Development with and beyond the market: in search of economically rational alternatives to neo-liberalism

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Chapter 6

Agricultural Change and Modernisation: Some Misconceptions

Introduction

If the findings of the majority of studies on poverty are to be believed,\(^1\) most of the developing world’s poor still live in rural areas and depend on agriculture and other rural activities for their livelihoods.\(^2\) For this and other reasons (see chapters 8 and 9), rural development scholars such as Michael Lipton and John Mellor argue that the key to more equitable and sustainable development in most developing countries is for governments to ensure that a higher proportion of national resources flow into the rural sector.\(^3\) To prepare the way for discussions in subsequent chapters on the role of the rural sector in the overall development process and, more generally, on what type of policies are needed to encourage more equitable and sustainable development, this chapter identifies some relatively

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\(^1\) For a critical review of the findings of some of these studies see Rigg, J. 1997. *Southeast Asia: The Human Landscape of Modernisation and Development.* Routledge, London, ch. 3. See also the discussion in chapter 9 on rural and urban poverty.

\(^2\) According to a special report on rural poverty for the International Fund for Agricultural Development (IFAD), approximately 80 percent of the developing world’s poor still live in the rural areas (Jazairy, Alamgir, and Panuccio, op. cit.).

widespread misconceptions about the impact of agricultural modernisation on developing societies, as well as explores some related issues.

In part 1, the debate over the growing of so-called cash crops is examined. The general aim of this discussion is to identify some of the factors that have often stood in the way of a more constructive discourse on agriculture’s role in the overall development process. This discussion includes an analysis of the limitations of ‘popular’ and ‘alternative developmentalist’ perspectives on development. Also some concerns are identified about the way some of the more radical non-government organisations (NGOs) carry out their development activities at the local level.

Part 2 contains a case study of the debate over the impact of India's Green Revolution and the reasons for its conception. This study further illustrates the deficiencies of Marxist, popular and alternative developmentalist perspectives on development. It also stresses the more general unwillingness of many socially and environmentally concerned academics to modify their views when faced with strong evidence and arguments presented by actors holding opposing views. This discussion, as does the one in the previous section, also raises concerns about the priorities many social activists when lobbying governments and international institutions such as the World Bank. Finally, some areas are identified where a more appropriate allocation of resources in India will bring both economic and environmental benefits.

Part 1 – The Cash-Crop Debate

1. Background

Many critics of the policies of international development organisations such as the World Bank argue that they have encouraged developing countries to replace food crops with cash crops. They claim that this has, among other things, resulted in an increase in inequality and malnutrition, if not also famine and absolute poverty. While such views can be found in

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the academic literature, a major reason why the growing of cash crops is viewed so
negatively by many, including by sections of the NGO community, are the arguments put
forward by a number of widely selling 'populist' writers on development.

Three of the most influential authors in this regard are Susan George, Frances Moore Lappé
and Joseph Collins who, along with others of a similar view, are often collectively referred
to as belonging to the 'Food First' school. Over the past 15 years or so, they and other
writers have become well known by taking their message directly to the public through
widely selling books and numerous media appearances. As the following quote from
George illustrates, some similarities exist between the views of the 'Food First' school and
those of dependency theorists:

The West has tried to apply its own conceptions of 'development' to the third world,
working through local elites and pretending that the benefits showered on these
elites would trickle down to the less fortunate, especially through the wholesale
application of western-inspired and western-supplied technology. These methods
have not produced a single independent and viable economy in the entire Third
World - and in fact were not meant to. 'Development' has been the password for
imposing a new kind of dependency, for enriching the already rich world and for

Development: Exploring the Contradictions. Routledge, London, pp. 64-65; Community Aid
Abroad. 1990. Environment and Poverty - Development Priorities Publication Series. CAA,
Business on Africa’s Food and Agricultural Production. Earth Resources Research Ltd., London;

These views can also be found expressed on the web pages of the Turning Point Project, which
is a broad coalition of activists opposed to globalisation and the World Trade Organisation
(WTO). (www.turnpoint.org). This organisation has, among other things, published a series of
ads in the New York Times critical of such factors as globalisation and the commercialisation
and modernisation of agriculture.


6 On the tendency of sections of the NGO community to assume that a strong relationship
exists between the growing of export crops and hunger, see Clark, J. 1991. Democratising

7 Lappé and Collins, Food First, op. cit.; George, How the other Half Dies, op. cit.

8 George, for example, was chief adviser to the 1987 television series 'The Politics of Hunger'
which was produced by Britain's Channel 4 and shown in Australia on the ABC. George also
wrote the introduction and conclusion to the companion book to the series (Bennett and
George, op. cit.).
shaping other societies to meet its commercial and political needs. Where food production is concerned, the Green Revolution has brought nothing but misery to the poor. Yet we continue to tell the other half how to live.\(^9\)

Similar sentiments are expressed by Lappé and Collins, who argue that modern agricultural practices and the nature of the economic system are such that the world’s hungry poor are being thrown into even more direct competition with the well-fed and over-fed:

The fact that food is grown in abundance right where they live, and their own country’s natural and financial resources were consumed in producing it, or even that they themselves toiled to grow it will no longer mean that they are likely to eat it. Rather it will go to an emerging Global Supermarket where everyone in the world, poor or rich, must reach for it on the same shelf...None without money will be able to move through the check-out line.\(^10\)

As well as the fact that it places a much greater emphasis on food and agricultural policy, the ‘Food First’ approach to development differs from that of many dependency theorists in a number of other respects, notably in regard to its opposition to the exploiting of agriculture to support rapid industrialisation. The ‘Food First’ school agrees with dependency theorists that the agricultural goods and other commodities of developing countries (see chapter 2) are subject to a ‘declining terms of trade’. However, the main policy conclusion it reaches is not that industry should be favoured, but rather that developing countries should reduce their dependence on the growing of export crops and favour a food self-reliant strategy.\(^11\)

2. Just What is a Cash Crop?

A clear distinction is often made in the literature between cash crops and staple crops. Yet, in many areas of the developing world, cultivators often derive the bulk of their farming income from the sale of staple crops. In fact, all staple crops are sold, and apart from cocoa and coffee there are few non-plantation crops grown on a significant scale which are not also self-consumed.\(^12\) In this thesis, a cash crop is any crop that is sold for cash. At the

\(^9\) George, How the other Half Dies, op. cit., p. 17.


\(^11\) See, for example, Lappé and Collins, op. cit., ch. 30. See also Harrison, op. cit. pp. 326.327.

\(^12\) Hill, P. 1986. Economics on Trial: The Anthropological Case for the Prosecution. Cambridge
household level, this means all marketable surpluses; at the national level, it refers to all crops sold abroad. In both cases the term cash crop could refer to crops that are specifically grown for sale, ones that are surplus to domestic demand, or ones that are not surplus to domestic demand but which farmers are forced to sell because of their circumstances.¹³

Many of the examples given in the popular and alternative development literature refer to the growing of export crops such as coffee, sugar and tea; the impression given is that farmers all over the third world are busy planting such crops to serve the demand generated by foreign markets. According to Jill Bennett (co-author with George of The Hunger Machine, which is the companion book to the television series The Politics of Hunger):

The landscapes of developing countries have changed enormously in a very short space of time. Diversity in agriculture is a thing of the past; now, more than ever before, these countries specialise in one or more crops for export. The result has been the wholesale destruction of traditional ways of life. Africans, Asians and South Americans now look increasingly to government marketing boards for their livelihoods. Where once they grew basic subsistence crops, they now produce coffee, sugar or cotton; or even fruit, vegetables and flowers for Northern tables in the off-season.¹⁴

The actual situation is that while many developing countries grow export crops on a large scale, others do not. In India, which accounts for a large proportion of the world's farmers, the vast majority of the crops grown are self-consumed or sold on the domestic market (although this is now starting to change with the gradual opening up of the economy). In 1979, for example, India's agricultural exports accounted for only 2 percent of GNP, compared to 23 percent in Sri Lanka.¹⁵

3. Food Self-Reliance

The 'food first' school argues that developing countries should concentrate on growing food crops for domestic consumption rather than cash crops for export - a view shared by some

University Press, Cambridge, pp. 53-54.

¹³ Ibid.

¹⁴ Bennett and George, op. cit., p. 35.

governments. However, critics of a food self-reliant strategy (or an import-substitution strategy for food production) argue that the protectionism needed to support it is likely to negatively affect other sectors of the economy as a result of both the upward pressure that this puts on the exchange rate and the impact that higher food prices will have on the cost structures of the non-food areas of the economy, including the small-farm, export-crop sector.

In many remote regions of the developing world the difficulties and cost of transporting and distributing enough food in periods of drought would make a strong case for a greater emphasis on food self-reliance. Also, macroeconomic distortions introduced by governments or misdirected aid projects have often resulted in the wrong crops being grown. In many circumstances, this has meant that even when it is economically rational and socially desirable to grow food or other crops for domestic consumption, export crops have been grown instead. However, the reverse has often been the case. Especially in some African countries, discrimination against cash crop producers has been sufficiently severe that farmers have switched back to growing staple crops or to other crops less suited to the environmental conditions of the region. This, for example, is a major reason why, when world prices were high during the 1970s, Africa's share of the world export market for a number of key commodities including cocoa, groundnuts and palm oil dropped significantly.

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16 The Organisation of African Unity's Lagos plan, for example, committed African countries to achieving food self-sufficiency. On this see Mathews, A. 1988. 'Growth and Employment Considerations in the Food Vs Export Crops Debate.' In Maxwell, S. (ed.). Cash-Crops in Developing Countries. Institute of Development Studies, Sussex University, April, pp. 5-9. For a discussion on similar sentiments in Asia and Latin America see World Bank, World Development Report 1986, pp. 77-79.

17 Mathews, Growth and Employment, op. cit.

18 Jazairy, Alamgir, and Panuccio, op. cit. p. 69.


against in a number of ways, including by being paid well below the world market price for their produce.21

An additional problem with the 'food first' approach is that the countries that have been the most successful at development have not necessarily been those that have made food self-reliance a major policy goal. As Sheila Smith and John Sender argue:

What matters is how much people have to eat, which is not determined by whether countries import food or not. In fact, countries that can afford food imports are more likely to be characterised by sufficient food availability than those which cannot...the SSA (Sub-Saharan African) countries which increased food imports most rapidly in the 1970s were among the fastest growing, Kenya, Ivory Coast, and Nigeria. On the other hand, in Ghana, where GDP in 1970-81 fell by an average 0.2 percent per annum, and where the recorded fall in domestic food per capita was among the largest, the growth in food imports was relatively tiny. This should not be surprising, since historically, rapid economic development has often been associated with rising food imports.22

A study undertaken by the International Food Policy Research Institute supports Smith and Sender's line of argument. The study covered the 28 countries that in the 1960s and 1970s had undergone the most rapid rates of production in their basic food staples. On average, the rate of growth was 4 percent. Despite this, imports of basic food staples increased in the same period by an average of 265 percent.23

A comparison of China and India, the world's two most populous countries, is also instructive. Between 1980-1989 both China's agricultural and industrial sectors grew far more rapidly than India's (see figure 6.1). In spite of this, and even with a significantly lower rate of population growth, China's cereal imports jumped from 6 million metric tons in 1974 to 14 million in 1989. In contrast to China's experience, India's cereal imports


22 Sender and Smith, op. cit.

declined from 5 million to 1 million metric tons in the same period. Of the two countries, China has been the one that has been the most successful in alleviating malnutrition amongst its population.

"Please see print copy for image"


4. Declining Terms of Trade

The views of many actors on the growing of export crops have been influenced by the notion that one of the main causes of underdevelopment is the declining terms of trade (DTOT) of the developing world’s commodities relative to the manufactured goods they import from more advanced countries. In chapter 2, several problems were identified with this perspective, and it was argued that developing countries often do obtain significant benefits from the export of commodities. In any case, as far as the present context is concerned, the price of export crops relative to the price of manufactured imports is not the

critical issue. What counts is whether the profits obtained from the growing of export crops is sufficient to purchase the food that would otherwise have been grown. In this regard, one study by S. Maxwell and A. Fernando found that between 1954 and 1984 the price of most agricultural commodity exports (textile fibres being the notable exception) improved when compared to wheat, the main food import.25

Evidence from individual countries also indicates that developing countries often do obtain significant benefits from growing export crops. As pointed out in chapter 2, agricultural exports played a critical role in Taiwan’s early economic success. In 1960, they accounted for 60 percent of Taiwan's foreign exchange earnings.26 In Kenya, a study by Jennifer Sharpley found that the gross income per hectare from export crops was much higher than for domestic food crops. Input costs (production, transportation and processing) for export crops were also significantly lower than those for food crops.27 As Sharpley and Lewis note, the benefits that flowed from the growing of export crops would have been far greater if the profits had been invested more wisely.28

5. Export Success and Food Production

One assumption made by many actors on all sides of the cash crop debate is that land is being transferred from the growing of staple crops to non-staple crops. The debate then focuses on whether or not this is desirable. The findings of a study by J. Van Braun and E. Kennedy, which examined the situation in 78 developing countries between the years 1968 and 1982, suggest that this assumption also needs revising. 16 of these countries (most of


27 See, for example, Sharpley, J. 1988. 'The Foreign Exchange Content of Kenyan Agriculture.' In S. Maxwell, op. cit., pp. 16-27.

which were in Africa) were found to have less than 10 percent of their land under cash crops in 1982, while 28 countries had more than 30 percent. Only six of the countries that expanded their share of land used for growing cash crops experienced a decline in per capita food production. The countries that suffered declines in cash-crop production also tended to suffer declines in food production. In this study, the term cash crop was used to describe all crops grown for cash with the exception of marketed staples.29

Even when staple crops are replaced by non-staple crops this is often done in a rational way by farmers. Studies such as that by D. F. Bryceson in Tanzania have found that farmers motivated by self-preservation produced a surplus in years when the climate was average or above average for the production of agricultural goods. When non-staple crops were introduced, they tended to replace the proportion of the crop that would have gone to producing the traditional surplus. The conclusion reached is that cash cropping did not lead to food insecurity as long as enough food was available for purchase in below average years.30

6. Cash-Crops and the Environment

According to many environmentalists, cash crops are also far more environmentally destructive than the food crops they replace.31 As discussed in more detail in the second part of this chapter and in subsequent chapters, the impact that a change in crop mix has on the environment depends on a complex variety of local, national and international factors. In Tanzania, for example, the introduction of cotton as an export crop succeeded in raising farmers’ incomes. However, because there were few forms of savings available to farmers as an alternative to cattle, the quantity of livestock on communal land was increased to


unsustainable levels, which resulted in such an increase in mortality that herd numbers declined rapidly.\textsuperscript{32} Notwithstanding such examples, there is no evidence to support the view that non-staple crops are inherently more environmentally destructive than staple crops. While some are, others are a lot less so. Oil palms, coffee and cocoa, if they have grassland as ground cover, display a rate of soil erosion (on erodible soils) two or three times less than staple food crops such as maize, sorghum, millet, cassava and yams.\textsuperscript{33}

7. Golden Age Fallacies and other Romantic Notions

The misconceptions that many analysts hold about the growing of cash crops can be linked to economically naïve nationalistic notions of self-reliance, as well as the influence of specific theoretical perspectives such as the dependency-inspired view that the agricultural commodities of developing countries are subject to a declining terms of trade. As discussed below and in chapter 8, many analysts also incorrectly assume that new agricultural techniques inherently involve greater risk than traditional methods and that more affluent farmers would therefore gain much greater advantage from any changes that occur because of their greater capacity to take risks.\textsuperscript{34}

A more general reason why much of the analysis of the impact of modernisation and development on rural societies lacks perspective is that they subscribe to some romantic notions about the nature of traditional rural societies. These societies are often misleadingly portrayed as being subsistence economies that are relatively egalitarian in nature and concerned almost solely with meeting their basic needs (the growing of traditional food crops, etc.).\textsuperscript{35} Economic anthropologist Polly Hill refers to such perceptions as ‘golden age fallacies’ and argues that the real history of the developing world is one where markets were widespread and inequality was the norm rather than the exception. Agriculture, rather than

\textsuperscript{32} Dasgupta, P. 1996. 'The Economics of the Environment.' Proceedings of the British Academy 90: 165-221.

\textsuperscript{33} Barbier, \textit{op. cit.}


\textsuperscript{35} On this see Hill, \textit{op. cit.}, ch. 2.
being static, was marked by slow change over long periods, resulting in small increases in production. Analysts who fail to appreciate these realities have a tendency to view development from a too negative frame of reference:

The point is that the struggling poor are a universal phenomenon, not an anomaly. It is the failure to appreciate this, and the refusal to study ‘ordinary village poverty’ for what it is, on the ground, which accounts for the general panic aroused by the thought that externally encouraged ‘rural development’ invariably enhances incipient inequality to an unacceptable degree. But existent inequality is not incipient but grossly actual. The brake imposed on development for fear of the inequality it was bound to create has enhanced our ignorance of third world realities and ensured that the great bulk of the population should continue to feel that there is little hope.

Hill points to a number of reasons why inequality was inevitable, including the different ways sickness affects families. She also provides some examples from Africa and India to support her view that great differentials in wealth existed in traditional societies. In the African context, Jean Dreze and Amartya Sen also note that communities, rather than being subsistence-oriented, generally placed a high importance on economic diversification as a way of avoiding famine:

People learn not to put all their eggs in the same unreliable basket. The diversification motive is a pervasive aspect of economic decisions in uncertain environments, including those on cropping patterns, livestock management, occupational choices and migration roots. Opportunities for diversification can, of course, be greatly helped by the institution of exchange. While complete autarchy may often be an admired achievement, it tended to be, in fact, a poor basis for security. Numerous historical and anthropological studies confirm that over the

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36 Ibid., ch. 4.

37 Ibid. pp. 28-29.

38 Because life is so risky in the rural tropics, factors such as health play a major role in wealth accumulation (ibid. pp. 70-77).

39 One such example is the village of Batagaraw in Ghana which is populated by the Hausa people. This village contained 171 farming households. The average holding of these so-called ordinary peasant households was 6.5 acres. However, while 39 households cultivated 2 acres or less 11 households cultivated 20 acres or more. The largest household owned 56 acres and next largest 30. A total of 8 households were landless (ibid., p. 74).

To illustrate her point further, Hill also notes that the Hausa people consider a man’s standard of living one of his most important attributes. A commonly used word is ‘arziki’, which represents life as a game of chance in which some individuals are more likely to win than others. According to Hill, while ‘the rich are admired, feared and envied, and the greatly impoverished are pitied, despised and helped by some people’ no villager assumes that total equality is desirable or a natural condition (ibid. pp. 74-76).
world vulnerable communities have constantly seen exchange as an opportunity for enhancing the security of their existence.40

Exchange can take a variety of forms, and the cash economy is only one of them. Nevertheless, as Dreze and Sen point out, the acquisition of cash through the sale of commodities (crops, livestock, assets, crafts, charcoal, etc.) and especially wage employment, has become one of the foremost defences against the threat of famine in Sub-Saharan Africa.41

8. ‘Alternative Developmentalism’

Following the research of analysts such as Hill, romantic representations of rural societies have become far less common in the more mainstream academic literature. However, such representations, along with other naïve perspectives on development, are still very much a feature of a good deal of the ‘alternative development’ literature. As discussed in chapter 1, ‘alternative developmentalists’ (ADs) have highlighted issues which are often neglected or dealt with superficially by other sections of the development community. These include the impact of environmental deterioration on the poor and the marginalisation of tribal and hill people. The ‘alternative development’ approach to development is, nevertheless, deficient in a number of areas and possesses internal inconsistencies. One of these is that the rejection of the western-generated development discourse is often justified by reference to how small the developing world’s share of world income is compared to that of the developed world’s. As Jonathan Rigg comments, this ‘identification of failure in terms of the distribution of global income is surely much the same as measuring success in terms of the distribution of economic growth’.42

Rigg too is critical of ‘alternative developmentalists’ and many other writers on development for repeatedly asserting that modernisation has created poverty. As he suggests, such an assertion, which is contradicted by the empirical evidence, involves some

41 Ibid., 76-77 and 168-170.
42 Rigg, op. cit., p. 286.
convenient ‘academic sleights of hand’:

Anthropologists, for decades, have observed that poverty is a social condition. Thus, development - paradoxically - creates poverty by creating the conditions in which the absence of the rudiments of modernity is characterised as poverty. Again, though, this academic sleight of hand would seem to carry little weight in the context of a village where life expectancy is less than 50, the majority of children suffer from some degree of malnutrition, and infant mortality may well be over 100 per 1000 births. Laos is probably the country in Southeast Asia where villages come closest to the peasant ideal. Modernisation has scarcely touched some areas. Yet in the village of Ban Bung San in Khammouane province, of 150 children born, 47 died before the age of 5 (31 percent), mostly of disease and fever.\textsuperscript{43}

Rigg contrasts such realities with evidence from other Southeast Asian countries, highlighting improvements in human wellbeing which, while often highly inequitably distributed, are, nevertheless, substantial and broadly-based.\textsuperscript{44} This includes evidence on improvements in life expectancy, infant mortality, education levels, and access to sealed roads, irrigation and health clinics.\textsuperscript{45}

When faced with such evidence, ‘alternative developmentalists’ such as Arturo Escobar often fall back on rhetoric about the limitations of eurocentric notions of development, and stress the importance of taking into account what the local people themselves actually regard as desirable.\textsuperscript{46} The problem with this line of argument is that what ‘alternative

\textsuperscript{43} Ibid., p. 283.
\textsuperscript{44} Ibid., pp. 278-84.
\textsuperscript{45} For an extensive review of the evidence see Ibid., ch. 3 and pp. 278-84.

developmentalists' say the local people want, and what they actually want, are often two very different things. As Rigg suggests, for example, while many 'alternative developmentalists' are quick to condemn the modernisation ethic as broadly defined, the vast majority of the population of the developing world have internalised it to such an extent that it has now become an intrinsic part of the local landscape:

Local people are concerned about remoteness from markets, with stability of income, and with an ability to save, for instance. People's desires and aspirations, for themselves and their children, are framed in terms of modernisation. Importantly, failure is expressed in terms of 'missing out on development'.

Apart from generally diverting attention away from the real causes of social injustice and environmental destruction, the naïve notions that many 'alternative developmentalists' hold about modernisation and development often encourage socially concerned actors to support development initiatives which are of dubious value, if not actually counter-productive. In Thailand, for example, some of the more progressive NGOs have attempted to develop a more culturally sensitive methodology by building on traditional concepts. However, as a study by Rigg found, what eventuated was an elitist reinterpretation of that culture based on 'selective notions of self-reliance, co-operation and participation', which were then co-opted and 'placed within an entirely new alien framework'. This approach failed because the present aspirations of villagers are fundamentally different to that of those in the past, which, in any case, were incompatible with the modern commercial world. Rigg goes on to contrast the lack of enthusiasm shown by villagers for such projects with the speed with which commercial farming has been taken up in Thailand and elsewhere.


47 Rigg, op. cit., p. 280.


49 Ibid.
**Part 2 - Case Study: India's Green Revolution**

**Introduction**

The second half of this chapter contains a case study of the debate on the impact of India's Green Revolution and the reasons for its conception. It further illustrates the analytical limitations and questionable priorities of many Marxist and non-Marxist social theorists. It also highlights the unwillingness of many socially and environmentally concerned academics and activists to consider evidence and arguments that challenge their own theories.

**1. Background**

In the decades following political independence pessimism was widespread about India's future and about its capacity to feed its population. Writers warning of the dangers of overpopulation were particularly prone to exaggeration and simplification (if not also to advocating morally abhorrent solutions). William and Paul Paddock, for example, borrowed the 'triage' concept from military medicine. In times of war, when limited resources are available, the wounded are often divided into three categories: those who will die regardless of treatment, those who will live regardless of treatment, and those who will live if treated in time. The resources available are concentrated on this last category.\(^\text{50}\)

The Paddocks' views on how this concept could be applied to address the problems of developing societies were made famous by environmentalist Paul Ehrlich in his best-selling book *The Population Bomb*. According to Ehrlich, while some nations will become self-sufficient without large amounts of aid and others will make the transition to self-sufficiency with the assistance of large amounts of food aid, some are so far behind in the 'population food game' that there is little hope for them and they should be denied assistance:

> The Paddocks say that India is probably in this category. *If it is, then under the triage system she should receive no more food...* In my opinion, there is no rational

choice except to adopt some form of the Paddocks strategy as far as food
distribution is concerned. I have incorporated a version of it in a broader plan I am
suggesting below...The plan would involve simultaneous population control,
agricultural development, and where resources warrant it, industrialisation of
selected countries or sections of countries...The bedrock requirements of this
program would be population control, necessarily including migration control to
prevent swamping of the aided areas by the less fortunate...Thus, if migration could
be controlled, some sections of India could be aided and others not. Perhaps we
should support secessionist movements in the UDCs [under-developed countries]
when the group departed is better developed that the previous political unit as a
whole (emphasis mine).51

India's Green Revolution, which was introduced with the assistance of foreign aid, ensured
that the type of widespread famine predicted by Ehrlich did not eventuate, as it enabled
agricultural output to increase at a faster rate than population growth. In spite of this, it has
been widely criticised by Marxist and non-Marxist academic writers on development, by
'development populists' such as George, Lappe and Collins, by sections of the NGO
community, and by many environmental activists. Among other things, it is claimed that the
Green Revolution is biased against small farmers and has generally resulted in an increase
in inequality, if not also absolute poverty and malnutrition.52 Additional claims made by
some Marxist critics are that the Green Revolution resulted in increased class polarisation
and that rich farmers were using the increased power that the Green Revolution brought
them to prevent a surplus being taken out of the agricultural sector to support
industrialisation. The latter was claimed to be a major reason why industrial growth

52 For various critical perspectives on the Green Revolution see Byres, T. 1971. 'The Dialectic
Mencher, J. 1974. 'Conflicts and Contradictions in the Green Revolution: The Case of Tamil
Contradictions of the Green Revolution.' American Economic Review Lxi: 177-186; Griffin, K.
Macmillan, London, ch. 3; Farmer, B. H. 1986. 'Perspectives on the Green Revolution in South
Asia.' Modern Asian Studies 20 (1): 23-38; George, How the other Half Dies, op. cit., ch. 5;
Lappe and Collins, op. cit., ch. 12; Shiva, V. 1989. The Violence of the Green Revolution:
Ecological Degradation and Political Conflict in Punjab. Research Foundation for Science and
decelerated in India in the post-Green Revolution period.53

Analysts examining the social impact of science and technology have also repeated many of these conclusions when using the Green Revolution as a favourite example of a failed attempt at a technological fix to solve complex social problems. According to Stephen Hill:

One has to only look at the failure of probably the most concerted attempt to employ modern practices to alleviate poverty and starvation that has been attempted - the so-called Green Revolution. As a largely (American) aid-inspired venture, the Green Revolution sought to introduce high yield, genetically modified crops into the farms of the developing world, and to support the increased growth potential through modern farming technology and chemicals. Apart from unintended and gross impact on the ecology caused by the run-off of chemicals into the water table, the program failed in its social and economic goals.54

2. The Green Revolution's Conception

2.1 The Role of External Actors

As the quote from Hill indicates, apart from reaching negative conclusions about the Green Revolution’s impact, many critics influenced by dependency or 'food first' perspectives also argued that for both ideological and commercial reasons, external actors had put pressure on India to introduce this new initiative. On the surface, support for this claim can be found in statements made by the two main external actors referred to as being the source of this pressure. The World Bank, for one, was quick to take credit for the new agricultural

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strategy. And in the United States, President Lyndon Johnson gave several speeches urging India to modernise its agricultural sector, and tied its foreign aid to this and other policy reforms. When these reforms were implemented, Johnson also claimed the credit. As the following analysis of the evidence shows, the real credit lies elsewhere.

2.2 The Green Revolution's Architect

The main architect of India's Green Revolution was agricultural minister C. Subramaniam, who first came to prominence as a minister of the then Madras State government. He earned a reputation as an excellent administrator and was admired for his forward thinking on the role of science and technology. His performance so impressed Prime Minister Jawaharlal Nehru that in 1962 he appointed him to the position of Minister for Steel and Heavy Industries in the national government. In a country committed to rapid industrialisation through an import substitution industrialisation (ISI) strategy, this was one of the most prestigious appointments available. Subramaniam quickly applied his ideas about science and technology to this portfolio.

When Nehru died, Lal Bahadur Shastri, his successor, offered Subramaniam the far less coveted position of Minister for Food and Agriculture. His friends warned him that this was a political manoeuvre by his enemies to lessen his influence and advised him to take the option available of staying in his current position. The reason given by Shastri for his offer was that no one else was prepared to accept the position because of its low prestige and its high risk of failure. Despite the advice of his friends, Subramaniam accepted the new appointment.


56 Ibid.

57 This included the present state of Tamil Nadu as well as portions which later went to the states of Andhra Pradesh, Karnataka and Kerala.

58 Varsheney, op. cit.

2.3 Policy Initiatives

Immediately on assuming office, Subramaniam looked for ways to apply science and technology to his new area of responsibility. In fact, his first pronouncement was to state that "every country which has improved its agriculture has done so only through the introduction of science and technology into farming. India cannot be an exception." Subramaniam also argued that the key to increasing private investment and stimulating production in agriculture was to ensure that farmers received remunerative prices for their products. In July 1964, he gave a major speech outlining the organisational changes needed to facilitate these and other reforms. His emphasis on prices was completely at odds with the policies of Nehru, who had wanted to keep prices in check as part of his industrial strategy.

Following his statements regarding the importance of applying science and technology to agriculture, Subramaniam was visited by Dr. Ralph Cummings of the Rockefeller Foundation, who brought news about the new high-yielding varieties (HYVs) of wheat and rice that they and the Ford Foundation had been working on. Dr. Cummings suggested that these varieties were suitable for widespread use in India. Subramaniam established a panel of scientists to consider this possibility. Some favoured continuing with the development of new Indian strains, arguing that there were risks involved in the new foreign varieties, while others (mainly the younger scientists) were far more enthusiastic about the potential of the HYVs. The latter eventually won the day.

2.4 Political Manoeuvring

Subramaniam then presented a paper to the cabinet outlining his views on the importance of transforming agriculture. A heated debate followed, with the Finance Ministry, Planning Commission, and Industry Department in particular expressing strong opposition to the

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61 Ibid., pp. 10-11.

62 Ibid., pp. 3-8. On this see also Varsheney, op. cit.

proposed changes. Ashutosh Varshney has documented some of the political manoeuvring that subsequently took place, such as the lobbying of state ministers, the setting up of a deliberately biased committee to look into these ideas, and the coercing of the leading opponent, finance minister T. T. Krishnamachari, to resign on an old charge of corruption. Eventually, with the support of Shastri, Subramaniam was given the go-ahead.64

According to Subramaniam's own account, the decision to go ahead with this new strategy was made well before the United States began exerting pressure. The fact that President Johnson started to make speeches urging India to change actually made it more difficult for him, as it gave support to those who saw the new strategy as being motivated by external interests:

He (Johnson) stressed his hope that we were taking steps to improve our own production so that we would not become dependent on PL480 wheat, particularly on this scale...Therefore, he emphasised that it should be our job to raise output. I said I had already launched a program to improve production and gave him a brief review of what we had planned. But, unfortunately, Johnson always had a sense of self-importance. If anything good or important was happening in the world, it should be a Johnson initiative...He reiterated in speeches that India should adopt this new technology, which, as a matter of fact, created problems for me in India. The speeches gave ammunition to those who were attacking me on the grounds that I was following American advice and American technology. We had already announced and taken all the steps and I had to tell people that President Johnson was telling us nothing new, and that he was only emphasising that this should be done effectively. But still it created problems.65

Robert Paarlberg's research supports Subramaniam's interpretation of events. In fact, by the spring of 1966, both the U.S. State Department and Agricultural Department were attempting to convince President Johnson that India's reforms were already in place, and there was no need to go ahead with his plan to pressure the country by putting food aid on a month-to-month basis.66

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64 Varsheney, op. cit.; Subramaniam, The New Strategy in Indian Agriculture, op. cit., pp. 4-6.


2.5 Wider Influences on Policy

The push to change Indian agriculture occurred long before Subramaniam was appointed and long before external actors started pushing for change. From the mid-1950s onwards Indian agricultural ministers had been lobbying for technological change and price incentives to increase the productivity of agriculture. While Subramaniam was more able and committed to push through change than previous ministers, a number of other factors also combined to make his task easier. The most significant of these was the death in May 1964 of Nehru, who was replaced by Shastri, a man with a much weaker power base, personality and ideological commitment. Shastri had strong roots in the country, which, when added to his lack of ideological commitment to rapid industrialisation, made him more susceptible to arguments in favour of a greater emphasis on agriculture.

Shastri was only in office for 18 months before he died. However, in this period, as Varshney documents, Shastri made a number of changes that radically altered his ability to implement his decisions. Being less ideologically committed than Nehru, his appointments reflected a wider range of beliefs, although a greater number of bureaucrats committed to free market policies were appointed. The 1965 war with Pakistan, two years of severe drought, a decrease in the amount of food aid available, and a large reduction in the real price of fertiliser on the world market also played an important role in ensuring that there was a more receptive climate for those arguing for the agricultural sector to be modernised. A number of changes which were brought in when Mrs. Gandhi eventually

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67 While the change of leadership represented, on the surface, a shift to the political right, the reality was that Shastri was a compromise candidate who was chosen by the various factions because he was seen as being weak and malleable (Varshney, op. cit.).

68 Ibid.

69 Among other changes, he weakened the hold of the Planning Commission and the Cabinet and created a Prime Minister's secretariat with a pool of experts. According to Varshney (ibid.) this led to a quasi-presidential situation, greatly increasing his power.

70 Ibid.

71 On these factors see ibid.

72 For a discussion on the importance of declining fertiliser prices see Tomich, Kilby, and Johnston, op. cit., p. 224.
came to power also helped facilitate this.  

2.6 The Role of Domestic Interest Groups

The evidence also does not support the claim that the Green Revolution was favoured by a domestic elite because it helped ward off the demand for social change. As Varshney points out, price-based interest groups did not evolve until a decade or so after the start of the Green Revolution. Prior to this, interest groups did not exert any significant pressure on the central government to transform agriculture, although they did play a role, through their influence on state governments, in opposing land reforms.  

In addition, there is no evidence to indicate that Subramaniam was opposed to social change. When he was a minister in the Madras State government, among other initiatives, he brought in free primary education, and introduced the much-lauded free mid-day meals program for the poorer children attending schools. Subramaniam has also strenuously denied that he was against land reform. However, as he points out, the Indian government had been trying for years to implement such reforms but had met with little success because of political and other factors. He was of the opinion that land reform could take another ten years to achieve and that by that time the opportunities for the new agricultural strategy might be far less favourable.  

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73 One of Mrs. Gandhi's first acts was to make Subramaniam a member of the Planning Commission, which made it easier for him to get support for his views (Varsheney, op. cit.).  

74 Ibid.  

75 Nayar, B. K. 1976. 'Shri C. Subramaniam - A Profile.' In Nayar, B. K. Science and Development: Essays on various aspects of Science and Development (dedicated to the Honour of Shri C. Subramaniam on the occasion of his sixty-fifth birthday), Orient Longman, Bombay, pp. 212-219  

3. The Green Revolution's Impact

3.1 The Lack of Comparative Research

The Green Revolution's impact has been more positive than generally claimed. Critics often overstated their case simply because they did not compare the situation of the poor in high-growth regions with that of the poor in low-growth regions. What primary research was undertaken tended to focus on the situation of the poor in a particular region, and argue that their relative situation had deteriorated because of the Green Revolution. When doing this, critics failed to consider, among other things, the possibility that even if a relative deterioration in the position of the poor had occurred, this could have been the result of other factors such as population growth and a reduction in aid, and if it had not been for the Green Revolution the situation might have been even worse.\(^7\) In fact, virtually all the critical literature has failed to acknowledge that the increased output which followed the Green Revolution guaranteed significantly lower food prices than would otherwise have been the case, given the rapid population growth and the reduction in food aid that occurred. As expenditure on food accounts for a large proportion of the expenditure of low-income households, this is a major omission.\(^8\) This is especially so since there are numerous detailed studies available which clearly demonstrate that the chief beneficiaries of any increase in food output are the poor as consumers.\(^9\)


\(^8\) On this see Singh, op. cit., 195-196.

One academic who has undertaken detailed comparative research on this is Gilbert Etienne. In 1963 he began a number of village and district level surveys, and has been back several times since, resurveying the areas previously visited as well as adding new areas. Comparing low-growth agricultural areas with high-growth ones, he found a clear link between the level of growth and diversification in the economy and the living conditions of the population. More specifically, he found that higher wages were strongly related to higher yields per hectare and multi-cropping. Inderjit Singh points to other studies (which cover, retrospectively, even longer periods) that also reach more positive conclusions about the impact of agricultural modernisation in India.

Generally, critics of the Green Revolution also failed to take into account the large numbers of people in India migrating yearly from less affluent regions to more affluent ones to take advantage of the opportunities that existed. In the Punjab and Haryana, the two leading Green Revolution states, this factor explains the findings of some earlier studies that reached the conclusion that the bottom 25 percent of the population in these states had not benefited from technological change. In fact, as large numbers of the indigenous poor in these states moved into higher income brackets as a result of the changes taking place, migrants from less affluent areas of India took their place at the bottom of the income

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80 Etienne's 1985/86 surveys, for example, showed that in agriculturally progressive areas farmers wages were around Rs. 10-12 a day, which was sufficient to purchase 10-15 kilograms of grain per day. In contrast, wages in the slower growing regions of the eastern plains and the peninsular regions were Rs. 5-7 a day or less, which was sufficient to purchase only 3.5 kg of grain per day (Etienne, op. cit., p. 223).

81 Which were undertaken mainly by anthropologists and historians.


distribution scale.\textsuperscript{84}

At an economy-wide level, detailed studies are now available which demonstrate clearly that a strong causal link exists between agricultural growth and decreases in poverty in all major states in India in the post-Green Revolution era.\textsuperscript{85} As P. H. Prasad shows, areas of the country where the decrease in poverty was below average also tended to have below average agricultural growth rates.\textsuperscript{86} As discussed below, the beneficial effects of the Green Revolution on living standards would have been far greater if the allocation of resources within agriculture had been more rational, and if the economy as a whole had not been so badly managed - for example, if far less resources had been allocated to subsidising fertiliser, electricity and water consumption by farmers in the more agriculturally advanced regions of the country and more resources had been allocated instead to developing the infrastructure and other facilities needed to expand agricultural production in other regions of the country.

3.2 The Impact on Small Farmers

Most studies exaggerate the extent of inequality between small and large farm households in India (and other South Asian countries) simply by failing to take into account two critical factors - the first of which is that, on average, small-farm households support far fewer members than large-farm households.\textsuperscript{87} Many studies also assume that there is a strong correlation between farm size and income potential. In reality, the productivity of farms of similar size varies greatly because of soil quality and other differences. Some studies, it is true, take into account differences in the proportion of land under irrigation. However,\textsuperscript{84-87}

\textsuperscript{84} For the evidence on this see Ahluwalia, \textit{op. cit.;} Singh, \textit{op, cit.,} pp. 26-29.


\textsuperscript{86} Prasad, \textit{op. cit.}

\textsuperscript{87} Singh, \textit{op. cit.,} p. 71.
According to S. S. Bhalla's findings, irrigation differences among farms only accounts for 5-15 percent of the variation in land quality, while 'purely exogenous factors like agro-economic climatic conditions, soil colour, etc. account for the rest (80-95%) of the explained variation.'

According to some analysts, large farmers obtained a big advantage from the head start they enjoyed with the new technologies, as initially prices did not drop in response to increased output because the government took advantage of this to reduce food imports. By the time small farmers started to take advantage of the new technologies, prices had dropped. However, while small farmers are undoubtedly disadvantaged in a number of respects, extensive research by Lipton, Singh and others show that critics of the Green Revolution have exaggerated the impact of this on land distribution and that (see chapter 8) when it was rational for them to adopt the new seed varieties, small farmers generally did so fairly rapidly, and often obtained significant benefits. In fact, Singh found little evidence of increased polarisation and concentration of land ownership. His conclusion is that the main dynamic at work was the subdivision of landholdings brought on by rapid population growth in a situation of uneven land distribution. Without the new Green Revolution technologies, many of the now smaller farms would have been unable to remain viable.

3.3 The Green Revolution and the Environment

Another claim made by critics of the Green Revolution is that it has created extremely


91 Singh, *op. cit.*, ch. 3. See also Rayner and Ingersent, *op. cit.*
negative environmental consequences. As regards the Punjab, prominent Indian environmentalist Vandana Shiva actually argues that the conflict taking place in this state is mainly the result of the negative environmental and social consequences of the Green Revolution:

Paradoxically after two decades of the Green Revolution, Punjab is neither a land of prosperity, nor peace. It is a region riddled with discontent and violence. Instead of abundance, Punjab has been left with diseased soils, pest-infested crops, waterlogged deserts and indebted and discontented farmers. Instead of peace, Punjab has inherited violence and conflict.92

While Shiva has greatly inflated her case, the Green Revolution has undeniably had some serious environmental consequences.93 However, she naively blames reductionistic western science for the problems that have resulted, although the main reasons why excessive pressure has been placed on the environment are economic and political. Out of necessity, regions particularly favourable to the new high-yielding varieties of seeds such as the Punjab, Haryana, and Western Uttar Pradesh received a large share of public spending on agriculture. In recent decades, however, a high proportion of the resources available for the development of agriculture in India has been spent subsidising the consumption of inputs such as fertiliser. This has encouraged farmers in the more agriculturally-advanced regions to continue to apply greater amounts of fertiliser despite the environmental consequences, and even though the fact that a level of fertiliser application had been reached where only small productivity gains could be obtained per additional unit of fertiliser applied.94

The other side of the coin is that elsewhere in India there are potentially productive areas (where a significant percentage of the poor live) which, if provided with infrastructure and other support facilities, could greatly increase output with relatively low applications of


fertiliser. One study by the National Council of Applied Economic Research found that great potential existed for expanding wheat production in Uttar Pradesh and Madhya Pradesh. In both these states, plus Bihar and Orissa, the potential also existed to greatly expand rice production. The main reason that this potential had not been exploited was inadequate investment, especially in the expansion of irrigation. A good illustration of how distorted agricultural expenditure has been in India is the fact that during the Seventh Plan Period (1985/6-1989/90) surface irrigation subsidies actually exceeded total expenditure on major and medium irrigation. The subsidy on rural electricity during this period was an astonishing three times that which was allocated in the Eighth Plan Period for the expansion of rural electrification.

3.4 Industrial Deceleration and Class Conflict

While they shared the concern of other actors that the Green Revolution was biased against small farmers and this was leading to an increase in inequality, Marxist scholars made two main additional claims. The first was that the Green Revolution had led to an increase in class conflict and polarisation, and might actually have been turning 'red'. In support of this claim, Francine Frankel cited an incident which occurred in the Thanjavur district of Tamil Nadu involving farm-workers who, led by Marxist-dominated unions, organised a strike for better pay. However, he ignored the fact that similar well-documented


97 Ibid.


99 See, for example, Mencher, Conflicts and Contradictions in the Green Revolution, op. cit.; Byres, The Dialectic of India's Green Revolution, op. cit.; Byres, The Political Economy of Technological Innovation in Indian Agriculture, op. cit.; Sharma, op. cit.

100 Following increasing agitation between the striking workers and those workers (many imported) who were loyal to the landlords, one of the latter group was killed. In retaliation, the landlords set fire to 25 huts of Harijan workers. Inside one hut 43 people were burned alive (Frankel, op. cit., pp. 111-118).
incidents had taken place in this area before the Green Revolution, between farmers and labourers and property owners and tenants.\textsuperscript{101} Also notable was the fact that Terry Byres, one of the other chief advocates of this position, could only cite one incident to support it. This is hardly surprising, given the relatively small number of major class confrontations between rich peasants and labourers in agriculturally advanced regions of the country such as the Punjab and Haryana. In contrast, numerous conflicts have occurred in Bihar, which is the state in India least affected by the Green Revolution.\textsuperscript{102}

A less fanciful claim made by Marxist scholars was that large farmers were using their growing power to coerce governments to introduce policies that favoured agriculture and discriminated against industry (by reducing the amount of resources available for supporting import substitution policies, etc.), and that this was the main reason why industrial growth decelerated in India from the mid 1960s and why the overall growth rate had been so low.\textsuperscript{103} Many analysts on the left also believed that the deceleration in growth in the heavy industrial sector and the continued slow growth in the light industrial sector were due to growing income disparities\textsuperscript{104} and low rates of savings.\textsuperscript{105}

Two major studies on the Indian economy by Isher Judge Ahluwalia have demonstrated convincingly that the main causes of the industrial slowdown must lie elsewhere.\textsuperscript{106} As she

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\textsuperscript{103} Byres, Of Neo-Populist Pipe Dreams, op. cit.; Mitra, op. cit.


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points out, if growing inequality was to blame, the consumer goods industries would have been negatively affected. Instead, these industries continued to grow at the same rate as before. In contrast, the heavy industrial sector experienced declining growth rates.\textsuperscript{107} The view that a decline in the resources allocated to supporting import substitution initiatives was responsible for this slowdown does not bear up, as the capital goods sector continued to be heavily subsidised and protected from foreign competition, and still experienced a deceleration in growth. The low savings argument also lacks credibility, given that savings in India had grown from 6 or 7 percent of GNP in the 1950s to 22 percent of GNP during the 1980s.\textsuperscript{108}

Ahluwalia has identified four main reasons why the industrial slowdown occurred. The first was that because of some of the factors already mentioned, agricultural incomes grew slowly, and hence the demand for industrial goods was weak.\textsuperscript{109} The second reason was that there was a decline in public investment, especially in infrastructure. As figure 6.2 indicates, this decline had been especially severe in the railways sector. In contrast, both central and state governments continued to invest large amounts of resources in more glamorous and visible large projects such as steel and fertiliser plants and oil refineries.\textsuperscript{110} The third reason given by Ahluwalia for industrial deceleration was poor management and misplaced priorities within the infrastructure sector. This included the under-utilisation of hydropower.\textsuperscript{111} In addition, not enough resources had been invested in improving the transmission and distribution of power. Investment in these two areas should have been 66 to 100 percent of the investment in power generation. The ratio in India was 38 percent in the Third Plan Period, 51 percent in the Fourth Plan Period and 42 percent in the fifth.\textsuperscript{112} This decline in investment was the main reason why transmission and distribution losses

\textsuperscript{107} Ahluwalia, Industrial growth in India, \textit{op. cit.}, pp. 54-71.

\textsuperscript{108} \textit{Ibid.}, p. 56.

\textsuperscript{109} \textit{Ibid.}, pp. 33-53.

\textsuperscript{110} \textit{Ibid.}, p. viii.

\textsuperscript{111} \textit{Ibid.}, pp. 82-83.

\textsuperscript{112} \textit{Ibid.}, p. 83.
rose from 17 percent at the end of the 1960s to 20.5 percent in 1980-81. A secondary reason was theft of power.\textsuperscript{113}

Finally, Ahluwalia points to the industry and trade policies that were pursued. Protecting infant industries for an initial period to encourage industrialisation is often justified. The protection and other support given to domestic industries in India has generally been excessive and ill-planned. Not only have protectionistic policies been kept in place far too long, but too little thought has been given to what kinds of industries are needed in the first place. Often, the setting up of indigenous capacity was itself deemed to be sufficient grounds for the granting of protection; little thought was given to cost and quality considerations.\textsuperscript{114} Because of such mismanagement, the average productivity growth in Indian industry remained, as figure 6.3 indicates, essentially zero (-0.4 percent per annum) for many years. In the manufacturing sector, Ahluwalia found that between 1959-60 and 1985-86, industries accounting for 56 percent of the value-added experienced negative total factor productivity growth (TFPG), while those accounting for another 33 percent of the

\textsuperscript{113} Ibid.

\textsuperscript{114} Ibid., pp. 167-72.
value-added had a TFPG range of 0 to 1.5 percent per annum. 115

Conclusion

The first part of this chapter examined the debate over the growing of cash crops, as well as some related issues. The findings show that much confusion exists about just what actually is a cash crop, that the growing of both non-staple crops and export crops has often been more beneficial than the food first school and others have suggested, and that no compelling reason exists why governments should make food self-reliance a major policy goal. The view that export crops or non-staple crops are intrinsically more environmentally destructive than food crops or staple crops was also shown to be simplistic.

The failure of many actors to develop a more sophisticated understanding of the impact of agricultural modernisation on developing societies is the result of both their adherence to economically naïve nationalistic notions of self-reliance, as well as to more specific

theoretical perspectives such as the view that a major cause of underdevelopment is the declining terms of trade of third world commodities. The views of many analysts have also been strongly influenced by some romantic notions about the nature of traditional societies. Traditional societies have often been misleadingly portrayed as being subsistence economies that were relatively egalitarian in nature and almost solely concerned with meeting their basic needs.

The detailed research undertaken by Polly Hill and others has ensured that the more mainstream academic literature is now less inclined to perpetuate such romantic notions. However, as discussed above and in subsequent chapters, such perspectives still influence a good deal of alternative development thinking, including the way some NGOs carry out their development activities at the local level. In fact, for this and other reasons identified, the vision of development espoused in much of the alternative developmentalism literature is a seriously flawed one.

Apart from advocating alternative strategies of dubious merit, 'alternative developmentalists' have, as have other sections of the development community (dependency and food first theorists, etc.), also been guilty of perpetuating a far too generalised and far too negative view of the consequences of modernisation and development. Such views play into the hands of those in developed countries who oppose initiatives that benefit developing countries such as increased aid and trade reforms (a reduction in the protection that European farmers enjoy from foreign competition, etc.). After all, if aid is so ineffective, and if so-called western or orthodox development generally only brings disruption, misery, inequality and environmental destruction, then why bother? This seems to be a message that has been gratefully received by the increasingly self-centred and inward-looking populations of more affluent countries, as well as by their governments.

**India's Green Revolution**

The case study in part 2 of this chapter on the debate over India's Green Revolution further highlighted some of the factors that have prevented many socially and environmentally concerned actors from developing a deeper understanding of the agricultural sector's role in
the overall development process and, more generally, of the strategies that are needed to encourage more equitable and sustainable development. One finding is that the impact of the Green Revolution on the poor, on small farmers, and on the economy in general has been more positive than most of the literature has suggested. The claim made by some Marxist scholars that large farmers had used the growing power that the Green Revolution brought them to pressurise governments into introducing pro-agricultural policies, and that this was the main reason why industrial growth decelerated in India from the mid 1960s onwards, was also shown to lack substance. The main causes of India's industrial slowdown were shown, instead, to be factors such as inappropriate industry and trade policies, a decline in public investment, and poor management and misplaced priorities within the infrastructure sector.

The claims that the main driving force behind the Green Revolution's conception were external actors seeking to push an inappropriate model of development on India or a domestic elite attempting to obviate the demand for social change, were also shown not to be supported by the evidence. In fact, given the circumstances that existed at the time, the new agricultural strategy was undoubtedly the best option available, and were it not (among other things) for the commitment and political dexterity shown by Subramaniam, India's progressive agricultural minister, the state of the country might now be far more parlous.

On a less positive note, interest groups which developed in agriculturally progressive regions after the Green Revolution did succeed in distorting the incentive structure of the economy in their favour. This has had some serious environmental and economic consequences. Environmentalists such as Shiva argue that such problems indicate that India should reject modern agricultural methods and seek some form of indigenous alternative. However, apart from the fact that the overall consequences of the Green Revolution are far more positive than they suggest and the environmental consequences less catastrophic, this is simply not a viable option. What needs to be done, among other things, is for the Indian government to drastically reduce fertiliser and other subsidies to the more agriculturally advanced regions. The resources saved should then be used to support the

development of potentially productive regions of the country where a significant percentage of the poor live. These regions could greatly increase their output with relatively low applications of fertiliser if they were provided with the necessary infrastructure and other support facilities they require.

Finally, when examining debates such as that over the Green Revolution, there is always a danger of falling into the trap of using the wisdom of hindsight to pass unduly harsh judgement on the conclusions of analysts in the past. However, as this discussion has highlighted, many critics demonstrated a remarkable unwillingness to consider evidence that might undermine their perspectives. This included such basic factors as migration flows within India and the impact that population growth and the reduction in U.S. food aid would have had on the price of food in its absence. The fact is that even by the early 1970s, the results of some detailed studies had been published which suggested that the Green Revolution’s impact was more positive than often suggested. One such example was a 1974 study by leading Indian economist C. H. Hanumantha Rao.117 As Etienne suggests, in spite of the fact that such studies were often far more impressive and/or more detailed than studies which reached more negative conclusions, they failed to receive as much publicity, as they did not conform to conclusions reached about the likely effect of the new technologies, based on prior theoretical commitments.118


118 Etianne, op. cit., p. 223.