration trend has increased over the years in Coimbatore city and agglomeration areas, it is difficult to assess the role of migration in population growth without quantifying the out-migration. Interestingly, the out-migration was very low in Coimbatore district and in comparison, the rate of in-migration was negligible during the study period.

Occupational Pattern

In Coimbatore city, though some traditional industries had existed during the 19th century, rapid industrialisation took place only at the end of the first quarter of the 20th century.

For example, in 1931, the total population in Coimbatore city was 95,198, of whom 38,569 were workers and 57,381 non-workers.

Table 4: Occupational Classification of Coimbatore City and Agglomeration: 1961-1991

Year	1961	%	1971	%	1991	%
City						
Total Main Workers	98,229	100	110,281		281,194	100
Primary Sector	2,729	2.78	1,893	1.71	6,778	2.41
Secondary Sector	36,654	37.31	36,468	32.93	110,476	39.29
Tertiary Sector	58,846	59.91	72,370	65.36	163,940	58.30
Urban Agglomeration						
Total Main Workers			238,284	100	382,387	100
Primary Sector			27,450	11.52	27,176	7.11
Secondary Sector			95,681	40.15	150,437	39.34
Tertiary Sector			115,153	48.33	204,774	53.55

Sources: Census of India (various years).

Among the workers, 4,368 (11.33 per cent) were in the primary sector; 9,360 (24.27 per cent) in the secondary sector, and 24,839 (64.4 per cent) in the service sector (Census of India 1931: 116-253). Since then, the city area has extended along with the growth of industries. In 1961, Coimbatore city, which was spread over about 69.56 sq km, increased to 103.09 sq km in 1971 and 105.6 sq km in 1991.

The total workforce also increased from 98,229 persons in 1961 to 1,10,281 in 1971 and 2,81,194 in 1991. The workforce was engaged mainly in the secondary and service sectors' activities. Even in 1961, only 3 per cent of the total workers were engaged in the primary sector activities; the percentage declined to 2.41 per cent in 1991. It indicates that the growing population in Coimbatore city is mainly

involved in occupations other than agricultural activities. The workforce in the industrial sector accounted for 37-39 per cent and that in the service sector for 58-60 per cent during the period. This economic transformation was the prime reason for the rural people to move towards the urban areas. Not only in the city but also in the Coimbatore urban agglomeration areas the process of economic transformation had taken roots over the period. For instance, in 1971, 11.52 per cent of the workforce was engaged in the primary sector, but it declined to 7 per cent in 1991. Almost the same proportion of workforce was engaged in the secondary sector at the same period (Table 4). It shows that industrialisation had paved the way for the economic transformation of the agglomeration areas, which led to the movement of population towards the urban and suburban areas.

b) Tirupur

Tirupur city is popularly known as 'the Dollar City', 'Knit City', 'Cotton City' and mainly 'the Hosiery Centre'. The city is located in the southwestern parts of Tamil Nadu on the banks of Noyyal river about 50 km east of Coimbatore city. It is the second largest town in this district. It lies on 11°07' Northern Latitude and 77°15' Eastern Longitude. The geographical extension of Tirupur city has been a very recent phenomenon. Till Independence and even for some years later, Tirupur was a small characteristic town; it became a 'town' with the inclusion of Thennampalayam, Karuvampalayam, and Valipalayam villages on December 1, 1947 (Tirupur City Corporate Plan 1999:23). In 1971, the total geographical area of Tirupur town was only 11.92 sq km; but by 1991, it increased to 43.52 sq km. Similarly, the Tirupur urban agglomeration area, which was 54.86 sq km in 1961, spread to 90.98 sq km in 1991.

Population Growth

The population growth rate of Tirupur city was moderate till 1921. In fact, the population growth rate had declined between 1911 and 1921 due to endemic epidemics in 1917-18 (Sathiah 1994:2). Since then, the population growth rate has witnessed a sharp rise. The decadal population growth rate was more than 50 per cent between 1931 and 1961. It was very high at 83 per cent in 1941 (see Table 5). Though the population growth rate had declined since 1961, the decadal growth rate was higher when compared to Coimbatore city. For example, the population growth rate of Coimbatore city was 15.45 per cent in 1981-1991 whereas it was 42.63 per cent for Tirupur city. A large number of people from the villages of Coimbatore district and other districts of Tamil Nadu migrated to Tirupur mainly for unskilled work in the dyeing and bleaching industries. The fast-growing Tirupur city and its agglomeration areas require more water to meet the needs of a growing population as well as the large number of water-consuming industries.

Table 5: Population growth in Tirupur city and Agglomeration: 1891- 2001

Year	Town			Urban Agglomeration		
	Area (Sq.Kms)	Population	Decadel Growth Rate (%)	Area (Sq.Kms)	Population	Decadel Growth Rate (%)
1881	-	3,681	-	-	-	-
1891	-	5,235	-	-	-	-
1901	-	6,056	-	-	6,056	-
1911	-	9,429	55.70	-	9,056	55.70
1921	-	10,851	15.08	-	10,851	15.08
1931	-	18,059	66.43	-	18,059	66.43
1941	-	33,099	83.28	-	39,195	117.04
1951	-	52,479	58.55	-	60,465	54.27
1961	27.20	79,773	52.01	54.86	97,965	62.02
1971	31.92	113,302	42.03	73.65	151,127	54.27
1981	43.52	165,223	45.83	90.98	215,859	42.83
1991	43.52	235,661	42.63	90.98	306,237	41.87
2001	-	346,551	-	-	542,787	-

Sources: Census of India (various years).

In-Migration

For Tirupur city the in-migration details were not available till 1961. The total population of Tirupur city in 1961 was 1,51,127, of which 63,820 persons or 42.23 per cent were migrants. Of the in-migrants, 79 per cent were from Coimbatore district; 13 per cent from the other districts of the state and 7 per cent from the other states of India (see Table 6).

Table 6: In-Migration Details of Tirupur: 1971

Details/years	1971	%
Total Migrants	62820	100
From Coimbatore district	50575	79.25
From other districts of the State	8485	13.29
From other states	4,710	7.38
From outside India	50	0.08

Note: Urban Agglomeration concept was followed from 1971 Census onwards.

Sources: Census of India (various years).

In 1971, in-migrants were largely drawn from Coimbatore district itself following the spurt in the number of housing industries, which required heavy manual labour. The 1991 Census shows little details of in-migration are of Tirupur city and for the agglomeration area.

In-Migration in agglomeration area

The in-migration trend was high in the Tirupur agglomeration area. In 1971, the total population of the Tirupur agglomeration area was 151,127 people of which 63,820 (42.23 per cent) was in-migrants. Of them about 80 per cent were from the Coimbatore district; 13 per cent from the other districts of Tamil Nadu and about 7 per cent from the other states of India. The rate of in-migrants also declined and the pattern also had changed in the Tirupur agglomeration area in the subsequent decades. In 1991 half of the in-migrants were from within the district whereas 41 per cent were from the other districts of the state (see Table 7). Over the period, the proportion of in-migrants from Coimbatore district has come down remarkably.

Table 7: In-migration details of Tirupur Agglomeration Areas: 1971-1991

	1971	%	1991	%
Total Migrants	63820	100	123195	100
From Coimbatore	50575	79.25	62337	50.60
From Other Districts of the State	8485	13.29	50798	41.23
From Other States	4710	7.38	9360	7.60
From Outside India	50	0.08	700	0.57

Source: Census of India (various years).

A recent survey also suggested that a large proportion of migrant workers were from the neighbouring districts like Erode, Salem and Madurai, as well as from other parts of the state (Cawthorne 1993:23, Neetha 2002). Initially, the work force mainly consisted of 'Backward Communities' but gradually even Scheduled Castes joined their ranks. Neetha states that: "Traditionally, the weaving community members belonged to the backward caste (BC) 'Gounders', and workers in all the units were mostly from this caste. However, with the growth of the industry and with the flow of the migrants, the caste composition of the workers has changed. At present, Scheduled Castes, who were traditionally agricultural labourers, are seen joining the industry in large numbers though it is still dominated by the backward castes" (Neetha 2002). It shows very clearly that industrialisation and the economic transformation process had attracted in-migrants largely from the other districts of the state in recent years. The declining rate of in-migration may be the reason for the low growth rate of population in Tirupur city as well as its agglomeration area in recent years.

Occupational patterns

Until the first quarter of the 20th century, the economy of Tirupur was predominantly agrarian in nature. Almost all the workers were involved in the primary sector activities. This trend changed during the second quarter of the century. From 1930 onwards, there was a shift towards the secondary and tertiary sectors. In 1961, a little more than half of the work force in Tirupur city was engaged in the secondary sector activities. It increased to two-thirds (65 per cent) of the work force in 1991. As against this, the proportion of the work force in the primary sector had declined from 4.11 per cent in 1961 to 0.68 per cent in 1991. In the service sector, the proportion of the work force has declined from 45.34 per cent to 34.75 per cent for the same period (see Table 8). In short, within six decades, Tirupur's economy has changed completely from the primary to the secondary and tertiary sector activities. Not only the Tirupur city but also the agglomeration area had transformed remarkably. The percentage of the work force involved in the primary sector remained around 4 between 1961 and 1991 (see Table 8). It indicates that even the economy of the agglomeration area had transformed with non-agricultural activities dominating it. Unlike the Coimbatore city and agglomeration areas, about two-thirds of the work force in Tirupur engaged in the industrial sector due to the large number of dyeing and bleaching industries and only one-third worked in the service sector.

**Table 8: Occupational Classification of Tirupur City and Agglomeration:
1961-1991**

Year	1961	%	1971	%	1991	%
City						
Total Main Workers	29,804	100	40,598	100	103,725	100
Primary Sector	1,224	4.11	1,409	3.47	704	0.68
Secondary Sector	15,066	50.55	22,178	54.63	66,973	64.57
Tertiary Sector	13,514	45.34	17,011	41.90	36,048	34.75
Urban Agglomeration						
Total Main Workers	-	-	55,026	100	134,177	100
Primary Sector	-	-	5,114	9.29	5,349	3.99
Secondary Sector	-	-	28,772	52.29	84,626	63.07
Tertiary Sector	-	-	21,140	38.42	44,202	32.94

Sources: Census of India (various years).

Thus, a large number of people are engaged in the secondary and tertiary sectors in the Coimbatore and Tirupur cities as well as in their agglomeration areas. A major consequence of this urbanisation process is the increased demand for water both in Coimbatore and Tirupur.

Change in the land use pattern

The land use pattern in the Tirupur Local Planning Area (TLPA)¹⁵ has been changed dramatically over the last two decades. The total geographical area of TLPA is about 218.28 sq.kms. In 1984, 190.41 sq.kms (87 per cent) of the TLPA was under the agricultural use, 19.97 sq.kms (9.15 per cent) was of residential use and 4.23 sq.kms (2 per cent) of industrial use and the rest for the commercial, educational and other public uses (Table 9).

Table 9: Land Use Pattern in TLPA: 1984-2001

Use	1984		2001 (proposed)	
	Area in sq.km	%	Area in sq.km	%
Residential	19.97	9.15	66.72	30.57
Commercial	1.67	0.77	4.18	1.91
Industrial	4.23	1.94	18.37	8.42
Educational	1.30	0.60	6.31	2.89
Public and Semi-public	0.68	0.31	1.48	0.68
Agricultural	190.41	87.23	121.19	55.52
Total	218.28	100	218.28	100

Source: City Corporate Plan - Tirupur, Tamil Nadu Urban development Project-II, 1999, p.29.

In 2001, agricultural land use has come down to 121.19 sq.kms (56 per cent) and the residential and industrial use has been increased to 66.72 sq.kms (31 per cent) and 18.37 sq.kms (8 per cent) respectively. It clearly indicates that the urbanisation and industrialisation has increased in the TLPA during the last two decades. Consequently, numbers of slums have been increased in recent years. According to the 2001 Census, 8,922 persons are living in the slum areas of Tirupur.¹⁶ However, Tirupur City Corporate Plan (1999) documents claims that there are 63,094 persons living in 88 slums of the Tirupur.¹⁷

Industrial Development in Coimbatore and Tirupur Cities

The process of industrialisation emerged in Coimbatore city during the early 20th century with the coming up of various types of industries. But in Tirupur city, this took root only in the second half of the 20th century with the explosive growth of the industries, specifically the hosiery industry.

Industrial growth influences water demand in two ways: drinking water has to be provided for the increasing population and for the water-consuming industries. It also creates two serious problems. One is that water has to be diverted from the irrigation sector resulting in conflicts between the industrial and agricultural

sector, and the second is that the untreated effluents end up polluting both the ground water and the surface water. This section examines the trends of industrial growth and the rise of water-consuming industries in Coimbatore and Tirupur.

a) Industrial growth in Coimbatore city

Coimbatore city has a heavy concentration of cotton textiles, hosiery and knitwear units and metal-based industries producing textile and other machinery and irrigation pumps (Heyer 2000:4). Coimbatore district has been well-known for its cotton cultivation since the early Colonial rule. However, the cotton industry was first established in Coimbatore only in 1847. In 1907, a local entrepreneur set up a cotton mill in Coimbatore. Subsequently, several cotton industries sprang up in the city. The growth and concentration of the textile industry in the district has helped the growth of industries largely engaged in manufacturing machinery and equipments used in the textile sector.¹⁸ The Textool Company was established in 1944 at Ganapathy. Another machinery unit, Lakshmi Machine Work, was set up at Periyanaickenpalayam in 1962. These two factories have been making a remarkable contribution to sustaining the supply of tools and machinery required for the textile industry (Structure Plan for Coimbatore Local Planning Area 1985: 3-4). Over the period, several industries were set up in Coimbatore city. In 1988, there were about 1,131 industries of which 85 were foundry, casting and forging units; 79 manufacturing of electric motors and pumps; 92 other engineering product units; 164 textile machinery units and 582 units of other industries. The growth of these industries has attracted more labourers from the villages. Not only the direct employment opportunities increased in Coimbatore city, but a huge number of indirect employment opportunities were created due to the industrial growth in the city.

Apart from the emergence of large-scale industries, there was a spurt in the development of small-scale industries. For example, there were 4,763 small-scale industries in Coimbatore city in 1992. The number increased to 10,075 units in 1996-97.¹⁹ A large number of small-scale industries are related to textile production and most of them are located in the Coimbatore Local Planning Area.²⁰ Every year, several small-scale industries are coming up in Coimbatore city.

Growth of textile industries in Coimbatore city

In Coimbatore city, though a few cotton industries were started in the middle of the 19th century, the number of cotton industries registered a vertical growth only after the second quarter of the twentieth century. Since then, till the end of the Colonial rule, a large number of cotton textile industries had been established every year in Coimbatore city. About 22 textile mills with a capital investment of Rs 97 lakh were established in the city between 1932 and 1939 (Baker

1982: 350). During the British rule itself a large number of cotton industries were established in the Coimbatore city, making it the 'Manchester of South India'.

In addition to the large number of cotton industries set up in the city, a number of units were established in the peripheral areas of the city after Independence. While there were 111 textile (94 spinning and 17 composite) industries in Coimbatore district in 1975, the number shot up to 195 (180 spinning and 15 composite) industries in 1990.²¹ At present, around 100 textile mills are located in and around the city. The burgeoning textile industry in Coimbatore district led to the establishment of more industries and auxiliary units which in turn resulted in the increase in demand for more labour in Coimbatore city. However, the industrial demand for water in Coimbatore is fairly small compared to the domestic demand, since the industries are basically not water-consuming ones. However, at present there are more than 600 electro plants and melting industrial units in Coimbatore discharging their effluents into the Noyyal river.²²

b) Industrial growth in Tirupur city

Industrial activity in Tirupur city is mainly confined to hosiery industries engaged in the production of knitted fabrics. The hosiery industries are more labour-intensive than other industries. For example, this industry requires a team of 15 persons to complete a piece of banian (Shanmugam 1994:3). Due to the availability of cheap labour, electricity, transportation, favourable climate, etc., Tirupur had attracted businessmen from the different parts of the country. The unfavourable conditions in the knitting factories in the neighbouring districts led to the opening of new firms in Tirupur during the early 20th century (Neetha 2002). Between 1966 and 1975, about 150 industrialists transferred their business centres from Calcutta to Tirupur (Shanmugam 1994:2). The number of registered small-scale units of cotton textiles and textile products (hosiery) in Tirupur was only 1,143 in 1980; the number increased to 9,319 units in 1997 (Appasamy 2000: 22).

Since the late 19th century, Tirupur has been a centre of textile business, dominated by yarn trade and cotton (Chari 2000:589; Neetha 2002). However the Cotton Market Committee was established only in 1921 by the Tirupur Municipality (Tirupur city Corporate Plan). Till the early 20th century, Tirupur's economy was predominantly or completely dependent on agriculture and allied activities. The first ginning mill was established in 1904. There were no major industries in Tirupur city till 1911 and even till the 1930s, there were only a few knitting and ginning mills. Since the 1930s, infrastructure facilities have been developed in Tirupur city. With the commissioning of Pykara electricity system in 1933, Tirupur city was electrified between 1936 and 1945. The Pykara electricity system proved to be a boon for the phenomenal growth of Tirupur. However, the industrial growth was very slow till Independence, in fact, till the late 1960s (Krishnaswami 1989:1354). After

Independence, the hosiery industries engaged in the manufacture of banian products were launched and in the subsequent decades their number also increased.

Table 10: Industrial Growth in Tirupur city: 1911-2001

Year/ Type of industry	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001
Knitting Mills	-	-	5	22	35	250	415	1300	2800	2500
Dyeing and Bleaching mills	-	-	-	2	15	42	67	68	450	750
Printing on cloth	-	-	-	2	8	15	20	22	125	350
Lable Looms	-	-	-	-	1	4	6	9	100	150
Card-board making	-	-	-	-	2	9	18	48	253	200
Calendering	-	-	-	-	4	12	23	41	95	200

Notes: For 2001, compiled from the different sources.

Source: Municipal Office, Tirupur.

In 1991, about 3,900 different kinds of hosiery industries -- knitting mills, ginning mills, dyeing and bleaching mills, printing mills, etc -- existed in Tirupur city (see Table 10). It is traced that these figures are not accurate as they cover only registered firms and do not include other related subsidiary units, like manufacturing of cartons, tapes, polythene bags and others (Neetha 2002). In other words, the official data do not reflect much of the informal and unregulated activities, thus allowing a wide variation (Chari 2000: 582, Steele 2002). In addition to this, the number of small units has also increased over the period. A majority of the knitwear firms employ 10 to 50 workers (Chari 2000:583). Due to the increase in the number of hosiery industries, a large number of labourers have migrated to Tirupur in search of employment opportunities. Unlike the industries in Coimbatore city, which required some technical knowledge, industries in Tirupur were largely manual labour-oriented. Consequently, Tirupur absorbed a large number of migrants. Another facet of industrial growth in Tirupur was the setting up of water-consuming industries. Although there are a large number of water-consuming units in Tirupur, only 184 units were registered under SSI as water-consuming industries till 1997 (Appasamy 2000: 23).

In 1995, there were 8,437 industrial units in Tirupur city. Of these, 713 were water-intensive units. The requirement of water for industrial use was 90 million litres per day. A large quantity of water is required mainly for the 526 dyeing units (Kalaimani 1994:8). As on January 1, 1997, there were 851 water-consuming bleaching and dyeing units in Tirupur (Madras School of Economics 1998:33). Between 1997 and 2001, the number of dyeing and bleaching industries declined because of the closure of 164 units as ordered by the High Court as they failed to control pollution.

In 2000, as many as 2,500 knitting and stitching units, 750 dyeing and bleaching units and another 735 supporting units existed in Tirupur. A large quantity of salt is used in the dyeing process and hence the wastewater (90 million litres per day) is highly saline in content and is contaminated with a variety of chemicals.²³ The increasing number of water-consuming bleaching and dyeing industries in Tirupur made it one of the most water-demanding cities over the period.

Meeting Water Demand in Coimbatore and Tirupur²⁴

a) Coimbatore

Though Coimbatore city is located near the Noyyal, drinking water has been a major problem here since the late 19th century. In addition to the low rainfall, the groundwater is scarce due to the underlying hard rock formations. Even the available water quality is very poor (Saravanan and Appasamy 1999:163). Coimbatore was constituted into a municipality in 1866 with a population of about 35,000. Till the 1880s, water supply was managed with the existing well sources in different parts of the city. The municipality spent only a meagre amount during the late 19th century (Saravanan 1998). Scarcity of drinking water emerged in Coimbatore at the end of the 19th century due to non-availability of good groundwater sources. The available few water sources in and around Coimbatore were not of good quality. Initially, the government planned to use the nearby water sources. But these plans were not taken up either due to the high cost or because the sources were not good enough for human consumption. However, the government had introduced several other schemes since the late 1880s. Till 1912, many schemes were considered to address the city's water problem.

Table 11: Different Sources of Coimbatore Water Supply Proposals/Schemes

Year of Proposal made	Name of the Scheme	Water sources	Dropped/ Finalized	Remarks
1888	Muthikulam Scheme	Bhavani River	Dropped in 1890	Prohibitive cost
1892	Noyyal River Scheme	Noyyal River	Dropped in 1893	Prohibitive cost
1901	Chitrachavadi Channel and Rajavaikkal of Noyyal	Chitrachavadi Channel and Rajavaikkal of Noyyal	Dropped in 1901	Bad Quality of Water
1907	Kistnambadi Tank Scheme	Chitrachavadi Channel of Noyyal River	Dropped in 1908	Protest from Farmers and other down stream villages
1909	Sub-Artesian Springs, Singanallur Scheme	Sub-Artesian Springs, Singanallur Valley Scheme	Dropped in 1890	Prohibitive cost and poor financial conditions of the Municipality
1912	Siruvani I	Siruvani River	Finalised in 1924	Best water at low cost of the scheme
1928	Anayar and Periyar Scheme	Anayar and Periyar Streams	Finalised in 1929 and 1930	Temporary water supply
1956	Siruvani II	Siruvani River	Finalised in 1970	Supply of water increased
1980	Pillur Scheme	Bhavani River	Finalised in 1989	Supply of water increased

Source: Saravanan 1998, Saravanan and Appasamy 1999: 65.

However, the schemes were not taken up due to the prohibitive cost, bad quality of water and protests from different farmers (Table 11). In short, as early as the 1890s, scarcity of quality water led to draft proposals to divert water from the other basins. Consequently, the government diverted water from the Siruvani river, which located at a distance of 36 km from Coimbatore city, in 1931. Since then, there has been rapid urbanisation and industrialisation in the region. The water sources were insufficient to meet this pace of development. The per capita availability of water had declined since the 1930s. For instance, per capita water consumption was

126 litres per day in 1931 and it declined to 53 litres by 1961. It further declined to 36 litres per day in 1971 (see Table 12). In the meantime, the government had initiated several measures to increase the water supply from the Siruvani water supply scheme.

Table 12: Trends of Domestic Siruvani and Pillur water supply in Coimbatore: 1931-2001

Year	Quantity (in MLD)	Population (in millions)	Per capita consumption litres/days
1931	11,3	0.90	126
1941	12,5	0.13	96
1951	18,6	0.20	93
1961	14,8	0.28	53
1971	13,0	0.36	36
1981	60,0	0.70	85
1991	85,0	0.82	103
2001	153		150

Sources: Bergh, Gunilla and Pia Nordberg, *Water in Expanding Cities-A Case Study of Coimbatore, Tamil Nadu, India*, Royal Institute of Technology, Stockholm, Sweden, 1996, p.23.

Menon, A et al, *Tamil Nadu Urban Environmental Challenge - A Study of Eight Secondary Cities/Towns*, MIDS, Chennai, 1997, p.173.

Coimbatore city Municipal Corporation - Engineering, 2001 in http://www.coimbatore-corporation.com/admin-engg_comm.asp

For instance, to augment the supply, the government sanctioned Rs 24.25 lakh in 1942 and the scheme was completed in 1965. The second augmentation scheme, which was executed by the Tamil Nadu Water and Drainage (TWAD) Board, was completed in 1976 and it was able to draw up to 85 lakh gallons per day.

At present, about 95 per cent of the drinking water supply in Coimbatore district is from distant river water sources through the expensive water supply scheme.²⁵ There are two major sources of supply of drinking water to Coimbatore city - Siruvani²⁶ and Pillur schemes. The Corporation maintains the distribution of water supply. At present, the supply of drinking water is maintained at 110 litres per capita per day (lpcd). The supply of water from Siruvani is done by gravity whereas the Pillur scheme runs on pumping.²⁷

Till the 1990s, the government managed water supply for Coimbatore city from the Siruvani scheme. In 1985, there were 46,492 service connections in Coimbatore city (Structure Plan for Coimbatore Local Planning Area 1985). Water distribution was largely carved through the meter basis for the houses besides a

few under the tap basis (payment of monthly flat rate), about 1,500 on non-domestic basis and about 800 through public fountains. The number of service connections was increased in the subsequent years. In 1991-92, there were 58,689 service connections in Coimbatore city. Of which, 264 were on tap basis, 56,060 on meter basis, 1,170 on non-domestic basis and 1,163 in public fountains (Coimbatore City Municipal Corporation Administration Report 1991-92:45). At present, there are 85,318 domestic meter connections, 3,574 non-domestic meter connections, 120 tap connections and 3,412 public fountains in the Coimbatore Corporation area.²⁸ Total quantity of water supplied to Coimbatore city during 1991-92 was 8,349 lakh litres; daily an average supply of 672.40 lakh litres reaches the population of 11,35,549 at the per capita rate of 70 litres (Coimbatore City Municipal Corporation Administration Report 1991-92:46). Growth of urbanisation and urban agglomeration areas in Coimbatore city, especially during the 1980s and 1990s, had forced the government to launch the new water supply schemes. The Siruvani water supply scheme was also extended to supply water to the newly added areas of Coimbatore city, satellite towns and 65 wayside villages in the 1980s.²⁹ The corporation also maintains a fleet of 15 water lorries/tankers for supplying water to areas not served by the Siruvani water supply scheme and also to places where the supply is poor. To meet the new demand the government has initiated other water supply schemes for Coimbatore city.

Finally, proposals were made in 1989 to divert the Bhavani river water to Coimbatore city at Pillur, located about 95 km from the city. This scheme is designed to divert about 131.25 million litres per day (MLD) of water of which the Coimbatore Corporation's share stands at 65.97 MLD. Since 1995, water has been supplied through this scheme.³⁰ About 113.48 million cubic litres of water were diverted from the Bhavani River at Pillur in two stages. In the first stage, it provide 125 MLD of water in 1996 and 250 MLD in 2011 for the Coimbatore Local Planning Area, 20 town panchayats and 523 rural settlements on the way (Bergh 1996:24). Since 1994, the Pillur water supply scheme has been providing water to the Coimbatore city. The total water supply both from the Siruvani and Pillur schemes was 148.46 MLD in 1994. Of this, 137.59 MLD was used for domestic supply and 10.87 MLD for industrial purposes. Apart from this, 1.33 MLD was provided for Selur town panchayat and 1.80 MLD for Selur Air Force.³¹ At present, 153 MLD (87 MLD from Siruvani and 66 MLD from Pillur) water is supplied to the Coimbatore city at the rate of 150 litres per capita per day.³² Augmentation of water supply to Coimbatore Corporation was planned with Pillur dam as a source up to MSR- Phase-I. The Tamil Nadu Water and Drainage Board has prepared a scheme for augmenting water supply to Coimbatore Corporation at the cost of Rs 90 crore. Under this scheme, 232.25 MLD (101 MLD from Siruvani Water Supply Scheme and 131.25 MLD from Bhavani Water Supply Scheme) will be supplied to the Coimbatore Corporation. The Bhavani scheme provides water to Coimbatore city, 20 towns and 523 rural habitations and the Pillur

Scheme provides water to Coimbatore Corporation.³³ In addition to this, water is also supplied to the residents in unapproved layouts and new residential areas by 12 Corporation-owned tankers while private tankers supply water to 350 locations.³⁴ The Corporation plans to achieve an average gross supply of 150 lpcd by the year 2004 catering to 100 per cent of the population.³⁵ The average net supply available to the city population is expected to be 120 lpcd.

In 1996, the Avinashi-Athikadavu scheme was proposed to improve the irrigation facilities in the dry region of Erode and Coimbatore districts. In 2000, this scheme was modified into a drinking water scheme through the open canal system. According to this scheme, it is proposed to divert the surplus water from the Bhavani to recharge ground water sources in the Nambiyur, Uthukuli, Chennimalai, Perundurai and Bhavanisagar Panchayat Unions of Erode district and Annur, Avinashi, Karamadai, Sulur and Sarkarsamakulam Panchayat Unions of Coimbatore district (Tamil Nadu Water Supply and Drainage Board, Demand No. 48, Water Supply, 2001-2002). The Avinashi-Athikadavu Drinking Water Project has been formulated at a cost of Rs 270 crore. The Government proposes to take up this project for implementation in phases by availing itself of assistance from financial institutions.³⁶

b) Tirupur

Though the Noyyal river runs through the town, the water problem in Tirupur city has been acute since the 1930s. Large-scale diversion of river water for irrigation and contamination of water upstream added to the water crisis in Tirupur in the early 20th century itself (Saravanan and Appasamy 1999: 171). The river has 23 anicuts and 28 system tanks for irrigating around 19,799 acres. From Tiruppur to Orthapalayam 8 system tanks irrigate around 1,677 acres in the Noyyal basin. With about 31 irrigation anicuts built across the Noyyal above Tirupur, even the available little water is being contaminated all the way down to Tirupur. Until the 1920s, water needs were met mainly with seven public wells [GO No. 4965 Mis. Local-Self Government (L and M), dated February 14, 1937]. Every year, Tirupur city used to spend a certain amount for repairing the wells to ensure maximum water supply. The attempts to provide adequate water supply failed to meet the demand of the growing population. In the 1920s, the government proposed a scheme from the Koilveli infiltration gallery, located about five miles away from Tirupur city. This scheme was designed cover water supply to only 20,000 people at 22.73 litres of water per head per day (GO No. 3089 Mis. Health, dated November 16, 1954).

Actually, the Koilveli water supply scheme provided only 3,40,950 litres of water per day. But this was inadequate and served not even one-third of the water demand of Tirupur city. Consequently, the government has proposed several water supply schemes (Saravanan and Appasamy 1999:172). In 1949, the government

sanctioned investigation for a water supply scheme with the Bhavani as the source to serve the Tirupur city and seven wayside villages, viz., Pogalur, Kurukkalaiyampalayam, Annur, Karavalur, Nombiyampalayam, Avanasi Karamadai and Tirumuganpundi. In 1962, water was diverted from the Bhavani at Mettupalayam. The capacity of this scheme was 7 MLD, of which, 4.5 MLD was supplied to the Tirupur city. In 1993, the second scheme was developed with the capacity of 45 MLD, of which 24 MLD was supplied to Tirupur. As a whole, 28.5 MLD water from the Bhavani was diverted to the Tirupur town (Tirupur City Corporate Plan 1999:34). The per capita water supply was 127 litres in 1996. At present, the knitwear industries are tapping about 600 tankers of water every day from 35 km radius of Tirupur town. Due to ever-increasing water demand for the industries, a proposal was made for a new project to divert water at the Bhavani-Cauvery confluence to be jointly financed by industries in Tirupur.

In the early '90s, the people of Tirupur and the Tirupur Exporters Association (TEA) urged the Government to improve the basic infrastructure facilities of Tirupur. In 1991, the Government launched the Tirupur Area Development Project to provide all infrastructural facilities. A Special Purpose Vehicle (SPV) was set up along with the Infrastructure Leasing and Financial Services Limited (ILFS) and Tirupur Exporters Association (TEA). In 1995, SPV established the New Tirupur Area Development Corporation Limited (NTADCL) to provide the infrastructural facilities.

Due to the spurt in the demand for water, mainly for the industries, both the government and private parties jointly initiated the water project on a 'Build, Own, Operate and Transfer (BOOT)' basis. The three partners, TACID, TEA and IL&FS, together designed the Tirupur Area Development Project (TADP) as a public-private partnership. In 1995, the New Tirupur Area Development Corporation Limited (NTADCL) was launched with the cooperation of the Government of Tamil Nadu, Infrastructure Leasing and Financial Services Limited (ILFS) and Tirupur Exporters Association (TEA). The NTADCL and Mahindra-led consortium signed an agreement for a private integrated water and sewerage project at Tirupur. The consortium comprised Mahindra Reality and Infrastructure Developers Ltd, a subsidiary of Mahindra and Mahindra Ltd, India; Bechtel Entreprises Inc, a US water transnational corporation; and United Utilities International, UK.³⁷ The main objective of the project is to provide piped water supply to Tirupur Municipality and 21 wayside town and village panchayats and water supply to the dyeing and bleaching industries in the Tirupur Municipality Area. The project was launched in 2002. Under this project, water supply is to be provided for the dyeing and bleaching industries in Tirupur and the domestic consumers in Tirupur Local Planning Area (TLPA) comprising the Tirupur Municipality (TM), 15 Village Panchayats and 3 Town Panchayats. In addition to this, water supply is proposed to provide five wayside Panchayat Unions (Municipal Administration and Water Supply Department Policy Note 2001-2002 and 2003-2004). According to the project, 185 MLD of water

will be drawn from the River Cauvery at Anaiyinasuvam Palayam, near Bhavani town (Tenth Five-Year Plan 2002-2007: 222-223). Of which, 115 MLD will receive industries and the rest 62 MLD will receive Tirupur Municipality and other neighbourhood villages (Ninan 2003). This project is scheduled to be completed by April 2005 (Policy Note- Municipal Administration and Water Supply 2003-04).

Under this project, differential pricing system will be adopted. At present, it is proposed to charge Rs 2.25 per/kl for wayside panchayats, Rs 3.50 for Town Panchayats and Rs 5 for domestic consumers. For industrial consumption, the cost would be Rs 45 (Ramakrishnan 2002). At present, the water charges for domestic consumption up to 24 kl/month is Rs 2 /kl, and for above 24 kl/month, it is Rs 4; and in the non-domestic consumption category, for commercial use, Rs 6 /kl, and industrial use, Rs 4 /kl.³⁸ In short, the increasing number of industries in general, and water-consuming industries in particular, in Coimbatore and Tirupur cities created demand for more water for industrial use, which has led to water scarcity as well as environmental problems in the Noyyal basin.

Ineffective Pollution Control Measures and Environmental Damages

Numbers of water consuming units have increased during the last two decades of the twentieth century. In 1980, there were only 26 units and they together consumed about 4.4 MLD whereas the number of units has been increased to 325 and consumed about 40.89 MLD in 1990. In 1997, the number of units have further increased to 866 and consumed about 106.91 MLD (Appasamy 2000:38). Not only has the number of water-consuming industries and the quantity of water increased but even the pollution load has increased during this period. In 1980, the pollution load was 10,252 tonnes of TDS comprising 6,053 tonnes of Chloride, 420 tonnes of Sulphate, 482 tonnes of TSS, 413 tonnes of COD, 169 tonnes of BOD and 8 tonnes of oil and grease; it has increased to 1,74,201 tonnes of TDS, 91,404 tonnes of Chloride, 11,984 tonnes of Sulphate, 54,592 tonnes of TSS, 4,928 tonnes of COD, 714 tonnes of BOD and 40 tonnes of Oil and grease in 2000 (see Table 13). Between 1980 and 2000, the cumulative pollution load is 23,54,464 tonnes of TDS, 13,11,722 tonnes of Chloride, 1,25,775 tonnes of Sulphate, 97,152 tonnes of TSS, 90,160 tonnes of COD, 29,848 tonnes of BOD and 1,513 tonnes of oil and Crease (Appasamy 2000: 52).

Table 13: Different kinds of pollution load generated in Tirupur: 1980-2000

(Quantity in Tonnes / Year)

Year	TDS	CHLORIDE	SULPHATE	TSS	COD	BOD	OIL& GREASE
1980	10252.33	6052.62	419.95	481.86	412.56	169.34	8.30
1981	12681.97	7402.87	555.51	589.50	516.99	203.82	10.04
1982	15690.13	9135.25	698.64	726.94	643.15	250.31	12.35
1983	18863.26	10937.06	858.91	870.66	776.06	297.97	14.74
1984	22685.28	13116.61	1050.26	1043.50	938.42	355.55	17.60
1985	25901.92	14778.20	1279.57	1177.99	1081.22	393.57	19.66
1986	38836.94	22131.07	1927.47	1765.33	1619.73	588.86	29.45
1987	53291.43	30332.01	2654.59	2422.02	2218.01	806.79	40.41
1988	67745.93	38532.95	3381.70	3078.72	2816.29	1024.72	51.36
1989	82594.08	46972.88	4122.14	3754.42	3429.89	1249.58	62.66
1990	91628.22	52204.13	4545.69	4166.81	3814.32	1389.89	69.55
1991	119000.25	67753.73	5912.57	5412.61	4943.61	1804.23	90.37
1992	147063.45	83793.70	7275.16	6696.12	6097.70	2234.97	111.92
1993	175129.72	99835.53	8637.87	7979.79	7251.90	2665.77	133.48
1994	203557.62	116096.89	10012.80	9280.93	8420.20	3102.95	155.33
1995	230397.52	131098.73	11447.50	10488.05	9532.84	3494.97	175.27
1996	236307.32	134217.50	11827.09	10746.17	9772.28	3572.09	179.42
1997	242396.85	137413.97	12227.79	11009.82	10023.31	3649.92	183.61
1998	199583.66	101908.48	12647.69	5720.51	5643.91	1014.61	57.97
1999	186655.17	96603.48	12307.52	5147.60	5279.74	863.44	49.06
2000	174200.78	91404.03	11984.10	4592.40	4928.05	714.30	40.35
Cumulative							
Total	2354463.83	1311721.71	125774.52	97151.75	90160.18	29847.65	1512.90

Computed from PCB Data, 2000; *Source*: Appasamy 2000, 63.

Although water requirement for processing a kilo of cloth has reduced over the period, actual water usage has been increasing due to the growing number of water-consuming industries. For example, in 1980, 226.5 litres of water was required to process a kg of cloth; it declined to 145 litres in 2000 (Appasamy 2000: 38).

Increasing number of water-consuming industries in the Noyyal river basin has created serious environmental problems, particularly after the 1970s. After using the water for processing, the industries leave effluents without treating them properly into the Noyyal river, two small streams - Nallar and Jamunnai, other water bodies and agricultural lands. A recent estimate by NTADCL indicates that about 40 MLD of effluents discharged by the dyeing and bleaching units (City Corporate

Plan - Tirupur, Tamil Nadu Urban Development Project-II, 1999:43). The total volume of effluent discharges from the 851 bleaching and dyeing units was about 60 million litres per day (Madras School of Economics 1998:66). The effluents are discharged into the Noyyal river, which has become a drain, and the Orathupalayam dam downstream, a storage tank for these effluents. The ground water has also been affected; productivity and the land value have also declined over the period in the Noyyal river basin. The Madras School of Economics (1998) conducted a study at Veerapandi and Orathupalayam villages near Tirupur that revealed that about two-thirds of the landholders are not cultivating their land either in part or full due to the non-availability or poor quality of irrigation water; 90 per cent of the landholders attributed the decline in productivity to water pollution and 43 per cent reported that the land value had declined during the last decade (Madras School of Economics 1998:65 & 111). A study by Jacob (1996) concluded that the indiscriminate discharge of industrial effluent has led to ground water pollution. Even the industries could not use that water. Further, it shows that the open wells had a higher level of contamination than the borewells (Jacob: 1996:101-102). At present, about 102 MLD of waste water containing bleaching powder, sulphuric dyes, inorganic catalysts and other chemicals is discharged daily (Robins and Roberts 2000: 88). A recent report says that there are 800 bleaching and dyeing units in Tirupur, using 60,000 kilos of chemicals and over 115 million litres of fresh water per day.³⁹ In addition to this, water consumption is very high when compared with the international standard. For example, around 200-400 litres of water is used per kg of finished product in Tirupur, but it is only 120-150 litres at the international level (Robins and Roberts 2000; 86).

Since the early '90s, pollution control initiatives have been initiated but not been implemented till recently. For example, in 1991, Tirupur Dyers Association formed the Tirupur Effluent Treatment Company Pvt. Ltd (TETCO) to establish four effluent treatment plants with the support of both the State and Central Governments (Krishnakumar 1998). However, there was no further development and at the same time the number of the units have increased several-fold. In 1994, the Tirupur Dyers Association had accepted to establish eight Common Effluent Treatment Plants (CETPs) for the 300 dyeing units and the others to have independent plants before January 1996. But they have not established the treatment plants. Meanwhile, Karur Taluk Noyyal Irrigation Farmers Association filed a writ petition in the Chennai High Court in 1996 seeking to close all these industries. In response to the petition, the High Court ordered the Tamil Nadu Pollution Control Board (TNPCB) to issue notices to these polluting industries and to prepare a status report on the ETPs. In November 1997, the TNPCB submitted the status report saying that more than half of the units had not started the ETPs. According to the report, of the 866 dyeing and bleaching units in Tirupur, 288 were covered by eight CETPs, 404 had

Independent Effluent Treatment Plants (IETPs) and 114 had been closed down (Sankar 2001:253). In the memorandum, they said 288 units were connected with the eight CETPs (work on which was under progress), 78 units had completed (100 per cent) work on ETPs and 243 units had completed 75 per cent of the work on ETPs. All other units would be closed. Meanwhile, in March 1997, the High Court ordered the closure of the 160 units, which had not started any ETP work. In January 1998, 108 units were closed. On February 11, 1998, in the presence of counsel for the petitioner, Joint Chief Environmental Engineer and Assistant Environmental Engineer of Tirupur agreed to complete work on eight CEPTS and 386 IETPs on or before May 11, 1998. Accordingly, on March 10, 1998, the Chennai High Court granted time till May 11, 1998, for 609 dyeing and bleaching units to set up the CETPs and individual plants (Sankar 2001:253). Further extension of six months was denied by the High Court in April 1998. Consequently, Tirupur Dyeing Factory Owners Association (TDFOA) and Tirupur Exporters Association (TEA) filed a special leave petition in Supreme Court to get an interim stay on the High Court order but was the plea was not allowed (on May 14). The Supreme Court upheld the decision of the High Court to close the 860-odd dyeing and bleaching units by May 11, 1998 (Palaniappan 1998).

Even after establishing the CETPs, the dyeing and bleaching units did not treat the effluents at the prescribed level. At present, there are about 300 IETPs and eight⁴⁰ CETPs in Tirupur. According to TNPCB's latest records (prepared in August 2000), 424 units have their own treatment plants, while 278 units have joined CETPs. As many as 164 units, which are not connected either to an IETP or a CETP, have been closed down by the order of the Madras High Court (Appasamy 2000:4). The total effluents generated by eight CETPs (consisting of 278 units and 424 individual units) is about 83.14 MLD. Of which, about 37.98 MLD are treated by the CETPs and 45.16 MLD by individual plants (Appasamy 2000:49). But these industries are not treating the effluents effectively (Appasamy 2000: 4, 54)⁴¹ The Pollution Control Board found that the dyeing units covered under seven CETPs were discharging the treated effluents without removing the salts used in dye-fixation that led to ground water pollution and ecological damages in the Noyyal river basin (Appasamy 2000, 4). The dyeing and bleaching units in Tirupur are using around 350 tonnes of salt.⁴² Nearly 6,500 tonnes of salt and 570 tonnes of bleaching powder are used every month for processing (Appasamy 2000: 37). In April 2002, the TNPCB served notice on the seven CETPs to bring down the total dissolved solids (through segregation of salts used in dyeing) to the permitted level of 2100 ppm in treated effluents by May 31. Further, it warned that if they did not comply with the deadline, they would face severe action, including closure of the units.⁴³ Studies reveal that the effluents of these industries caused serious health problems like skin diseases and stomach-aches. Cattle in these areas also suffered from skin diseases and

became infertile in recent years.⁴⁴ The farmers of Perundurai and Kangeyam taluks of Erode district in the downstream Noyyal basin complained against discharge of effluents by dyeing and bleaching units processed by the knitting garment segments in Tirupur and sought compensation for the crop loss suffered on account of the contaminated ground water (Gurumurthy 2002). In short, the effluent discharges led to social costs by reducing agricultural productivity, fish stock and drinking water, causing health problems and damaging the entire ecology and environment of this region.

What went wrong? Institutional failures at different level

Demand for water has increased within the sector and among the sectors in the Bhavani and Noyyal basins since the early 20th century (Saravanan 1998, and Saravanan and Appasamy 1999). Despite the increasing demand in different sectors, water pollution aggravated the problem further (Saravanan 2004). Given the nature of the problems in the two river basins, the question arises as to effectiveness of the water governance and how the governing institutions failed in managing these problems. It is apparent that the institutions have failed at different levels. At the apex level, the quantum of surplus water available was not taken into account before water was diverted for agricultural purposes or to other sectors from different points of the two river basins at different points of time. For instance, initially, water was diverted for domestic supply from the Siruvani in 1924, from the Pillur in 1989 and from the Cauvery in 2002. While diverting the water from different points of the river basins, other options available to meet the demands were not considered. At the micro level, the institutions failed to treat the used water, particularly from the domestic (drainage) and industrial (effluent) sectors. Invariably the cities and towns discharged their wastes and numerous water-using industries discharged their effluents into the river basins. Though the government enacted different acts to protect the water, its institutions failed to implement them. Thus, mismanagement of water resources at the apex level and failure of institutions at different sectoral levels in the Bhavani and Noyyal river basins of Tamil Nadu culminated in aggravating the competing demand for water, particularly during the post-Independence period.

Impact of competing demand on agriculture

It is evident that the availability of water for the agriculture sector has declined in the Bhavani and Noyyal river basins since the early 20th century. Despite the diversion of water to other sectors, agriculture continued to expand and this coupled with the technological developments within the sector sharpened the problem (Saravanan 2001, 289-334). On the one hand, diversion of water to the domestic and industrial sectors reduces the availability of water for the agricultural

sector, and, on the other hand, the diverted water is discharged in the form of drainage and effluents which affect the quality of water, thus further reducing the availability of water for the agricultural sector.

Conclusion

In the Noyyal river basin, water diversion for Coimbatore and Tirupur cities has emerged since the early 20th century due to the process of urbanisation and industrialisation. Initially, water was diverted mainly for domestic purposes and later on even to meet industrial demands. In the Noyyal river basin, earlier, water from the Siruvani, a tributary of the Bhavani, was diverted to Coimbatore city. Consequent to rapid urbanisation and industrialisation both in Coimbatore and Tirupur cities, a greater demand for water has emerged not only for domestic purposes but also for water-consuming industries. In the Noyyal basin, the local water sources were not adequate to meet the burgeoning demand of Coimbatore and Tirupur. Consequently, the Pillur diversion was taken up for Coimbatore city and the Annur diversion for Tirupur city from the Bhavani river.

This diversion from the Bhavani to the Noyyal basin to meet the urban demands of Coimbatore and Tirupur has decreased the availability of water for agriculture. During the years of low rainfall, the problem may get accentuated. Conflict may therefore arise between the agriculture and urban sectors. The cost of meeting the urban demand for water increases as more distant sources have to be tapped and water has to be conveyed for long distances. The waste water from the urban sector results in social costs as it causes serious pollution problems and affects downstream agriculture and other uses.

It is also interesting to note that in the case of both Coimbatore and Tirupur, providing water itself spurs greater urbanisation, which only increases the demand for water. Clearly, water has to be used more prudently by adopting various methods of conservation, recycling and reuse and should be priced at its true value. The government can no longer afford to finance large schemes to transport water from outside the basin. The latest proposal is for the industries to share the infrastructure cost of building a pipeline from the confluence of the Bhavani with the Cauvery. More attention should also be paid to effluent treatment and recycling to ensure that the waste water does not end up causing further damage to the downstream users. Diverting the water from other basins for the domestic and industrial needs and discharging it as effluents not only aggravate the situation for competing demand for water but will be a great threat to the ecology and environment. These processes also adversely affect the sustainability of the natural resources in general, and water resources in particular, in the Bhavani and Noyyal river basins of Tamil Nadu.

Notes

- ¹ The Kerala State proposed a project to divert the east-flowing Bhavani waters towards west into the Bharthapuzha basin. Conflicts emerged between Tamil Nadu and Kerala state over the sharing water of the Bhavani and its tributary the Siruvani. Kerala planned to divert the water from the Bhavani weir to the Bharatpuzha basin, and it was opposed by Tamil Nadu. Kerala argued that Tamil Nadu had been drawing water from the Siruvani in excess of its due share of 1.33 TMC ft. Tamil Nadu fears that if the diversion is allowed, there would be no water left in the Bhavani when the river crosses from Kerala to TN and this would severely affect irrigation in some 0.2 million hectares and cripple the drinking water schemes in Coimbatore.
- ² http://www.narmada.org/sandrp/dec2002_1.doc
- ³ Urban agglomeration may constitute: a) A city with continuous outgrowth (the part of outgrowth being outside the statutory limits but falling within the boundaries of the adjoining village or villages); b) One town with similar outgrowth or two or more adjoining towns with their outgrowth as in (a); or, c) A city and one or more adjoining towns with their outgrowth all of which form a continuous spread. Tirupur urban agglomeration is of the first kind, while the Coimbatore urban agglomeration is of the third kind.
- ⁴ Government of Tamil Nadu *State of Environment Report of Tamil Nadu*, pp.42-44. in www.environment.tn.nic.in/soe.pdf
- ⁵ Government of Tamil Nadu *State of Environment Report of Tamil Nadu*, p.52. in www.environment.tn.nic.in/soe.pdf
- ⁶ See the list of pollution control Acts and rules of Tamil Nadu: The Water (Prevention and Control of Pollution) Act, 1974 as amended in 1978 and 1988; The Water (Prevention and Control of Pollution) Cess Act, 1977 as amended in 1991; The Environment (Protection) Act, 1986; The Environment Protection) Rules, 1986; The Hazardous Wastes (Management and Handling) Rules, 1989 as amended in 2000; The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended in 2000; The Municipal Solid Wastes (Management and Handling) Rules, 2000 (Policy Note on Environment - 2000-2001; Environment and Forest Department Policy Note - 2003 - 2004, Government of Tamil Nadu).
- ⁷ Tirupur city is the second largest town after Coimbatore, among the major textile manufacturing centres in south India.
- ⁸ Presidential Address of TEA, 11-8-2003.
- ⁹ <http://www.tirupur.com/info.html>
- ¹⁰ 'Tirupur Knitwear Exporters Cheer Exim Policy', *Business Line*, in <http://www.blonnet.com/2003/04/01/stories/2003040101561700.htm>
- ¹¹ Different studies estimated that large quantities of industrial effluents were discharged by the industries. But only a small quantity (33.48 MLD) of these effluents were treated by the eight CEPTs. The details are: Angeripalayam (0.85 MLD), Andipalayam (4.50 MLD), Chinnakarai (5.00 MLD), Kasipalayam (3.65 MLD), Kunnangapalayam (3.68 MLD),

Manickpurampudur (1.60 MLD), Mannarai (4.20 MLD) and Veerapandi (10.00 MLD) (City Corporate Plan - Tirupur, Tamil Nadu Urban development Project-II, 1999, p.66).

¹² <http://www.tirupurghemissions.com/html/piassessment.htm>

¹³ Madras Presidency denotes the geographical area prior to the reorganisation of the states in 1956, which consisted of present Tamil Nadu, Andhra Pradesh except Nizam territory, South Canara district of Karnataka, and Kerala. It covered about 1,40,000 square miles.

¹⁴ <http://www.coimbatore-corporation.com/achieve-engineering.asp>

¹⁵ Tirupur Local Planning Area (TLPA) consists of 12 villages in Palladam taluk, two villages each in Avinashi and Erode taluks and Tirupur town (City Corporate Plan - Tirupur, Tamil Nadu Urban development Project-II, 1999, p.29).

¹⁶ Census of India 2001, Slum Population, 2001 (http://gisd.tn.in/census-paper2/Statements/stat_81.htm)

¹⁷ City Corporate Plan - Tirupur, Tamil Nadu Urban Development Project-II, 1999, p.31.

¹⁸ In 1988, 93 cotton-cleaning, ginning, spinning and weaving industries; 36 auto repairs/tyre retreading etc. units; 85 foundry, casting & forging; 79 units manufacturing electric motors & pumps; 92 manufacturing other engineering products; 164 textile machinery; and 582 miscellaneous industries existed (Study Report of CIRT, Pune, 1988, p.7).

¹⁹ City Corporate Plan - Coimbatore, Tamil Nadu Urban Development Project-II, 1999, p.29

²⁰ In 1992, there were 4,763 small-scale industries in this city. The break-up was: food industry - 209; textile/clothing and leather - 650; wood and wood products - 453; chemical/coal - 282; non-metallic mineral produce - 197; basic metal industry - 483; fabrication of machines and equipments - 1,291, and other manufacturing industries - 1,198. (M Kalaimani, 'Urban Environment of Coimbatore' in proceedings of the Seminar on Urban Environment of Coimbatore, July 20, 1995, Madras Institute of Development Studies, p.5).

²¹ Handbook of Statistics on Cotton Textile Industry (various issues)

²² <http://envisjnu.tripod.com/news/nov2k1/nov5.html>

http://www1.timesofindia.indiatimes.com/cms.dll/articleshow?art_Id=428661527

²³ <http://www.indigodev.com/ADBHBAPxCases.doc>

²⁴ For more detailed discussion of the water supply schemes for Coimbatore and Tirupur see Saravanan (1999).

²⁵ N Murugananthan, collector of Coimbatore district, Presidential address at the Karl Bubul Foundation in 2002.

²⁶ The entire course of the Siruvani is within Kerala. The Siruvani has been dammed near its source in the Muthikulam forests more than a century ago for providing drinking water to Coimbatore city. A major dam has replaced this old weir in the late 1970s.

²⁷ <http://www.indiaurbaninfo.com/app/wnsa.dll/niua/citysearch22.r?recno=28>

²⁸ http://www.coimbatore-corporation.com/admin-engg_comm.asp

²⁹ Siruvani Water Supply Project Office, Coimbatore, 1985.

- ³⁰ <http://www.tn.nic.in/tnudp/images/infracbe.PDF>
- ³¹ Outline Proposal for Providing Infrastructural Facilities to Coimbatore Corporation, 1994, p.36.
- ³² Coimbatore City Municipal Corporation - Engineering, 2001 in http://www.coimbatore-corporation.com/admin-engg_comm.asp
- ³³ <http://www.twadboard.com/cbe.html>
- ³⁴ <http://www.tn.nic.in/tnudp/images/infracbe.PDF>
- ³⁵ <http://www.tn.nic.in/tnudp/images/infracbe.PDF>
- ³⁶ Budget Speech 2002 - 2003 <http://www.tn.gov.in/budget/archives/bp40-54.htm>
- ³⁷ <http://www.water-technology.net/projects/tirupur/>
- ³⁸ City Corporate Plan - Tirupur, Tamil Nadu Urban development Project-II, 1999, p.99.
- ³⁹ 'New Initiative to Protect Garment Workers in South India'. Labour behind the Labels Bulletin 19, July 2003 - India Special, <http://www.labourbehindthelabel.org/newsletters/19.htm>
- ⁴⁰ Common Effluent Treatment Plants are located in Veerapandi, Chinnakkarai, Kasipalayam, Kunnangalpalayam, Andipalayam, Mannarai, Angeripalayam and Manickampurampudur.
- ⁴¹ <http://www.bologi.com/environment/15.htm..>
- ⁴² <http://www.blonnet.com/2002/04/19/stories/2002041900711700.htm>
- ⁴³ <http://www.blonnet.com/2002/04/19/stories/2002041900711700.htm>
- ⁴⁴ <http://www.bologi.com/environment/15.htm>

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An Environmental Study of Land Tenure, Land Use and Input Intensity: A Case of Orissa

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Abstract

Land degradation due to intensive and extensive cultivation and over use of chemical inputs has become a cause of concern. But land use pattern is observed to have a strong co-relation with land tenurial practices. Present study attempts to assess this relationship in the context of the agriculture-dependent state of Orissa. It has measured land use intensity, cropping intensity and input intensity to examine land use pattern of the farmers under different categories of land tenancy. Then it has assessed empirical significance of the same under varied socio-economic backdrop.

Introduction

Use of land resources and its consequential effects have long since remained the centre of attention of the environmentalists. Use of land, however, largely depends on the access to it. It has been observed that farmers having large stretches of land go for more intensive and extensive cultivation along with crop diversification. This often requires intensive use of inputs, more so when the land is used for cash crops. On the other extreme, small land holders try to extract more from their small patch of land to meet their subsistence needs (Gadgil and Guha 1995; Kuhn 1996). Though the motive behind land-use pattern differs across the land size class, the impact is more or less identical. Yet land degradation and other adverse environmental impacts of the small land users' behaviour are extensively visible than those of the larger ones. These are reflected in deforestation, loss of vegetation, and depletion of soil and destruction of habitat. This is primarily because the poor are more dependent on the natural resources for their basic needs like food, fodder and fuel and are hard hit by the degradation of these resources. The rich, on the other hand, have no such immediate need. Rather the resource use pattern of the latter is diversified and widely spread and hence the impact is less visible. Whatever may be the pattern, resource use behaviour of both these agents is largely unsustainable. The prevailing land tenure system in an area determines the holding size. It has a significant bearing on the access to, and therefore use of, land.

This paper is an attempt to examine the impact of different tenurial practices on land use in the context of Orissa, a predominantly agrarian and less-developed

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state in the Indian Union. The paper is broadly divided into four sections. After the introductory note, the second section is a brief review of some of the existing literature on the topic. The third section presents the land tenure and land-use pattern in Orissa. The next section is on the empirical results of a primary survey. The fifth one discusses the broad findings and the last section chalks out some policy measures on the basis of these.

Land Tenure and Land Use

Land tenurial practice has a strong impact on the sustainability of land use. It is often evidenced that land-use intensity, cropping intensity and intensive use of farm inputs like fertilisers, pesticides and irrigation also varies in response to change in tenurial status. Studies have underlined that tenancy arrangements like sharecropping result in inefficient allocation of resources as well as reduced incentive to improve the productivity of agricultural land (Hayami and Ostuka, 1993). Owner-cultivated land and fixed-rent land are relatively more efficient than share-cropped land. This is because the restrictions imposed by the landowners on the share tenants result in considerable economic loss to the farmers and constrains them in taking long-term interest in the farm (Ahmed et al, 2002).

Impact of tenurial contract on input use and productivity of land has been examined from two dimensions - the classical view, propounded by Marshall (1890), and the equal efficiency view, expounded by Cheung (1968). Marshall has argued that input use in the tenanted land will be sub-optimal because of lack of required incentive and hence productivity of land will be lower. A rational sharecropper will use variable inputs up to the point where its marginal value product will be equal to the marginal cost of procuring it. Assuming the share of produce by the landowner and tenant on 50:50 basis, the latter would not apply capital and labour unless the return is twice the cost of the factor. This necessarily implies investment below the optimal level. Cheung, disagreeing with Marshall, contended that share tenancy can be as efficient as peasant farming and fixed rent tenancy as inefficiency is not sustainable under competition. When the prospective tenants compete among themselves for leasehold land, the rational landholder will try to maximise income from land for which productivity of land cannot be different with variation in tenurial status. Under these circumstances, resource application will be the same whether the landowner cultivates the land himself or leases it out to a fixed rent or share tenant. When private property rights are well defined and freely alienable efficient contract between the tenant and landlord can be negotiated to avoid the inherent inefficiencies of tenancy (Cheung, 1969).

This view of Cheung was expounded by Johnson (1950) as well, who held that the landowner could ensure desired intensity of cultivation by the share tenant by a policy of carrot and stick. The landowner, for instance, may grant short-term leases so as to monitor output for subsequent contracts. He may refuse to renew

the lease if the performance of the tenant is found unsatisfactory. The threat of termination of lease may induce the sharecropper to apply more productive inputs. The landowner may also specify in detail about the extent of input use. In such cases there is no reason why share tenancy will use less input. Chattopadhyay (1979) in a primary survey of 808 farms from Shantiniketan in Birbhum district of West Bengal during 1976-77 has observed that owner cultivators cultivate their land with care so as to maintain its productivity. Large holders, quite in line with the owner cultivators, are concerned for the productivity of land and hence, make judicious use of inputs. Reverse, however, is the case of small tenants. Another study by Pant (1980) has tested the tenancy inefficiency thesis by comparing input use and output produced in different farm practices on the basis of ICRISAT data. The study evidenced little inefficiency on the part of tenants. Tripathy (1986) on the basis of a survey across different agro-climatic zones, a hilly area and a canal irrigated area in Bihar, records no difference in land productivity between fixed rentals and sharecroppers. However, marginal productivity of inputs like bullock labour and human labour in owner-cultivated land exceeded that in the tenant-cultivated ones. A study by Shaban (1987), using ICRISAT data on 2268 in the semi-arid regions of India, examined relative efficiency of owners, sharecroppers and fixed-rent tenants. He observed no significant difference between the productivity and efficiency of owned plots and plots leased out for fixed rentals. For share tenants, however, there is less use of family as well as bullock labour. Bhaumik (1991) on the basis of data collected from several villages of India observes that owner-cum-tenant, who own some land and sharecrop some more, use more inputs of all sorts in their own plots. The difference is more pronounced for unrecorded tenants. But the same result is not observed for the owners who lease in under fixed-rent contracts. Chattopadhyay and Sarkar (1997) reviewed the inefficiency problem on the basis of primary data collected from 150 households in 24 Pragana district of West Bengal and observed no significant difference in the use of inputs like human labour, bullock labour and other inputs across different types of tenancy and owner cultivation. They recorded fertiliser and irrigation to be the major determinants of variation in farm productivity. Niazi (2003) in his study of land-use pattern in Pakistan has observed that owner farmers make relatively less use of fertilisers and pesticides than owner-tenant farmers, who in turn make less use of these inputs than tenant farmers. Most of these studies have explored the linkage between land use behaviour and farm productivity. While some have underlined the linkage between tenurial pattern and productivity of land, measured by farm yield, others have underscored that in the case of owner cultivators. But relative environmental impact of different types of tenancy arrangements on natural resources like land is not clear. Broad findings of the researchers could be presented in a table form.

Table I: Broad Findings of Some Earlier Studies

Name of the Researcher and Year	Broad Findings
Classical View (Marshall, 1890)	Input use in the tenanted land is sub optimal as a part of the produce will go to the land owner. Hence, there is inefficiency,
Equal efficiency view (Cheung, 1968)	In the presence of competition among the farmers to leasehold land, land owners will try to maximise his return and this will induce the tenants to ensure efficient use of land and other inputs while preserving its long-term productivity.
Johnson (1950)	Propounded equal efficiency view and concluded that this could be ensured by leasing out land for short period.
Hayami and Ostuka (1993)	Owner-cultivated and fixed-rent land are relatively more efficient than share-cropped land.
Chattopadhyay (1979)	Owner cultivators and large holders look for long run productivity of land while reverse is the case of small tenants.
Pant (1980)	Tenants also look for efficiency in resource use.
Tripathy (1986)	Marginal productivity of inputs like bullock labour and human labour are higher in the case of owner-cultivated land than tenanted ones.
Shaban (1987)	No significant difference in the productivity and efficiency of the owner-cultivated plots and those leased out for fixed rentals and share cropping.
Bhaumik (1991)	Owner-cum-share tenant use more inputs of all sorts in their own plots, but this is not observed in the case of owner-cum-fixed rent tenants.
Chattopadhyay and Sarkar (1997)	No significant difference could be observed in the use of inputs like human labour, bullock labour and other inputs across different types of tenancy and owner cultivation.
Ahmed <i>et al</i> (2002)	Share tenants do not take considerable interest in land quality.

(Contd.....)

Niazi (2003)	Owner farmers make relatively less use of fertilisers and pesticides than owner-tenant farmers, who in turn, make less use of these inputs than tenant farmers.
Present study	An empirical work undertaken to probe environmental impact, measured in terms of land use intensity, cropping intensity and input use intensity under different land lease system: owner cultivation, share tenancy and fixed rent tenancy.

Researchers (Niazi, 2003) have estimated three indicators to assess the land-use behaviour of the farmers: land-use intensity, cropping intensity and input intensity. Increase in these result in adverse environmental effects like land degradation and erosion of soil productivity. It is quite likely that sharecroppers may not opt for high land-use intensity, cropping intensity or input intensity because half of the total produce will be appropriated by the landowner. On the other extreme, fixed rentals may increase intensity of cultivation as well as input use as the fruits of their effort will be enjoyed by them only. Therefore, when share tenants may not extend cultivation beyond bare minimum or slightly above that, fixed-rent tenants may try to reap a rich harvest to meet the high cost of cultivation, rent payment and subsequent profit. This element of greed may pose a threat to the productivity of land. True, security of tenure has a favourable effect on input use and agricultural productivity as it provides the tenants with the incentive to invest in land conservation and improvement. Due to lack of security of tenure, the tenant is uncertain as to whether he will be able to realise the benefits of such long-term measures from the tenanted land. With secured tenurial status even the share tenants may go for land development, soil conservation and judicious use of chemical inputs. In the absence of it they lose interest in sustainable land use. This thesis will hold good only when the farmers get enough from their land to meet their present needs which is a rare phenomenon in a less-developed state like Orissa. The owner cultivators are also equally poor and depend on small land holdings for their subsistence. Moreover, uncertainty in agricultural output due to climatic fluctuation may force the farmers to extract the maximum when the land is at their disposal. Therefore, security of tenure does not guarantee sustainable land use, thus ensuring environmental protection. Present study attempts to arrest this environmental issue under different pattern of land lease system.

The Case of Orissa

The economy of Orissa is highly agrarian in nature. But agricultural productivity in the state is extremely low in comparison to that of the other states.

Over the last two decades, contribution of agriculture to the State Domestic Product has declined alarmingly -- from around 50 per cent during the '70s to nearly 30 per cent during the post-reforms decade, 1991-2001. Moreover, this sector has experienced a growth at the rate of 17 per cent per annum in terms of current prices during the post-reforms decade, while in constant prices, the annual growth rate is -1.18 per cent. This means despite favourable terms of trade, the agricultural sector has not grown adequately. This also underlines diminished resource productivity in the agricultural sector. This has raised questions about long-term sustainability of the agricultural sector, the core sector of the economy, engaging around 65 per cent of the state's populace.

Traditional agricultural practices, inadequate capital formation and low investment, insufficient irrigation facilities and uneconomic size of land holding are adduced to be the chief factors responsible for low farm yield (Economic Survey of Orissa, 2002-03). These factors result in faulty land use behaviour and hence reduced farm productivity.

I. Land Ownership

Per capita availability of cultivable land, which was 0.39 hectares in 1950-51, has declined to 0.17 hectares in 2001-02. Out of the total 39.66 lakh operational holdings, 81.98 per cent is held by small and marginal farmers and the rest 18.02 per cent by medium farmers (Agricultural Census, 1995-96). This uneven access to land has long since remained a major cause of economic and environmental threat. It is often argued that insufficient land lures the farmers towards short run escalation of farm productivity at the cost of long-range improvement of land. This type of land use behaviour is highly unsustainable and causes land degradation and hence lowered farm productivity.

Table II: Land Ownership in Orissa

Sl No	Farm size (in hectares)	Percentage of operational holdings			Percentage of total farm area		
		1976-77	1995-96	2000-01	1976-77	1995-96	2000-01
1	Below 1 (Marginal)	46.59	54.08	56.42	14.84	20.68	22.73
2	1-2 (Small)	29.11	27.89	27.38	25.05	29.59	30.38
3	2-4 (Semi Medium)	16.79	13.72	12.31	27.84	28.21	26.45
4	4-10 (Medium)	6.50	3.93	3.56	22.71	16.80	16.09
5	10 or more (Large)	1.00	0.38	0.32	9.09	4.72	4.37
6	All sizes	100	100	100	100	100	100

Source: Board of Revenue, Agricultural Census Division.

The above table reveals that there has been significant increase in landlessness in the state. Number of operational holdings with less than 1 hectare of land has increased from 46.59 per cent of the total to 54.08 per cent while that of all other sizes has declined. Proportion of farm area under small and marginal holding size, with less than 2 hectares of land has also increased from 39.89 per cent of the total farm area to 50.27 per cent. The operational area under semi-medium holding size has increased only marginally. The Economic Survey of Orissa has estimated that nearly half of the rural people in the state are landless and around 47 per cent of them live below the poverty line (an annual income less than Rs 15,000). These poor people often migrate to the nearby cities in search of some off-farm jobs or lease in small patches of land to earn a livelihood. Off-farm job opportunities in the cities are limited. Proportion of total lesser households as well as tenant households are the highest among the marginal landowners with less than 1.01 hectare of land. This group has also leased in nearly 97 per cent of the total leased in land. A major proportion of this they obtain from the farmers having less than 2 hectares of land who have leased out around 74 per cent of the total leased out area (Table III). Tenant operation of land is prohibitively expensive because of high cost of production and high rent on land, which is generally 50 per cent of the total farm produce. This forces the tenants to go for over extraction from the land.

Table III: Per-cent Distribution of Lesser and Lessee Households and Leased-in and Leased-out Area by Size Class of Land Ownership Holdings in Rural Orissa

Size Class of Ownership (ha)	per cent of Total lesser Households		per cent of Total Tenant Households		Average leased out area in	Average leased in area in
	1991-92	2002-03	1991-92	2002-03	2003(ha)	2003(ha)
	Less than 1.01	63.96	73.90	89.21	97.00	0.26
1.01-2.00	25.96	14.80	6.42	2.99	1.09	0.32
2.01-4.00	7.01	8.70	3.56	0	1.77	0
4.01-10.00	2.38	1.90	0.81	0	3.34	0
Above 10.00	0.69	0.70	0	0	4.79	0
All Sizes	100	100	100	100	0.689	0.449

Source: NSS Report 48th Round (1991-92) and 59th Round (2003)

II. Land Tenure

Orissa Land Reforms Acts implemented from time to time have been determining the rights and privileges of the tenants as well as landowners in the state. But the norms under the act are hardly adhered to. Most of the tenurial agreements are verbal and hence, beyond the reach of such stipulations. Landlords always prevail over the poor and needy tenants and dictate the rent to be received.

In the state usually three forms of land contracts are practiced. In the first case the landowners hire workers to cultivate the land and pay them a fixed wage. The entire agricultural produce less the wages and the cost of cultivation are taken by the landowner. The second category is the fixed rent system, the other extreme of the wage contract arrangement. Under such a practice the tenant pays a fixed amount as rent to the landowner and keeps the rest for himself. The tenant bears the cost of inputs as well as the profit and loss from the land. In this case the tenant generally possesses the use right over the land and decides about the crop to be cultivated, tree planting, irrigation of the field, soil conservation practices and other long-term development of the land. The third form of tenurial practice is share tenancy in which the total produce of the land is divided between the landowner and the tenant on a pre-fixed proportion. Depending on the agreement, cost of other inputs invested is either shared between the landowner and the tenant or borne by the tenant himself. User rights of the tenant are largely restricted and he lacks the autonomy as regards crop decision and other land development practices.

Table-IV: Statewise Tenancy Statistics for Rural India, 2003

State	LEASED IN				LEASED OUT				
	Percentage of Households Reporting		Average Area in Leased	Leased in area as a percent of total area owned	Percentage Distribution of area leased out by terms of Lease				
	Leasing Out	Leasing In	per reporting Households		For Fixed Money	For Fixed Produce	For Share Produce	Other Terms	Total
AP	3.20	15.86	0.378	9.69	41.74	22.65	21.72	13.89	100
Assam	0.55	7.47	0.392	5.81	20.47	0.00	38.71	40.82	100
Bihar	1.94	12.32	0.392	12.82	8.89	20.99	59.95	10.17	100
Gujurat	1.62	10.08	0.544	5.40	14.78	22.55	10.89	51.78	100
Haryana	8.28	16.99	0.848	17.31	84.95	2.10	12.75	0.20	100
Karnataka	2.77	7.49	0.455	3.48	34.73	1.77	34.90	28.60	100
Kerala	1.17	7.09	0.156	4.72	33.52	0.00	28.64	37.84	100
MP	1.72	5.75	0.682	3.00	10.85	25.15	53.51	10.49	100
Maharashtra	1.59	10.73	0.468	4.92	34.44	3.32	53.97	8.27	100
Orissa	4.84	15.70	0.449	14.59	11.52	10.65	71.13	6.70	100
Punjab	5.11	12.08	1.349	19.46	91.69	1.73	1.98	4.60	100
Rajasthan	1.46	4.25	1.672	3.42	17.62	14.79	44.21	23.38	100
Tamil Nadu	2.44	16.31	0.145	6.97	47.19	14.70	26.33	11.78	100
UP	5.36	12.78	0.509	10.52	14.84	21.18	51.98	12.00	100
WB	2.26	11.27	0.271	10.35	29.38	48.79	10.55	11.28	100
All India	2.80	11.52	0.444	7.05	31.04	15.30	39.55	14.11	100

Source: NSS 59th Round, 2003

In Orissa, owners do not prefer to go for cultivation by hired wage labourers as it becomes difficult on their part to supervise the agricultural operations as most of them are absentee landlords staying in towns and cities with little knowledge about their own land holdings and its location. These owners generally prefer a fixed rent system of land lease to avoid botheration about the use of land. On the reverse, local landowners, who are especially creditors, grain dealers or petty business-holders, prefer sharecropping as they find it easy to dictate the terms and conditions of land lease to the tenants. The tenants, who are often at the receiving end with a dire need for land and credit, succumb to the whims of the landowners. Survey records reveal that nearly 71 per cent of the land lease system is under sharecropping agreement. This proportion is the highest among the states and much above the all-India average.

III. Land Use

The three indicators, land-use intensity, cropping intensity and input intensity, used by various studies (Niazi, 2003) to assess land-use behaviour of the farmers seem appropriate for an agrarian state like Orissa. Firstly, nearly 65 per cent of the total population of the state are dependent on agriculture and this pulls up the demand for farmland. Secondly, a fixed supply of cultivable area faces an ever growing demand for it and this forces the farmers to increase cropping intensity, i.e., the possible chance of a particular patch of land being sown more than once in a year. Third, increased dependency on land, area of which is not sufficient to meet the minimum requirement of the farmers, forces them to use more chemical inputs so as to boost the level of output in the short run. This exercise estimates these intensities on the basis of secondary data available with the Government of Orissa. Land-use intensity indicates the proportion of cultivable land that is used for cultivation vis-à-vis the amount of land that is left fallow in a particular year. In other words, it is the ratio of the area sown to the land area that is left fallow for a period of one year. Statistical surveys record that land use intensity in the state has been increasing continuously from 1.09 in 1971-72 to 12.36 in 1996-97 and further to 13.55 in 2000-01. Most of the cultivable land in the state being fragmented into marginal and small holdings land use intensity is high and it has increased over the period to sustain a growing population.

Cropping intensity measures the extent to which the cultivable land is being used. It measures the number of times an area is sown. Statistical abstract of the Government of Orissa (1981) records that net area sown in the state represents the area sown more than once but taken only once. It is observed that net area sown in the state has increased from 5765 thousand hectares in 1971-72 to 5968 thousand hectares in 1996-97 and further to 6075 hectares in 1999-2000. This pattern of ever increasing cropping intensity is added to small land holdings on which the farmers depend for their subsistence.

The third measure, input use intensity examines the extent to which chemical fertilisers and pesticides are applied to a given plot of farmland. Records reveal that in the year 1999-2000, Orissa occupies the last position, using approximately 42 kg of chemical fertilisers per hectare of cultivable land, while that in other agriculturally advanced states like Punjab and Tamil Nadu are 184.22 kg and 158.74 kg respectively. But the agriculturally rich states have large holding sizes, practice crop diversification and cultivate cash crops, which require higher dosages of chemical fertilisers. The case of Orissa is, however, different. In the state paddy is the main crop grown. Yet the use of fertilisers has increased by 38.53 per cent over a period of 4 years, 1996-97 to 1999-2000, while in case of Punjab the increase is by 19.62 per cent and for Tamil Nadu it is by 29.58 per cent. This underlines that within such a short period, which is insufficient to go for a change in farm practices, increased use of chemical fertilisers aims at boosting farm output. Identical is pesticide application. The state has mostly gone for high yielding variety of paddy, which is susceptible to pests and diseases. Over the years use of pesticides has increased from 1400 tons in 1992-93 to 885 metric tons in 1996-97 and further to 1018 metric tons in 2001-02.

Input-use intensity, representing application of increased quantity of fertiliser and pesticides, is largely determined by the quality of land and choice of crops. If the land is deficient in organic matter, attempt to raise production demands high level of fertiliser use along with increased combination of pesticides and irrigation supplies. When the farmers go for cash crops like cotton, increased use of higher dosage of fertiliser, pesticides and irrigation are required. The poor farmers in the state are not able to afford cultivation of capital-intensive cash crops like cotton. Land mass of the state is not very deficient in organic matter. Yet, time series records reveal an ever-increasing trend in the use of farm inputs. The agricultural experts underline the growing weakening land response to such inputs to be the reason behind (ICUN, 1992). Use of fertiliser alone can not increase farm yield. Adequate water is needed for the same. Poor farmers in the state often do not have proper access to irrigation facilities. Hence use of chemical manure results in land degradation. This is indicative of unsustainable land use behaviour of the farmers.

Over time, such inputs like fertilisers and pesticides have lead to severe environmental degradation like nitration of water, contamination of water and salination of soil (Glaeser, 1987). With the use of pesticides the crops gradually become pest resistant and this demands increased use of pesticides.

IV. Farm Yield

Despite increased use of chemical fertilisers and pesticides yield of rice per hectare has reduced from 14.26 quintals in 1994-95 to 10.41 quintals in 2000-01. In Punjab and Tamil Nadu, however, yield rate of rice has increased from 31.30

quintals in 1995-96 to 35.06 quintals and 33.9 quintals to 34.16 quintals respectively, over the years. Identical is the scenario in food grain production. Yield rate of food grains production in the state has increased marginally from 9.20 quintals to 9.58 quintals over the years while the volume of production in Punjab has increased from 34.7 quintals in 1995-96 to 40.34 quintals in 2000-01 and from 21.5 to 22.62 quintals for Tamil Nadu. Output of pulses, oil-seed and sugar cane over the years show no different a result.

Taking the country as a whole, the percentage share of Orissa in food grain production has declined from 4.50 per cent in 1994-95 to 2.54 per cent in 2000-01 while that of Punjab has increased from 10.82 per cent to 12.92 per cent and that of Tamil Nadu has declined marginally from 4.95 per cent to 4.54 per cent over the period. It is also observed that the magnitude of barren and uncultivable land in the state has been increasing steadily from 5,70,000 hectares in 1996-97 to 8,43,000 hectares in 2000-01, which speaks volumes about the extent of land degradation.

No specific information is available as regards the reason of falling agricultural productivity and increasing magnitude of unproductive landmass in the state. Yet environmentalists attribute unsustainable land-use behaviour on the part of the farmers to be the responsible factor.

The state government has undertaken various land reform measures from time to time, as an integral part of the overall strategy for poverty alleviation. Such measures include abolition of intermediary rights, tenancy reforms, along with regulation of rent, provision of security of tenure to tenants, distribution of ceiling surplus land to the landless agricultural labourers and small holders, consolidation of land holdings and so on (Economic Survey of Orissa, 2002-03). The land ceiling laws, a major component of the land reform measures have been implemented to siphon off excess land from large landowners to the land-starved poor. By the end of 2001-02, around 1,62,577.33 acres of ceiling surplus land has been distributed among 1,44,890 landless poor.

However, such measures have lead to further subdivision and fragmentation of land holdings, which has ultimately resulted in overuse of land. Governmental measures to make people aware of the ill effects of such overuse have been a failure. Agriculture Extension Centers set up at the village level have achieved little in this regard. This underlines that the classical approach to land conservation under the state patronage is inapplicable in the state. On the other hand, the populist approach, which has taken the people as both agents and victims of land degradation and have advocated for people's participation programmes through NGOs and other developmental agencies, has also failed to make people conscious of the adverse effects of overuse of land. The third, the neo-liberal approach, based on incentives and disincentives, has put forth the view that bad behaviour like land degradation is to be taxed while the opposite like land conservation should be rewarded could not make a dent upon the land use behaviour

of the farmers. Studies have observed that these three approaches have not made much headway in the developing countries (Biot *et al* 1995). Such broad views on land conservation can yield result under different circumstances. When farmland is abundant, the classical approach will be of a success while equitable distribution of land will make the populist approach of a great benefit. The neo-liberal approach, however, will be fruitful only when market institutions are developed enough to tax and reward the land user for the after effects. In case of Orissa, these approaches are hard to work as the agricultural land is over-depended upon, and inequitably distributed, small and fragmented landholders dominating the scenario. Market mechanism is not developed enough to make proper assessment of the cost and benefit of land use and impute tax and reward accordingly. Under the circumstances, short-run economic gains overshadow long-run environmental benefits and the land users have little concern for adverse environmental impact.

Given the broad framework of land tenure system, land use and inapplicability of the existing theses on land degradation, it is of interest to look at the problem of falling agricultural productivity in the state in a different perspective. Small holders, a majority with tenanted land will undoubtedly go for overuse of land. But does the extent of such overuse vary across different tenurial practices as against owner-operated land? Are varying socio-economic backdrop of the tenants responsible for differing pattern of land-use? The present exercise attempts to find an answer to these questions on the basis of a primary survey.

Empirical Results

Details of farming practices were examined with cross-sectional evidences from 300 households in a survey carried out in 2003. Primary data was collected on sampling basis. Out of the 30 districts of the state 30 blocks were selected, which are around 10 per cent of the total blocks in the state. Selection of the blocks in each district was done randomly. Of the total villages in the blocks, two villages, one irrigated and another un-irrigated were chosen at random. Cropping pattern and input use in an area is largely governed by the availability of irrigation facility and region specific soil quality. This also makes a difference in the crops grown and cropping intensity. Therefore, a region specific assessment and a look into the impact of irrigation seem imperative. In total, 62 villages were sampled for the purpose of data collection. In the sample villages, census method was used to identify the cultivator status of the households.

To examine the inter-regional variations in the land-use pattern in the state the three revenue divisions, namely, Central Division (Region-I), Southern Division (Region-II) and Northern Division (Region-III) have been studied separately.

Tenurial status of the sample households speaks of larger concentration of tenants in Region-I, which comprises the coastal districts of the state. 26.75 per

cent of the households surveyed in this region are share tenants and 22.50 per cent are fixed-rent tenants. The rest 50.75 per cent are pure owner-cultivators. In Region-II, 14.97 per cent are share tenants and 18.22 per cent are fixed rent tenants while in Region-III, the corresponding proportions are 17.92 per cent and 15.03 per cent. Heavy population pressure in the coastal districts of the state explains relatively larger percentage of tenants in the Region-I. Moreover, agriculture being more productive in this region, the proportion of tenants is relatively more.

Distribution of sample households according to the size of their land holdings reveals that majority of them (57.65 per cent) cultivate marginal land holdings and 27.01 per cent cultivate small holdings. Thus farmers with small and marginal holdings constitute more than three-fourths (84.66 per cent) of the total sample. The picture is almost identical across different regions. In each region, a decrease in the proportion of households with increase in the size of land holdings is observed. It is obvious, therefore, that relatively large-sized holdings constitute a very small proportion in the sample as a whole and those in the regions separately. This pattern of sample distribution is quite in conformity with the findings of the latest Agricultural Census of Orissa (1990-91).

Distribution of different size classes of operational holdings of the tenurial classes is the same as that of the sample as a whole. Almost all the share tenants (92.31 per cent) operate small and marginal holdings. The proportion of fixed rent tenants cultivating this size of land is marginally less (89.45 per cent). None of them were operating large holdings.

Educational status of the tenants was revealed to be very low. Nearly 46 per cent of the share tenants were found to be illiterate as against 35 per cent of the owner cultivators and 30 per cent of fixed rent tenants. Concentration of illiteracy is revealed to be more in Region-II.

Family size as well as dependency ratio is found to be an important factor in determining land use pattern. The sample reveals that, on an average, share tenants have a larger family as well as dependency load. This feature is more apparent in Region-II.

Principal occupation of the household head has an important bearing on land use as well as cropping intensity. If the respondent is a farmer then he will use the land more intensively so as to earn maximum income. On the other hand, if the income from land is only supplementary to his principal income from other sources then cultivation pressure on land may be eased. Majority (52.36 per cent) of the fixed rent tenants were found to be wage earners while nearly 42 per cent of the share tenants had wage earning, small trading and traditional craftsmanship as secondary sources of income. Proportion of owner cultivators with such a secondary source of income was relatively small, nearly 29 per cent. Low and uncertain income flow from these sources forces the tenants to go for overuse of land. Socio-economic position of the sample households is presented in Table-V.

No significant difference in the socio-economic position of the respondents under different tenurial practices could be observed. This is mainly because almost all the respondents were small and marginal farmers and existed in the same socio-economic environment. Inadequate avenues of off-farm employment forced them to depend on agriculture. Factors like family size, dependency load and other secondary sources of income, which influence the socio-economic profile, exhibited very little difference to have any visible impact.

Table-V: Mean Values for Demographic and Economic Characteristics of the Sample

Sl No	Variables	All Households	Fixed-Rent Tenants	Share Tenants	Owner Cultivators
1.	Household income (Rs per month)	5,500	4,800	3,300	5,900
2.	Non-farm income (Rs per month)	2,400	1,350	2,600	1,060
3.	Farm Income	3,100	2,450	700	4,840
4.	Yield level	4,660	2,950	1,400	4,840
5.	Dependent-earner ratio (rounded up to the next number)	3	4	3	2
6.	Educational Qualification (years of schooling)	10	12	12	10
7.	Operational holdings (acres)	0.65	0.58	0.52	0.88
8.	Input Use (chemical fertilisers and pesticides used in a single rice cultivation (in Rs))	823	976	805	768
9.	Percent with other supplementary source of income	46.25	52.36	42.00	29.00

Owner-cultivators are with relatively larger size of land holdings and as such have slightly higher income from agriculture. Their income from non-farm sources were observed to be low in comparison to their counterparts as they are left with very little time to avail other job opportunities. As such, only 29 per cent of them had income from other supplementary sources. Share tenants are with a low family as well as farm income. This group of tenants leased in land to supplement their own small patch of land to meet their subsistence. Yet, their farm yield is observed to be the lowest. This is largely because the lessees leased out inferior land and retained the fertile ones for own cultivation. These farmers are unable to earn an adequate living from their own land and leased in land. Therefore, they go for some secondary source of earning, a majority working as wage-earners as agricultural labourers. The position of the fixed-rent tenant was found to be in

between owner-cultivators and share tenants. Almost all in this group of farmers had leased in land from the owners who are out of village for working in the town. These landowners prefer a contract of receiving a fixed amount from the tenants as they are not able to supervise the details of cultivation like requirement of seed, fertiliser, pesticides and the level of crop yield. The survey reveals that after payment of a fixed amount the tenants are left with a farm income, which is greater than that of the share tenants but less than that of the owner-cultivators. It was observed during the survey that the outstation landowners prefer to sell their more fertile lands and retain less fertile ones, as the market value of the latter is very low. Leasing out these lands gives them a flow of income; whatever small may be the amount. Moreover, above 50 per cent of the fixed rent tenants are able to find some secondary source of income, which makes them better off marginally in the economic front in comparison to their share-tenant counterparts.

The use of land is reflected by land-use intensity, cropping intensity and input-use intensity. But in the empirical survey the former two were observed to be almost identical across different tenurial practices. Whenever there is a scope of cultivating the land more than once, the landowners, fixed-rent tenants as well as share tenants went for it. But use of chemical inputs varied to a large extent depending on various socio-economic factors.

The farm income of a household is mainly determined by crop and input prices, weather and technology. When farmers attempt to boost income they try to increase input use, which escalates cost of production. Will the tenants who have to share their produce with the landlord prefer to bear additional cost? Or will the poor tenants who are at the subsistence level opt for this, as it will increase their income position? When non-farm income is high farmers may be averse to bear additional cost.

Most of the tenants are small and marginal farmers. Those with larger operational holdings have to incur higher cost to increase output, which is also to be parted with. Even though farmers in Orissa have smaller land holdings the size of operational holding enters as a major determinant of input use. Shiva (1991) and Singh (2001) observed that in Punjab where land holdings are predominantly 12 acres or less; give twice as high a yield as in Pakistani Punjab. This is because the holding size is economically sustainable and this encourages the farmers to combine long-term sustainability concerns with short-term economic gains. Therefore, farmers often shun monoculture and go for crop rotation, use of intercropping so as to maintain and enhance land productivity and health of the crops. Such sustainable measures undertaken by the farmers enable them to enhance land productivity without even going for the use of high-cost farm inputs. This curtails cost of farming and increases return on their investment. Smaller holding size of the farmers in Orissa makes unsustainable land use behaviour an economic necessity, which, in turn, demands ever-increasing input use.

The age and education of the farm households are taken in number of years. Age reflects farming experience. Often elderly farmers are averse to use of chemical fertilisers and pesticides and prefer bio-fertiliser. Similar is the case with educated farm households who try to maintain land productivity over a long period.

Agriculture in Orissa is labour intensive. Smallholder agriculture engages both family and hired labour. It has been estimated that nearly four per cent of the farms employ hired labour, sixty per cent use family labour and the rest thirty-six per cent combine both. Increased input use is possible when there are additional helping hands.

Larger number of dependents in the household forces the farmers to use more chemical inputs with the expectation of increasing farm income.

This exercise has used an econometric model to assess the extent of the use of chemical fertilisers and pesticides. The model is presented in Cobb-Dauglass (C-D) type function and assumes a non-linear correlation between input use and other explanatory variables. The C-D function is a theoretically correct approximation of measuring production relation. Empirically also these values provide better insight.

The C-D function is

$$X = \beta_0 R^{\beta_1} L R_h^{\beta_2} R_m^{\beta_3} \text{age}^{\beta_4} \text{edn}^{\beta_5} Y_{nf}^{\beta_6} \text{dep}^{\beta_7} \exp [(\beta_6 \text{Reg}) + (\beta_7 \text{Irg}) + (\beta_8 \text{Ten})]$$

The empirical model in log form is specified as

$$\ln X = \beta_0 + \beta_1 \ln R + \beta_2 \ln L + \beta_3 \ln R_h + \beta_4 Y_{nf} + \beta_5 \text{age} + \beta_6 \text{edn} + \beta_7 \text{dep} \\ + \beta_8 \text{Reg} + \beta_9 \text{Irg} + \beta_{10} \text{Ten} + \varepsilon$$

In this equation X denotes chemical inputs (fertiliser and pesticides) used per acre¹, R is the gross revenue per acre², L is the size of land holding, R_h is the ratio of household labour to total labour, Y_{nf} is the non-farm income, age stands for the age of the household head, edn for the highest education attained by any family member staying in the village, dep is the dependent earner ratio, Reg is the region

¹ The amount of pesticide used by the farmers is very small, approximately Rs 100 per ha. Therefore, this was clubbed with fertilizer under the heading of chemical inputs.

² Gross income of lag years will be an appropriate independent variable for estimating demand for fertilizer and pesticides. The respondents were also asked about their agricultural income in the previous years. But they could not spell out the same accurately. They could only tell that there was not much variation in the income in the last two to three years. Agricultural income, during normal seasons, does show much fluctuation. The study, therefore, preferred to take current income, the exact amount of which is available, to be an explanatory factor for future requirement for fertilizer and pesticides.

dummy, Irg is whether the land is irrigated and Ten is the dummy indicating the system of land tenure.

$R_1 = 1$ when the land is in the central division, 0 otherwise

$R_2 = 1$ when the land is in the southern division, 0 otherwise

Irg = 1 when the land is irrigated, 0 otherwise

Ten₁ = 1 when the tenant is a fixed-rent tenant, 0 otherwise

Ten₂ = 1 when the tenant is a share tenant, 0 otherwise

The statistical results from the regression analysis, estimated by OLS (Double-Log) method are presented in Table- V.

Table-V: Regression Results Explaining Input-Intensity

SI No	Independent Variables	Coefficients	Estimates	T values
1.	Constant Term	β_0	6.20	6.11*
2.	Gross Revenue per Acre (R)	β_1	0.39	2.96*
3.	Non-farm Income (Y_{nf})	β_2	-0.28	-2.51*
4.	Size of Land Holding (L)	β_3	0.53	3.26*
5.	Ratio of Household Labour To Total Labour (R_h)	β_4	0.18	1.99*
6.	Age of the Household Head (age)	β_5	0.72	0.51
7.	Highest Education level in the Household (edn)	β_6	0.35	0.23
8.	Dependent-Earner Ratio (dep)	β_7	1.22	2.72*
9.	Regional Dummy (R_1)	β_8	0.38	3.40*
10.	Regional Dummy (R_2)	β_9	0.42	3.66*
11.	Irrigation Dummy (Irg)	β_{10}	0.62	2.13*
12.	Land Tenure Pattern Dummy (Ten ₁)	β_{11}	0.41	2.51*
13.	Land Tenure Pattern Dummy (Ten ₂)	β_{12}	0.32	2.44*
	Adjusted R ²	0.89		
	F Stat	28.35		
	N	300		

* represents statistical significance maximum up to 10 per cent level of confidence.

Most of the independent variables bear the signs of expectation and are statistically significant. The regression results reveal that the coefficients of the independent variables explain nearly 90 per cent of the variation in the dependent variable. In other words, 90 per cent of the variation in input use can be attributed to tenurial practices, irrigation facility and land size along with micro variables like farm income, non-farm income and labour endowment of the households. The F value indicates that the model is statistically significant above 95 per cent probability level.

The tests conducted for assessing goodness of the parameters extend support to overall validity of the model. Heteroscedasticity is not a problem among the tested variables. Moreover, estimated correlation and covariance matrices revealed that multicollinearity is not a very serious problem among the tested variables. This implies implications of the findings obtained from the model worth policy implications.

Implications for Input Use

In the case of a less-developed, primarily agrarian state like Orissa, the use of chemical inputs in agriculture is influenced by a number of factors along with tenurial practices.

Gross revenue per acre bears a positively significant correlation with input use. A higher farm income induces the farmer to go for input intensive cultivation with the expectation that returns could be boosted in future. Incremental increase in gross farm revenue will tempt the farmer to increase input use. However, a note of caution may not be ruled out. When returns from land are high, farmers may avoid the extra cost of cultivation. This is well explained by the coefficient of non-farm income. A negatively significant parameter of this variable indicates that with increase in non-agricultural income, farmers use less fertilisers and pesticides. One unit increase in non-farm income would lead to a reduction in input use by 28 per cent. When there is a continuous flow of non-farm income the need to boost farm output is reduced and the farmers do not want to sacrifice land quality and productivity. Significant response of non-farm income to input intensity is a clear indication that creation of off-farm employment opportunities will reduce pressure on land and also maintain productivity of land. Such a step will also reduce surplus labour with the household and with less family labour input use will be curtailed.

Larger size of landholding calls for more intensive input use. When land size is sufficiently large farmers go for cultivation of cash crops or adopt crop rotation, which requires more application of fertilisers and pesticides. But a few farmers in Orissa are privileged in this regard. Most of the farmers are marginal and small farmers cultivating paddy and at times pulses. Therefore, when land size is relatively large they try to increase farm income by increasing input use. A single percentage increase in land size raises input use by 53 per cent.

With larger number of household labour input use in the farm increases as this saves the labour cost of input application. When there is an increase in the proportion of household labour by one percentage point input use rises by 18 per cent.

Identical is the case when there are larger number of dependents per earner in a family. This forces the farm households to raise earning from the farm and therefore, they use more inputs. One per cent increase in the dependency load will escalate input use by 122 per cent.

It is also interesting to record that with increase in education input use increases by 35 per cent. Education of the farmers in the state has a positive impact on input intensity. But this non-linear relationship should be taken with caution. Education in the state is not properly enriched with awareness about adverse effects of input use. Therefore, even educated farmers, go for short-term gain of increasing the farm yield at the cost of long-run conservation of land fertility.

All regional, irrigation and tenurial dummies have positive and statistically significant coefficients. Comparing across the regions it is observed that farmers in the Central Division use more inputs than those in the Southern Division. With increased facility of irrigation input intensity of cultivation increases. It is also observed that when the farmer is a fixed-rent tenant use of chemical input rises by 41 per cent while it increases by 32 per cent when he goes for sharecropping.

Farmers in Orissa are mainly dependent on agricultural income. When this income increases farmers try to boost it still further by using chemical inputs. Almost all the farmers are small and marginal farmers. Hence, increase in land size demands use of more inputs. This also reflects that the land holdings in the state are not economically advantageous so as to enable the farmers to avoid use of chemical inputs in the long-term interest of the land. This calls for an increase in the size of operational holdings, at least to the economically viable range, as in the case of Punjab.

Irrigation facility increases the scope of using chemical inputs. At times, this requires excess use of water, which also affects soil fertility. A judicious system of water pricing can curtail such wasteful use of water and reduce use of chemical inputs.

A fixed-rent tenant goes for input-intensive cultivation in comparison to his share-cropping counterparts. A restructuring of the land tenure system will be of a great benefit in preventing excess use of chemical inputs.

Policy Recommendations and Conclusion

Agriculture is the mainstay of the people of Orissa. Their low-income position forces them to boost income from this source even at the cost of land productivity. Farmers go for short-term gains. Creation of off-farm employment opportunities will curtail dependence on land. Sustained increase in farm household income requires increased provision of such opportunities. Increased access to credit and micro-finance has the potential to smooth income and consumption of the poor households (Zeller, 1999) and this may reduce dependency on land.

In order to make people aware about the long-term effects of intensive use of chemical inputs agricultural extension services should conduct such awareness camps and guide them in this direction. Regular information exchange meetings and consultation would have to be organised between agriculture improvement services

and farmers' associations. Agronomic research centres should also help the farmers in using bio-fertilisers in the place of chemical inputs.

In view of the significant response of tenurial practices it could be observed that a change in the system towards sharecropping will reduce input intensity of cultivation. The potential for substantial reduction in chemical fertilisers and pesticides exists if the farmers are provided with sustainable off-farm source of income and made aware of long-range adverse effects of such inputs. In the process, land tenurial practices also have a strong role to play.

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Book Reviews

***Hinduism: A Gandhian Perspective.* M V Nadkarni. New Delhi: Ane Books India. 2006. Pp xxxiii+510. Rs 795.**

Prof M V Nadkarni's recent book, 'Hinduism – A Gandhian Perspective,' has generated passionate interest in some academic circles. However, intellectuals should have put it to more earnest discussion. The book is significant because the author has carved out a unique image of Hinduism, perhaps very distinct from regular understanding that this most contentious religion has always been known for. Moreover, the amount of patience and serenity that he owns becomes clearly evident as one turns leaf after leaf of his huge book, invoking fresh currents of thoughts about Hinduism and making them flow so gently along the exceptionally lucid language. The main concern of the book is to underscore the best parts of Hinduism, including its deemed secular, adaptive and vibrant epitomes, as most capable of meeting needs and challenges of any given time as also of emerging complex as well as progressive tendencies of the modern age. Thus the book embodies the multifaceted dimensions of Hinduism to make them ever relevant and fine. Indeed, almost every governing principle of Hinduism has its say in the making of this book.

Nonetheless, somewhere the reader gets an impression that the book is full of praise for the greatness of Hinduism, ignoring almost all of its demerits. Of course, many more have done it before Nadkarni. There have been bitter critiques of Hinduism. Nadkarni seems to take only an indirect dig at such opposite evaluative viewpoints instead of making any direct case against them. One such, the famous 'for and against' debate on Hinduism that went on between Gandhi and Ambedkar, is even now fresh in the nation's memory. It appears Nadkarni is reviving that old debate in a new context provided by saffronisation in such a way as if to rigorously defend Gandhi in the face of arguments Ambedkar had against him. Of course, by knowledge, Nadkarni is perhaps more equipped than Gandhi himself. While, whether Gandhi had any definite perspectives about Hinduism continues to be an enigma, Nadkarni has his own exclusive ideas about Hinduism. Yet, he terms most of his original views as Gandhian perspectives.

In 1936, taking objections to Ambedkar's views on Hinduism, Gandhi wrote in his journal *Harijan*: 'Caste has nothing to do with religion'¹. Nadkarni quotes it atop to substantiate outlines of the second chapter of his book. Through this particular chapter he aims to demolish what he terms as 'myth of caste being intrinsic to Hinduism'². To strengthen his arguments further, Nadkarni quotes Gandhi

¹ Nadkarni M V p 77

² Nadkarni MV ibid

to have said thus: 'The caste system as it exists today in Hinduism is an anachronism. It is one of those ugly things, which certainly hinders the growth of true religion. It must go if both Hinduism and India are to live and grow'³. How can a person who had profound faith in the 'scientific base' of the caste system turn hostile to it and term it an 'anachronism' is a question that seems like a terrible riddle. Of course, in a later part of his life, Gandhi did try to scale down his utmost conservative views on Hinduism but he never came out with concrete ideas on such sensitive issues as annihilation of caste. Rather, he tried to conceal his inner feelings, at the same time impressing the public with his superficial feelings, which Nadkarni has put into excessive use. Gandhi was obsessed with the caste system so much that he believed that 'if the Hindu society has been able to survive, it is because it is founded on the caste system'⁴. Due to his abundant faith in caste, he even proclaimed that 'the seeds of the *Swaraj* (Independence of India) are to be found in the caste system'⁵. 'Caste', according to Gandhi, 'has saved Hinduism from disintegration'⁶. Its 'hereditary principle is eternal. To change it is to create a disorder. There will be a chaos if every day a *Brahmin* is to be changed into a *Shudra* and a *Shudra* is to be changed into a *Brahmin*'⁷. What he meant was 'one born a scavenger must earn his livelihood by being a scavenger and then do whatever else he likes. A scavenger is as worthy of his hire as a lawyer or your President. That according to me (Gandhi) is Hinduism'⁸ Therefore, by his strong conviction, Gandhi had made caste system the inner essence of Hinduism. Though outwardly he opposed Manu, in fact, in himself he had cultivated a burning spirit of Manu. And for that reason alone one cannot just dismiss or undermine his first and primary thoughts on caste system. Gandhi opposed inter-dinning and inter-marriage between the castes as uncalled for. He vehemently perceived: 'I believe that inter-dinning or inter-marriage are not necessary for promoting national unity. That dinning together creates friendship is contrary to experience. If this were true there would have been no war in Europe. Taking food is as dirty an act as answering the call of the nature. The only difference is that after answering the call of the nature we get peace, while after eating food we get discomfort. Just as we perform the act of answering the call of the nature in seclusion so also the act of taking food must be done in seclusion'⁹. In a similar vein Gandhi asserted: 'Marriage is a fall even as birth is a fall. Salvation is freedom

³ Nadkarni MV p 118

⁴ B R Ambedkar, Gandhism, p.128

⁵ Ibid

⁶ B R Ambedkar, What Gandhi and Congress.... P.69

⁷ Ambedkar, Gandhism, p. 129

⁸ Op.cit.

⁹ Op.cit.

from birth and hence death also. Prohibition against inter-marriage and inter-dining is essential for a rapid evolution of soul'¹⁰. All these views of Gandhi were not born of unintended contemplation. They were his natural and well-thought out reflections on Hinduism and its corresponding quintessence of the caste system. Still, Nadkarni discards all these views of Gandhi, as accidental or as being born of pure innocence. But it appears he does it to defend his own views on the subject. Yet, this is enough to prove that Gandhi's Hinduism suffered like a leaky pot as it lacked real strength to hold any water. Hence Nadkarni cannot authenticate his views with the help of inherent contradictions that beset Gandhi's views on Hinduism and the caste system. Gandhi had no clear stand on what he wrote and spoke. Percival Spear, an American historian, wrote: 'Gandhi was one of those men who concealed thought in the volume of his speech, and meaning in the wealth of explanation. He was always explaining himself and was never understood.... To this day he remains an enigma'¹¹.

Now, turning to Nadkarni's views on Hinduism, they appear to have come out of his candid commitment to offer an alternative scheme of Hinduism. He builds in his book some interesting premises upon which to base his true Hinduism. Only a few are referred to here to establish the core issues causing concern for the proper understanding of Hinduism. First of all, Nadkarni opines that caste system has not been derived from the principles of Hinduism, and that, at any rate, there is no corresponding link between the two. 'Caste', according to him, 'is a mere social phenomenon'¹². Secondly, Hinduism has been a dynamic religion, which has always responded to changes and has effected changes within it too. Thirdly, the true test of the veracity of Hinduism should rest upon the religious fibre of early Vedic literature. And at last, he submits that truth and non-violence should be seen as the innermost spirits of the Hindu religion. Many other dimensions he adds to make up a Hinduism that is quite opposite of its common impressions.

So, does a casteless Hinduism as a religious experience exist? If so, do Hindu commoners make sense of it to take pride and believe in it to be their real common heritage under whose shade all live as equals without any fear or pomposity of being discriminated or favoured at one end as low and at the other as high? Unfortunately that has not been the case. If Hindu commoners were to choose between the idea of a casteless Hinduism and caste system, they would rather adhere to the latter than the former. This is because Hinduism without a caste system is insignificant for them. They will do it despite being convinced of the harmful effects of the caste system. That is why sociologists like M N Srinivas opined, 'If and when caste disappears, Hinduism may also disappear'¹³. John Gunther wrote: 'It

¹⁰ Op.cit.

¹¹ Percival Spear, quoted by Bhagwan Das in his introduction to Gandhism p viii.

¹² Nadkarni M V

¹³ M N Srinivas p 62

(caste) is the inner citadel of Hinduism... that has no approximation elsewhere in the world'¹⁴. Oliver Cox also felt that 'caste system constitutes the structure of Hinduism'¹⁵. But more remarkably, one of the earliest commentators of Hinduism, Abbe Dubois, opined: 'During many years that I have studied Hindu customs, I cannot say that I ever observed a single one, however unimportant and simple, and I may add, however filthy and disgusting, which did not rest on some religious principle or other. Nothing is left to chance; everything is laid down by rule, and the foundation of all their customs is purely and simply religion'¹⁶. Out of empathy we may compose our own opinion regarding any thing such as Hindu religion but if it runs contrary to experience that will have no real value. The same applies to Nadkarni's view also. Any attempt of that type turns out to be a mirage-chasing exercise, since it will never be realised as a factual substance.

Of course, at many points of time, Hinduism has witnessed many upheavals within itself. Nadkarni respects them as dynamic elements of Hinduism. He refers to both the reformative as well as the revolutionary movements in this regard. It is true that to some extent reformative ideas, as they addressed tangential issues of Hinduism, were accepted. But revolutionary tendencies, as they stood against core issues like caste convolutions, were never internalised to create a common creed. Rather, their shock waves were absorbed and parceled apart to create their own Irelands. That is how Buddhism, Jainism, Veerashaivism, Sikhism and an overabundance of local cults have often been fabricated. There are no common elements between them and each claims supremacy over the other. Nadkarni admires this disintegrative tendency of Hinduism as 'accommodative and assimilative'¹⁷. He even quotes Mahadevan to emphasise that such tendency 'does not mean that Hinduism is a medley of ill-assorted creeds, with no cohesion, no common purpose, and no unified understanding'¹⁸. Hence, says Nadkarni, 'it (Hinduism) is a religion in its own right'¹⁹. But he overlooks the fact that what defines the character of one creed is very opposite of the other. Being highly fragmented, fractured and displaced spiritual units, they serve no purpose of unity. Cox even admits that 'each caste has its own God-given *dharma*, its religious way of life and natural priesthood. Indeed we may think of caste *dharma* as Hinduism in microcosm'²⁰. It means there are bewildering varieties of Hinduism just as castes, all bereft of common links or

¹⁴ Gunther, John, p 435

¹⁵ Oliver Cox, p.37

¹⁶ Dubois Abbe, p.30-31

¹⁷ Nadkarni M V p xxiii

¹⁸ *ibid*

¹⁹ *ibid*.

²⁰ Oliver Cox, p.37

meanings. According to Dr. Ambedkar, 'a complex congeries of creeds and doctrines is Hinduism. It shelters within its portals monotheists, polytheists and pantheists; worshippers of the great gods Shiva and Vishnu or of their female counterparts, as well as worshippers of divine mothers or the spirits of trees, rocks and streams and the tutelary village deities; persons who propitiate their deity by all manner of bloody sacrifices, and persons who will not only kill no living creatures but who must not use the word 'cut'; those whose ritual consists mainly of prayers and hymns, and those who indulge in unspeakable orgies in the name of religion; and a host of more or less heterodox sectaries, many of whom deny the supremacy of the *Brahmins*, or at least have non-*Brahmin* religious leaders'²¹. Thus there is hardly any universal essence which makes Hinduism a perfect and authentic religion and binds its followers into a single whole. Amalgamation is almost impossible under such circumstances. The recurring publication of perplexing articles on faith, belief and practices has created chaos within Hinduism, rather than making it truly dynamic and vibrant.

As far as Hindu literature is concerned, it is very difficult to grade its various brands in terms of their role in the formation of the Hindu religious life. The sanctity and infallibility of the *Vedas*, *Smritis* and *Sastras* together constitute the religious character of Hinduism. But more particularly, *Smritis* have played their own exclusive role in this respect. However, Nadkarni totally rejects the role of *Smritis* and surprisingly at one point praises Manu. On wishful thinking one may deny the role of *Smritis*, but what actually exists is only the rule of *Smritis* in conducting and defining Hindu religion. Indeed, as indicated by Nadkarni, early Vedic literature might have had morally saturated secular base. But later parts of it — whether one calls them interpolations or appropriations — actually shaped the persisting pattern of Hinduism in India. Thus what presently prevails, as an ideological background in deciding the nature of Hinduism is most important because everything else is dead and functionally unimportant and no oration is useful in its glorification. In fact, epics like the *Mahabharat* including the *Gita* are also ingrained with the idea of caste, viewed through the sufferings of the characters like Karna, Vidura and Ekalavya. Likewise, in *Mahabharat* we come across many 'great *Brahmin* warriors and mighty bowmen; but not for a moment do they forget, or are they allowed to forget, that by birth and therefore in reality, they are *Brahmins*'²² and not the *Kshatriyas*. Hence, the secular and inclusive milieu, by which Nadkarni prepares to make Hinduism fully complete and inimitable, crumbles like an edifice with weak prop-ups.

The codes of non-violence and truth are also alien to the Hindu religion. The early phase of Hinduism is notoriously known for its sacrificial ceremonies

²¹ Moon, vol. 4 p. 15

²² Moon, vol. 3 p. 69

involving not only various kinds of animals, but occasionally human beings too. Time and again, thousands of animals were sacrificed at the behest of the officiating priests. The *Yajna* included many other impious activities like *soma*, *sura*, sex and gambling. It was only after the Buddhist revolt that the enlightened sections of *Brahmins* turned their back on violence and became teetotalers. Only few of the twice-born followed them. Even today, in practice, violence has remained an inbuilt part of Hinduism in spite of the fact that, for intended reasons, cow protection has received top priority on the agenda of a few Hindu organisations. It means the principle of non-violence, partially followed by some Hindus, is not the inborn essence of Hinduism. Rather, it is borrowed and forged to decorate Hinduism. Under such a state of situation, truth cannot find refuge.

No doubt, Prof Nadkarni has developed a most sincere reformatory concern for Hinduism. If every thing he presumes were to be true to the fact, Hinduism would have been so blissful and gracious on earth that no other religion could have been placed on a par with it. But unfortunately, it is very difficult to believe his dream to be realistic and factual. Yet, one should have a chance to read his book to enjoy the pleasant sights of the wonderland of Hinduism he has so laboriously built up for the readers.

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***Local Democracy in India: Interpreting Decentralization.* Girish Kumar. New Delhi: Sage Publications. 2006. Pp 326. Rs 795.**

Decentralisation in India has had a troubled existence. Although India's first Prime Minister Jawaharlal Nehru was strongly in favour of the decentralisation of powers and the involvement of people in planning and development, most of his own ministers did not support this enterprise, and this feature of the lack of support has persisted over many years. Thus, from the time of India's Independence, the overall judgement that one could make is that decentralisation is a system which had the hopes and support of a few idealistic people (Nehru being an important example), but the system has not really had a great degree of success in most of the states of the country. It is not difficult to identify the obstacles to more powers and responsibilities, as well as funds, being devolved to the panchayats. The higher levels of the political class have always been under the impression that powers given to the panchayats are at the cost of the powers of the states' legislators and members of Parliament (MLAs and MPs). The bureaucracy was also not enamoured with the system, being as it was envisaged -- one that had the bureaucrats functioning under the overall supervision of the local political leaders, the representatives of panchayats. What has always been clear is that the survival and functioning of the Panchayati Raj required strong political will, and it worked reasonably well only in the states where there was support from the states' political leaders. The defining moment in this otherwise bleak state of affairs was the enactment of the 73rd Constitutional Amendment 1992, when all the states had to not only legislate on the system of decentralisation, the Panchayati Raj, but had to devolve powers to the institutions of local government. Girish Kumar's book takes a close look at the panchayats in four states of India, viz., Maharashtra, West Bengal, Karnataka and Madhya Pradesh. Looking at the functioning of the panchayats from the point of view of enriching democracy, Girish Kumar has covered a substantial ground in terms of political decentralisation and how the people of these states have adapted to a system of decentralisation, which with all its ups and downs has had some measure of democratic performance built into it.

Each of these states has a different background, and a time span in which it had encouraged and sustained decentralisation and the panchayats in that state. For example, Maharashtra has had a long period during which it has fostered the functioning of the panchayats (i.e., even before the enactment of the 73rd Constitutional Amendment). West Bengal and Karnataka are considered as the states with second generation panchayats, following the Asoka Mehta Committee's recommendations. Madhya Pradesh has had a weaker relationship with the Panchayati Raj in the past, and its increase in importance could be traced to the 73rd Amendment, and from about 1993. From this date, however, it has taken several

far-reaching steps to strengthen the functioning of the panchayats. It is not to be seen that the introduction and encouragement of the panchayats was only to ensure 'people's participation' or that the people's will was to take precedence in everything related to effective development in that area. It should be emphasized that power to the panchayats was reluctantly given, and more than devolution of powers, it has to be seen as deconcentration, and that the state governments retained more powers and functions entailed in governance. Local regimes (in the states) had a greater concern with developing or increasing their grass-roots support and to mobilise people to sustain their own parties' interests.

There is often an assumption that the "regime" under which the panchayats function in each state may be of some significance to the manner in which the panchayats function. However, Girish Kumar's analysis of the situation in these states indicates that there are substantial similarities in the functioning of the panchayats. As these panchayats are at the lower end of the three-tier panchayat system, the local elites have a considerable influence in how the representatives work, and particularly those of the 'deprived' groups, the Scheduled Castes and women representatives. The expectation may have also been that a Left Front government of West Bengal would have overcome the immediate influence of caste and that of local elites. However, what is more common even in this state is that the party officials at the local level are the ones who have a greater presence in decision making, rather than the representatives themselves (except perhaps when party officials are also panchayat pradhans). The ease with which local elites or party officials are able to dominate or even influence the gram panchayats is also facilitated by the lack of experience of most representatives, and their dependence on others for support and advice. Women representatives are rarely approached by anyone for help in whatever they need, and this is a feature that was observed in West Bengal as well as the in other states. West Bengal too demonstrated the frequently observed feature that it was someone other than the women representatives who functioned as representatives. It was the local party officials (male), or male panchayat representatives, who influenced the functions of women representatives, or even carried out the functions of the women representatives. As such, the panchayats even in a state with a 'left' state government, the local institutions of government had also adjusted to the conservative rural society. It was rarely that one saw women being active and effective representatives in the panchayats, and even better educated women chose to play a less prominent role in the panchayats.

Public participation in the panchayats has been moderate to low in all the states, and one cannot say that the enthusiasm in voting at elections is also followed by substantial or regular participation of the people. This needs to be contextualised, and the participation that one expects is more in the village assemblies, gram sabhas, and less over the entire range of functions that a gram panchayat is expected to undertake.

A disquieting conclusion of this study is that although the states have had a somewhat diverse political history, the general performance of panchayats and the public/people's participation that one finds in them is about the same. Moreover, these are not particularly high either. Ultimately, it is also to be seen that there are more factors which inhibit the greater devolution of powers, and also the participation of people from deprived or disadvantaged groups. Political decentralisation is not only a matter of making space available to these groups through reservations and affirmative action, but also that powers need to be devolved to them. Further, local conditions also impinge on the functioning of these groups, and cannot be wished away. With all their shortcomings, however, panchayats have been given a new lease of life through the 73rd Constitutional Amendment, and even with the less than wholehearted support from upper levels of political representatives, these institutions would now remain for some time to come.

Girish Kumar needs to be commended on the excellent use of material from the four states, and for having brought out a book, which not only covers several aspects of decentralisation and local government, but also compares the functioning of panchayats in four states from different parts of the country. As an eminently readable book, it is also a substantial contribution in an area which is otherwise somewhat lacking in good comparative studies.

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**Management in New Age: Western Windows, Eastern Doors.
Subhash Sharma. New Delhi: New Age International Publishers.
2006. Pp xv+242. Rs 120.**

The last decade witnessed an exorbitant growth in literature on management sciences. The sector has become quite vibrant, both in terms of manpower as well as scientific theories. But mostly we have ended in borrowing concepts and theories from the Western world, at times even without modifying them to suit the Indian situations. Therefore, failures in many aspects were inbuilt in the design. It is actually a matter of common knowledge that the most successful managers in the Indian corporate world were not trained in any management school and they still handled challenging situations with extreme ease to mark their footprints firmly. Pedagogically, the Indian-ness of handling crises was never highlighted but took a backseat compared to the Western ideological theories. Over years, a Western-thinking culture has developed in the academic field that puts Western ideas on a high pedestal without actually testing them on any strong rational grounds.

Knowledge always seem to originate in the West. Subhash Sharma probably the lone furrow advocating Indianness of Management Science has always stayed at the forefront with his creativity and thinking process. His writings are quite stimulating, inspiring and throw open fresh ideas for the readers. This volume is the second edition of the earlier well-received book written by Professor Sharma and has added new vistas to the Indian Management Science. The book has been spread over seven sections in addition to a powerful epilogue.

It opens with the roads to reality built on the concept of knowledge creation through knowledge generation. While dealing with science and scientific activities, the author operates in a positivistic tradition for a clear understanding of scientific approaches to knowledge. The taxonomy of approaches to knowledge building has been elaborated to arrive at four epistemological approaches. The Newtonian window, ordered and not ordered subjective approaches, as well as ordered and not ordered objective approaches, are elaborated and their implications for knowledge management are discussed. This theoretical discussion comes to close with a genuinely emerging wisdom equation. Here Professor Sharma defines wisdom as an additive of reason and intuition. This is a decomposition of wisdom into its two prominent components but probably one can add an interaction term between reason and intuition in the equation. In fact, in most of the arguments, it is this interaction term that dominates human judgement. This wisdom equation is a synthesis of complementarity principle elaborated in quantum physics. He develops the argument, taking the analogy of wave - particle complementarities from quantum physics, a difficult proposition indeed to grab, especially while dealing with management principles. This is followed by views, world views and modes of thinking backed by a strong analytical framework. Three important traditions are elaborated, namely i. The pure materialistic-economistic tradition; ii. The humanist-materialistic tradition and iii. The transcendentalist's tradition. The elaboration is quite lucid, and keeps the reader attached. Further he discusses the cognitive dominance as a new mode, and, following Haque (a philosopher), provides a three-stage understanding of the concept. The framework, providing the relationship between dominator and dominated is indeed Indian and that gives a clue for the model of cognitive dominance for development organisation. Even though the philosophical terminologies are extremely difficult, the travel is quite smooth, due to the lucid style of the author. In the second component spanning over two chapters, Professor Sharma gets into the construction and reconstruction of the management theories. Initially he provides a brief taxonomy of management theories and their normative contents. Keeping the link with the worldview elaboration in the first part he develops WEPT model: where, W stands for wealth, E symbolises the ethical dimension, P represents pleasure, and T embodies transcendental dimension. The WEPT model opens new vista for the management sciences with added Indian ethical dimension.

The chapter on 'M form of Management' set in multidimensional reality further adds to the taxonomy of the management theories. Beginning with Western and Japanese management theories, the author goes ahead to describe the full landscape of M form of management and to build a base for going towards harmonic society. The section on new framework for human and social development begins with harm minimisation to understand the Ecotarian view of the world and an emancipatory approach to human and social development. He elevates the concept of human quality development and inspirational motivation, rather than offering usual management vocabulary. The most prominent highlight of the book is that it shows methods to reduce the distance between social reality and the complex management principles. Chapter eight on the survival of the weakest provides agenda for development action and discusses the Gandhian approach keeping it in the vicinity of Kautilya. The author's in-depth understanding of management gurus of the West as well as the philosophical thinkers of the East is well demonstrated throughout the book. He proceeds to analyse the spiritually guided materialism, underpinned with social reality. The entire discussion is grounded in Eastern ethical paradigms and its Indian-ness is perceptible.

The next section incorporates a journey towards holistic approach for learning management, and that rightfully begins at Indianism and Indian management techniques. To buttress the point he chalks out the history of Indian management thinking by clearly delineating the complex matrix of the Indian society. In this most important drives of the Indian social system like caste, class, community and categories are included on one axis and various social traditions on the other without forgetting the region, religion and social setting as an intervening variable. Western management pundits shy away from these social realities and these really make or break an institution. This is used as a background to develop new taxonomies of management and calls it as Yin-Yang matrix of typology. That leads the author to transcend beyond efficiency and effectiveness in management and provide a holistic framework. In this section, the author travels through a very difficult terrain, but still makes the discussion quite lucid and understandable to the common reader. He challenges the usual concepts of motivation, defined and concretised by Western thinkers, and brings forth the new paradigms in motivational theories along with a fresh taxonomy. In this context, the hedonistic and non-hedonistic groups of theories, as well as ego-driven and eco-driven theories are discussed. Here the mental casting system and various colours of human mind are discussed to conclude that inspirational motivation is one of the important motivational paradigms.

New Mantras for management in the new age is detailed from the platform of ethics in Gandhian way of thinking, frilled with the motivational colours and the holistic management principles. Here the author brings under discussion the OSHA and OSHE theories of management. Where O stands for oneness with nature, S symbolises spirituality, H and A represent the characteristics of (*Guna*) Human,

and Animal. He describes different *Gunas*, and the characteristics, as well as their effects on the human management. E is added for existential levels. The matrix helps to analyse interpersonal interaction analysis and to unravel the OSHE matrix of interaction. It is quite interesting to read the perspective from self and others as against self and others' windows, interestingly called as So-So analysis. After adding existential levels to the OSHA model the author characterises it as OSHA - OSHE and, brings equivalent to the Shiva and Shakti. He stretches it towards East and at the same time provides support from Western spiritual thinking. The cognitive inference system is discussed in an integrated model of decision process, as well as providing typologies of decisions. This entire exercise leads to introduction of Indianism in the management through the spiritual confluence.

The next section is devoted to understanding human quality development, and that provides in-depth analytical section. The author takes us on a tour of various concepts both new and old, providing a subaltern view of organisations. The description is strewn with many concepts from the subaltern literature as against the new management decision-making principles. The concoction is interesting and has all the qualities of a cocktail. Here one finds the creativity at its crest. A holistic development equation is formulated as a sum of human resource development, human social development and human quality development, thereby underscoring human, social and spiritual capital as the basic requirements for development. Once again this equation may require the interaction terms and without that a large part of social reality remains unexplained. After looking into the organisational microclimatic systems, the author finally takes us to the core chapter of the book, namely, Western windows and Eastern doors. A new synthesis of the Eastern philosophical grounding superimposed on the basics principles of management is discussed here. While elaborating the decision making and organisational management he formulates K, T and KT grid. Here he gets into Kabir's philosophy, in order to bring forth the human qualities in the management principles. Beginning in ecology and dialectics he describes the cognitive bindings, self-realisation, intuitive understanding and inner strength. The concepts of interpersonal relationship, communication principles, internalising critics and providing for feedback are analysed as main principles. The entire chapter is based on what Kabir has written in a philosophy trait, but distilled into the nucleus management principles by a management teacher par-excellence. The epilogue includes fusion of management and social theories, in order to strengthen the principles of human values and develop the total quality of mind. In fact over years we are forgetting the Indian tools of creativity and mind liberation, which are catching popularity in the recent past, not so much due to their Indianess but due to their reiteration by Westerners. These tools, in fact, provide material for decision making and management on complete ethical platform.

The book by Professor Sharma is original in all senses of the term and provides the quintessence for creative thinking in the otherwise elitist science called management. In the wake of liberalisation and market occupying primacy over the institutions it is necessary that ethical grounding in management principles take precedence. More than that such management principles and theories would provide the managers peace of mind and objective creativity, a rare commodity for which the managers run around when their career is at peak. Professor Sharma has written many such creative works and essentially this book explores the inter-linkages between management thought, social relevance and spiritual concerns in an attempt to bring in new school of thinking in Indian management. All the students of management and creative thinkers in the management science must look for the Eastern doors before peeping through Western windows. That will endow them with not only fresh ideas but also tools of management for the most difficult decision-making questions, with genetically grounded ancestral wisdom. Better to mind the doors before opening the windows.

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Poverty Mapping in Rajasthan. P C Bansil. New Delhi: Concept Publishing Co. 2006. Pp. xi + 366. Rs 750.

The term 'Poverty' of the yesteryears appears to have lost its punch since the days of *Garibi Hatao*. Alternative welfare concepts such as *Composite Human Development or its inverse as Composite Human poverty index* with nearly similar definitions appear to have substituted it and rightly so. While alternative facets of poverty such as health, literacy, social capital etc have been all along discussed in various fora, a composite index of human development or lack of it, viz., human poverty by UNDP marks a milestone in development literature. Parikh and Dev (2003) capture the essence of human poverty in two broad sets of indicators, one defining individual/ household characteristic such as lack of income and/ or food, education status and health status etc. at the household level. The other set of indicators defining the enabling environment includes, public goods and services, governance, social and environmental capital and freedom, inclusion and empowerment that generates self respect.

The book on *Poverty Mapping in Rajasthan* seeks to redefine poverty on the basis of 73 indicators, grouped into nine broad categories. Composite index is defined as "...the variables that could generally influence *poverty* either directly or

indirectly were grouped under nine major blocks, namely, demography, housing and sanitation..., livestock, infrastructure and development.” According to the author, the study attempts to map out poverty, “...on a scientifically weighted composite index of poverty would make a real *methodological contribution* to the measurement of poverty.” (p.121)

It provides a very labour-intensive compilation of district level data on these indicators, often without reference to the year or source. They appear to have used indicators, the data on which does not exist. For example, district level indicators on protein deficiency, calorie deficiency, proportion of severely malnourished children, Chronic Energy Deficiency among male and female populations are mentioned and used for the computation of CHPI without any reference or definition. I am not aware if authentic data on these variables exists at the district level. Development planners would be very pleased to gorge on such data if it exists. We also find an important indicator getting manifested in several other indicators, reinforcing its importance several times over. For example, cropping intensity in the low rainfall region like Rajasthan is essentially a function of irrigation availability. But the two are taken as separate indicators. Nowhere the author describes ‘the poverty’ mentioned in the above sentence. Is it composite index of all these or simply the income poverty?

But the statements which baffle me most are “As the main focus of the study is poverty reduction through construction of poverty index.”(p. 173 last para). I have not heard of construction of an index can reduce poverty. We do not know which poverty the author is referring to. Is it the CHPI which the author wants to reduce or is it simple income poverty. The CHPI is an amalgamation of a very large number of indicators – not necessarily defining any form of deprivation. One is not even sure if the indicator per capita production of oilseeds, per cent urban population, living children, population density, absolute number of children attending schools or market price of wheat indicate any form of deprivation to connote poverty. And even if these related to poverty in a largely circuitous route how important they are to merit almost equal weight in comparison with such indicators as literacy, health status, incomes.

UNDP methodology aimed at showing relative deprivations some of the countries were facing with respect to the developed countries in terms of income, health and education indicators. Social, political and cultural factors including institutions besides economic factors define development entitlements. These may vary from one country to another and possibly from one state to another in the context of a large country, and hence the methodology may be extended for large countries to underline relative backwardness of certain regions. However, while defining poverty, the UNDP methodology explicitly recognises health and educational status as reflecting capability enhancing factors while income/ consumption is considered a surrogate for all other deprivations.

District poverty in the study is defined in the book not with respect to any objective criterion but an average indicator for the district, without any reference to its distribution, relative to the highest achievement district within the state. It may be that a district achieving 96 per cent literacy is termed as education poor because the highest literacy rate is 100. Similarly a district, poor in health status, may not be shown poor in health status simply because other districts are poorer. What is more, a distance of 5 points on a 0-100 score may put two districts 20 ranks apart for one indicator while for another indicator; a distance of 20 points may provide successive rankings. And yet the two indicators would merit the same weights in the composite index.

The enabling environment, particularly the institutions of governance and supply side indicators of public services at the district level, carries no meaning without an indicator on the distribution inequality. The NCAER report on the distribution of health subsidies makes it amply clear, particularly in the context of Bihar and Rajasthan. The income indicator in the UNDP methodology is double discounted to account for the inequality.

UNDP did the right thing to widen the focus of poverty to include literacy and health as the enabling factors for secure livelihoods and incomes, and vice versa. But to extend the logic to such ridiculous details is to lose the focus on poverty rather than sharpen it. Demographic indicators such as population density, living children (male), living children (female), are included without ever explaining their significance for the district poverty. Small ruminants, the most important livestock form for the poor in the arid and semi-arid Rajasthan is totally ignored and buffalo is given the centre stage for poverty computation and prescription for poverty alleviation.

The author often resorts to general impressionistic statements while describing Rajasthan. Such statements are often wrong. The statement on drought would be adequate to illustrate this. 'During 2002 drought the people of Rajasthan faced fifth successive year of drought, a situation comparable to the worst the state has been in the past 100 years. And, droughts occur...sometimes continuously as during 1984, 1985 and 1986, the worst in this century.' The 2002 drought was not the fifth successive year of drought, if it had been, agricultural year 2001-02 could not have shown highest production of cereals during the preceding 100 years at 125 lakh tonnes; 1997-98 being the only other year showing cereal production in excess of 110 lakh tonnes. And the author talks of 110 lakh tonnes of cereal production in a normal year. Incredible. And the year 1986 was not the worst drought of the 20th century. It was 1987 drought. Besides, 1984 and 1985 droughts may not be exactly considered drought years. And the author's prescription for drought, viz., "solution to recurring drought lies in the development of millions of irrigation facilities," does not come from a scholar who is aware of the water situation in Rajasthan.

How confusing such statistical outcomes can be comes from their correlation matrix for the village and the household level data. In Banswara, for example, CHPI observes zero correlation with literacy and health for the village correlations but high and significant correlation from the household data. So, what do we conclude?

It may for this reason that the policy prescriptions in Table 11.1 appear to be very general, and almost having no bearing on the 'sophisticated statistical analysis attempted by the author.

I do not think that the work contributes to our understanding of poverty in Rajasthan in any manner, significant or otherwise.

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Agricultural Transformation in North-East India. MA Salem. New Delhi: Mittal Publication. 2006. Pp 162. Rs 350.

'If you are late in doing one thing in Agriculture, you are late in all things'

-Cato, 2nd century BC

'Agricultural Development is central to economic development of the country'

-Tenth Five-Year Plan Document

Agriculture has remained dear to mankind since the ages. After seeing backwardness and stagnation for long, of late the agrarian economy is transforming with the latest technology, and with institutional and agrarian reforms in the country. The increase in agriculture output and productivity tend to contribute substantially to overall economic development. In agrarian societies, the family farms of common peasants in India are predominantly small as they mainly produce for self-consumption and also because they follow the mixed cropping pattern to meet the different cropping needs of the family. Production is carried out by the family using traditional methods. Hence to increase production, agrarian societies must be transformed. The three main ways of such transformation is development of capitalist farming, large-scale co-operative or collective farms and capital-intensive small-scale farming similar to Japan and Taiwan models (Harris, 1982). The study of Salem is concentrated on development of a capitalist farming which is experienced in varying degree in all agrarian societies.

What are the problems and implications of such agricultural transformation in the peasant society? How can this transition be related to macro economic process of the economy? What forces contribute to transition in Arunchal Pradesh, a

predominantly tribal society, where non-economic factors are operative? What are the nature and the extent of differentiation? How much of a change in Social Configuration has the commodification process brought in peasant households?

There has been the large volume of research on agricultural transformation in the peasant society by both Indian and western agricultural economists who have given interesting insights. The book by M A Salem takes a look on agricultural transformation in North East India, which is predominantly a tribal society.

Agrarian transition is an important requirement for the development of agriculture. But agriculture transition is context specific because it is surmised that in rural sector economic variables are less autonomous than they are in the urban sector. Further, the non-economic variables are more cohesive among tribals and factors such as clan, kinship and cultural adherences play a important role. It is still more cohesive in Arunchal Pradesh where their autonomy is recognised and detribalisation on the event of modernization has been resisted through the deliberate policy emphasized in the philosophy for NEFA.

Arunchal Pradesh is predominantly inhabited by a single community. The author highlights the fact that in Arunchal Pradesh, the process of social change did not begin from the internal dynamics of society. It has been engineered by the State following politico-administrative integration, economic integration has been attempted by allowing the market forces to penetrate, albeit in a controlled manner, so as to graduate the socio-economic institutions in favour of the market economy. After the political independence the commodification of agricultural produce has emerged due to infusion of liquidity, development of tertiary sector, price-cliff, backing of government to boost agricultural produce and the role of APMC. The author observes that the level of market surplus of agricultural produce leads to dissolution of peasant relationships among the peasant households.

The peasant differentiations take place at attitudinal level and social level. The whole social configuration of the household also changes in two distinct sections - one hires in labour force and the another hires out labour service. The study also points out the implications of value-added tendency of the surplus of agricultural produce. When the surplus began to be valued in market places, it started eating up the prevailing socio-economic processes and replacing by an alternative system such as, the multi crop pattern of production changed to single commercial crop pattern, the Jhum cultivation is replaced by permanent cultivation, social loan is declining and property right on land is getting formalised and concretised.

The study takes a sample survey of 277 peasant households covering five tribes of Arunchal Pradesh from 21 selected villages. The findings of the study reveal that the poor peasant households meet 22 per cent of the requirement of labour services through *Blanpa* (an institution of reciprocity). The self-sufficient peasant households meet 46 per cent of their requirements of labour services through

Blanpa and prostration. This is because poor peasants receive considerable amount of corn from self-sufficient peasants as social loan and render their service on prestation. The petty commodity producer households meet their 38 per cent of requirement through Blanpa, labour rent and wage payment.

The labour rent emerge in those villages which has transformed to produce commercial corps and are adopting modern techniques of production and not in the villages leased out on the moral ground. The author also highlights the fact that differentiation takes place due to market surplus and it take place in social relation of production more specifically, labour relations in production.

The book by Salem undoubtedly makes an interesting reading. The significance of the study lies in the fact that it demonstrates that Socio-economic transformation of rural tribal societies is determined and guided not only by non-economic forces but also by economic factors contrary to the claim of anthropological literature.

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Critical Issues in Communication: Looking Inward for Answers, (Essays in Honour of K E Eapen). Srinivas R Melkote and Sandhya Rao (eds). New Delhi: Sage Publications. 2001. Pp 491. Rs 595.

Media, the fourth estate, assumes critical role in a democracy and for India, the world's largest democracy, it should have been playing this role very effectively. Sadly, however, it does not and the shortcomings of the system of media and communication have been major contributory factors to the imbalance in the country's development. Media watchers, academicians, researchers, scholars of communication have consistently raised these issues and in the book under review, eminent media and communication scholars, too, encompass a whole gamut of issues while trying 'to look inward' as professed by Prof K E Eapen. This collection of essays has been brought out in honour of Prof Eapen - a 'first rate' communication scholar from South India, inviting his former students, peers and professional colleagues to contribute to this festschrift. Though written before 2001, and hence missing out the latest development in media and communication, the arguments still hold out about the ineffectiveness from the development perspective.

The book in its five sections covers Prof Eapen's works; media in Indian context; media in development; communication theory, research and practices; and communication and information technology, globalisation and communication disparities.

Media and journalism have come a long way from the pre-Independence patriotic pattern to the current professional (read materialistic) style that is defined and dictated by business compulsions. High-value jobs, professions, businesses, and hence, also expensive education are the core urban modern issues. With these come entertainment, leisure, travel, and consumerism. The dream merchants of all these needs and commodities grab the time and space of what is called 'mainstream' media. Technology, too, flows to the strong and mighty leading to a fearful digital divide. Talking about the disparate use of communication technology, Prof B P Sanjay, in his essay 'The Challenge of Looking Inward: The Case of India' highlights the trend to push communication technology without fully assessing their equitable distribution or their socio-economic implications on the society and its citizens. He infers that there is a lack of a clear and coherent communication policy in India and that the government is not able to decide whether it wants to be a referee, a player, or both, in the present communication playing field in India. Pradeep Thomas also talks of political economy of communication taking note of control over media-related commodities, concentration of media ownership and shrinking public space. To understand the effects of new technology on people, Sandhya Rao took up a study of audience in Bangalore on how the media changes affected the media use patterns. And finds that it is the entertainment television, film industry and advertising that dominate the media scene.

While mass media is largely driven by the business models catering to the privileged class, the mundane task of communicating to the economically weaker entities is left to the government mainly through its field publicity or extension services. Like all other development concerns, even these development communications had a top-down approach. In their essay 'Barking Up the Wrong Tree? An Inward Look at the Discipline and Practice of Development Communication', Srinivas R Melkote and Krishna P Kandath describe these approaches as authority-driven and prescriptive top-down models "transmitting the pro-development innovations and skills to an unsuspecting and passive audience" and using "pro-persuasion exercise to win over followers to the new concepts of development enunciated by the authorities and other experts". They further talk about dismantling of this kind of development communication and advent of development support communication models, which essentially has a bottom-up approach and imbibes participatory communication and more democratic channels of communication such as co-equal knowledge sharing between beneficiaries and benefactors. These models hold out a promise of empowering communities and social change. Community-based media models have been around and in his essay, Sundeep R Muppidi talks of one such experiment at Zaheerabad, Andhra Pradesh in India. Among all other developmental issues, this community spreads knowledge horizontally unlike the current media models of vertical transfer of knowledge and

information. There are other contributions too on community media like “Communication creates Community: The Role of Community-oriented Media” by Robert A White and “Looking Inward for Film Visions: Aboriginal Empowerment through Film” by Jean-Paul Restoule, Bernie Harder and Marlene Cuthbert.

What Harold A Fisher writes about Eapen’s work on Communication in Development is just apt in the contemporary era. Eapen propounded that “While mass media creates awareness and facilitate development of right attitudes, these learning can translate into action only with support from various forms of interpersonal communication and on-the-spot support”. Further, if the development has to be effective, local goals must tie the mass media to the traditional communication channels. Eapen’s studies confirmed that media messages and interpersonal influences complement each other. He concluded that a multimedia approach coupled with innovative educational strategy seemed to be most appropriate. So, a combination of channels is more effective than a single one and a combination of modern media with traditional channels is better than either alone.”

Prof Eapen, being an early graduate in journalism in India, contributed immensely to the journalism and mass communication education. However, describes Fisher in his essay, “as mass communication education in India stagnated or even retrograded after a promising start, Eapen has become increasingly critical of its failure and lack of progress. His repeated efforts to reform and upgrade it have met with limited success. His basic concern has been for quality of education that is socially relevant to India’s needs and development.”

However, the reasons are not far from obvious. The students are driven by the success rate as they perceive when they go to seek jobs. Journalists taking up hard issues (read - politics, crime, local administration) rise up the ladder, while film, entertainment, lifestyle, etc., are easy issues for survival in the profession. There is no scope for upward movement or lighter work in specialising in socially relevant issues, i.e., so-called soft issues. In the pursuit of easy success in the ‘fast’ era of ‘News in 60 seconds’, the current cadre of journalists in India is far from practising even theorised journalism. Against this backdrop of reality, it is refreshing to read Brenda Dervin and Robert Huesca in “Practising Journalism Communicatively: Moving from Journalism Practised as Ideology to Journalism Practised as Theorised Procedure”.

Robin Mansell in “Regenerating Information and Communication Inequalities?” says that inequalities in the distribution of the potential social and economic benefits accompanying ‘knowledge-based’ development will not be overcome simply by investing in the communication infrastructure or by successfully producing or accessing ‘digital’ information products. Measures that will put skills and ‘social capabilities’ at the centre of public policy and private sector strategies are essential. He further says that disparities in the capabilities to transform ‘digital’

information into useful knowledge will lead to the regeneration of social and economic inequalities that cut across geography and socio-economic class in new ways.

Covering almost all aspects of media and communication, this festschrift for Professor Eapen is not only useful to media scholars, researchers, teachers, students and media practitioners, but it also offers a great insight into the world of media to all non-media professionals interested in understanding dynamics of media and use of communication in development.

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Books at a Glance

***India's Long-Term Growth Experience – Lessons and Prospects.* Sadiq Ahmed. The World Bank. New Delhi: Sage Publications – 2007. Rs 475.**

There is a plethora of books and monographs dealing with India's long-term growth experience. Most of these have been written keeping in view the graduate school audience in mind, whereas the others address policy makers and researchers. Naturally, the depth and quality of analysis differs significantly. This small monograph is an engagement with the critical debate in the context of economic reforms and India's long-term growth experience, opportunities and challenges. Dr Sadiq Ahmed, as a Sectoral Director in the Poverty Reduction and Management Unit of the World Bank, takes a view on the long-term performance of the economy. The author's association with the World Bank is reflected in the theme and direction of the argument. The theme of market-oriented open economy is visible but not unnecessarily stressed. The book is quite precise and provides discussion on the significance of India's growth and its acceleration in the recent past. On the long-term views on sectoral growth, regional pattern and poverty experience, the author discusses the determinants of growth and growth accounting. In the pattern of the World Bank documents, the author also provides an elaborate policy framework for supporting growth. Finally, he analyses the constraints in the growth opportunities in terms of savings, investment, fiscal policy, infrastructure and labour, rather than disproportionately focusing on fiscal policy. The first three chapters are dealt within 40 pages, while the chapter on policy framework takes significant space. After emphasising on the macro-economic stability with the help of changes in inflation, terms of trade, export performance and fiscal deficits, the author applauds India's achievements. He feels that India's growth experience and associated structural changes have unleashed a number of growth opportunities. Among the constraints for higher growth that the author highlights, savings and investment rates, infrastructure, labour market and public service delivery gain significance. The reader, however, should not forget that this opinion comes from the corridors of the World Bank. The book is succinct and readable. In about 100 pages, the author has successfully provided a bird's eye view on India's long-term growth experience.

***Harvest Song.* Sabitri Roy. Translation of *Paka Dhaner Gan* by Chandrima Bhattacharya, Adrita Mukherjee. Kolkata: Stree. 2006.**

This book provides a rare opportunity to non-Bengali readers to read one of the most celebrated novels of Bengali literature. *Harvest Song* is a translation of the original Bengali novel by Sabitri Roy, *Paka Dhaner Gan*. The original was

published in three parts in 1956, 1957 and 1958. Then the trilogy had created ripples as it was based on the background of the famous Tebhanga rebellion that had spread in Bengal during the pre-Independence days. Sabitri Roy was at her best, as she lived in that era, experienced the rebellion and mastered the philosophy behind it. Notably, the translators have not deviated from the original theme and remained truthful to the original text. A large part of the novel was written during the 'fifties when literature on the Tebhanga movement had not yet developed. The novel reads the mind of a revolutionary, as an individual as well as a committed idealist. Characters like Parthada, Debaki, Rajen, Sulakshan and Bhadra speak two themes: one as a part of the overall narrative of the novel and the other as a mechanism of the rising rebellion. The reader is provided insights into the publication of the revolutionaries — *Chasi*, without actually presenting it. Also, the descriptions of paddy fields, the lanes of Calcutta and the sounds of the river become vibrant but do not divert the reader's attention from the theme. The characters too come alive and sing the 'harvest song' in the rebellious tone that reverberated through the huts and streets during those eventful days. This novel must be read not only by those who are interested in the development of Bengali literature but certainly by those who would like to understand the anatomy of the farmers' revolution.

***Strategies for Human Development in India – Public Support for Food Security: The Public Distribution System in India.* N Krishnaji and T N Krishnan (eds). New Delhi: Sage Publications. 2000. Pp 335. Rs 475.**

This book, a National Research Project's publication, was funded by the United Nations Development Programme and the International Development Research Centre of Canada. The late Professor T N Krishnan had led the project and almost brought the book to its completion before his untimely death. The project covered a vast area, but only a portion of the accomplished work is reported in this book. It provides access to information on financing of education, healthcare, demographic transition and development, food security, Public Distribution System, social security for vulnerable population and employment security along with employment guarantee. The research work was distributed across different institutions in the country and that allowed a fusion of different ideological and analytical views. This was further bolstered by the contributors' rich experience, ultimately resulting in an exhaustive work on the subject of public support and food security. The book has a collection of research articles that deal with many pertinent issues on food availability and access. However, it focuses largely on food security and the public distribution aspects, rather than on education, healthcare and demographic transition that were covered in the larger project. The contributors analyse food consumption trends and food security across the states in the country.

There is a critical review of the public intervention in food security and liberalisation of foodgrain markets. In response to the debate of the High Power Committee on Grain Policy, the Public Distribution System has undergone a significant change and new issues have emerged in the last five years. Despite these fresh issues, this book serves as a good reference point to understand the nuances of the Public Distribution System and its operation in India. The book helps young researchers and demographers to look back in retrospect on the operations of the Public Distribution System and the travails of managing the food distribution system during the critical decade of the 'nineties.

The Trauma and The Triumph – Gender and Partition in Eastern India. Jasodhara Bagchi and Subhoranjan Dasgupta (eds). Kolkata: Stree. 2003. Pp 287. Rs 350.

The book edited by Jasodhara Bagchi and Subhoranjan Dasgupta has four parts, each dealing with various dimensions of the main theme. In the introductory part, the editors provide a historical and comparative perspective of partition in the Eastern and Western parts of India, the socio-political dynamics that contributed to the Partition and how in the process women became victims themselves.

Part-I deals with the 'Analysis and Literary Evidence' of the book and focuses on the gender narrative of the Partition. There are eight articles in this part, each one attempting to portray the historic struggle, women's struggle in the public and private arena, disrupted families as a result of the Partition, trials and tribulations of the women torn between the two borders, the identity and the changing life patterns of women crossing over the borders. All articles in essence underscore the victimisation of women as a result of the Partition and how these challenging situations also created opportunities for women to reestablish themselves with dignity. The authors of the articles bring in a host of evidences, both literary and from the media, to support the logical analysis and interpretation.

Part-II, 'Interviews and Reminiscences', captures the communal riots, the resistance put up by Leftist women cadres in East Pakistan against the divisive logic of the Partition, the carnage in Noakhali and the division of Sylhet, accounts by aged, grief-stricken widows of Brindaban. There are as many as eight contributions compiled under this section. All of them -- 'Partition and associated memories' by Nalini Mehta, 'Noakhali's victim turned activist' by Sukumar Chaudhuri, 'Becoming the breadwinner' by Bithi Chakravarthi, Nibedita Nag's 'Opposed to the exodus', 'Noakhali 1946...' by Ashoka Gupta, 'Partition: A diary' by Suhasini Das, 'Sonarang', and a few case studies of the widows of Brindaban - depict vividly the heartrending stories of communal riots and what the women suffered at different points of life during the Partition.

Part-III deals with 'Creative and Literary Texts', recreating the persistent agony of women victims through poems, short story, play-extract and even masterpiece screen. There are four contributions under this section. The first one is 'Poems on Concord and Rupture' by Jibananda Das and Taslima Nasreen; the second is a short story, 'Hoina' by Santosh Kumar Ghose; the third, 'Natun Yehudi' is by Salil Sen; and the last one is the translated version of the extract of the film, *Meghe Dhaka Tara* by Ritwik Ghatak. All these articles attempt to capture the uneasy moments experienced by these displaced women during the Partition and the impact it had on the rest of their lives.

Part-IV, 'Documentary Evidence', describes the impact of the Partition in terms of discriminatory treatment meted out to refugees with facts and figures. There are two contributions, one, 'East is East: West is West' is by Ashok Gupta and others, and the other is 'Statements'. The compilations provide a clear picture on the wide range of institutional support services, the network of social services and the rehabilitation centres located across Gujarat, Uttar Pradesh, Punjab and West Bengal and the differential support services that existed there for the refugees.

Overall, the book may be of interest both to students of history and political science and to those who are interested in gender studies. The book provides a rich, qualitative narrative account with a critical perspective.

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