An Environmental Dilemma: Forestry in India's Development Strategy

By
Richard Haeuber

Department of Government and
International Studies
University of South Carolina

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Like many of the world's less developed countries, India is experiencing rapid deterioration of its natural environment. It appears that the pressures of rapid industrialization, agricultural modernization and burgeoning population are currently combining in many less developed regions, including India, to damage the natural environment so severely that its continued carrying capacity is in jeopardy. During the last twenty years, the Indian government has pledged to protect its environment and stop the depletion of its natural resource base. Ample evidence exists of India's commitment to these goals: the Forty-Second Amendment (1977) to the Indian Constitution requiring governmental protection of the natural environment; commissions designed to study and recommend solutions (e.g., the Tiwari Committee of 1980); environmentally targeted legislation (e.g., 1974 Water (Prevention and Control of Pollution) Act, Wildlife (Protection) Act of 1972); and the establishment at the Centre of the Department of the Environment in 1980.

Despite the Indian government's apparent resolve to address India's environmental problems, only modest progress appears to have been made; and, in fact, problems such as air and water pollution, salinization and waterlogging of soil, soil erosion, and deforestation are continuing at a rapid rate. Of these environmental problems, deforestation is one which has plagued India since the days before its independence. Yet, while it may be partially attributed to the legacy of colonialism, deforestation is occurring at an ever increasing rate and, thus, figures as an important feature in India's present and future.

Estimates of India's contemporary forest resources and rates of their depletion are many and varied. According to the Indian Government, 23% of India's territory is covered by forest and 40% to 50% of that area has good forest cover.[1] However, as with forest department statistics in most less developed countries, those provided by Indian forest departments at both state and central levels are often questionable. In India, forests are classified officially by legal status rather than physical attributes. Any land controlled by a forest department is considered forestland, regardless of whether trees exist on the land. Given the infrequency of land reclassification in India and the jealousy with which forest departments maintain control of the land entrusted to them, the reliability of official estimates of Indian forest resources is doubtful. And, in fact, according to the latest studies undertaken by the National Remote Sensing Agency (NRSA) of India, forests covered only 14.1% of Indian territory in 1980-82 and 'closed forest' cover has decreased by 22.4% in the last decade.[2]

Depletion of forest resources is a multi-faceted phenomenon: it affects both urban and rural populations; its causes can be traced to the actions of individuals, governments, and corporations; its consequences are

manifested in myriad ways, from the difficulty which one rural family has in finding enough firewood to heat its home to the premature siltation of a multimillion dollar dam; and it not only affects present living conditions, but threatens the future of India's economic development. Why has deforestation occurred so steadily and rapidly on the subcontinent both before and since India's independence? Why has India been unable to stop the deforestation of such ecologically sensitive areas as the Himalayan regions of Himachal Pradesh and Uttar Pradesh?

There are no simple answers to these questions; the causes, solutions, and constraints on policies intended to address deforestation are as multifaceted as the problem itself. Above all, these questions and their answers are highly political, involving competing groups within Indian government and society, each pursuing its own interests and possessing differing perceptions and versions of reality. For example, Indian Government and forestry officials subscribe to the most popular explanation of deforestation--the ***population pressures*** thesis. According to this view, the pressures attendant with rapidly growing populations in less developed countries have led directly to a wide variety of environmental problems, among them deforestation. The pressures accompanying population growth assume a variety of forms. Among the most important factors commonly cited are agricultural expansion, increases in livestock numbers and uncontrolled grazing, lopping and felling of trees for fuelwood, and increasing demand for wood to construct homes and agricultural implements.

On the other hand, Indian environmentalists and social activists contend that deforestation is the result of increasing industrial demand and the commercialization of Indian forestry. The ***commercialization*** view of deforestation holds that it is not the populations of less developed countries that are to blame for deforestation, but the governments, industries and forest services of those countries. Environmentalists, social workers, NGOs and the rural populations of less developed countries maintain that subsistence use of forest resources is a time honored and sustainable tradition. According to this view, rural populations have used the forests to fulfill myriad needs, including fuelwood and construction materials, and have pursued shifting cultivation for millennia with few, if any, detrimental environmental consequences. It is only since the forests have been harvested on a large scale to fulfill first the needs of colonial powers and, more recently, the demands of industry that the problem of deforestation has arisen. Proponents of this view, then, attribute deforestation to increased industrial demand, commercialization of forestry, and an unholy alliance between governments, industry and corrupt forestry officials.

In contrast to these popular explanations of deforestation, this study traces Indian deforestation to India's post-independence development strategy and goals. In essence, the present rate and levels of deforestation in India can be traced to the development strategy which India has followed since its independence. Taking up where British policies left off, India's early development planners pursued a strategy which stressed industrialization and, later, increasing agricultural production. Its industrial emphasis made the Indian development model resource intensive and heavily biased towards urban areas targeted for industrial growth. Attention to increased agricultural production, coupled with the political necessity of courting a rural elite power base, insured that increases in crop production would be achieved through land clearing rather than land reform.

The urban industrial focus of the Indian development model and the Indian Government's reliance on an elite power base in rural areas led Indian planners to neglect the needs of poor rural populations. They failed to formulate an integrated development plan which would address the needs and concerns of Indians of all classes and castes. Neglect of the needs of poor rural populations, coupled with the overriding industrial emphasis of development planning, resulted in policies that increasingly curtailed traditional popular access to natural resources. It is these policies and the development strategy that gave rise to them that have put increasing pressure on the remaining forest resources to which poor rural populations still have access. Furthermore, policies restricting access to forest resources have led to the illegal and unmanaged felling of government forests. Ironically, mismanagement of communal forests and illegal felling of government forests are the two factors cited most commonly by foresters and government officials in attributing Indian deforestation to population pressures.

Thus, India's development model led to restricted popular access to traditional sources of forest products, emphasized the importance of meeting industrial demand, increased agricultural production at the expense of forestlands, and neglected to implement programs designed to fulfill the basic needs of the rural poor. It is this combination of factors following from Indian development policy, all of which have elements in common with the two popular explanations of deforestation, that has led to the present rate and extent of Indian deforestation.

India's Development Strategy

India achieved independence from Great Britain in 1947. With over 100 million square miles of land and a population of more than 300 million, India was one of the largest and most populous of the growing wave of newly independent countries. At independence, India had already experienced over a century of industrialization and economic growth. By 1946, India had made substantial progress towards the economic diversification characteristic of modernized states. The first Census of Manufacturing Industries included cotton and jute textiles, iron and steel smelting, and general engineering among important Indian industries. Furthermore, the share of industries and mining in the national product had grown from 12.7% in 1900-05 to almost 17% by 1942-47.[3] However, despite advances in industrialization and economic diversification, there had been little change in the overall structure of the Indian economy. In 1951, for example, the proportion of the work force employed in the primary sector (agriculture, animal husbandry, forestry and fishing) had increased to 74.4% from the 1901 level of 71.47%. During the same fifty year period, the share of workers employed in the secondary sector (industries, mining and construction) actually decreased from 19.78% to 10.57%.[4]

Independent India's political leaders saw India as a country with tremendous potential. It had vast resources (for example, the world's largest reserves of iron ore) and an enormous work force. However, this potential was largely unfulfilled. Despite the faltering steps towards industrialization which had already been taken, India remained an overwhelmingly poor agricultural country with low prductivity, GNP, and per capita income. India's new leaders perceived their task as fulfilling their country's potential. They wanted to ***develop*** India--to attain the levels of industrialization and standards of living evident in the western and, to a lesser extent, socialist industrialized economies.

India's leaders had certain goals in mind for the country's development. First, they wanted development to be industrial in nature and the pace to be rapid.[5] While the industrialized countries of the west were seen as a desirable endpoint for development, however, Indians did not accept western views on the proper strategy to attain that endpoint. Indians felt that western development economists placed too much emphasis on the role of agriculture and raw materials production in underdeveloped economies. Furthermore, even when western economists recognized the need for industrialization in underdeveloped countries, it was assumed "that such economic development would broadly follow the pattern of industrialization in the West, essentially a slow process."[6]

Indian politicians looked to the socialist countries of the world as an alternative to western development strategies, for "economic planning in the USSR (and more recently in other socialized countries) has led to a far more rapid rate of industrialization than had been achieved in West Europe and North America in the past."[7] Economic planning was certainly not a new idea in India. Planning exercises had been undertaken by the Congress Party, the pre-independence Indian Government, and several private Indian groups. However, it was only after India achieved its independence and weathered the storm of partition that economic planning was undertaken in a serious manner.

A second goal of India's leaders was that its development be self-reliant. Efforts to close the Indian economy to external assistance and imports of capital and consumer goods are a consistent theme throughout Indian development planning. From the outset, Indian planners cautioned against reliance on external assistance, emphasizing that "a plan of development today must, in the main, rely on domestic resources."[8] The importance of cutting back external aid would be turned to again in the 1960s, with the Third Plan setting a goal of independence from external assistance by 1975-76.

As Indian leaders and planners began to stress the role of heavy industry in India's development, particularly during the Second Plan period, reliance on the importation of industrial machinery would also be of growing concern. Indian planners felt that once India was able to fabricate capital goods on its own, it would be possible to substitute Indian goods for costly imports. In effect, Indian leaders wanted to be able to "use our own iron ore and with our own hands produce steel; and then use the steel to produce more machinery to produce more steel and tools; and also to produce machinery to make more consumer goods."[9]

The final criterion that Indian leaders and planners set for the course of India's development was that it proceed on an egalitarian basis. They meant to elevate the standard of living of all Indians, avoiding the disparities between rich and poor that they felt characterized development in western industrialized countries. Such equity considerations were explicitly addressed from the beginnning in the Directive Principles of State Policy contained in the Indian Constitution. The Directive Principles emphasized the importance of equal opportunity, the good of the community, and avoiding concentration of wealth and the means of production. These social welfare concerns were later reinforced by the 1954 Avadi Resolution in which the Indian National Congress resolved that "the objective of our economic policy should be a socialistic pattern of society."[10]

As we shall see, India's drive to fulfill the first two development goals--rapid industrialization and self-reliance--has led to policies, actions and production goals which increased both agricultural and industrial demand on Indian forestlands. Furthermore, its consistent failure to fulfill the third goal--the establishment of an equal and just society (particularly with respect to land reform)--simultaneously intensified popular demands on Indian forests. The combination of these goals, policies and demand forces are responsible for the present rate and extent of Indian deforestation. Throughout this study, India's development goals, strategy and policies will be tied to increasing industrial and agricultural demand on India's forestlands since independence.

India's Development History--The Five Year Plans

India's five year plans are the products of over thirty five years of post-independence Indian planning. They chart the course of Indian development. In addition, the plans reflect the changing goals, priorities and policies of Indian planning for each phase of Indian development. Examining the five year plans illustrates long term trends in Indian development and allows us to determine the manner in which particular subjects have been treated over time. This section investigates the role of forestry in India's five year plans and the pressures that have been brought to bear on Indian forests as India's development strategies and priorities have shifted in the years since independence.

The First Five Year Plan (1951-1956)

Work on the First Five Year Plan (FYP) began shortly after the Planning Commission was created in March of 1950. In July, Commission members were instructed to develop a six year planning document for inclusion in the Colombo Plan for Cooperative Economic Development in South and Southeast Asia. This initial plan was followed by the Draft Outline of the First FYP, which was issued for public discussion in July 1951. The final version of the First FYP was subsequently published in December of 1952, twenty months after it had actually gone into effect.[11]

The Colombo Plan illustrated the overwhelming emphasis on agriculture, accounting for 33% of proposed outlays, which would be the hallmark of India's First FYP. A second area of heavy emphasis in this first planning exercise was transport and communications, to which 38% of plan expenditures were committed; in contrast, the areas of fuel, power, industry and mining together were allocated only 13% of the plan's budget.[12] The final version of the First FYP finalized the trend established by the Colombo Plan. Combined outlays on agriculture, rural development, irrigation and power climbed to 44.6% of public sector spending, while transport

and communications had fallen to 24%. And in the area of industry and mining, the proportion of investment had fallen further, to 8.4%.[13] However, with fully 84% of industrial outlays going to basic and heavy industries, the First FYP foreshadowed the investment priorities of the Second FYP period.[14]

The heavy agricultural emphasis of the First FYP is understandable in light of the food production situation faced by independent India. India had long faced shortages in foodgrains production. For example, India imported an average of two million tons of foodgrains annually between 1936-39; by 1951, this amount had climbed to 4.73 million tons.[15] In response to growing cries for action, India's pre-independence government convened the Food Production Conference in April 1942. The product of the Conference was the Grow More Food Campaign (GMF) which laid the early framework for subsequent efforts to increase Indian food production.[16]

India's already tenuous food producing capacity was further shaken by the partition of India. As a result of the division of the Indian subcontinent into the states of India and Pakistan, India experienced a net loss of 700,000 to 800,000 tons of annual foodgrain production and retained only 75% of its cereals production capacity. Moreover, the proportion of irrigated land to total cropped land in India dropped from 24% to 19% as Pakistan absorbed 20 million acres of land--irrigated areas of the Punjab in northwest India and rain drenched portions of Assam and Bengal in the Northeast.[17]

During the post-partition years, devaluation of the Indian rupee presented the Indian Government with a raw materials shortage as well. The falling value of the Indian rupee against the Pakistani rupee disrupted imports of jute and cotton from Pakistan. Consequently, the Indian Government announced its Integrated Production Program in June of 1950, with the proclaimed goal of achieving self-sufficiency in jute and cotton production. Self-sufficiency in production of these crops was to be acheived simultaneously with foodgrains self-sufficiency (a goal whose target date was March 1952).[18] In the face of these sobering circumstances, agriculture was the area of greatest emphasis for Indian planners during the First FYP period, with priority placed on increasing production of foodgrains by 14% (7.6 million tons), cotton by 42%, and jute by 63%.[19]

It was one thing for Indian planners to declare that an "increase of agricultural production represents the highest priority in planning over the next few years";[20] it was another, however, to actually achieve increases. Efforts to increase average per acre yields through either of the two most common methods of boosting agricultural production--labor intensive and capital intensive techniques--were certain to be undermined by

existing patterns of land distribution and tenure. At independence, India faced a situation in which the land-man ratio in rural areas stood at .92 acres per person. Land scarcity was exacerbated by the inequalities that characterized Indian land distribution patterns. In the mid 1950s, 22% of all rural households were landless, 25% owned less than one acre, and 14% owned marginal holdings of 1 to 2.5 acres. In other words, over 60% of rural Indian households were either landless or owned land parcels of less than one hectare, accounting for less than 8% of total cultivated area. At the other extreme, the upper 13% of rural Indian households owned more than 10 acres (large landowners by Indian standards) and accounted for 64% of agricultural land. An even smaller group, 5% of rural households, owned 20 acres or more and accounted for 41% of cultivated area.[21]

Labor intensive production strategies may have enabled increases in production within the framework of traditional agricultural arrangements. However, landless agricultural laborers and subsistence farmers generally lacked the incentive and capacity to implement them. Landless laborers and subsistence farmers sharecropping the land of large farmers were unlikely to invest time and attention in land that they did not own. And there was little likelihood that farmers owning less than one hectare could afford the infrastructural improvements (e.g., drainage systems, wells) necessary to increase agricultural production. For their part, larger landowners too were often unwilling to invest the funds necessary to increase production through modern technologies. Moreover, pervasive subdivision and leasing of larger agricultural plots meant that the ***operational*** holdings which large landowners farmed themselves were often too small for efficient use of the expensive modern equipment involved in most capital intensive technologies.[22]

In the face of social obstacles to increases in agricultural production, the Planning Commission concluded that "the future of land ownership is perhaps the most fundamental issue of national development. The pattern of economic and social organisation will depend upon the manner in which the land problem is resolved."[23] Departing from the hesitation concerning land reform evident in the Draft Outline of the First FYP, the Planning Commission declared that they were "in favour of the principle that there should be an upper limit to the amount of land that an individual may hold."[24]

However, political and social obstacles have made the implementation of land reform and land ceilings one of the more contentious issues in post-independence India. In the end, the architects of the First FYP left the thorny issues of land reform up to the states, contending that "while broad principles and directions of policy can be indicated, it is necessary to remember that the form and manner of their application and the adaptations

to which they are subject will differ widely in different parts of the country. In the main, land policy has to be worked out in terms of local needs and conditions."[25] As Frankel points out, Indian planners ultimately opted for a "moderate land policy" which "achieved a consensus at the level of principle" that a radical restructuring of Indian agrarian society was necessary.[26] Throughout subsequent planning periods, however, radical restructuring remained a principle rather than a reality as the Central and state governments continually failed to implement land reforms.

Yet, with regard to the problem at hand--increasing agricultural production--calls for the eventual restructuring of rural society were unlikely to fulfill First Plan production targets. Indian planners still faced the task of increasing foodgrains production by 7.6 million tons by 1956. A substantial portion of these gains was expected to be met through major and minor irrigation projects; for example, irrigation was intended to account for 58% of the 6.51 million ton increase in foodgrains production to be accomplished through state level schemes.[27]

The second path to increased agricultural production charted by Indian planners involved extension of the area under cultivation. In assessing the state of India's agricultural resources, the First FYP observed that "little new area has come under cultivation during the last four decades," concluding that "no measure which is calculated to bring suitable land under profitable cultivation, even within the existing village settlements, should be neglected."[28] Indian planners expected an additional 7.4 million acres to come under cultivation during the First FYP. These gains were to be achieved through the work of the Central Tractor Organisation (1.4 Million acres), the State Tractor Organisations (1.2 million acres) and private farmers with state assistance (4.8 million acres).[29] Agricultural extension was planned to account for over 23% of the 6.51 million ton increase in foodgrains production expected from state schemes.[30]

Increases in net sown area were to be achieved primarily through the cultivation of lands classified as ***culturable*** or ***cultivable wastelands***. In India, land classifications are based on the land utilization statistics compiled by village revenue agencies as part of their land records.[31] According to the revenue agency definition, cultivable wastelands include:

> all lands available for cultivation whether not taken up for cultivation or taken up for cultivation once, but not cultivated during the current year and last five years or more in succession; such lands may be either fallow or covered with shrubs and jungles which are not put to any use (they may be assessed or

unassessed and may be in isolated blocks or within cultivated holdings); land once cultivated but not cultivated for five years in succession is also included in this category at the end of five years.[32]

Reclamation of cultivable wastelands was facilitated by increases in the power of state governments, under state level Land Utilization Acts, to declare any area a 'reclamation area' and enforce its reclamation within a specified period of time.[33]

However, according to K.M. Tiwari, former President of the Indian Forest Research Institute, areas denoted as cultivable wastelands during the early years of India's independence consisted primarily of forests and often constituted the only available village level communal forests.[34] In their First FYP discussion of fuelwood availability, Indian planners also acknowledged the importance of wastelands, admitting that their estimates of annual fuelwood production did not "include the quantities of firewood derived from wooded waste lands not classified as forests."[35]

The classification of these areas was not based upon their physical attributes, but rather upon the agency controlling them. Vandana Shiva, a prominent Indian environmentalist, maintains that this approach to land use classification was a holdover from British colonial administrative practices. "The colonial concept of wastelands" she asserts, "was not an assessment of the biological productivity of land but of its revenue generating capacity. 'Wasteland' was land that did not pay any revenue because it was uncultivated."[36] For India's revenue agencies, any land that was not producing revenue was considered wasteland and became fair game for conversion to productive uses. And because village forestlands failed to bring revenue into government coffers, they became a prime target of early efforts to increase agricultural productivity through extension of cultivated land.

During the First FYP, the Indian Government vigorously pursued efforts to increase cultivated area. Planners earmarked 350 million rupees for use in state and central land reclamation and development projects.[37] Of the 7.4 million acres they targeted for reclamation efforts by individuals and central and state tractor organizations, over 4.3 million were cultivable wastelands.[38] Efforts to extend cultivation made notable progress during this planning period. Before the First FYP period, net sown area in India stood at 293.4 million acres. By the end of 1956, this figure had increased by 24.8 million acres, bringing the net sown area to 318.2 million acres.[39] The efforts of central and state tractor organizations were successful as well. The First FYP expected 2.61 million acres of land to be reclaimed by tractor organizations;[40] by the end of 1956, they had exceeded this goal by around 70,000 acres, clearing 2.68 million acres of land.[41] During the same period, another category

of land was also disappearing rapidly--***land under miscellaneous tree crops and groves***. This land use category was defined as "all cultivable land which is not included in 'net area sown' but is put to some agricultural use" and included "lands under casuarina trees, thatching grass, bamboo bushes and other groves for fuel etc., which are not included under orchards."[42] At the beginning of the First FYP, over 19.8 million hectares of area came under this heading; by the end of 1956, 13.9 million hectares had disappeared, leaving only 5.9 million hectares of miscellaneous tree crops and groves.[43] K.M. Tiwari claims that India's miscellaneous tree crops and groves were also controlled by revenue agencies and that they too were cleared for agricultural extension;[44] however, accurate statistics regarding the disposition of these lands are unavailable.

It is unclear how much of the addition to net sown area came about through the government supported efforts of individual cultivators. What is clear, however, is India's commitment to the extension of agricultural land and the fact that state and central governments were responsible for clearing at least 2.68 million acres of village forestlands during the First FYP period. As we shall see, the policy of increasing agricultural production through the extension of cultivated land would continue to be emphasized through the end of the Third FYP period.

During the same period in which village forestlands were feeling the pressure of agricultural extension policies, India's post-independence forest departments were also beginning the drive to extend their territorial control. Planners recognized that "planned extension of regular forests would be subject to the availability of adequate waste areas and the demands made thereon for agricultural expansion." However, they suggested that "the area under forests should be steadily extended over waste lands" as part of a long term plan for extension of the forest departments' domain.[45]

As with culturable wastelands, land classification devoid of any relation to reality is evident with respect to Indian ***forests***, for which the sole criterion is that they be "classed as forests under any legal enactment dealing with forests or administered as forests." This classification stands regardless of whether the lands are "wooded or maintained as potential forest lands" and includes areas "where crops are raised in the forest."[46] The architects of the First FYP expected about 40 million acres of land to come under the control of forest departments during the First FYP period as a result of the abolition of zamindari and jagirdari land tenure arrangements.[47] And, in fact, the forest departments achieved control over an additional 26.9 million acres during the First FYP period, increasing the area classified as forests by 26.8%.[48]

Indian planners had definite ideas for the disposition of newly acquired forest lands. They intended to strengthen their administration and control over the new area; replant areas that had suffered the excessive demands of WWII with economically valuable species; reforest areas suffering from soil erosion; extend logging roads into previously inaccessible forest areas; develop village fuelwood plantations; and implement preservation technologies to increase the number of economically valuable timber species.[49]

The priorities of India's planners with respect to forests were obvious. For example, planned outlays for the development of village fuelwood plantations comprised only 3% of overall forestry outlays,[50] even though they realized that the wastelands they were planning to appropriate constituted important village forest resources.[51] And the annual production of fuelwood actually declined by 17.3% during this period, falling from 11.1 million cubic meters in 1950-51 to 9.2 million cubic meters by 1955-56. While charcoal production increased by 795,000 cubic meters during the same period, this could not compensate for the 1.9 million cubic meter fuelwood production shortfall. Although roundwood production also fell during the same five year period, declining by 13.9%, timber production increased by 13.4% and pulp and matchwood production climbed by 200%.[52]

Forest department soil conservation projects were similarly shortchanged. They received only 4% of budgeted funds, while outlays for consolidating administrative control over forest areas consituted 26% of the budget and 10% of the funds were devoted to extending logging roads into inaccessible forests.[53] This pattern of priorities, production and expenditures would characterize Indian forestry throughout the post-independence period.

During the First FYP, then, Indian planners designed and implemented policies which would be pursued throughout the ensuing planning periods. Extension of cultivated area would be an important factor in increases in foodgrains production through the mid 1960s.[54] And the forestry priorities initiated during the First FYP laid the foundation for the production-oriented forestry strategy still emphasized by Indian planners. The practice of classifying land according to the agency controlling it rather than its physical attributes would also be an enduring feature of India's land use policies. Strangely enough, then, areas covered by trees but controlled by revenue agencies would not be considered forests, while areas managed by forest departments but bearing no trees would be classified as forest area. And the former would be cleared for agriculture, while the latter were

maintained as forests, even if actually cultivated. As we shall see, the result of these priorities and policies in Indian agriculture, forestry and land use would be increasing pressure on Indian forest resources from all sides.

The Second Five Year Plan (1956-1961)

In contrast to the First FYP, which had been little more than a collection of sectoral programs and projects, the Second FYP was the first Indian planning document to attempt intersectoral coordination and economic modelling and present a coherent strategy for India's long term development. The development strategy presented in the Second FYP was the product of the shared vision of Jawaharlal Nehru, its principal political proponent, and P.C. Mahalanobis, its primary architect.[55] Proceeding from Nehru's desire to achieve rapid growth and development of the Indian economy, Mahalanobis devised a plan which emphasized a number of specific objectives. The Second FYP was intended to achieve "a sizeable increase in national income"; "rapid industrialization with particular emphasis on the development of basic and heavy industries"; "a large expansion of employment opportunities"; and "reduction of inequalities in incomes and wealth and a more even distribution of economic power."[56]

The objectives of the Second FYP were derived from the long term economic development goals which began receiving increased emphasis during this period. The first goal was to achieve economic self-reliance for India. Mahalanobis relied on an import substitution strategy to fulfill this goal. In contrast to the import substitution strategies followed by Latin American economies, however, Mahalanobis saw the development of heavy industries as the key to "make India independent, as quickly as possible, of foreign imports of producer goods."[57] He felt that

> if all investments are made in industries producing consumer goods (by importing capital goods from abroad) then there would be, no doubt, a good deal of increase in the immediate supply of consumer goods but there would be no increase in the capacity to manufacture capital goods in India so that we shall have to continue to depend on the import of foreign machinery in future for further expansion of industries....India has plenty of iron ore, coal and other resources. The long-term aim should, therefore, be to manufacture capital goods within the country rather than to import them.[58]

The other long term development goal stressed in the second planning period was the desire to achieve a more equitable and just distribution of income and wealth. The 1954 Avadi Resolution found official expression in the Second FYP determination to create a "socialist pattern of society." According to Indian

planners, this meant that the "primary criterion for determining the lines of advance must not be private profit but social gain" and that development should "result not only in appreciable increases in national income and employment but also in greater equality in incomes and wealth."[59] In practice, this meant a greater role for the public sector in the management and control of the Indian economy. Henceforth, Indian planners would exert much greater control over the pattern of Indian economic investment, particularly in heavy industries.

In designing a strategy to achieve rapid economic growth and fulfill India's long term development goals, Mahalanobis devised a model which divided the Indian economy into four sectors: heavy industries, household and cottage industries (including agriculture), factory produced consumer goods, and services. The heavy industries sector was envisioned as the engine of growth and development, receiving the highest priority in Second FYP calculations. "In the long run," according to Mahalanobis, "the rate of industrialization and the growth of national economy would depend on the increasing production of coal, electricity, iron and steel, heavy machinery, heavy chemicals, and the heavy industries generally."[60] The role of cottage industries was twofold: they were intended to absorb labor surpluses which the heavy industries emphasis would fail to accommodate; and they would help to satisfy the intensifying demand for consumer goods, which might otherwise fuel inflation.[61]

Agriculture was also important in this model. Mahalanobis felt that "in India agriculture and manufacturing industries are interlocked." It was "not only essential to grow enough food and fibres for our own requirements but it is also necessary to produce a surplus in the form of either industrial or food crops," for advances in agriculture "would supply food and raw materials" for advances in manufacturing.[62] The factory produced consumer goods sector was to receive only minor attention in the Second Plan. Mahalanobis felt that investment in this sector would drain resources from the more important job of building up the heavy industries sector. Moreover, advances in this sector would compete with cottage industries, exacerbating Indian unemployment problems.[63] The final sector, services, had only a minor role in the context of the overall development strategy outlined in the Second FYP.

Rapid growth and India's long term development goals were largely responsible for the priorities which Mahalanobis assigned to economic sectors. However, practical political considerations also played an important part in his calculations. Mahalanobis realized that he was "working within a general framework of social, political, economic, and cultural values" and that once he accepted that "frame work as given, it becomes necessary to incorporate in the plan all the considerations which are likely to help in attaining the desired

objectives."[64] In this light, the decision to assign an important role to cottage industries had more political than economic value. As Sahu points out, this was a very pragmatic move, as it "reconciled the differences between the Gandhians, who espoused the idea of developing cottage industries, and the supporters of large scale industries and of (sic) public sector."[65] As a result, Mahalanobis was able to work out a politically expedient development strategy which satisfied the greatest number of diverse interests--at least in the short term--while simultaneously propelling India toward rapid industrialization.

In keeping with the development strategy designed by Mahalanobis, the pattern of sectoral outlays in the Second FYP period was very different than the First FYP pattern. The most noticeable changes were in the areas of agriculture and industry. In the First FYP, agriculture and community development and irrigation and power together received 43.2% of planned outlays, while industry and mining were provided 7.6% of plan funds. In the Second FYP, this pattern was reversed, reflecting the increasing emphasis on industrialization. Although the allocation to agriculture and community development increased by 59% in absolute terms (from 357 to 568 Rs. crores),[66] the proportion of total outlays accorded to this sector dropped from 15.1% to 11.8%.[67]

In contrast, funds for industry and mining increased both absolutely and proportionally during the Second FYP, rising by 397% (from 179 to 890 Rs. crores) and accounting for 18.5% of Second FYP outlays as opposed to 7.6% in the First FYP. Within this sector, moreover, heavy industries and mining were emphasized over cottage industries, receiving 245% more funds and accounting for 14.4% of total outlays as compared to a 4.1% share for cottage industries. Because of its significance for industrialization, the other sector to gain substantially during the Second FYP period was transport and communications. In this area, absolute funding registered a 149% increase and proportion of total outlays rose from 23.6% in the First FYP to 28.9% in the Second FYP.[68]

The agricultural programs of the Second FYP reflected the shifting focus of the Mahalanobis development strategy. The First FYP concern with the food crisis yielded to an emphasis on the interdependence between agriculture and industrialization. According to Indian planners, "agricultural programmes are intended to provide adequate food to support the increased population and the raw materials needed for a growing industrial economy and also to make available larger exportable surpluses of agricultural commodities."[69]

The changing role of agriculture in the Second Plan period is reflected in both the agriculture sector budget and targets of production. In contrast to the First FYP, in which programs specifically concerned with agricultural production received 81.7% of this sector's outlays, the Second FYP allocated only 49% of the

agricultural program budget to production programs. Moreover, annual foodgrains production was planned to rise by only 15% during the Second FYP, as opposed to production increases of 27% for oilseeds, 31% for cotton, 25% for jute, 62% for coconut oil, and 33% for cashewnut.[70] In other words, both the agricultural budget and production targets reflected the industrial emphasis of the Mahalanobis development strategy.

Given the relatively less important role of agriculture in the Second FYP, no new programs were planned for fulfilling targeted production increases. Indian planners intended to continue the same package of agricultural measures that had yielded production increases during the First FYP. Among these agricultural production measures, land reclamation efforts assumed a less prominent position in the Second FYP period than during the First Plan, accounting for only 8% of the planned ten million ton annual increase in foodgrains production.[71] However, Indian planners still targeted 1.5 million acres for clearance during the Second FYP[72] and 2.3 million acres were actually cleared.[73]

During the same five year period, net sown area increased by over four million hectares, while culturable waste and miscellaneous tree crops decreased by 11% (2.3 million hectares) and 24% (1.4 million hectares) respectively.[74] These statistics are certainly less dramatic than the decreases in culturable waste and miscellaneous tree crops registered during the First FYP; yet, the disappearance of 3.7 million hectares of village and communal forest resources, with planned govermental efforts responsible for at least 2.3 million hectares, represents continuing and significant pressure on non-forest department forest resources.

Of the programs included in the agricultural sector, forestry sustained one of the more substantial increases in funding during the Second FYP period. Outlays for forests increased by 178% over First FYP levels (from 9.7 Rs. crores to 27 Rs. crores), and its proportional share of the agricultural budget increased from 4.2% to 8%.[75] Increases in funding for forestry can be directly traced to the shifting focus and needs of an industrial development strategy. Considering the requirements of their new strategy, Indian planners realized that "the demand for raw materials will also go up with industrialization."[76] They also understood that forestry would play an important part in satisfying industrial demand, noting that "every advance in industrialization is reflected in increasing demand on the produce of forests, so that forest development has great importance in the second five year plan."[77]

Anticipating the raw materials requirements of his industrial strategy, Mahalanobis planned for Second FYP increases in forest products production. For example, he intended the Second FYP period to yield a 43%

increase in the production of paper products and a 30% rise in timber production.[78] And, in fact, the Second FYP did yield substantial increases in the production of forest products. Timber production exceeded Mahalanobis' target, rising by 35.3%, while pulp and matchwood production increased by 90.5% and roundwood by 5%.[79]

Indian planners designed a number of forestry programs to meet expected increases in demand during the Second FYP. On 380,000 acres, they intended to continue 'rehabilitation of degraded forest areas'[80] which had come under the control of forest departments during the First FYP. And on 63,000 acres of forestlands, they proposed to plant economically important species such as teak, wattle and blue gum. Another 5,000 acres was targeted for extension of the 15,000 acres of matchwood plantations that had been raised during the First FYP period.[81] The Second FYP also called for continuing extension of forestry programs over village wastelands; during the Second FYP period, forestlands grew by 5.3%, extending forest department control over an additional 2.7 million hectares.[82] Finally, the forestry program called for the construction and improvement of 7,400 miles of forest roads, facilitating the extension of logging operations into previously inaccessible areas.[83]

However, discussion of fuelwood was notably absent from the Second FYP roster of forestry projects. In contrast to the First FYP, in which Rs. 2.9 million had been earmarked for the extension of village fuelwood plantations,[84] the forestry section of the Second FYP contained no mention of fuelwood and made no financial provision for fuelwood projects. It is understandable, then, that the Second FYP period witnessed an 81.4% drop in charcoal production. Fuelwood production did increase by 23% during the Second FYP. However, this increase barely compensated for the drop in production sustained during the First FYP period; by 1960-61, annual fuelwood production had surpassed 1950-51 levels by only 1.6%, despite population growth and the loss of village forests to agriculture and forest department uses.[85]

The Second FYP saw the continuation of the pressures on Indian forest resources that had been evident during the First FYP period. Land reform was still emphasized as an important element in efforts to increase agricultural productivity. Yet, because Indian planners remained impotent in their efforts to force state governments to implement land reforms, pressure on existing agricultural land was aggravated.[86] Thus, extension of agricultural land persisted as an officially sanctioned, planned and funded activity. Moreover, forest departments further extended and consolidated their territorial control, albeit at a slower pace. These policies continued to exert pressure on India's village and communal forest resources. However, with the change in

development strategy, a new set of pressures was placed on Indian forests--in the future, they would be called upon increasingly to supply the raw materials necessary to maintain the drive to rapid economic growth and industrialization.

One obvious result of this shift in development priorities was the total abandoning of fuelwood concerns on the part of Indian planners, which increased population pressures on substantially diminished communal forest resources. However, this change in forestry planning was only a symptom of an increasingly production-oriented Indian forestry--a course which would continue to manifest itself even in the face of future shifts in planning orientations and policies.

The Third Five Year Plan (1961-1966)

After extensive debate and discussion of the Draft Outline by the Lok Sabha and Rajya Sabha, National Development Council (NDC) and the states, the final version of the Third FYP was produced on August 3, 1961.[87] The Third FYP was intended to be a continuation and intensification of the priorities and strategies introduced in the Second FYP. The stated goals of the Third FYP were to: "secure an increase in annual income of over 5 per cent per annum"; "achieve self-sufficiency in foodgrains, and increase agricultural production to meet the requirements of industry and export"; "expand basic industries. . . so that the requirements of further industrialisation can be met within a period of ten years or so mainly from the country's own resources"; "ensure a substantial expansion in employment opportunities"; and "bring about reduction in disparities in income and wealth and a more even distribution of economic power."[88]

In formulating the Third FYP, Indian planners continued to place their faith in the viability of an industrial strategy for securing rapid economic growth and development. In addition, concern with self-reliance was not only sustained, but intensified. The 'Main Issues' paper presented to the NDC by the Planning Commission asserted that "there has to be special emphasis on planning development in a manner that would make the economy 'self-sustaining' as early as possible."[89] The Third FYP objectives illustrate the planners' concern that this long term goal be realized in both industrial and agricultural production. Planners also emphasized the importance of financial self-sufficiency for the first time during this period. They maintained that "external assistance is essential for this period, but the aim must be to make the economy more and more self-reliant,"[90] setting 1975-76 as the date by which the Indian economy should be independent of "external assistance outside of the normal inflow of foreign capital."[91]

In the face of continuing emphasis on industrialization and growing importance of economic self-reliance, the social welfare goals of Indian planning receded into the background. Hanson maintains that Indian planners were, in effect, saying that "if and when equality and growth came into conflict, it was the former that would have to be sacrificed."[92] As in earlier planning periods, land reform continued to be an area in which social welfare goals were sacrificed. The compromise on land reform policy reached during the First FYP period haunted Indian planners, and they remained unable to compel state government leaders to implement land reforms and ownership ceilings.[93]

Planned expenditures on agriculture, however, were an area in which the Third FYP constituted a major departure from the Second FYP. Indian planners were faced with a dire set of circumstances as they began deliberations on Third FYP programs and targets. Agriculture had been downplayed in the Second FYP; in setting foodgrains production targets, planners had neglected to factor in the effect that rising population and income would have on demand. Even though the Second FYP period registered increased levels of foodgrains production over the First FYP period, demand continually outstripped supply and necessitated increasing levels of foodgrains imports. India was forced to import 3.6 million tons of foodgrains in 1957 and 3.2 million tons in 1958; by 1960, imports had risen to 5.1 million tons.[94] By the end of the Second FYP period, the situation was so severe that a Ford Foundation team invited by the Ministry of Food and Agriculture to investigate the problem concluded that "an immediate and drastic increase in food production is India's primary problem of the next seven years."[95]

The pattern of Third FYP outlays reflects the growing importance of agriculture in light of worsening foodgrains shortages. Agriculture and community development funding doubled and this sector accounted for 14% of total outlays, as opposed to 11% in the Second FYP. Funding for irrigation also increased during the Third FYP period--by 55%--although its share of total outlays remained at 9%. Yet, the continuing dedication of Indian planners to the industrialization strategy introduced in the Second FYP is also evident. The share of total outlays dedicated to the industrial sector remained at 24%, with heavy industries maintaining its 20% level and cottage industries its 4% share. The 69% increase in heavy industry funding, as opposed to a 51% increase for cottage industries, further reflects the continuing industrialization emphasis.[96]

Altogether, agriculture had not fared well during the Second FYP period. In three important areas--foodgrains, cotton and jute--production in 1960-61 fell below Second FYP targets for that year. Combined with

foodgrains shortages, these production shortfalls in the last year of the Second FYP led Indian planners to stress that "in the Third Plan, besides achieving self-sufficiency in foodgrains, substantial increases should be secured in commercial crops, specially cotton, oilseeds and jute."[97]

Production increases were to be realized using the same package of agricultural programs as in earlier planning periods. Once again, land reclamation was included on the agricultural agenda. In fact, the area targeted for reclamation in the Third FYP was much greater than in the Second FYP, increasing from 1.5 million acres to 3.6 million acres.[98] And by the end of 1965, the Third FYP target had been nearly fulfilled; 3.34 million acres had been cleared and planners expected another 4.2 million acres to come under the plow before the end of the Third FYP period.[99] During the same period, culturable wasteland and miscellaneous tree crops decreased by 11.7% (2.25 million hectares) and 8.6% (383,000 hectares) respectively, while net area sown increased by three million hectares.[100]

During the Third FYP period, the importance of forestry to the Indian industrialization strategy was emphasized more strongly than in the second planning period. A 1959 Food and Agriculture Organization study had cautioned the Indian Government that an "expanding economy on the eve of modern industrialisation requires the highest tonnage of production of organic raw material within the shortest possible period, at the lowest cost."[101] Indian planners paid close attention to this advice in designing the Third FYP approach to forestry. According to the National Commission on Agriculture, "the schemes implemented during the Third Five Year Plan period were oriented towards attaining 'self-sufficiency in industrial timbers, fuelwood and other forest products.'"[102]

The goal of self-sufficiency in forest products was motivated in part by the pattern of Indian foreign trade during the first two five year plan periods. In 1950-51, India imported Rs 6.4 crores of wood, lumber and cork; by 1960-61, the value of these imports had risen by 94%, to Rs. 12.4 crores.[103] Similarly, India imported Rs. 4.1 million worth of pulp and waste paper products in 1950-51; in 1960-61, the value of pulp and waste paper imports had increased by over fifteen times, costing India Rs. 6.7 crores.[104]

Indian planners had also become increasingly concerned with the potential for future shortages of forest products. They estimated Third FYP demand levels for industrial wood and pulp at 4.5 million tons per year and expected demand to rise to 9.5 million tons per year by 1975. Increasing paper and rayon pulp demand levels were anticipated as well, and planners predicted that without "very special efforts," India could be

confronted with a four million ton per year shortage by 1975. And fuelwood shortages were expected to reach 100 million tons per year by 1975.[105]

Third FYP forestry programs reflected the Indian Government's growing concern with shortages, particularly those related to industrial production. Funding for forestry climbed from the Second FYP level of Rs. 27 crores to Rs. 51 crores in the Third FYP period.[106] Indian planners determined that a substantial portion of these funds should be used to undertake a "large-scale programme of new plantations....essential for meeting the increasing requirements of industry."[107] They targeted 700,000 acres for new plantations of teak, matchwood, bamboo, wattle and casuarina. In addition, a new centrally sponsored scheme for cultivating fast growing industrially valuable species was introduced during the Third FYP period. This program was intended to "bridge the gap between demand and supply of industrial wood"[108] and was expected to cover 300,000 acres during the Third FYP period.[109] And, finally, an additional Rs. 3.8 crores were earmarked for the continuing rehabilitation of degraded forests.[110] Altogether, industrially-oriented plantation programs were allocated Rs. 19.5 crores during the Third FYP period, or 42.5% of all actual forestry outlays.[111]

Another Rs. 5.6 crores[112] were allocated for the development of 15,000 miles of forest roads, facilitating access to "rich forests at higher elevations in the Himalayas" which were "untapped or are only partially exploited."[113] The Third FYP period also witnessed continuation of the drive to expand forest department territorial control. Rs. 2 crores were spent for the "consolidation of forests (including survey and demarcation)"[114] and the area controlled by forest departments increased by 13.9% (7.5 million hectares) during this period.[115] Remarkably, fuelwood programs were allocated only Rs. 1 crore, or 2.4% of Third FYP period funding, despite the drastic shortage of fuelwood anticipated by Indian planners.

Third FYP forestry priorities are further illustrated by the pattern of forest products production. During the Third FYP period, annual production of timber, roundwood, pulp and matchwood combined increased by 29.7% over the level of annual production attained during the last year of the Second FYP. At the same time, however, combined annual fuelwood and charcoal production had climbed only 16.9% by the end of the Third FYP period.[116] This is certainly a sizeable increase in fuelwood production. However, it is less impressive when one considers that Indian planners expected fuelwood shortages to be ten times greater than shortages of all industrial forest products combined by 1975.

By the Third FYP period, forestry had been completely drawn into the orbit of India's long term development goals and strategy. In contrast to the First and Second FYP periods, fuelwood was certainly more than a rhetorical concern and actually received funding. However, the paucity of funding for fuelwood programs demonstrates the Indian Government's lack of commitment to addressing the impending fuelwood crisis. Moreover, the planners' dedication to forest products self-sufficiency and commitment of land and money to commercial forestry projects attests to the industrial orientation of Indian forestry during this planning period.

Overall, then, the pressures on forest resources manifested in the two earlier planning periods continued to grow during the Third FYP period. Communal and village forestlands continued to dwindle as net sown area and forest department territorial control increased. And attention to fuelwood production continued to lag, even as planners issued warnings of imminent fuelwood shortages. The most important change in this period, however, was the manner in which forestry was increasingly drawn into the industrialization strategy introduced during the Second FYP. By the end of the Third FYP period, industrial forestry was firmly entrenched.

Annual Plan Period, 1966-69

Work on the Fourth FYP began in 1962 and followed the procedures that had been used in formulating the other FYPs. The Fourth FYP was intended to be a continuation of the course set by the earlier plans.[117] However, early work on the Fourth FYP took place under circumstances which placed a great deal of strain on both planners and the plan. These circumstances ultimately resulted in the postponement of the Fourth FYP until 1969 and a three year 'holiday' from five year planning.

The first of the many problems plaguing Indian planning during the early 1960s involved the massive border crossing by Chinese troops in India's Northeast Frontier in 1962. India was forced to double its defense expenditures to counter this breach of its territory, intensifying existing pressures on financial resources. India's strained financial situation was aggravated further by a series of crop failures during the Third FYP period. Indian planners had set the target for annual foodgrains production at 100 million tons by 1965-66, the last year of the Third FYP. However, in four of the five Third FYP years, foodgrains production was lower than the level of 76 million tons achieved in 1960-61, the last year of the Second FYP. And in 1965-66, the year in which the 100 million ton target was to be reached, severe drought caused foodgrains production to fall to 72.3 million tons.[118] India's failure to substantially increase foodgrains production occurred in the face of growing demand for foodgrains created by population growth and rising incomes. The shortfall between demand and supply led

the Indian Government to rely on imports of foodgrains; in 1964-65, 6 million tons of foodgrains were imported, increasing to 11 million tons during the 1965-66 drought.[119]

Despite these strains, work on the Fourth FYP proceeded. By September of 1965, the Draft Memorandum had been revised and its successor, the Fourth Five Year Plan--Resources, Outlays and Programmes, had been presented to the NDC for consideration. However, during this same period, hostilities between India and Pakistan escalated into full-scale ground and air battles, provoking indefinite suspension of U.S. aid to the conflicting parties. The situation was exacerbated by U.S. restrictions on PL 480 food shipments, contingent upon changes in Indian agricultural and family planning policies.[120] Suspension of U.S. assistance and food aid greatly aggravated India's growing financial and foodgrains crises.

The final nail in the coffin of the Fourth FYP was the devaluation of the Indian rupee on June 6, 1966. Prime Minister Shastri had already delayed the planning process once, ordering new studies in the wake of the India-Pakistan conflict. Devaluation of the rupee further delayed Fourth FYP progress, as it necessitated substantial reworking of the Draft Outline. The financial burdens and delays caused by crop failures, armed conflicts, and devaluation of the rupee disrupted the planning process so thoroughly that when the Draft Outline finally appeared in August 1966, "the original calculations seemed to date from another epoch."[121] The Planning Commission, newly reconstituted in the wake of the Administrative Reforms Commission (ARC) recommendations, decided that "with the lapse of time, many of the assumptions and estimates of the Draft Outline were no longer valid [and] fresh exercises would have to be undertaken."[122]

The financial crisis which helped derail the Fourth FYP also restricted planned development spending during the 1966-69 period. In the last year of the Third FYP period, plan expenditures on industry and mining stood at Rs. 580 crores. By 1967-68, expenditures on industry and mining had fallen to Rs. 516 crores, and this sector only barely rebounded to former levels with 1968-69 proposed outlays of Rs. 582 crores.[123] As Frankel points out, expenditures in this sector were "sufficient only to support major new projects in fertilizers, and relatively limited expansions of existing capacity in petro-chemicals, petroleum refining, and the development of iron ore and other minerals schemes."[124]

The pattern of spending for industry and mining contrasted sharply with past industrial priorities. It represented changes in India's agricultural development strategy initiated while planning the aborted Fourth FYP. Heavy and intermediate industries were still priorities in Indian industrial planning. However, the Draft Outline

of the Fourth FYP began its list of industrial emphases by giving "highest priority to the industries manufacturing industrial inputs for agriculture."[125] This orientation reflected the continuing importance of agriculture in an era of agricultural stagnation and persistent foodgrains shortages.

Agriculture had received renewed emphasis in the Third FYP, but the strategies employed throughout the first three planning periods failed to correct chronic agricultural problems. Starting with the Draft Outline of the Fourth FYP and continuing into the Annual Plan period, Indian planners began flirting with the 'Green Revolution'. They decided that if foodgrain imports were to cease, India would have to "make far greater use of modern methods of production" and bridge supply shortfalls "by the application of the latest advances in the science of agriculture."[126]

Reflecting these concerns, agriculture sustained substantial increases during the Annual Plan period. Starting at Rs. 307 crores in 1965-66, spending on agricultural programs climbed to Rs. 334 crores the following year. Although agricultural outlays dropped somewhat in 1967-68, to Rs. 317 crores, spending remained greater than in the last year of the Third FYP and climbed higher still in 1968-69, with proposed outlays of Rs. 470 crores.[127]

In earlier planning periods, efforts to increase agricultural production had consisted primarily of construction of minor irrigation works, simple improvements in agricultural practices and extension of cultivated land. In contrast, the agricultural strategy instituted during the Annual Plan period relied heavily upon modern agricultural inputs (such as high yielding seed varieties, fertilizers and insecticides), major irrigation projects, and flood control and soil conservation projects.[128] The high yielding varieties (HYV) program, for instance, covered only four million acres in 1966-67, but encompassed 15 million acres in 1967-68 and 21 million acres by 1968-69.[129]

In the context of the new agricultural strategy, land reclamation efforts were emphasized less than in earlier planning periods. While the Draft Outline of the Fourth FYP called for clearance of an additional 6.7 million acres between 1966 and 1971, subsequent planning documents for this period fail to mention the extent to which land reclamation efforts were actually carried out. However, between 1965-66 and 1970-71, net area sown did increase by 4.6 million hectares. Yet, during the same period, culturable wasteland and land under miscellaneous tree crops also increased by 535,000 and 222,000 hectares, respectively. While this represents quite a discrepancy, at least a portion of the increase in net area sown can be accounted for by decreases in other land

categories. For example, **current fallows** and **fallow lands other than current fallows** declined by 2.6 million hectares and 503,000 hectares, respectively.[130]

During 1967-68, 100,000 hectares of forest area were also targeted for clearance in order to resettle agricultural refugee families. Against this target, only 53,000 hectares were actually cleared due to "the practical difficulties in the release of forest land for reclamation by the State Governments concerned."[131] This 53,000 hectares was in addition to over 100,000 hectares of land cleared by the end of the Third FYP period for resettlement in one refugee project--the Dandakaranya Project--alone.[132] And the Indian Government expected the substantial influx of refugees from East Pakistan, Burma and other South Asian countries to continue throughout the 1960s.[133] So, while the pressure on forest lands from government efforts to extend cultivated area may have diminished during the Annual Plan period, other forms of officially sanctioned agricultural pressure on forest resources continued unabated.

Planned expenditures on forestry continued to increase throughout the Annual Plan period. In the last year of the Third FYP period, Rs. 13.88 crores were spent on forestry. Spending decreased slightly to Rs. 13 crores in 1966-67, but climbed to Rs. 14 crores in 1967-68 and Rs. 16 crores by 1968-69.[134] However, territorial expansion of the forest departments slowed considerably, with forest area increasing by only 4% (2.4 million hectares) during this period.[135]

The emphasis on industrial production initiated during the Third FYP period continued throughout the Annual Plan period. Forest departments committed their financial resources to surveying forest areas for industrial raw materials potential, improving logging procedures, and researching industrial uses of inferior timber species. The fast growing species plantation program also continued, with special emphasis on establishing plantations in proximity to the industries using their output. Plantations of quick growing species, consisting primarily of eucalyptus for the pulp and paper industry, covered 47,350 hectares in 1966-67 and another 56,400 in 1967-68. And in 1967-68, 49,000 hectares of forest land were also dedicated to raising plantations of teak, sal and other species for industrial and commercial uses.[136]

The production targets for the first two years of the Annual Plan period also reflect the continuing industrial emphasis. Combined production of timber, pulp, matchwood and roundwood was expected to increase by 25.9% (1.8 million cubic meters) between 1966 and 1968. During the same period, however, combined production of fuelwood and charcoal was expected to decline by 8% (973,000 cubic meters).[137]

Throughout the three years of the Annual Plan period, then, pressures on India's forest resources continued. Agricultural extension diminished substantially as modern methods of agricultural intensification replaced earlier strategies, such as land reclamation, for increasing agricultural production. However, land reclamation efforts were still undertaken over large areas as the Indian Government struggled to cope with the influx of agricultural refugee families. Moreover, the growing preoccupation of Indian planners with the modernization of Indian agriculture did little to relieve pressure on the forestry sector. Despite the fact that the Annual Plans downplayed the industrial emphasis evident in earlier planning periods, forestry programs and expenditures continued to promote the industrialization and commercialization of Indian forestry. And as fuelwood and charcoal production declined, the pressures on India's already diminished communal and village forest lands only continued to worsen.

The Fourth Five Year Plan (1969-1974)

In keeping with the growing concern for agriculture evident in the Annual Plan period, the 1969 version of the Fourth FYP strongly emphasized continuing agricultural advancement. Among the goals of Indian development during this period, planners intended to "introduce safeguards against fluctuations in agricultural production and uncertainties of foreign aid"; "build up sizeable buffer stocks and even out foodgrain supplies in addition to increasing agricultural production"; "stabilise foodgrain prices and the price level"; and "reduce dependence on foreign aid substantially and do away with PL 480 imports by 1971". [138]

Planning efforts during this period were also designed to pursue the long term goal of national self-reliance with renewed vigor. An important new element in the strategy to fulfill this long term goal involved "maintaining an even balance of payments through increasing exports and keeping down imports."[139] Planners intended "increases in production of foodgrains, raw materials and manufactured goods. . . to make it possible to limit the growth of other imports to a manageable level."[140] They saw expanding export capacity as an essential step toward this end, determining that exports would have to increase by seven percent per year during the planning period.

The goal of self-reliance through expansion of Indian export potential was facilitated by measures taken at the end of the Third FYP and during the Annual Plan period to relax controls on industrial licensing. From the beginning of Indian planning, the Industries (Development and Regulation) Act of 1951 had provided the framework within which industrial investment was regulated. Industrial licensing was intended to insure that

production was in accord with planned priorities and targets; small industries were protected and concentration of ownership was prevented.[141] In an effort to promote industrial production and allow a greater role for the private sector, forty-two industries which produced agricultural equipment or manufactured goods with a high export potential had been exempted from licensing provisions by 1967.[142] During the Fourth FYP, these early moves toward economic liberalization were reinforced by further review and adjustment of industrial licensing policy.[143]

The Fourth FYP pattern of outlays reflected both the continued importance of agricultural spending in the context of a high technology agricultural strategy and the growing reliance on private sector industrial initiatives. The share of planned outlays allocated to the irrigation and flood control and agricultural sectors remained static. As in the Annual Plan period, irrigation and flood control accounted for 6.8% of planned outlays and agriculture retained its 17.3% share. On the other hand, the proportional share of planned outlays allocated to the industrial sectors fell during the Fourth FYP period. Combined funding for industry/minerals and village/small industries dropped from Annual Plan spending of 25.4% to 22.85% of planned outlays for the Fourth FYP.[144]

During the Fourth FYP period, agricultural development was more intimately connected with self-reliance than in previous periods. As far back as Mahalanobis, agriculture had been tied to industrialization and the overall pace of economic development. However, the Fourth FYP maintained that "the agricultural sector sets a limit to the growth of....exports" as well.[145] Furthermore, Indian planners recalled the failed harvests and unprecedented foodgrain imports of the Annual Plan years. They committed themselves to eliminating PL 480 foodgrains imports from the U.S. by 1971, as well as insuring "that imports of other agricultural commodities should be reduced as soon as possible."[146] Thus, the Fourth FYP intended agricultural production to increase by five percent per year throughout the 1970s.

In order to attain this ambitious growth rate, Indian planners intended to continue the agricultural strategy initiated during the Annual Plan period. Agricultural planning focused on expansion of irrigation and better use of existing irrigation facilities, increased fertilizer use, utilization of high yielding seed varieties, improvement of intensive and multiple cropping methods, and agricultural research.[147] Planners set ambitious agricultural targets for the end of the plan period: high yielding seed varieties would cover 25 million hectares, 15 million hectares would be multiple cropped, and an additional 7.2 million hectares would be irrigated.[148]

As in the Annual Plan period, land reclamation efforts were no longer considered an important element in the agricultural strategy. Planners estimated that India had 175 million hectares of potentially arable land and that 85% of that area was already under cultivation.[149] Yet, surveys of India's wastelands had identified an additional 2.2 million hectares that could be reclaimed for cultivation during the Fourth FYP period. Planners set the target for reclamation at a modest one million hectares,[150] and 1.4 million hectares actually were added to net area sown between 1970-71 and 1975-76. During the period from 1970-71 to 1974-75, culturable wasteland once again decreased--by 4.8% (843,000 hectares)--bringing this category of land below Third FYP levels. Land under miscellaneous tree crops also decreased, falling by 3.6% (153,000 hectares).[151]

The high technology agricultural strategy pursued during the Annual Plan and Fourth FYP periods held the promise of substantially increased per hectare yields. Yet, it also represented a retreat from the social goals which had guided Indian planning since independence. Indian planners maintained that, aside from increasing productivity, the intensive agricultural strategy was designed to "enable as large a section of the rural population as possible. . . to participate in development and share its benefits."[152] However, they also admitted that "concern for achieving the desired increase in production in the short run, often necessitates the concentration of effort in areas and on classes of people who already have the capability to respond to growth opportunities. This consideration shaped the strategy of intensive development of irrigated agriculture."[153]

As Chakravarty describes it, Indian efforts to modernize agriculture "bet on the strong."[154] Small farmers were severely handicapped in their efforts to take advantage of Green Revolution agricultural strategies which demanded expensive modern inputs, larger than average operational holdings and capital investment in irrigation projects. In contrast, farmers with holdings of ten acres or more were able to take full advantage of expensive modern agricultural inputs and 'pyramid' their gains, "using increased profits to buy more land, improve land already under cultivation, and purchase modern equipment."[155] Moreover, the issue of land reform, which had at least been important in principle in earlier planning periods, was now ignored altogether. The end result of India's experiment with agricultural modernization in the 1960s and early 1970s was increasing economic polarization in rural areas.

Increasing attention to the goal of self-reliance through export promotion and decreasing imports motivated further industrialization of Indian forestry during the Fourth FYP period. Indian planners intended to emphasize "fields of productive activity particularly in agriculture and primary production which have been

relatively neglected"[156] and undertake "considerable diversification of our exports."[157] Forestry was one area in which planning was driven by these two goals during the Fourth FYP. The overall objective of forestry planning was to "achieve self-sufficiency in forest products as early as possible, specially (sic) for major forest-based industries such as pulp, paper, newsprint, wood panel products and matches so that the imports of some of these items may be replaced and some sizeable exports of paper and wood panel products built up."[158]

The zeal of Indian planners to increase forest products exports was driven at least in part by their perceptions of the international market for tropical forest products. Examining the export potential of Indian forestry, the National Commission on Agriculture cited a General Agreement on Trade and Tariffs (GATT) study of forest products demand which concluded that seven West European countries had imported U.S. $ 87.2 million in tropical sawnwood in 1965--none of it from India. Moreover, the study predicted a 127% rise in West European tropical sawnwood demand between 1965 and 1975.[159]

India was well placed to take advantage of burgeoning markets for forest products. A number of the industries effected by de-licensing during the 1960s were of great importance to Indian forestry. Pulp, timber products, paper and newsprint, paperboard, packaging paper and hardboard (including fibre board, chip board and particle board) were all de-licensed in 1966.[160] Forest products export promotion also had been stimulated by the Finance Act (1963) which introduced an income tax rebate on 2% of exports (or sales in India for export) of goods manufactured by certain industries; paper and pulp (including paper products) and timber products were among the goods included under this act.[161]

In addition to growing international demand for forest products, a number of other factors motivated the increasing commercialization of forestry during the Fourth FYP period. Indian planners anticipated increasing domestic demand for industrial forest products. They estimated 1968-69 industrial demand at 11 million cubic meters and expected that level to rise to 16 to 17 million cubic meters by 1973-74.[162] Indian planners also were disappointed by the per hectare yield of Indian forests and the contribution of forestry to India's net domestic product. Compared to the world average of two cubic meters/hectare/year, Indian forests produced only 0.53 cubic meters/hectare/year; and forestry accounted for a paltry 1.2% of the net domestic product in 1967-68.[163]

Planners intended to "increase the productivity of forests" and "link up forest development with various forest-based industries."[164] In order to achieve these aims, efforts to extend the area under plantations of

economically important and fast growing species were stepped up considerably. By 1968-69, plantations of fast growing species covered 247,000 hectares; the target for the Fourth FYP was an additional 302,000 hectares. Similarly, economic plantations of industrial and commercial species covered 593,000 hectares by 1968-69; planners intended to add 339,000 hectares to this plantation scheme by 1974.[165]

Planned outlays for forestry increased substantially, rising from Rs. 44.1 crores in the Annual Plan period to Rs. 92.5 crores in the Fourth FYP.[166] Industrial forestry schemes absorbed 45.2% of the Rs. 88.9 crores actually spent on Fourth FYP period forestry. Economic plantations for industrial and commercial species received Rs. 20.1 crores, plantations of fast growing species were allocated Rs. 16.9 crores, and Rs. 3.2 crores were spent on rehabilitation of degraded forests.[167] An additional Rs. 5.5 crores were spent to achieve a targeted 11,000 kilometer extension of forest roads in order to reach inaccessible forests that had not been exploited by the early 1970s.[168]

The Fourth FYP period is notable for increasing attention to the issue of fuelwood. During the Third FYP, local governmental organizations had been encouraged to undertake fuelwood plantations with the technical aid of forestry departments. However, of 304,000 hectares targeted for village forestry efforts, only 134,000 hectares actually were planted by 1969.[169] Moreover, the local level 'Panchayat' organizations that planners hoped would implement fuelwood production schemes were often controlled by local elites.[170] It was uncertain that the segments of the rural population that needed fuelwood the most would actually receive it.

Planners were also concerned that impending fuelwood shortages would result in further deterioration of forest resources that lay between reserve forests and cultivated areas. However, despite their concern, planners took little concrete action in this area during the Fourth FYP period. In contrast to the commitment of resources to industrial forestry, only 75,000 hectares were targeted for fuelwood plantations and this scheme received a mere Rs. 3.6 crores, or 4% of actual Fourth FYP forestry funds.[171]

During the Fourth FYP period, pressure on Indian forests intensified considerably as demands for forest products multiplied. As in the Annual Plan period, agricultural extension was less emphasized in the context of an agricultural strategy which focused on modern production strategies. Still, one million hectares of land were targeted for reclamation and culturable wastelands and miscellaneous tree crops diminished once again. More importantly, the industrialization of Indian forestry was undertaken at a more rapid pace than in any previous planning period. As in the Third FYP period, forest products self-sufficiency was an important goal; however,

Indian planners began to relate forestry development more explicitly to the goal of economic self-reliance, with industrialization of forestry considered essential for export promotion strategies and economic recovery.

At the same time, planners were becoming increasingly worried about growing pressures on village and communal forest resources. They were concerned primarily about the threat to forest department controlled areas as the fuelwood crisis deepened and village forest resources disappeared with little new area planted to replace them. Yet, forest departments continued to extend their territorial control, adding 1.95 million hectares to official forest area between 1970-71 and 1974-75. And both funding for fuelwood schemes and the area dedicated to fuelwood plantations continued to fall far below industrial forestry spending and plantation levels. The inadequacy of fuelwood production efforts and the organizational arrangements advocated to promote them would lead to steady deterioration of the fuelwood situation and increasing pressures on forest resources throughout the 1970s and 1980s.

The Fifth Five Year Plan (1974-79)

In the early stages of Fifth FYP formulation, Indian planners concentrated on two primary goals for the 1974-79 planning period--self-reliance and eradication of widespread poverty. Self-reliance, or independence from external assistance, carried over from the Fourth FYP and earlier planning periods. During the Fourth FYP period, domestic and international circumstances had coincided to thwart India's drive to self-sufficiency. Widespread drought and crop failure in 1972-73 necessitated importation of large quantities of foodgrains once again. Furthermore, many of India's most important imports experienced substantial price increases in the mid 1970s, while Indian exports fell short of planned levels. These circumstances severely strained India's balance of payments by the end of the Fourth FYP period.

However, Indian planners estimated that India would be independent of foreign assistance by 1978-79, except for debt service payments; and by 1985-86, India would be able to meet even its debt service requirements from its own resources, allowing complete independence. Planners maintained that India's "approach towards self-reliance must be built on a package of measures which promote exports and allow for substitutes to be produced at home through restructuring the production base in appropriate directions."[172] Thus, continuation of the import-export strategies pursued during the Fourth FYP period was deemed essential for achieving self-reliance by the target dates.

The second important Fifth FYP goal involved elimination of poverty. In 1971, Indira Gandhi and the Congress Party swept back into power with a landslide election victory based at least partially on the political slogan 'garibi hatao', or 'abolish poverty'. Based on the strength of her election victory, Gandhi "assigned highest priority to the political task of carrying out a 'speedier program to usher in socialism'" and fulfill the Congress Party's pledge to eliminate poverty.[173]

Defining poverty in terms of a minimum level of consumption of Rs. 40 per month at 1972 prices, planners conceded that large numbers of Indians remained poor despite the impressive post-independence growth of the Indian economy.[174] Returning to principles advocated during the first three planning periods, planners declared that the "existence of poverty is incompatible with the vision of an advanced, prosperous, democratic, egalitarian and just society implied in the concept of a socialist pattern of development."[175]

Domestic and international pressures and circumstances eventually undermined efforts to fulfill the stated goals of early Fifth FYP period planning documents. The failed 1972-73 harvests had led to foodgrains shortages and serious inflationary pressures which were exacerbated by rising oil prices as a result of the international oil crisis. Meanwhile, the Indian Government was under pressure from the IMF and World Bank to institute fiscal discipline and pursue more market-oriented development and economic management strategies.[176]

Scheduled to begin on April 1, 1974, the Fifth FYP was postponed. When the Fifth FYP was finally published in 1976, it still emphasized the twin objectives of self-reliance and elimination of poverty. Yet, the pressures which led to the abandonment of the Draft Fifth FYP also resulted in a "reorientation of economic policies that was tantamount to a growth strategy with no more than marginal adjustments in the interests of more equitable distribution."[177]

In keeping with heightened concern for distributive justice, the early phases of fifth period planning were notable for renewed interest in land reform. The rapid gains in agricultural production achieved in the mid 1960s using intensive agricultural techniques had slowed considerably by the early 1970s. And by the end of the Fourth Plan period, an enclave pattern was emerging. The small modernized agricultural sector fared very well, while the majority of the rural agricultural population remained at subsistence level.[178]

Planners realized that while agricultural modernization had increased yields, it had also created incentives for large landowners to evict tenants in order to directly reap the greater profits generated by intensive agriculture. Moreover, tenants were unlikely to adopt modern strategies in the face of uncertain tenure

arrangements. Thus, planners asserted the "need to renew the emphasis we have been laying on land reforms right from the First Five Year Plan" and stressed "the urgency of finding a quick remedy to the situation."[179] However, as in earlier planning periods, the resolve to implement land reforms quickly vanished. Frankel observes that Fifth period planning efforts fit the pattern of earlier periods, in which the "government lacked the organizational capacity to carry out economic reforms required for the implementation of its social policies."[180]

In its final form, the Fifth FYP advocated the same intensive agricultural strategy followed in the two previous planning periods. And, in fact, with the exception of the downplaying of land reforms, there was little change from the Draft Fifth FYP. Outlays for agriculture accounted for 12.1% of planned public sector outlays in the Fifth FYP,[181] in contrast to 12.77% for the Draft Fifth FYP.[182] Funds were earmarked for continuing extension of land under high yielding seed varieties, increased use of chemical fertilizers and pesticides, and improvement and extension of irrigation.[183] Decreasing emphasis on agricultural extension, evident in the Fourth FYP period, culminated in the Fifth FYP and no new area was targeted for land reclamation efforts.

One notable agricultural development, however, involved the increasing attention paid to horticulture in the fifth planning period. The Fourth FYP emphasized the importance of pursuing horticulture in order to meet "certain minimum needs of the people" and achieve a "sizeable export of fresh fruits and fruit products."[184] With increasing concern for less developed 'backward' regions of India, planners saw horticulture as an important way to increase the productivity of more marginal agricultural lands, such as those in hilly areas. In the Fifth FYP period, planners stressed that "horticulture will be developed on a substantial scale in the hills particularly in the Himalayan region."[185] As we will see later, the growing emphasis on horticulture as an element of agricultural development has had serious detrimental effects on the forest resources of the Himalayan regions, particularly in the state of Himachal Pradesh.

The goal of self-reliance and the attendant emphasis on export promotion and import substitution continued to have a strong effect on Indian forestry planning in the Fifth FYP period. During the Fourth FYP period, balance of payments problems had developed which Indian planners partially attributed to rising prices and levels of imports. Wood products such as wood pulp, paper and paperboard, and newsprint were cited as important culprits in India's balance of payments problems. The value of Indian imports of these items had increased substantially throughout the Fourth FYP period. In 1969, the first year of the Fourth FYP period,

India imported $ US 29.5 million worth of paper and paperboard; by 1974, the last year of the planning period, imports of paper and paperboard had increased by 102%, to $ US 59.6 million. Similarly, the value of newsprint imports rose by 99% during the same period, increasing from $ US 22.7 million to $ US 45.2 million. Of India's wood products imports, the only one to decrease substantially during this period was pulp and waste paper, falling by 44% from $ US 18.4 million in 1969 to $ US 10.2 million in 1974.[186]

In response to this unfavorable trade situation, Indian planners targeted newsprint and wood pulp as "promising areas of import substitution" during the Fifth FYP period.[187] Calling for large increases in the output of these and other wood products, they "assumed that by 1983-84 we would have achieved near self-sufficiency in newsprint and pulp."[188] In order to reach this goal, the Fifth FYP projected substantial increases in production of wood products. Paper and paperboard production was expected to increase by 44.6% during the Fifth FYP period, from an estimated level of 830,000 tons in 1973-74 to 1.2 million tons by the last year of the planning period. Newsprint production was planned to increase by 251%, from an estimated level of 43,000 tons in 1973-74 to 151,000 tons by the end of the planning period.[189]

While the prices and levels of wood products imports had risen, the record of major wood products exports (wood lumber and cork, rough wood and unfinished saw and veneer logs) had been spotty throughout the fourth planning period. True, exports increased by 51% over the five year period, rising from $ US 25.9 million in 1969 to $ US 39.1 in 1974. However, the greatest gains had been registered in only two years, 1972 and 1973. In 1970, exports had fallen slightly from 1969 levels, rebounding in 1971. And by 1974, exports had fallen off drastically in all three categories, with wood lumber and cork decreasing by 28%, rough wood by 29.7% and saw and veneer logs by 30%.[190]

In addition to increasing demand for forest products stimulated by import substitution and export promotion strategies, Indian planners once again anticipated increased domestic demand for industrial wood. In planning forestry programs for the Fourth FYP, planners had estimated 1968-69 consumption levels at 11 million cubic meters and 1973-74 demand levels at 16 to 17 million cubic meters. However, in drafting the Fifth FYP, planners admitted that their projections had been off the mark substantially. Industrial consumption had reached 16 million cubic meters by 1970, not 1973. Moreover, demand was expected to continue increasing, reaching 25.5 and 40.1 million cubic meters in 1980 and 1990, respectively. Against these demand levels, recorded production of industrial wood was estimated at 9.4 million cubic meters for 1973-74, with annual production

increasing to only 12.3 million cubic meters by 1979.[191] Thus, planners were facing a serious shortage of industrial wood.

Given the varied and growing demands for India's forest products, the industrialization of Indian forestry entered a new phase. Indian planners asserted that:

> the primary objective of the Fifth Plan is to initiate measures for increasing production of industrial wood and other forest products by a changeover from conservation oriented forestry to a dynamic program of production forestry, aiming at clear felling and creating large scale man-made forests with the help of institutional financing.[192]

In adopting this strategy, Indian planners followed the advice of a USAID study recommending that India "replace a significant percentage of the mixed tropical hardwood species with manmade forests of desirable species such as eucalyptus, tropical pines, and teak" in order to stimulate forest products exports.[193] This advice was reinforced by the National Commission on Agriculture (NCA) which concluded that Indian forestry should be oriented towards production forestry in the late 1970s and 1980s.

Increased emphasis on production forestry stimulated a 138% increase in forestry outlays, rising from Rs. 92.5 crores in the Fourth FYP to Rs. 220.5 crores in the Fifth FYP.[194] Further funding was to be obtained through the establishment of a network of State Forest Development Corporations (SFDCs), which would attract institutional financing for forestry programs, and by using the profits derived from clearfelling mixed hardwood forests. Plantation programs continued the emphasis on commercial initiatives undertaken in earlier planning periods. 'Economic plantations for industrial and commercial uses' were targeted for an additional 760,000 hectares of the most productive and accessible areas. Plantations of 'quick growing species', consisting primarily of Eucalyptus, were to be extended over another 350,000 hectares.[195]

The Fifth FYP also witnessed continuation of the concern with fuelwood supplies evident in the Fourth FYP period. Planners proposed 'social forestry' programs for the first time, citing the second important objective of Fifth FYP forestry as increasing fuelwood and timber supplies for domestic rural use. Expecting "scarcity pockets....to widen and multiply in the next few years," planners asserted that "a substantial step up in fuelwood production will have to be one of the specific objectives of forestry management."[196]

Planners proposed a number of initiatives designed to fulfill these objectives. Plantations for mixed uses, including fuelwood, were targeted for 100,000 hectares. By using these plantations to raise timber, as well as

fuelwood, planners hoped to produce fuelwood in a more cost effective fashion. Another 80,000 hectares were targeted for 'farm forestry', a program in which farmers would be persuaded to raise timber and fuelwood species "on the edges of fields and other places."[197] Finally, planners targeted 32,000 kilometers of "roads, canal sides, railway tracks, and flood embankments" for raising timber and fuelwood species for rural domestic use.[198]

These programs represented a commitment to addressing the fuelwood crisis and certainly were a tremendous improvement over earlier planning periods. Yet, the continuing priority placed on industrial and commercial concerns remained obvious even at the state level during this period. In Uttar Pradesh, for example, Fifth FYP outlays for fuelwood plantations amounted to only 8.5% of the outlays dedicated to plantations of industrial and fast growing species.[199] And while industrial and fast growing species plantations were slated to cover 23,000 hectares in 1974-75, only 1,000 hectares were earmarked for fuelwood plantations.[200] Thus, the discrepancy between commitments to the industrial and fuelwood plantation programs at both the central and state levels made it clear that industrial production remained the primary concern of Indian planners during the fifth planning period.

With the exception of the pressures that would arise as a result of horticulture, agricultural pressures from planned activities had all but disappeared by the Fifth FYP period. Officially sanctioned extension of net area sown, still evident in the Fourth FYP land reclamation target of one million hectares, vanished completely in the Fifth FYP period. No new land was targeted for reclamation, as agricultural modernization received top priority. In fact, Indian planners actually acknowledged for the first time that agricultural extension had caused deforestation during the post-independence period. They estimated that 1.7 million hectares of forest cover had been lost from 1951 to 1969 and pledged to "ensure that forest areas are not disforested (sic) for extension of crop areas" during the Fifth FYP period.[201]

However, the requirements of India's development strategy once again accelerated the demand for forest products in India. The emphasis on self-reliance as a primary development goal continued to have serious effects on Indian forestry and forest resources. During the Fourth FYP period, forest products had become involved in the import-export strategy that planners hoped would pave the way to future self-sufficiency. The Fifth FYP intensified this situation. Planners saw wood products as an important factor in both financial difficulties and their solutions. The industrialization of forestry accelerated according to that perception. Indian forestry entered a new phase--production forestry--which demanded clearfelling of large areas of natural forests to establish

monocrop plantations of valuable industrial species. At the same time, concern for fuelwood shortages continued to increase. As with industrial forestry, this facet of Indian forestry also entered a new phase--social forestry. However, the objectives, management techniques and production goals leave no doubt that industrial demand remained uppermost in the minds of Indian planners. By the point at which planning for the Sixth FYP began, the priorities followed in thirty years of Indian forestry planning had created such a mess that even the planners had to publicly address the problem.

The Sixth Five Year Plan (1980-85)

Planning for the Sixth FYP occurred in the wake of one of the most turbulent periods in post-independence Indian politics. On June 12, 1975, Prime Minister Indira Gandhi was found guilty of corrupt practices in her 1971 bid for election to the Lok Sabha. The threat to Gandhi's leadership of the Indian government was serious. The court decision invalidated her election to the Parliament and allowed her only six additional months as Prime Minister. At the same time, Gandhi was threatened politically by an emerging alliance of political opponents calling for her immmediate resignation and promising widespread civil disobedience to drive her from office.

In response to the growing threats to her administration, Gandhi proclaimed an internal emergency on June 25, 1975. The 'Emergency' gave the central government unlimited control at both central and state levels, suspending federal provisions of the Indian Constitution and abridging individual rights. Gandhi justified these draconian measures as essential to proceed with economic reforms in the face of a "deep seated and widespread conspiracy which has been brewing ever since I began to introduce certain progressive measures of benefit to the common man and woman in India."[202]

Despite the tremendous increase in power granted by the Emergency, Gandhi remained unable to carry out the basic social changes (such as land reform) necessary to improve the plight of India's poor rural masses. The central government still lacked authority at the village level and efforts at reform were blocked by rural elites controlling village institutions. Moreover, most Indians grew skeptical of Gandhi's motivations, concluding that the Emergency had been imposed to advance the Prime Minister's political ambitions rather than the interests of the poor. Still convinced of her ability to win, Gandhi called for Lok Sabha elections to take place in March 1977 and signaled the end of the Emergency. The 1977 elections proved to be a debacle for Gandhi and the

Congress Party and they were soundly defeated by a coalition of political opponents gathered under the banner of the Janata Party.[203]

The Janata Party gained power on the strength of a platform dedicated to a new economic strategy, emphasizing rural concerns and unemployment. The Janata platform shifted the focus of Indian development efforts away from earlier urban and industrial emphases. Clearly, agriculture had been an important focus of development as far back as the Annual and Fourth planning periods. However, the Janata Party dedicated itself to fulfilling Gandhi's broken promises to improve the lot of the rural poor. Janata's pro-poor policies were to be implemented through a new Five Year Plan (1978-83) which aimed "to remove unemployment and significant underemployment, to appreciably increase the living standards of the poorest segments of the population and to ensure that these groups will have, within a period of ten years, certain minimum standards of education, water supply, health and basic amenities."[204]

The fragmented nature of the Janata Party proved to be its own worst enemy. The Janata Party was a loose coalition of five small political parties, none of which possessed its own national base of support. They came together solely for the purpose of defeating Gandhi and had little else in common. The diverse interests of the Janata coalition's component parties prevented the formation of a coherent organization and led to intense and divisive political infighting. When elections were held once again, in 1980, Janata's divisiveness took its toll. Indira Gandhi and the Congress Party staged an effective comeback and Gandhi returned as Prime Minister.[205] Despite the Janata Party's defeat at the polls, theirs was a failure of politics rather than policies. The popularity of the Janata Party policy emphases was evident in Gandhi's pledge to "create a new political and economic order in which poverty will either be eradicated or greatly reduced."[206]

With Gandhi back in office, the newly reconstituted Planning Commission began drafting a Sixth FYP designed to fulfill her campaign promises. Adopted on January 18, 1981, the Sixth FYP emphasized many of the policies earlier promoted by the Janata Party. Sixth FYP objectives included "a progressive reduction in the incidence of poverty and unemployment"; a "minimum needs program" to improve the situation of the "economically and socially handicapped population"; "strengthening the redistributive bias of public policies" to favor the poor; and stimulating rural development by reducing "regional inequalities in the pace of development." In addition, planners maintained their enduring preoccupation with accelerating the "rate of growth of the economy" and "achievement of economic and technological self-reliance." Finally, the Sixth FYP heralded a

major departure in Indian development by urging "speedy development of indigenous sources of energy" and "harmony between the short and long term goals of development by promoting the protection and improvement of ecological and environmental assets."[207] These last objectives would have a substantial impact on forestry planning in the Sixth FYP period.

In keeping with the increased emphasis on agriculture and the rural poor, the Sixth FYP included substantially increased outlays for agriculture and rural development. The Fifth FYP had earmarked Rs. 4730 crores of public sector spending for agicultural sector programs.[208] In the Sixth FYP, public sector agricultural outlays increased by 133%, to Rs. 11,058.8 crores, with 48.5% of this sum applied to rural development efforts.[209]

The agricultural strategy pursued during the sixth planning period maintained the emphasis on modernization evident in Indian agricultural planning since the mid 1960s. Planners continued to emphasize the use of high yielding seed varieties, fertilizer, pesticides and irrigation. Given Gandhi's pro-poor campaign pledges, planners stressed the importance of extending modern agricultural methods to more farmers, especially those with small and marginal land holdings, and stimulating agricultural employment.[210] Horticulture also received continued emphasis, especially as a means to stimulate employment and development in hill areas and other economically 'backward' regions.

However, planners began to realize that the effects of agricultural modernization had not been entirely positive. They noted the "damage caused to our agricultural lands in canal irrigated areas by waterlogging and consequent salinisation on account of our failure to provide them with adequate drainage."[211] Planners discovered that large sections of Indian territory suffered the consequences of improperly implemented agricultural techniques, particularly irrigation. For example, six million hectares were effected by waterlogging, 4.5 million by high levels of salinity and 2.5 million by increased alkalinity.[212] In response, planners stressed the importance of "integrating ecological considerations in land use patterns" because "any damage to the principal life support systems, such as soil and water, flora and fauna, would undermine the renewable base of agricultural wealth."[213]

Attention to environmental concerns in agricultural planning was part of a more general trend toward greater environmental awareness evident in the Sixth FYP. The first official attention to environmental concerns in Indian planning surfaced in the Fourth FYP. The Fourth FYP included a section on 'Quality of Environment'

and noted that there was "no point in the structure of Government where the environmental aspect receives close attention in an integrated manner."[214] However, little was done to incorporate these concerns into either Indian planning or administration.

Environmental issues appeared again during the 1980 election. The major political parties voiced concern with the deteriorating quality of India's environment and growing pressures on natural resources, pledging to address these concerns in their policies. Gandhi and the Congress (I) Party promised that "in response to the economic and social necessity for ecological planning, the Congress-I will take effective steps--including setting up in the Government a specialised machinery with adequate powers--to ensure the prudent use of our land and marine resources."[215] The Gandhi administration acted on this promise and created the Committee for Recommending Legislative Measures and Machinery for Ensuring Environmental Protection, headed by Narayan Datt Tiwari, Deputy Chairman of the Planning Commission. At the suggestion of the Tiwari Committee, the Department of Environment was created within the central government structure to serve as a 'nodal' agency, coordinating environmental protection and 'eco-development'.[216]

Growing environmental concern was evident throughout the Sixth FYP. In a chapter devoted to analyzing the causes and solutions of India's environmental problems, planners suddenly declared that "environmental conservation is, in fact, the basis of all development."[217] They attributed Indian environmental problems to two causes: "conditions of poverty and underdevelopment" and "negative effects of the process of development." The culpability of development was certainly a major departure in Indian thought. Planners cited "unintended side effects of efforts to achieve rapid economic growth and development," including "distortions imposed on natural resources from poorly planned development projects and programmes, as well as from lack of attention to long term concerns by commercial and vested interests."[218] However, population pressure bore primary reponsibility for environmental degradation and planners stressed that "it is the successful control of population growth and the satisfaction of basic human needs that will ultimately protect environmental health."[219] In addition to growing concern with rural development, then, environmental awareness was a second important influence on Sixth FYP forestry planning.

The third important influence on forestry planning during the sixth planning period was India's growing concern with the cost and availability of commercial energy. In the face of the international oil shocks of the 1970s, Indian planners concluded that the energy sector had slowed the process of economic growth,

modernization and self-reliance. They resolved to "develop effective domestic substitutes for imported energy."[220] In addition to accelerated exploitation of conventional energy sources (oil, coal, hydroelectric and nuclear power) planners stressed the need to develop alternative renewable energy resources in order to meet the energy needs of rural communities. Fuelwood was an important option in the list of alternatives considered by planners, leading to intensified interest in 'energy forestry' in the Sixth FYP period.

As a result of these three factors--the emphasis on rural development, growing environmental awareness and energy shortages--forestry planning during the Sixth FYP period departed radically from trends established in earlier planning periods. The general aura of increased environmental awareness was very evident in forestry planning. Noting that "large scale deforestation in recent decades has rendered the sensitive catchment areas in the Himalaya and other hilly areas particularly vulnerable to soil erosion," planners acknowledged that "of the 75 million hectares classed as forest lands, less than half is actually under adequate tree cover."[221]

Remarkably, the Sixth FYP cited forest managament practices and commercial logging operations, in addition to population pressures, as important factors in deforestation. Planners observed that "forests under management have, moreover, been treated from the very narrow viewpoint of production of commercial timber and pulpwood so that they have been rapidly converted to stands of teak, pine or eucalyptus with no thought given for even the maintenance of species producing valuable minor forest produce." Such practices had caused "rapid shrinkage of all natural forests and other ecosystems throughout the sub-continent in recent years."[222] These statements were in marked contrast to the Fifth FYP, which had advocated and funded the very clearfelling practices that the planners now criticized so strongly.

Yet, while the role of forestry in providing industrial raw materials was all but ignored in the Sixth FYP, production forestry remained an important element in forestry planning. Self-reliance was still an important development objective during the sixth planning period. The Sixth FYP maintained the same import-export strategy followed in earlier planning periods, stressing efforts to "accelerate the growth of our exports" and "promote import substitution."[223] Planners noted that, although "significant progress has been made in respect of economic and industrial plantations" during previous planning periods, "there is, however, urgent need and great scope for further improvement in forestry development all over the country."[224]

Despite the reluctance of planners to admit it, 'forestry development' still included clearfelling of natural forests. During the Sixth FYP period, "the production forestry programme emphasis was laid on the conversion

of low-value mixed forest into high-value mixed plantation of comercially important species."[225] By 1985, an additional 600,000 hectares of natural forests had been 'converted' to high value plantations in spite of the Sixth FYP condemnation of clearfelling practices.

In keeping with the stress on self-reliance, increased production of wood products remained an important objective of improved forestry development during this period. Planners expected the annual demand for paper and paperboard to increase from 1.1 million tons in 1979-80 to 1.54 million tons in 1984-85. Against these demand levels, planners intended to increase production from 1.05 to 1.5 million tons during the same period. This 43% increase in production would leave India with imports of 40,000 tons of paper and paperboard in 1984-85, a decrease of 10,000 tons during the Sixth FYP period.[226]

Newsprint shortages were more serious. Annual demand was expected to increase from 360,000 tons to 500,000 tons during the sixth planning period. Planners intended annual production to increase from 47,500 tons in 1979-80 to 180,000 tons in 1984-85. Even with this 279% increase in production, India would be importing 8000 tons more newsprint per year in 1984-85 than it had been at the beginning of the Sixth FYP period.[227]

Despite continuing attention to production forestry and commercial forest products shortages, Sixth FYP rhetoric represented a direct reversal of the forestry planning priorities established in the Fifth FYP. While the Fifth FYP marked the official adoption of production-oriented forestry, the Sixth FYP stressed conservation measures as the main objective of forestry planning. Planners maintained that forestry planning was designed to fulfill three sets of needs: ecological security; domestic uses such as fuel and fodder; and raw materials for small and large scale industries. The growing concern with fuelwood production evident in the Fifth FYP now assumed primary importance. A "huge gap in fuelwood availability" had "created tremendous pressure on existing woodlots."[228] This concern was exacerbated by rising prices and limited availability of conventional energy resources, leading to exploration of energy alternatives.

The social forestry programs established in the Fifth FYP became the top priority in forestry planning. A new centrally sponsored Rural Fuelwood Plantation scheme was implemented with a target of 1.3 million hectares for the Sixth FYP period.[229] And over 1.6 million hectares were actually planted under all social forestry programs between 1980 and 1985.[230] In addition, planners initiated a number of other programs intended to supplement social forestry and undertake widespread afforestation. These included the 'tree for every

child programme', 'eco-development forces' that would put ex-servicemen to work afforesting western Himalayan watersheds, and 'eco-development camps' that would involve college students in afforesting degraded forest lands.

The Sixth FYP marked a watershed in the history of Indian forestry planning. Factors such as Gandhi's committment to rural development and meeting the needs of the poor masses, increasing environmental awareness and the international oil shocks of the 1970s converged to radically alter approaches to forest resource use and development. The outcome was a rapid and fundamental change in the way forestry was treated in development planning and strategy. Deforestation and other environmental problems were acknowledged more strongly than in any previous planning period. Commercial pressures and vested interests shared the stage with the rural population as culprits for environmental problems. And, as a result, Sixth FYP forestry emphases and programs reversed the forestry planning focus pursued during the Fifth FYP period.

Yet, some aspects remained unchanged. Population pressures remained the primary official culprit for deteriorating forest resources. While particular projects were criticized for causing environmental problems, India's development strategies and goals themselves still bore no responsibility. Moreover, these goals continued to effect forestry planning, programs and production targets. Despite the attention which planners paid to social forestry and fuelwood shortages, production forestry and clearfelling remained alive and well.

More importantly, the effectiveness of planned efforts to address fuelwood shortages were themselves questionable. In 1979-80, centrally sponsored social forestry programs were turned over to the states, allowing them control over programs designed to alleviate fuelwood shortages. State control was reinforced by the fact that the 1967 Administrative Reforms Commission reforms had gradually increased state independence in spending centrally allocated funds. During the early 1980s, then, planners could only advise states to allocate adequate funds to fuelwood projects.

At the same time, however, planners realized that states saw forests as revenue generating assets. For example, Himachal Pradesh derived 36% of its total state revenue from forests in the early 1970s,[231] and in the late 1970s forests remained the "main source of state revenue."[232] Planners also understood that this could lead to "several undesirable practices resulting in over exploitation."[233] Thus, while the Sixth FYP was notable for increased attention to environmental issues, particularly deforestation, the impact of growing awareness remained to be seen.

Seventh Five Year Plan (1985-90)

The Seventh FYP continued many of the emphases evident in the Sixth FYP period, particularly the focus on reduction of poverty and accelerated economic growth. Poverty was to be eradicated through programs designed to provide increased employment, highlighting initiatives in economically backward areas. Accelerated growth was once again coupled with the long term goal of self-reliance. Toward this end, planners continued to emphasize import substitution and, as in earlier plans, called for a "much more vigorous export promotion effort."[234]

Agriculture remained an important sector in India's development strategy for the late 1980s. It was seen as an area in which great gains might be made in the drive to increase employment. Land reform efforts had continued throughout the Sixth FYP period. Yet, at the beginning of the seventh planning period, agricultural land distribution in India remained grossly uneven. Small and marginal farmers with plots of up to two hectares still represented 73% of the agricultural landholdings, but occupied only 23% of cropped area.[235] Moreover, planners admitted that the benefits of the Green Revolution had been very unevenly distributed, contributing to serious regional imbalances in development. They felt that both agricultural productivity and rural employment could be increased by correcting these deficiencies in Indian agricultural development. Thus, planners resolved to continue their land reform efforts and undertake programs to extend the benefits of modern agricultural methods to small and marginal farmers.

The plight of small and marginal farmers and 'backward' areas, especially hill areas, were also addressed through intensified horticultural and animal husbandry programs. Efforts were undertaken to further integrate horticulture with hill area development and promote export possibilities for horticultural produce. With respect to animal husbandry, planners intended that India be self-sufficient in products like milk, meat and wool by the turn of the century. Moreover, because of increases in the price of oil, use of cattle and buffalo for farm work was expected to increase dramatically throughout the 1980s. As a result, planners suggested that "animal husbandry could become a major source of income for landless labourers and marginal farmers and also for people living in hilly terrain."[236] Horticultural and animal husbandry programs were already a hallmark of development efforts in the Himalayan districts of Uttar Pradesh, where state planners emphasized programs designed to increase area under horticulture, raise more sheep and organize small industrial units based on wool production.[237]

Sustained concern for the environment was also a hallmark of Seventh FYP efforts to chart India's development path for the late 1980s. Planners admitted that in the rush to develop, "many concerned with developmental activities lose sight of environmental and ecological imperatives. Realisation concerning these aspects has been with us for only a relatively short period of time."[238] Once again, they pledged that India's future development efforts would emphasize sustainability "based on a pattern of resource use that shows concern for conservation and the preservation of the environment."[239]

Moreover, planners now stressed that "environmental protection is also an important component of the pursuit of social justice."[240] This theme was echoed by Prime Minister Rajiv Gandhi in the late 1980s. Addressing the U.N. General Assembly in October 1987, Gandhi asserted that:

> Although they bear the brunt of environmental damage, the poor are themselves little responsible for any of that damage. For centuries they have lived in harmony with nature. The problem is caused by large scale commercial exploitation which garners the profits but escapes the consequences. Yet, when laws are passed and rules are made to conserve the environemnt the burden falls on those who have gained the least and suffered the most.[241]

Thus, the seventh planning period witnessed intensification of the Sixth FYP willingness to blame commercial pressures for environmental damage.

Concern for the environment remained an important agenda item in forestry planning as well. Planners once again stressed conservation over production and rural over industrial demand. Moreover, legislative and administrative initiatives were undertaken in an effort to insure that environmental concerns were incorporated into forestry planning and programs. The central government's power over forestry had been enhanced in the mid 1970s by the 42nd Amendment to the Indian Constitution, which transferred forests from the State List to the Concurrent List of the Constitution.[242] Increased central control was reinforced in the Sixth FYP period by the passage of the Forest (Conservation) Act, 1980. Passed by Parliament without state approval, the Act prohibited states from changing the legal classification of forest land or clearing forest land for any purpose other than reforestation without central government approval.[243] Planners claimed that this legislation had decreased the rate of forest land diversion from 150,000 hectares per year in the 1951-1980 period to 4,600 hectares per year in the post-1980 period.[244]

In addition, administrative reforms were undertaken in order to facilitate integration of environmental and conservation concerns into forestry planning. In September 1985, the central government established the Ministry of Environment, Forests and Wildlife, containing a department devoted to forestry issues.[245] This reorganization was an attempt to further distance forestry from traditional concerns with production and reinforce the efforts of the Department of the Environment, which had little jurisdiction over forestry issues.

Changes were also evident in the administration of social forestry programs. Pro-poor policies and increasing concern with rural development had led to diversification of social forestry initiatives during the Sixth FYP period. Introduced in 1980, the National Rural Employment Programme (NREP) earmarked 10% of its budget for a social forestry program which planted over 460,000 hectares of plantations.[246] In 1982-83, afforestation to meet growing fuelwood demand was included in the 'minimum needs programme' which was the cornerstone of Sixth FYP rural development efforts. In the Seventh FYP, the social forestry component of the minimum needs programme was expanded greatly. The centrally sponsored Rural Fuelwood Plantation program introduced in the Sixth FYP was integrated into the minimum needs programme in 1985-86 and its budget increased to Rs. 165 crores from a Sixth FYP outlay of Rs. 97.2 crores.[247] Over 400,000 hectares were targeted for fuelwood plantations under this program and 180,000 had been planted by 1986-87.[248]

During the Seventh FYP period, planners also created the National Wastelands Development Board (NWDB), which was intended to "step up the rate of afforestation with people's participation."[249] All social forestry programs being implemented by the central Department of Forests were transferred to the jurisdiction of the NWDB. The NWDB shifted the emphasis of social forestry from block plantations on government owned land to farm forestry and community plantations on private and communally owned land. The NWDB also established radically increased afforestation targets for the seventh planning period. During the Sixth FYP period, social forestry schemes administered by both central and state governments managed to afforest 1.655 million hectares.[250] In contrast, the NWDB planned to afforest five million hectares per year during the Seventh FYP period. Yet, while seedling distribution targets were exceeded during the first two years of the planning period, even the NWDB realized that there was little chance of afforesting 25 million hectares during the Seventh FYP period.[251]

Seventh FYP social forestry programs were also characterized by growing diversity in the range of issues they addressed. For the first time, planners voiced concern about the needs and welfare of India's indigenous

forest dwelling peoples, known as 'tribals'. Concern with tribals was coupled with growing awareness that forests supplied more than the major forest products targeted for export promotion and import substitution efforts. Planners began to consider the important role which 'minor forest produce' (such as seeds, barks and medicinal plants) played in the rural economy. These concerns were addressed in part by efforts to diversify the species composition of social forestry projects. From its inception, India's social forestry effort had relied primarily on plantations of exotic fast-growing species such as Eucalyptus; the Seventh FYP emphasized the importance of indigenous multi-use species. Finally, planners began to stress the importance of popular involvement in forestry programs, and "creating a massive people's movement" became an objective of forestry planning.[252] This objective was to be addressed in part by inviting the participation of India's blossoming community of non-governmental environmental and social service organizations.

The intensity and diversity of the social forestry efforts included in the Seventh FYP were at least partially attributable to growing official awareness of the magnitude of India's fuelwood and fodder shortages. The 1982 report of the Fuelwood Study Committee asserted that "fuel to cook food may soon become a greater constraint than the availability of food itself."[253] Planners estimated that by 1999-2000, fuelwood demand levels would be 191.6 million tons per year.[254] In order to meet demand, fuelwood plantations would have to increase by at least 1.5 million hectares annually throughout the Seventh FYP period, and 800 million seedlings would have to be distributed to the public each year.[255] In addition, the increased demand caused by promotion of animal husbandry rural development schemes would have to be factored into rural demand levels. Planners estimated that at least 2.5 million additional hectares would be required for social forestry programs designed to raise fodder crops.[256]

While overt discussion of production forestry had been avoided in the Sixth FYP, the Seventh FYP resurrected production forestry as a legitimate topic of forestry planning. Planners intended production forestry to take a backseat to rural and domestic demand, but they still felt that "forests would provide raw material for the forest-based industries."[257] India was not only faced with a fuelwood shortage, but continued growth of industrial raw materials shortfalls as well. Planners quoted NCA estimates which predicted a 7.36 million cubic meter gap between production and supply of industrial wood in 1985; this gap was expected to increase by 149%, reaching 18.36 million cubic meters by 2000.[258] At least part of this gap can be traced to increasing demand levels for newsprint, paper and paperboard.[259] In order to meet rising demand for these products during the

Seventh FYP period, planners projected a 31.5% increase in paper and paperboard production and a 32.2% rise in newsprint output.[260]

Planners estimated that an additional two million hectares would have to be planted under production forestry schemes in the Seventh FYP period in order to meet these demand levels. However, only 800,000 hectares were actually targeted for production forestry during the planning period.[261] Planners placed part of the blame for industrial production shortfalls with the State Forest Development Corporations (SFDC) established during the Fifth FYP period. These organizations had failed to obtain adequate institutional financing for production forestry initiatives. Planners called upon SFDCs to intensify their efforts to obtain financing and suggested that they might be given wastelands for plantation efforts. Planners also proposed that forest-based industries undertake production plantation efforts on wasteland areas not used by either forest departments or SFDCs.[262] Thus, production forestry became visible once again in the Seventh FYP and new initiatives were undertaken--including privatization of wastelands, which frequently were communally owned--to promote industrial forestry.

The Seventh FYP period saw continuation of many of the policy directions initiated and carried out during the Sixth FYP period. In the 1980s, both political leaders and planners adopted the environment as an important public policy issue. A high premium was placed on environmental concerns in development and forestry planning, and a number of administrative and legislative initiatives were undertaken to insure that these concerns were addressed.

In the Seventh FYP period, social justice was also incorporated as a dimension in environment and forestry issues. Suddenly, planners stressed the needs of tribal communities and addressed the supply of minor forest produce in forestry planning. The ascendance of social justice issues to the environmental agenda, in conjunction with increasing fuelwood shortages, helps to account for the growth in size and diversity of social forestry programs during the Sixth and Seventh FYP periods. Continuing on the path established by the Sixth FYP, forestry planning for the late 1980s stressed the importance of incorporating afforestation into rural development efforts, such as the minimum needs programme.

While the major theme of Seventh FYP forestry planning was social forestry, production forestry remained an important element as well. In the late 1980s, India still pursues the elusive goal of self-reliance, with export promotion and import substitution as a primary means to that end. And production levels of major forest

products continue to be tied to that long term development goal. In order to further self-reliance, planners adopted the strategy of privatization of wastelands. Planners maintain that the National Wastelands Development Board was constituted to further social forestry efforts. Yet, critics contend that it was created primarily as a tool to further the access of SFDCs and industries to forest resources.[263]

The Seventh FYP also illustrates the tension that may arise between rural development and forestry. Foresters have consistently stressed the detrimental effects which growing numbers of livestock have on Indian forest resources. They blame cattle, buffalo and goats as major culprits in Indian deforestation because of the increasing strain which livestock place on limited sources of fodder and feed. Despite these warnings, the Seventh FYP stressed the importance of animal husbandry programs in reducing unemployment and poverty in rural areas, particularly hill areas. The lack of coordination between India's development sectors demonstrated by these conflicting concerns is a common characteristic of India's development strategy. Thus, while environmental concerns certainly have come to the fore in India's contemporary planning efforts, forest resources are still pressed from a number of directions, and population pressures are not always the most important of these stressors.

Development and Forestry: Continuity and Change

Examination of the five year plans reveals that India's post-independence development strategy has pursued a number of directions characterized by different priorities, emphases and programs. And as development priorities shifted, the role of forestry, wood products and forest-based industries in Indian development was transformed as well. Throughout the post-independence period, both India's development strategy and the role of forestry in that strategy have had serious implications for the fate of India's forests.

The basic thrust of India's development efforts during the First FYP period centered on increasing agricultural production as fast as possible and by any means necessary. India suffered from shortages of foodgrains and raw materials that were exacerbated by its loss of important agricultural area to Pakistan. During the early years of India's independence, the most practical strategy for increasing production lay in extension of cultivated area. Indian planners and state governments began a land reclamation program designed to clear vast areas, creating land that produced scarce agricultural goods and increased revenue.

Agricultural extension through land reclamation persisted for over two decades, until the end of the fourth planning period. The land reclamation operations used to extend 'net area sown' often were undertaken

on revenue agency controlled lands classified as 'culturable wasteland' and 'land under miscellaneous tree crops'. The incomplete chronicle of land reclamation efforts contained in India's five year plans shows that at least 3.6 million hectares of land were actually cleared through central and state government efforts by 1970; in addition, 681,000 hectares were cleared from 1951-1972 for river valley projects, road construction, and the establishment of industries.[264] In fact, nearly 300,000 hectares of cultivable wastelands were cleared in Uttar Pradesh alone between 1956 and 1966, making "deep inroads in the natural vegetation" and seriously disturbing "the ideal proportion of land to be maintained as forest."[265] Another 3.7 million hectares were targeted for reclamation at various points in the Third, Annual and Fourth FYP periods.[266] And while centrally planned agricultural extension had ceased to be a planning priority by the Fifth FYP, state level land reclamation efforts persisted. As late as 1977, for example, planners in Uttar Pradesh considered reclamation of culturable waste a viable option for increasing agricultural production and net area sown.[267]

However, other sources estimate that 25 million hectares of forest lands under various revenue agency classifications were cleared for agricultural extension by the early 1980s.[268] Regardless, the official record of Indian land use statistics shows that culturable wasteland decreased by 27% (6.2 million hectares), land under miscellaneous tree crops fell by 82% (16.3 million hectares) and net area sown climbed by 18% (21.5 million hectares) during the thirty year period from 1950-51 to 1980-81.[269]

Analysts of Indian forestry from diverse backgrounds have observed that the lands on which agricultural extension took place were frequently communal and village forest lands.[270] This practice stemmed from post-independence continuation of the British colonial policy of classifying non-revenue producing forest lands as wastelands. The effects of this practice were exacerbated by the pressures on India's newly constituted state governments to accommodate agricultural sectors of their populations. Accommodation of agricultural populations led to frequent legalization of agricultural encroachments, even on forest lands controlled by forest departments.[271]

During the two decades following independence, then, the net result of central and state level agricultural policies was drastic attrition of village and communal forest resources. Agricultural extension was discarded as a strategy for increasing agricultural production by the beginning of the Fifth FYP, as Green Revolution strategies modernized Indian agriculture. However, millions of hectares of valuable forest resources had been

lost by that point, increasing pressure on remaining forest lands, particularly those controlled by forest departments and local communities.

The second major direction in India's post-independence development strategy commenced with the Second FYP drive to achieve rapid industrialization of the Indian economy. As with efforts to increase agricultural production, industrialization had serious implications for India's forest resources. During the Second FYP period, planners began to tie forestry and forest products to production of raw materials for industry. The First FYP period had laid the foundation for industrial forestry by replanting degraded forest areas with economically important species and by beginning the extension of forest roads to less accessible areas. In addition, forest departments began their drive to extend territorial control. The Second FYP continued these initiatives. However, in providing for plantations of 'economically important species', the Second FYP launched a planning direction which would be crucial to India's efforts to increase raw materials supplies, develop forest based industries and achieve economic self-reliance.

With the Third FYP, the drive to industrialize Indian forestry intensified. Planners anticipated serious shortages of industrial wood products in the 1970s. Furthermore, they were less than satisfied with India's record of wood products imports and exports. With these facts in mind, planners dedicated vast new areas to the plantation program begun in the second planning period. A new centrally sponsored plantation program was also initiated which was designed to raise fast growing species for industrial use. In addition, the network of forest roads was extended considerably, particularly in Himalayan areas where planners intended to facilitate access to previously remote forests. In Himachal Pradesh, for example, forest road extension constituted the largest single component of the state's Third FYP forestry budget.[272]

During the Annual and Fourth Plan periods, preoccupation with industrialization waned as concern with foodgrains shortages grew; agricultural modernization began to supplant extension of cultivated area as the preferred agricultural strategy. However, industrial forestry was firmly entrenched by this point and continued at the same pace during these periods. Funding for economically important and fast growing species continued to increase rapidly. Production of major forest products with industrial uses, such as timber, pulp, matchwood and roundwood continued to increase as well.

During the Fourth FYP period, however, industrial forestry received a further boost as the concern with self-reliance evident in earlier plans became a major goal of India's development strategy. Forestry planning was

intimately connected with this goal and its major objective became the realization of forest products self-sufficiency. Moreover, forest products were bound to the import-export strategy which planners had designed to achieve overall economic self-reliance. Forestry programs during this period were intended to produce exportable commodities and substitute domestic wood products for imports.

Preoccupation with self-reliance intensified, becoming a primary goal of Fifth FYP development efforts. As in the previous planning period, forestry was closely involved with the drive to attain economic independence. Industrial demand for forest resources had continued to climb throughout the Fourth FYP period; and planners were still determined to reduce imports and increase exports of forest based industrial products. These circumstances precipitated the final stage in the industrialization of Indian forestry--production forestry.

Production forestry involved clearfelling vast areas of 'low value' natural forests and replacing them with monocrop plantations of the 'high value' species necessary for India's burgeoning forest based industries. Clearfelling was by no means unique to the Fifth FYP period. In Uttar Pradesh, for example, the forest department had been clearfelling natural forests and 'converting' them into economically valuable plantations since the early 1960s.[273] In the fifth planning period, however, clearfelling was undertaken on a massive basis and became the mainstay of India's forestry strategy.

As planners became increasingly involved in the promotion of industrial forestry and forest-based industries throughout the planning periods, fuelwood shortages continued to worsen. By all accounts, millions of hectares of valuable forest resources had been lost to agricultural uses in the years since independence. Even Indian planners admitted this fact. They recognized culturable wastelands as village forest resources during the first planning period and later, during the sixth planning period, decried the diversion of forests for agricultural use.

Yet, planners consistently neglected the importance of fuelwood in forestry planning. Economic species plantation programs were undertaken during the very first planning period; in contrast, officially sanctioned schemes to produce fuelwood were put off until the third planning period. Even then, fuelwood production received only 27% of the funding level devoted to the fast growing species program initiated during the same planning period. And throughout the third, annual and fourth planning periods, fuelwood schemes received only 7%, 8% and 10% of the funding devoted to industrial production programs.[274] The combination of disappearing village forest resources, growing demand for fuelwood and lack of commitment to addressing the fuelwood crisis

placed increasing pressure on forests during the first 25 years of India's independence. Rather than easing these pressures, the Indian Government actually aggravated the situation through development policies such as agricultural extension, industrial forestry and widespread appropriation of forest lands.

The final development direction visible in India's five year plans involves growing commitments to rural development, alleviation of poverty and environmental protection. The Draft Fifth FYP introduced efforts to eradicate poverty, but financial difficulties derailed this development goal. Indian planners returned to a focus on self-reliance and growth in the final version of the Fifth FYP. However, Indira Gandhi's political troubles and the Janata Party reign shifted the political agenda. Alleviation of poverty received renewed emphasis in the Sixth FYP and was coupled with efforts to promote rural development. Apprehension over the condition of 'backward areas', particularly hill areas, apparent in the Fifth FYP was more pronounced in the sixth planning period. This concern was manifested through increased stress on programs such as horticulture, which was intended to stimulate development of rural areas. Commitment to rural development continued to grow throughout the Seventh FYP period as well.

A second important strain of development thought evident in the last two planning periods entails growing attention to the deteriorating quality of India's environment. Party platforms, statements by national political leaders, planning documents and high level commissions attest to spreading environmental awareness in India during the 1980s. Combined with rural development concerns and the shock of the 1970s international oil crises, environmental awareness stimulated greater attention to fuelwood shortages in 1980s forestry planning. The social forestry programs designed to integrate fuelwood concerns with forestry planning were originally initiated during the late 1970s, the same period in which planners committed India to production forestry. However, these programs only received serious attention with the Sixth FYP, when they became the cornerstone of forestry planning.

Social forestry programs have been widely celebrated as the remedy for India's deforestation and fuelwood problems. Yet, there is a great deal of controversy surrounding the ability of these programs to cure India's forestry problems. Moreover, many critics of Indian forestry even question the goals and motivations of social forestry programs. Thus, the rhetoric of environmental awareness and concern for fuelwood shortages has certainly intensified in India during the 1980s; but, there is still widespread doubt as to the sincerity of Indian

central and state level governmental commitments to addressing the root causes of environmental problems, particularly deforestation.

As the discussion thus far has illustrated, India's post-independence development directions and strategies have placed a great deal of pressure on India's forest resources. Officially sanctioned extension of agricultural land directly replaced forests with cultivated area; industrially-oriented forestry provoked thirty years of neglect of fuelwood production and prompted clearfelling of vast natural forests. However, India's development strategies have precipitated indirect consequences as well. For example, Seventh FYP animal husbandry programs targeted for hilly areas are expected to require an additional 2.5 million hectares of social forestry plantations. In light of universal criticism of India's livestock levels and the environmental damage which they frequently inflict, such an undertaking seems questionable.

The history of Indian development is rife with examples of such ill-conceived, misguided and mismanaged ventures. For example, the Fourth FYP initiated horticulture as a means to produce exportable quantities of fruits and vegetables, and the Fifth FYP emphasized it as a way to stimulate development in Himalayan areas. Himachal Pradesh (H.P.) was one Himalayan state which accepted the planners' advice wholeheartedly. In 1970, the state instituted a separate Department of Horticulture; and in 1973, the H.P. Chief Minister emphasized the importance of horticulture, particularly apple orchards, in the state's development.[275] H.P. contained only 3,029 hectares of apple orchards in 1960-61;[276] by 1983, the area under apple orchards had increased to 48,292 hectares.[277]

The promotion of large scale apple production in H.P. certainly had a beneficial impact on the state's development efforts and the welfare of many of its citizens. However, no one anticipated the strain which this industry would place on state forest resources. Not only were large areas of H.P. culturable wastelands targeted for conversion to apple orchards, but the growing yield of orchards was transported in wooden packing cases. By 1987, H.P. was experiencing a 40,500 cubic meter shortage of the silver fir, spruce and chir pine used in manufacturing packing cases; and the shortage is expected to worsen, reaching a 238,700 cubic meter deficit by 1996.[278] Even Indian planners have realized the detrimental effects of the apple industry on H.P. forests, admitting that the "shortage of packing material in Himachal Pradesh is leading to deforestation of valuable timber trees."[279] Yet, the Seventh FYP continued to stress the integration of horticulture with efforts to develop hill areas.

While concrete development initiatives had profound effects on Indian forests, more general policies--or policy failures--also strained forest resources. One such policy failure involves the consistent inability of the Indian Government to implement land reforms in the post-independence period. In the mid-1950s, the distribution of Indian land was remarkably uneven: over 60% of rural Indian households were either landless or owned less than one hectare of land and accounted for only 8% of total area; on the other hand, 13% of rural households owned more than ten acres and accounted for 64% of total area.[280] Although substantial progress has been made in ensuing decades, distribution of land remains uneven. In the mid-1980s, plots of two hectares or less still accounted for 73% of agricultural landholdings, but only 23% of cropped area.[281]

The causes of this situation are extremely complex. However, the net result has been intensified pressure on Indian forests. Agricultural extension, both legal and illegal, was driven in part by the failure of post-independence Indian leaders to make land available to India's massive rural population. Moreover, rural populations have been forced to illegally encroach on government owned forest areas as communal and village forest resources diminished through conversion to agricultural land, appropriation by authorities and overuse. Finally, the present land distribution situation casts serious doubt on the ability of Indian social forestry programs to address deforestation and fuelwood shortages.

Factors in India's development strategy and the framework through which it is implemented have also contributed to growing pressure on India's forest resources. For example, the planning process itself is partially responsible for programs which adversely impact Indian forests. Indian planning occurs through a very fragmented process. Ministry working groups at both central and state levels prepare development plans for their particular sectors of the economy with little regard for the impact of these plans on other sectors. The sectoral nature of the process breeds competition between governmental departments and prevents overall coordination of the development effort. The situation is aggravated at the state level by lack of adequate planning machinery, producing development plans which are often little more than collections of unrelated sectoral programs. The results are circumstances such as those described above, in which development programs are promoted with no thought for their long term implications or consequences.[282]

Furthermore, one can not assume that a perfectly designed and properly functioning planning process, taking into account all sectoral relationships, would stop Indian deforestation entirely. Many strong constituencies still resist attempts to change the nature of Indian forestry and forestry policy. In its 1980 report, the Tiwari

Committee found that state governments were often antagonistic to efforts to promote environmental protection and preservation of nature. While most states had formed State Environment Committees (SECs) by the early 1980s, they remained underfunded and understaffed due to state level intransigence on the environmental front.[283] Moreover, most state forest departments were still dedicated to commercial forestry, shunning the idea of incorporating other functions into their organizational missions.[284] And forestry still provides significant revenue for some state governments, making state officials reluctant to change wasteful and environmentally damaging forestry practices.[285]

The Indian Government attempted to address these issues, enacting the 42nd Amendment to the Indian Constitution in 1976 and passing the Forest (Conservation) Act in 1980. These measures were intended to enhance central control over forestry, unify forestry policy and end the diversion of forest lands for alternative uses. Despite central government efforts, forces exist within states which continue to undermine attempts to stop deforestation. In Himachal Pradesh, for instance, Chief Minister Virbhadra Singh was accused of illegal felling and smuggling of timber in 1986 by former Congress (I) politician Kewal Ram Chauhan, who was himself under indictment for identical charges.[286] Finally, doubt remains as to the sincerity of the Indian Government's overall commitment to address deforestation. As one senior government official recently observed when questioned about deforestation, "If you want economic development, then we have to bear these losses."[287] In the late 1980s, then, some things have changed very little. Economic development remains the overarching goal of Indian planners, government officials and political leaders; and it is an objective that will be pursued at all costs, employing many of the same strategies that have been emphasized throughout the course of India's post-independence development planning. Thus, despite growing environmental awareness in both the Indian population and official circles, economic development still prevails over environmental protection whenever the two objectives conflict.

ENDNOTES

1. Government of India. Planning Commission. Sixth Five Year Plan: 1980-85. New Delhi: Government of India, 1981. p. 136.

2. Centre for Science and Environment. The State of India's Environment, 1984-85: The Second Citizen's Report. New Delhi: Centre for Science and Environment, 1985, 80.

3. Jagdish N. Bhagwati and Padma Desai. India: Planning for Induatrialization; Industrialization and Trade Policies Since 1951. London: Oxford University Press, 1970, p. 45. This volume contains a comprehensive discussion of the pace of industrialization in India in the century before its independence and the state of the Indian economy at independence.

4. Ibid., p. 44.

5. At the outset, there was a degree of disagreement as to the proper strategy through which to fulfill India's potential. While Nehru and the industrialists in the Congress Party saw rapid industrialization as the road to development, the Party's Gandhian element emphasized the importance of agriculture, village level development and cottge industries. As the strategy adopted with the Second Plan demonstrated, proponents of rapid industrialization prevailed and cottge industries were relegated to the fulfillment of consumer demand, a goal of lesser importance to India's early planners.

6. P.C. Mahalanobis. Talks on Planning. New York: Asia Publishing House, 1961. p. 126.

7. Ibid., p. 127.

8.Government of India. Planning Commission. The First Five Year Plan. New Delhi: Government of India, 1953, p. 26.

9. Mahalanobis, Talks on Planning, p. 48.

10. Partial text of the Avadi Resolution is quoted in Hanson, Process of Planning, p. 124, fn. 2.

11. Hanson, The Process of Planning, pp. 89-90, 99.

12. Ibid., p. 89.

13. Government of India, First Five Year Plan, p. 3.

14. Ibid., p. 80.

15. B.M. Bhatia, India's Food Problem and Policy Since Independence. Bombay: Somaiya Publications, 1970. p. 41.

16. Government of India. National Commission on Agriculture. Report of the National Commission on Agriculture. Part 1: Review and Progress. New Delhi: Ministry of Agriculture and Irrigation, 1976. p. 134-35.

17. Bhatia, India's Food Problem, pp. 21-22.

18. Ibid., pp. 39-40.

19. Government of India, First Five Year Plan, p. 208.

20. Ibid., p. 184.

21. Frankel, India's Political Economy, p. 97.

22. For a thorough discussion of the obstacles which land tenure and distribution patterns posed for labor and capital intensive farming methods, see Frankel, India's Political Economy, p. 98-99.

23. Government of India. Planning Commission. The First Five Year Plan: A Summary. New Delhi: Planning Commission, 1954. p. 48.

24. Government of India, First Five Year Plan, p. 188.

25. Ibid., p. 184.

26. Frabkel, India's Political Economy, p. 101.

27. Government of India, First Five Year Plan, p. 210.

28. Ibid., p. 155.

29. Ibid., p. 211.

30. Ibid., p. 210.

31. For a complete discussion of the collection and classification of land utilization statistics in India, see M.R. Saluja, Indian Official Statistical Systems. Calcutta: Statistical Publishing Society, 1972, pp. 47-69.

32. Government of India. National Commission on Agriculture. Report of the National Commission on Agriculture. Part XIV: Planning, Statistics and Administration. New Delhi: Ministry of Agriculture and Irrigation, 1976. p. 150.

33. University of California. Institute of East Asiatic Studies. The Economy of India, Volume 1, New Haven: Human Relations Area Files, Inc., 1955. p. 25.

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43. Government of India. Ministry of Planning. Central Statistical Organisation. Statistical Abstract: India, 1984. New Delhi: Ministry of Planning, 1984, p. 47.

44. Tiwari, Social Forestry in India, p. 1.

45. Government of India, First Five Year Plan, p. 285-286.

46. Government of India, Report of the National Commission on Agriculture. Part XIV, p. 149.

47. Government of India, First Five Year Plan, p. 286.

48. Government of India, Statistical Abstract, 1984, p. 47.

49. Government of India, First Five Year Plan, p. 294.

50. Ibid., p. 294.

51. Ibid., p. 287.

52. Government of India. Planning Commission. Basic Statistics Relating to the Indian Economy. New Delhi: Statistics and Surveys Division, 1972. p. 49.

53. Ibid., p. 294.

54. Bhatia, India's Food Problem, p. 73-74.

55. See Sunil Kumar Sahu, "The Politics of Industrial Planning in India: The Second Plan," Indian Journal of Public Administration 30, no. 3 (July-Sept. 1984): 616. According to Sahu, Mahalanobis was the primary author of the Draft Plan Frame, the document which received only minor changes before being adopted as the Second FYP.

56. Government of India, Planning Commission, Second Five Year Plan: Summary (New Delhi: Government of India, 1956), 10.

57. Mahalanobis, Talks on Planning, p. 22.

58. P.C. Mahalanobis, The Approach of Operational Research to Planning in India (Calcutta: Statistical Publishing Society, 1963), 26.

59. Government of India, Second Five Year Plan: Summary, 9.

60. Mahalanobis, The Approach, 92.

61. For further discussion of these points, see Hanson, The Process of Planning, 126; and John W. Mellor, The New Economics of Growth: A Strategy for India and the Developing World (Ithaca: Cornell University Press, 1976), 3.

62. Mahalanobis, Talks on Planning, 96-97.

63. Mahalanobis, The Approach, 93.

64. Mahalanobis, The Approach, 64.

65. Sahu, "Politics of Industrial Planning," 622.

66. In the Indian numerical system, one crore equals ten million.

67. Government of India, Second Five Year Plan: Summary, 18-19. In this discussion of Second FYP outlays, the statistics relating to First FYP outlays differ somewhat from those provided in the earlier discussion of the First FYP planning priorities. However, they have been taken from the summary version of the Second FYP and are assumed to present a more accurate portrayal of actual First FYP outlays.

68. Ibid.

69. Ibid., 87.

70. Ibid., 89. For a complete discussion of changing agricultural priorities and emphases during the Second FYP, see Bhatia, India's Food Problem, 63-65.

71. Ibid., 90.

72. Ibid., 91.

73. Government of India, Planning Commission, Fourth Five Year Plan: A Draft Outline (New Delhi: Government of India, 1966), 62-63.

74. Government of India, Statistical Abstract: 1984, 47-48.

75. Government of India, First Five Year Plan, 294; and Government of India, Second Five Year Plan: Summary, 88.

76. Government of India, Planning Commission, Second Five Year Plan: A Draft Outline (New Delhi: Government of India, 1956), 23.

77. Government of India, Second Five Year Plan: Summary, 97.

78. Mahalanobis, Talks on Planning, 32-33.

79. Government of India, Basic Statistics: 1950-51 to 1970-71, 49.

80. The process of rehabilitation involves making forest areas newly acquired by forest departments commercially viable by replanting with economically valuable species. K.P. Sagreiya, a former Forestry Consultant to the Planning Commission, describes the process as one in which steps are taken to "fully regenerate the felled areas either naturally, with valuable species such as teak, sal etc., or else artificially, by planting in patches, in strips or wholesale, more valuable exotic species." See K.P. Sagreiya, Forests and Forestry (New Delhi: National Book Trust, 1967), 87.

81. Government of India, Second Five Year Plan: Summary, 97-98.

82. Government of India, Statistical Abstract: 1984, 47.

83. Government of India, Second Five Year Plan: Summary, 98.

84. Government of India, First Five Year Plan, 294.

85. Government of India, Basic Statistics, 49.

86. For a discussion of the continuing battle between the Centre and the state governments over land reforms during the Second FYP period, see Frankel, India's Political Economy, 128, 136.

87. For a thorough discussion of the Third FYP planning process, see Hanson, The Process of Planning, 171-203.

88. Government of India, Planning Commission, Third Five Year Plan: Summary (New Delhi: Publications Division, 1962), 17.

89. For the full text of this section of the 'Main Issues' paper, see Hanson, The Process of Planning, 178.

90. Government of India, Third Five Year Plan: Summary, 33.

91. Ibid., 13.

92. Hanson, The Process of Planning, 190.

93. See Frankel, India's Political Economy, 190-95.

94. Bhatia, India's Food Problem, 47-48.

95. Government of India, Ministry of Food and Agriculture and Ministry of Community Development and Cooperation, Report on India's Food Crisis & Steps to Meet It (New Delhi: Government of India, 1959), 3.

96. Government of India, Third Five Year Plan: Summary, 24, 139. Any discrepancies between Second FYP outlay statistics contained in this discussion and those cited earlier are a function of the fact that the Third FYP presents actual, as opposed to planned, Second FYP expenditures.

97. Government of India, Third Five Year Plan: Summary, 67.

98. Ibid., 69.

99. Government of India, Fourth Five Year Plan: A Draft Outline, 62-63.

100. Government of India, Statistical Abstract: India, 47-48.

101. J.A.V. Monroy, Report to the Indian Government on Integration of Forests and Forest Industries (Rome: FAO, 1960). As quoted in K.S. Dakshina Murthy, "Politics of Environment," Economic and Political Weekly 21, no. 18 (May 3, 1986): 774.

102. Government of India, Ministry of Agriculture and Irrigation, Report of the National Commission on Agriculture. Part IX: Forestry (New Delhi: Controller of Publications, 1976), 13.

103. Government of India, Basic Statistics: 1950-51 to 1970-71, 80.

104. Ibid.

105. Government of India, Third Five Year Plan: Summary, 77.

106. Ibid., 78. Actual funding for forestry programs during the Second and Third FYP periods actually fell short of the levels cited in the FYP documents, with forestry allocated Rs. 21.2 crores in the Second FYP and Rs. 45.9 crores in the Third FYP period. See Government of India, Report of the National Commission on Agriculture. Part IX: Forestry, 40-41.

107. Government of India, Third Five Year Plan: Summary, 78.

108. Government of India, Report of the National Commission on Agriculture. Part IX: Forestry, 69.

109. Government of India, Third Five Year Plan: Summary, 78.

110. Government of India, Report of the National Commission on Agriculture. Part IX: Forestry, 40.

111. Ibid., 40-41.

112. Ibid.

113. Government of India, Third Five Year Plan: Summary, 78.

114. Government of India, Report of the National Commission on Agriculture. Part IX: Forestry, 40.

115. Government of India, Statistical Abstract: 1984, 47.

116. Government of India, Basic Statistics: 1950-51 to 1970-71, 49.

117. For a thorough discussion of early work on the Fourth FYP, see A.H. Hanson, "Power Shifts and Regional Balances." In Paul Streeten and Michael Lipton, The Crisis of Indian Planning: Economic Planning in the 1960s (London: Oxford University Press, 1968), 19-60.

118. Bhatia, India's Food Problem, 48-49.

119. Ibid., 50.

120. For a discussion of events during this period, see Frankel, India's Political Economy, 285-286.

121. Hanson, "Power Shifts," 25.

122. Government of India, Planning Commission, Annual Plan, 1968-69 (Delhi: Government of India, 1968), 1. As quoted in Frankel, India's Political Economy, 314.

123. Government of India, Planning Commission, Annual Plan Progress Report, 1967-68 (New Delhi: Government of India, 1969), 138-39; Government of India, Planning Commission, Annual Plan, 1969-70 (New Delhi: Government of India, 1969), 10. The Annual Plan outlays for 1968-69 represent only rough estimates for expenditures during that year.

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125. Government of India, Fourth Five Year Plan: A Draft Outline, 50.

126. Ibid., 175.

127. Government of India, Annual Plan Progress Report, 1967-68, 138-39; Government of India, Annual Plan, 1969-70, 10.

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130. Government of India, Statistical Abstract, 1984, 47-48.

131. Government of India, Annual Plan Progress report, 1967-68, 127.

132. Government of India, Fourth Five Year Plan: A Draft Outline, 401.

133. See Ibid. and Government of India, Annual Plan Progress Report, 1967-68, 127.

134. Government of India, Annaul Plan Progress Report, 1967-68, 138; Government of India, Annual Plan, 1969-70, 14.

135. Government of India, Statistical Abstract: 1984, 47.

136. Government of India, Annual Plan Progress Report, 1967-68, 35-36.

137. Government of India, Basic Statistics: 1950-51 to 1970-71, 49.

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142. See Ibid., 477-483; Frankel, India's Political Economy, 315, 328-329.

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145. Ibid., 120.

146. Ibid., 120.

147. Ibid., 121-122.

148. Government of India, Fourth Five Year Plan, 1969-74: Summary, 37.

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water and fisheries. The Concurrent List, with over 40 subjects, enumerates the subjects over which the Centre and states exert shared responsibility. Forests and wildlife protection were transferred from the State to the Concurrent List with the enactment of the 42nd Amendment to the Indian Constitution, restricting the complete control over these subjects which the states had possessed until that point. For a more thorough discussion of the environment and forests in the context of the Indian Consitution, see Kilaparti Ramakrishna, "The Emergence of Environmental Law in the Developing Countries: A Case Study of India," Ecology Law Quarterly 12 (4/1985): 909-913.

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