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Famine Prevention in India

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I owe even more to the many labourers, farmers, and Government officials who helped me during my field enquiries in Maharashtra in 1986. My greatest debt is to Bela Bhatia, not least for reminding me that India's relative success in averting large-scale famines in the recent past should not deflect our attention from the persistent and avoidable sufferings of her people - the need for concern, pressure and action remains as great as ever.

CONTENTS

FAMINE PREVENTION IN INDIA

Introduction

India's record with famine prevention in recent decades has often been presented as a highly impressive one, and no few attempts have been made at drawing the possible lessons arising from her felicitous experience. This alleged success arguably needs to be put in proper perspective, and it has to be remembered that the various influences which combine to ensure the sustenance of the people in times of crisis do little more than keep them barely alive. As this paper comes to completion, a frightening drought is hitting large parts of India, and while large-scale starvation will no doubt be averted once again, the heart sinks at the thought of the hardships endured by the people at such times.

This being said, if India's recent "success" in preventing mass starvation is hardly a momentous achievement, it still remains a creditable one against the background of continuing failures elsewhere. While the "lessons from India" are by no means easy to draw, the rich experience of this country with famine prevention strategies remains well worth scrutinizing.

Why, then, has India known no major famine since Independence? It is tempting to attribute her relative success in this area to a steady improvement in food production. A close look at the facts, however, quickly reveals the inadequacy of this explanation. Indeed, the period during which the frequency of famines dramatically decreased in India (the first half of this century) was precisely one of steadily *declining* food production per head. Since Independence in 1947, total food output has admittedly grown at a healthy rate, but per capita food production levels have *not* increased significantly; they appear, in any case, to remain lower than late 19th century levels, and also lower than per capita food output levels in many countries affected by famines today. Moreover, the increase of production has resulted first and foremost in the reduction of imports and

the accumulation of increasingly large stocks, so that the net availability of food has stayed remarkably stagnant over the last 30 years. Last but not least, almost every year large and heavily populated parts of India suffer from devastating droughts which, through the "entitlement failures" they threaten to precipitate, remain quite capable of causing large-scale starvation.

It is more plausible to attribute the disappearance of mass starvation in India during recent decades to the overall evolution of the economy. Sources of livelihood for the rural population are increasingly diversified, and in some areas at least the rapid advance of productivity in agriculture has substantially raised general living standards and further reduced the insecurity of rural life. The Government's general food policy, though far from impervious to criticism, has largely succeeded in stabilizing food prices and reducing the correlation betweeen consumption and production. In many States a wide array of more or less successful income support schemes provides a measure of protection against destitution to poor households, and by some accounts at least a discernible trend towards decreasing poverty has emerged since the nightmare of the mid-sixties. So goes the argument.

But even this optimistic interpretation of recent changes in economic opportunities and policies does not seem to be quite enough to account for the prevention of famines. In the non-irrigated, semi-arid parts of India the stagnation or near-stagnation of yields, population pressure and the increasing frequency of droughts keep the rural population at the mercy of the monsoon; the vulnerability of impoverished classes (particularly agricultural labourers) remains an extreme one, and the need persists for a very extensive and expensive *relief system*. When food crises have assumed unusual proportions (as in 1966-67, 1972-73, 1979-80 and 1985-87), this relief system has been heavily taxed, and has played an undeniable and crucial role in averting large-scale starvation. This paper stresses the role played by *famine relief policies* in ensuring the prevention of famines in India in the last few decades.

This enquiry will inevitably involve a brief excursion into the historical origins of India's relief policies as they exist today. This is the theme of Section 1, where attention is drawn particularly to the role and content of the Famine Codes promulgated by the British Administration towards the end of the 19th century.

Section 2 takes a closer look at the anatomy of food entitlement crises in India since Independence. On the basis of a tentative comparison between India and the Sahel, as well as of a reassessment of crisis management in the State of Bihar in 1966-67, India's continued exposure to famine is underlined.

The effectiveness of relief policies in dealing with this threat is illustrated in Section 3, which is devoted to a detailed case study of famine prevention in Maharashtra during the devastating drought of 1970-73. This example, it must be emphasized at the outset, is not a representative one, and undoubtedly counts among the most successful experiments of this kind. The episode is, nevertheless, well worth exploring, partly because it has the merit of exhibiting the *potential* of India's relief system, and partly because it is extremely well documented and provides rich material for an empirical examination of many important problems connected with famine relief. Close attention will be paid, inter alia, to the familiar issues of early warning, food availability, private trade, public distribution, cash relief, targeting mechanisms, employment programmes, cost-effectiveness and political pressure.

Section 4 contains some very preliminary reflections on the relevance of the Indian experience for famine prevention policies elsewhere (with special reference to Africa). A summary of the findings, and some concluding remarks, are contained in the final Section.

1. The Emergence of India's Famine Relief System

The history of famine relief in India is a fascinating area of research, and deserves to elicit keen interest on the part of all those who concern themselves with the problem of famine in the modern world - scholars and practitioners alike. It is beyond the scope of this paper to review this history in any depth, or to contribute fresh insights to it. There are, in any case, good books on the subject.[1] My wish here is only to provide a selective account of the emergence of a famine relief system in India, as a background for our subsequent enquiries.

1.1. Famines in 19th Century India

Numerous famines occurred in India throughout the 19th century, and their victims were often counted in millions.[2] There is a fair amount of agreement among 19th century analysts and later economic historians concerning the *proximate* causes underlying these catastrophes. In most (nearly all) cases, famine followed massive crop failures resulting from *drought*. The immediate effect of these crop failures was not only to reduce food availability *in the affected region*, but also (more importantly) to *shatter the rural economy*. In particular, landless agricultural labourers found little employment as field activity was brought to a standstill while general impoverishment simultaneously enlarged the supply of casual labour. Food prices increased

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[1]. Among the most useful ones are Bhatia (1967), Srivastava (1968), and Loveday's fascinating essay (Loveday, 1914).

[2]. For chronologies of Indian famines in the 19th century, and estimates of their impact on mortality, see Bhatia (1967), Visaria and Visaria (1982), Loveday (1914), Dando (1980), Jaiswal and Kolte (1981), Greenough (1982), and the Famine Commission Report of 1880.

Some Important Milestones in The History of Famines and Famine Relief in India.

1770	Formidable famine in Bengal
...	Frequent and severe famines
1858	End of East India Company
1861	Report of Baird Smith on the 1860-61 famine
...	Frequent and severe famines
1880	Famine Commission Report, followed by the promulgation of Famine Codes
...	Very few famines
1896-97	Large-scale famine affecting large parts of India. Large excess mortality, though the Famine Commission of 1898 pronounces that "the success actually attained in the relief of distress and the saving of human life was, if not complete, far greater than any that has been recorded in famines that are at all comparable with it in extent, severity and duration".
1898	Famine Commission Report on the 1896-97 famine
1899-1900	Large-scale famine
1901	Famine Commission Report on the 1899-1900 famine
...	Few famines
1943	Bengal Famine
1945	Famine Commission Report on the Bengal Famine
1947	Independence

as the less vulnerable groups strived to maintain a reasonable food consumption level (possibly by selling assets), while trade was often slow to move food to the affected area from other regions. Wages lagged behind price increases,[3] further aggravating the plight of agricultural labourers. The operation of the so-called "moral economy" did little to mitigate their sufferings, which all too often ended only in death. Thus severe famines frequently took place *even* when crop failures were only localised (as well as short-lived) and food was far from wanting in the country as a whole.

This recurring scenario was aptly summarised by Baird Smith's well-known statement to the effect that famines in India were "rather famines of work than of food".[4] The same verdict was arrived at later by successive Famine Enquiry Commissions, as well as by most independent analysts - though there has predictably been much more controversy about the persistent causes of poverty in the same period. The Famine Commission Report of 1880 (the first major report of its kind) is worth quoting here, not least because it unwittingly provides a fine blend of class analysis and modern "entitlement theory":

> "The first effect of drought is to diminish greatly, and at last to stop, all field labour, and to throw out of employment the great mass of people who live on the wages of such labour".[5]
>
> "...distress is mainly among the agricultural portion of the population thrown out of work by the failure of their ordinary employment, and the few small trades and handicrafts which are chiefly dependent upon them for sale of their manufactures; (..) among this class, distress arises, not so much from an actual want of food, as from a loss of wages - in other words, money to buy food; (...) as a

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3. The reduction of real wages in rural India during periods of rapid price increases (including famines) has been observed by numerous authors - see e.g. the evidence, discussions and further references provided in Bardhan (1977), Bhatia (1974), Brennan (1974), Lal (forthcoming), Ravallion (this volume) and the Famine Commission Report of 1898.

4. Baird Smith (1861), quoted in Srivastava (1968), p.53n.

5. Famine Commission Report, 1880, p.35.

> general rule, there is an abundance of food procurable, even in the worst districts at the worst time; but when men who, at the best, merely live from hand to mouth, are deprived of their means of earning wages, they starve, not from the impossibility of getting food, but for want of the necessary money to buy it".[6]

Two aspects of this description are particularly relevant to an appreciation of subsequent relief policies. The first is the recognition of *agricultural labourers and rural artisans* as the main victims of traditional Indian famines. During very severe famines cultivators became vulnerable to starvation as well, in spite of the then widespread practice of storing large quantities of grain;[7] and when epidemics broke out they caused victims among large sections of the population. But these qualifications apart, the outstanding vulnerability of agricultural labourers and artisans has been widely noted.[8]

Another important aspect of the received analysis of 19th century famines is the view that entitlement failures occurred amidst plenty rather than in the context of a fierce battle for scarce food. There was a rather striking degree of agreement on this question in the official reports of the time, as well as among later commentators of very diverse persuasions - from Baird Smith (1861) to Ghose (1982) and including Naoroji (1900), P.C. Ray (1901), S.C. Ray (1909), Loveday (1914), Srivastava (1968), Mc Alpin (1983) and Guz (1987) among many others. The literature on 19th century famines is replete with statements such as the following:

> "What does a drought mean? It is not a question of food; the scarcity of food in a district affected by drought is the least of the evils with which the

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6. Famine Commission Report, 1880, Appendix I, pp.205-205.

7. "Everyone knows that all the well-to-do farmers have very large hoards of grain, which they keep in pits, especially in the dry districts, often for many years" (Famine Commission Report, 1880, Appendix I, p.204).

8. See e.g. Bhatia (1967, 1974), rivastava (1968), Ghose (1982), and the Famine Commission Reports.

> Government of India have to deal. There is nearly always a sufficiency of food in India to feed all the people within its limits; and owing to the development of the railway, the British Government was able, no matter what part of the country may be affected, to pour in sufficient food to maintain the people of the district".[9]

The consensus on this question should, admittedly, be approached with caution. The view that aggregate food availability was never a serious problem during Indian famines was, after all, largely propagated by the official Famine Commission Reports.[10] These lean heavily on the initial calculations of the Famine Commission Report of 1880, which might have been misleading. The Famine Commission Report of 1898 formed its view on the subject partly on the evidence of the non-exhaustion of stocks and continued food exports in famine years (see below). But this piece of evidence is not particularly convincing: it only proves that (granting the required purchasing power) extra food was available *at the margin* - but not necessarily enough to feed the whole population. Finally, it may be argued that the dismissal of food shortage problems served the interests of the British authorities by obviating the need for intervention in grain trade, which - as we shall see - they were so obsessively anxious to avoid.

Painstaking investigations would be required to ascertain whether or not the absence of a food availability problem during 19th century famines in India was a myth propagated by the Famine Commissions. There is, however, little indication that the myth theory should be taken very seriously. The fabrication of a myth would have triggered dissent, of which there is very little trace. Indeed, it is rather striking

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9. Statement made by Lord George Hamilton (Feb. 3, 1902), quoted in S.C. Ray (1909, p.10).

10. The idea, however, did *not* originate with the Famine Commission Reports. As we have seen, the very first report on an Indian famine under British rule (that of Baird Smith in 1861) already considered Indian famines as "rather famines of work than of food; when work can be had and paid for, food is always forthcoming" (Baird Smith, 1861, quoted in Srivastava, 1968, p.53n).

that commentators of all persuasions, including many radical ones, concurred with the views of the Famine Commissions on the issue of food availability; the distinction of the radical writers was not to challenge the notion of sufficiency of food, but rather to trace the lack of purchasing power of the masses to colonial exploitation.[11] As far as quantitative evidence is concerned, several independent rounds of food availability calculations were carried out (in 1878, 1898 and 1902); they were based on food consumption allowances which were extremely generous by contemporary standards and yet they all arrived at the firm conclusion that a substantial surplus of food was available in India in normal years.[12] Since multi-year storage was a widespread practice in 19th century India, and most famines were localised, the argument against the existence of a problem of physical availability of food seems convincing enough.

An exception may, however, have to be made in this respect for the last two famines of the 19th century - those of 1896-97 and 1899-1900. In these two cases we are dealing with global and massive crop failures across the greatest part of the country at times when stocks were already diminished, and much greater caution is required in assessing the aggregate food availability situation. I shall argue below that the case against the existence of a food shortage is much less convincing in this context.[13]

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[11]. See, for instance, P.C. Ray (1901) and S.C. Ray (1909). The former argued that "Close students of Indian economical history know, and none have ever seriously questioned the fact, that India, on the whole, produces enough of crops every year, good or bad, to feed her aggregate population" (Ray, 1901, p.33). One notable exception to the lack of challenge against the notion of food abundance is the "Note of Dissent" by Caird and Sullivan in the Famine Commission Report of 1880, which advocated the holding of large buffer stocks of food.

[12]. See e.g. Bhatia (1967).

[13]. Bhatia (1967), for one, has challenged the idea of food sufficiency throughout the 19th century (as a background to the thesis that the responsibility for 19th century famines lay largely with the Government's resistance to interfere with private trade). His counter-argument, however, is not very persuasive. He criticises the official food

1.2 Early famine relief efforts

Famine relief has a very long history in India. One of the very first treatises on government, written more than two thousand years ago and commonly attributed to Kautilya, pronounces that when famine threatens a good king should "institute the building of forts or water-works with the grant of food, or share (his) provisions (with them), or entrust the country (to another king)".[14] According to Srivastava, "the chief methods of famine relief adopted by Indian rulers included free distribution of raw grains, opening of free kitchens, opening of public grain stores to the people, remission of revenue, payment of advances, remission of other taxes, construction of public works, canals and embankments, sinking of wells, encouragement of migration and increase in the pay of soldiers. Even sold children in the time of Shahjahan are reported to have been ransomed by the Government and restored to their parents".[15] However, the evidence is too scanty to judge the real efficacy of relief efforts prior

availability estimates of 1878, 1898 and 1902 for their lack of *accuracy*, but fails to show a systematic bias or to suggest more plausible magnitudes. The main piece of evidence he puts forward on the existence of food shortages is the substantial rise in prices *throughout India* during the late 19th century famines. As a general argument about food availability in 19th century famines this is unconvincing for two reasons. First, it refers specifically to the famines of 1896-97 and 1899-1900 which, I have argued, should be regarded as exceptions in this regard. Indeed the Famine Commission of 1898 referred to "the uniform level of prices all over the country" as "one of the most remarkable features in the recent (1896-97) famine", underlying the novelty of the phenomenon (see also Loveday, 1914, on this). Secondly, a general rise in prices is not by itself a proof of the existence of a global food shortage - it only shows that the marketed supply is not completely "elastic". It is, in any case, argued below that the policy of complete non-interference with private trade in British India had little to do with any particular appraisal of the food availability situation.

[14]. *Arthasastra*, quoted in Chetty and Ratha (1987), p.3.

[15]. Srivastava, (1968), p.28.

to the 19th century, and it is not implausible that they were far from being systematic and comprehensive.[16]

Under the rule of the East India Company, famines were frequent and severe - sometimes extremely severe, as with the calamitous famine of 1770 in Bengal. Relief efforts were, moreover, at best half-hearted, and in any case lacking in effectiveness. The laconic remarks of the Famine Commission of 1880 on this subject are revealing enough:

> "... the earlier despatches of the Bengal Government, while breathing a tone of sincere compassion for the sufferings occasioned by famine, are busied rather with its fiscal results, as affecting the responsibility of the Company towards its shareholders, than with schemes, which would have seemed wholly visionary, for counteracting the inevitable loss of life" (Famine Commission Report, 1880, p.31).

How did the "breath of sincere compassion" turn into a wind of change after the British Administration took over in 1858? In other words, why were the British rulers so concerned with averting famines in India? Oddly enough, the answers that have been proposed to this question have remained extremely fragmented and speculative.[17] This is rather frustating, since the ambiguity surrounding the political or other motives which prompted the British Administration to respond vigorously to the threat of famine could well hide one of the most important lessons offered by the history of famine relief in India before Independence. The report of the Famine Commission of 1880 repeatedly invokes the "duty of the State" in this context.[18] But what this rhetoric actually masked is

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[16]. See Curley (1977) for a fascinating account of traditional Mughal famine policy in eighteenth-century India.

[17]. For some useful discussions, see Brennan (1984), Ambiranjan (1976, 1978) and Bhatia (1967).

[18]. Under the heading "Obligation of the State to give relief in time of famine", for instance, the Famine Commission Report of 1880 states that "there can be no doubt that a calamity such as famine, exceptional in its nature and arising from causes wholly beyond human control, which deprives an entire population of its customary food supply, and arrests the ordinary employments of the wage-earning classes, is one

rather hard to say. The desire to preserve political stability or the revenue base, a feeling of obligation to the people arising from the more obviously deleterious aspects of colonial expansion (such as the ruin of the weaving industry), the so-called "weight of irresponsible public opinion in England",[19] concern with the administration's image in the eyes of the British public, and genuine humanitarian concern, may all have played a more or less important role. It is unlikely that this issue could be satisfactorily resolved without also considering British policy in Ireland and even in Africa, where very similar situations and debates were encountered. This, however, would take us far beyond the scope of this paper and can only be proposed here as a theme for further research.

Referring to caste prejudices against forbidden food, Sir Bartle Frere lamented, in an important prelude to the later Famine Codes, that "no one whose experience is confined to the poor of other countries can imagine the difficulties of dealing with starving Hindoos, even when you have the most ample means at your disposal".[20] However, the really important difficulties initially experienced by the British Administration in organising relief went much beyond the cultural idiosyncracies of "starving Hindoos". In fact they were strikingly reminiscent of the familiar stumbling blocks of famine relief elsewhere even today: confused information, faulty forecasts, absence of contingency planning, weak motivation, delays, transport bottlenecks and other logistical nightmares, poor administration, inertia of private trade etc. The failures involved not only allowed the unfolding of large-

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which in a country such as India wholly transcends individual effort and power of resistance. It accordingly becomes a paramount *duty of the State* to give all practicable assistance to the people in time of famine, and to devote all its available resources to this end; and this duty is emphasized by the fact that the Government stands in the place of landlord to the agriculturists, who form the great mass of the population" (Famine Commission Report, 1880, pp.31-32; my italics).

19. Famine Commission Report, 1880, Appendix I, P.117.

20. Frere (1874), p.15.

scale disasters in terms of human mortality, but also often led to a considerable waste of precious resources.[21] The Famine Commission Report of 1880 contains a vivid account of the nature of relief efforts prior to the Famine Codes:

> "What often happens now is that they wander from their village, crowd into towns, die about the roads, and otherwise attract the attention of the officials. Then a survey is made, a relief-work is started, and then follows all the train of difficulties attendant on the endeavour to get masses of wretched, demoralized, half-starved creatures to work and be paid after some sort of method. The work is generally started too late to save life; numbers, from one cause or another, do not get within its scope; every department is strained to supply supervision, and the supervision is generally quite inadequate for anything like real control; the wage is a hopeless dilemma; if you give a low rate, the people desert and die; if you give a high one, you drain the labour market and the thing gets beyond control".[22]

To be fair, the prevention of famines during the greater part of the 19th century was also handicapped by infrastructural deficiencies which were to diminish substantially in later decades. The Famine Commission Reports often laid great stress on the need to develop *communications* (mainly railways) and *irrigation*. For future reference, and given the considerable importance ascribed to public and private trade issues in discussions of famine relief, a leisurely digression into the role of communications is in order.

Before the large-scale development of the railways from the 1870's onwards, private trade in foodgrains within India notably lacked in dynamism, and local scarcities precipitated very damaging price hikes.[23] Often, the "lack of satisfactory communications (...) severely restricted the movement of food

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21. For a more detailed account of mismanagement in famine relief prior to the Famine Codes, see e.g. Srivastava (1968), chaps II - V and (Bhatia) 1967, chap.III.

22. Famine Commission Report (1880), Appendix I, p.113.

23. On this question see Bhatia (1967), Srivastava (1968), and particularly Mc Alpin (1983).

grains so that while in one part of the country people died of lack of food, in another, only a few miles away, there was an abundance of cheap food" [24] Entitlement failures were exacerbated by the sluggishness of trade and the large price disparities obtaining between adjacent regions:

> "...while in one bazar, famine prices of four rupees per maund might be ruling, in another, not thirty miles off, the price would be but about rupee one and a half for the same quantity, yet no flow from the full to the exhausted market could take place, because roads were not in existence and means of carriage unknown".[25]

In his famous Report on the Past Famines in the Bombay Presidency, Etheridge (1868) has attributed the inertia of private trade in that period to the lack of "animal spirits" among Indian merchants, who "altogether failed... to take advantage of the high prices ruling"; "the Hindoo merchant", said Etheridge, "is slow of action even when (his) own interests are deeply concerned".[26] But later experience belied this pessimistic (or, some would prefer to say, optimistic) view of the Hindu merchant. Indeed, only a few years later the Famine Commission of 1880 described a completely transformed state of affairs:

> "The extension of railways, and the connection of trunk lines, has so increased the rapidity of communication that mercantile relations now subsist between the Native traders of all parts of India, and these traders keep themselves well posted up in the state of the most distant markets, being keenly alive to the advantage of the telegraphic communication. (...) The combined effect of Railway and Telegraph extension throughout the length and breadth of India, has permitted Government to rely upon the activity of private trade for the supply of foods to all districts immediately served by railways. (...) Moreover, the area from which food supplies can be drawn has been extended from the

[24]. Srivastava (1968), p.7.

[25]. Baird Smith, (1861), quoted in Srivastava, (1968), p.53.

[26]. Etheridge (1868), p.3 and 11.

> limit of 100 miles, which, with a cart-carriage, in a famine-striken country, destitute of fodder for cattle, or oxen with pack-bullocks or cooly labour, is a maximum to a range of over 2000 miles. (...) as certainly as a strong demand arises for grain or other country produce, either for a famine district or for export, the railway stations of all districts from which export is possible, are crowded with stores of grain, while the railway officials are besieged by applicants for early despatch of their consignments".[27]

The sudden dynamism of private trade may have been somewhat exaggerated by the Famine Commission which, as we shall see, was very anxious to rationalise the policy of non-interference recommended - it thought - by what Etheridge aptly called the "supposed infallible laws of the great Masters of Economic Science".[28] However, it was certainly not a myth, and as a matter of fact the "remarkable tendency to a common level of prices throughout India"[29] during the 1896-97 famine, and again during the 1899-1900 famine, has been reliably documented;[30] nor can the key role played by the railways in this context be seriously questioned.

While the expansion of the railways was undoubtedly *effective* in ensuring the advance of private trade, it is much less obvious how *beneficial* this development was to various sections of the Indian people. This question has, not surprisingly, been a matter of some debate.[31] In the Indian context as elsewhere, radical writers have often blamed the

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[27]. Famine Commission Report (1880), Appendix I, pp.198-199.

[28]. Etheridge (1868), p.3.

[29]. Famine Commission Report, 1898, p.359.

[30]. See e.g. Holderness (1897), Famine Commission Report (1898), Mc Alpin (1983) and Loveday (1914).

[31]. For a useful introduction to the controversy, see e.g. Mc Alpin (1975 , 1983), or Charlesworth (1982). Mc Alpin herself has strongly argued, on the basis of detailed empirical work, that the expansion of the railways in India led to a considerable reduction in poverty and famine vulnerability. Various aspects of her work have, however, been challenged - see e.g. Bates (1985), Guha, Appadurai (1984) and Rangasami.

growth of commercialization for the impoverishment of the people, and even held "capitalist penetration" responsible for the occurrence of famines. Quite apart from the thinness of the empirical evidence supporting the latter contention, it is arguable that, following Marx, the source of exploitation and persisting poverty should be sought in the domain of ownership much more than in the domain of exchange *per se*.[32] This is not the place to pursue this complex question, which is considered at greater length in the first Volume of this book. Our attention here will be confined to a somewhat narrower issue, viz. the consequences of railway extension for food movements during famines.

The Famine Commissions regarded the greater "market integration" permitted by the railways as an unambiguous, if not completely unmixed, blessing. They did feel uncomfortable about the occasional facilitation of *exports* from famine-stricken areas (see below). And they gave a rather muddled response to the criticism of growing disincentives against private storage.[33] But on the long-run advantages of the railways they had no doubt, and the Famine Commission of 1898 pronounced that "one of the most remarkable features in the recent famine was the uniform level of prices all over the country which is attributable to the ever-extending system of railways and which, *if it increased the area, greatly diminished the intensity of distress.*"[34] Analysts such as Loveday emphatically concurred with this view, arguing that "the desirability of a system by which the prosperous should help to bear the burden of the distressed is

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[32]. For a discussion of this idea, and a suggestion of its presence in the writings of Lenin, see Desai (1976).

[33]. "It is true that to a certain extent cultivators, who formerly stored grain, because it could neither be sold nor removed, have ceased to do so because they can see to advantage; and that, owing to their improvidence, the money slips through their fingers" (Famine Commission Report, 1901, p.74).

[34]. Famine Commission Report (1898), p.351 (italics added).

unquestionable".[35] But there also existed another school of thought, which stressed the evils of the railways in general, and its possible role in facilitating *exports* from famine-stricken areas in particular.

Economic analysis confirms the scope for disagreement about the effects of railway extension on food entitlements. Of the fact that the expansion of the railways resulted in a greater tendency towards a uniformity of prices there can be little doubt.[36] One may also generally expect a reduction of price disparities to reflect greater food movements towards famine-affected areas, and to result in an improvement of the food entitlements of vulnerable sections of the population in these regions. However, it is easy to think of counter-examples, of which two are particularly important here.

Firstly, in the absence of international trade regulation, the smoother flow of grain towards high price regions took place across, as well as within, national boundaries, and the large-scale export of grain abroad during famine periods was a frequent phenomenon in the 19th century.[37] It must be remembered in this context that while regional food price patterns *within* India could, by and large, be expected to reflect the severity of entitlement crises in different parts of the country, price differences between India and England could certainly not be given the same connotation - if only because they were heavily influenced by the exchange rate, itself a reflection of numerous factors hardly related to food entitlements. The Famine Commission of 1880 recognised the problem with some embarrassment but viewed

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35. Loveday (1914), p.111.

36. See the references cited earlier on this point. It is noteworthy that Mc Alpin's critics have not challenged the *evidence* she has presented on the progress of market integration towards the end of the 19th century.

37. For evidence of this, and indeed of the very large *increase* in exports during the famines of the 1870s, see Bhatia (1967). For an interesting econometric study of international trade and food entitlements in British India, see Ravallion (1987b).

it as an "inevitable" consequence of the broader and essential policy of non-interference with private trade:

> "Unluckily for the Indian consumer, there have been several bad harvests in England, and this and the exchange have stimulated a great export of grain for the last few years. This gain of the producing class and its adjunct, the bunyah [trader], has been so far the loss of the consuming class. This seems inevitable".[38]

Secondly, even within a country the reduction of disparities in prices need not always imply a reduction in the severity of famine. In fact, the greater spatial integration of markets can be expected to contribute to alleviating famine if, and only if, two conditions are satisfied:[39] (i) the moderation of price increases improves the entitlement of vulnerable groups, and (ii) vulnerable areas are also, as a rule, those subject to strong upward pressures on food prices. The first assumption is safe enough, since few households benefit from higher food prices except those who have some food to *sell*. Regarding the second assumption, a broad correlation has indeed been observed during Indian famines between the level of food prices and the intensity of distress, and the Famine Commission of 1880 even boldly stated that "it may be said approximately and generally that, in time of very great scarcity, prices of food grain rise to three times their ordinary amount".[40] This statement admittedly was followed by lengthy qualifications, and the use of prices as an indication of distress has met with some notable failures.[41] However, the general observation that famine-

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[38]. Famine Commission Report (1880), Appendix I, p.112.

[39]. Strictly speaking, the *violation* of *both* these conditions would also do, but this possibility is really a theoretical curiosum. More importantly perhaps, note that when trade takes place *between* famine-affected areas, one also has to check whether the reduction of disparities in food entitlements does result in lower aggregate mortality - for a detailed examination of this hypothesis, see Ravallion (1987).

[40]. Famine Commission Report (1880), p.27.

[41]. During the famine of 1860-61 in Moradabad, for instance, John Strachey had already observed that "Although

affected areas experienced sharp increases in food prices was a robust one.

In sum, and with a major reservation applying to international trade, it is not implausible that the improvement of communications towards the end of the 19th century did make a major contribution to the alleviation of distress during famines. Be that as it may, it is also easy to see that this factor alone could hardly account for the very sharp reduction in the incidence of famines in the 20th century. The dynamism of private trade during famines has in fact always been contingent on the existence of *purchasing power* in affected areas. Even today, it is easy to see that the high level of market integration in India would be of little consolation for agricultural labourers if Government intervention did not also buttress their market command over food during lean years. The idea of preventing famines by generating purchasing power in affected areas and letting private trade supply the food was the basic inspiration behind the Famine Codes.

1.3 The Famine Codes and their basic principles

The failure of famine prevention during the period 1858-1880 (extending from the demise of the East India Company to the birth of the Famine Codes) was not a complete one. A measure of inverse correlation between the determination of relief efforts and the intensity of distress was noticeable even at that time. In particular, during the "Panic Famine" of 1873-74 in Behar massive relief efforts were quite effective in preventing the worst. However, the shortcomings

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the agricultural population has thus suffered comparatively little the prices of food have risen higher in Moradabad than in almost any district of these provinces" (Government of Bengal, 1874, p.363). The Famine Commission of 1880 itself concluded that "Much caution, however, is requisite in regarding prices as a sound standard by which to estimate the severity of famine or distress" (Famine Commission Report, 1880, p.27), and this point was made even more forcefully by later Famine Commissions. Note also that the differential vigour of *relief measures* in different areas can itself vitiate the correlation between food prices and distress.

of ad hoc responses were increasingly evident, and while the relative success of relief efforts in 1873-74 were recognised they were also regarded as excessively costly.[42]

This period of "trial and error" (as Srivastava puts it) came to an end after the Famine Commission of 1880, keenly aware of the vital importance of "prompt and decided action" in matters of famine relief, recommended the promulgation of *Famine Codes* which would contain authoritative guidelines to the local administration for the anticipation, recognition and relief of famines:

> "The duties involved in relief measures are complicated and multifarious; their successful performance necessitates the utilisation of large stores of accumulated experience and a carefully considered and prepared plan; they cannot be safely left to individual energy and resource, or be dealt with on a system improvised only when the emergency has arisen. Prompt and decided action in carrying out these measures is of primary importance, and by considering well beforehand the principles that should guide them, much of that hesitation and uncertainty of purpose, which have been found to be so detrimental in the past, will be avoided in the future. We recommend, therefore, that the Government of India should, as soon as possible, issue a set of rules embodying the main principles that should govern the administration of famine relief, and that these rules should be authoritative in all parts of British India".[43]

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42. The Famine Commission of 1880, referring to the Behar famine of 1873-74, did not hesitate to deplore that "life was preserved, but money was spent profusely" (para 94). It is of some interest to note that the exceptionally large levels of expenditure incurred during this famine were to a great extent due to the costs of food transportation and distribution (both unusual measures), as well as to the poor "targeting" inherent in a relief strategy largely based on the distribution or subsidization of food (see e.g. Famine Commission Report, 1880, para 57 and Appendix I, p.109). For further elaboration of the many interesting issues pertaining to famine relief after 1858 but before the Famine Codes, see particularly the discussion of "Principles of Famine Relief" in Appendix I of the Famine Commission Report of 1880, as well as Loveday (1914).

43. Famine Commission Report, 1880, pp.37-38.

The promulgation of the Famine Codes has undoubtedly represented an essential (though not quite decisive) step towards the successful prevention of famines in India.[44] Actually the report of the Famine Commission of 1880 itself deserves to be regarded, as much as the Famines Codes it gave birth to, as a landmark in the history of famines in India. It was, admittedly, influenced by ideology as well as self-interest - e.g. in its advocacy of free trade *a outrance*, or its condemnation of gratuitous relief as "demoralising". But the Famine Commission Report was also, by any standard, an administrative and intellectual masterpiece, and it embodied a considerable dose of experience, scholarliness and wisdom. The brief of the Famine Commission was to "collect with the utmost care all information which may assist future administrators in the task of limiting the range or mitigating the intensity of these calamities".[45] The Commission applied itself vigorously to this task, and its report remains to this day a goldmine of information on previous famines in British India, as well as a most edifying treatise on the possible measures to prevent them.

The provisions of the Famine Codes are much too comprehensive to be discussed here in detail (see Table 1.1 for a sketch of their contents).[46] For future reference,

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[44]. The first "Draft Famine Code" was submitted along with the Famine Commission Report of 1880. Each State was required to frame its own code by adapating the model contained in the Draft Code to its own circumstances. With the passage of time the State Famine Codes underwent occasional revisions, and in independent India received the name of Scarcity Manuals. In many parts of the country the latter are no longer explicitly used today, but this is partly because the rules they embody have become a matter of routine response to the threat of famine.

[45]. Despatch of the Secretary of State for India, 10.1.1878, quoted in the Famine Commission Report (1880), p.1. For a detailed account of the historical events surrounding the birth of the Famine Codes, see Brennan (1984).

[46]. For an introduction to the Famine Codes and their provisions see Srivastava (1968), chap. 6; another useful though short summary is contained in the Famine Commission Report of 1945 (Government of India, 1945). See also the discussions in Brennan (1984), Mc Alpin (1983), and Alamgir (1980).

TABLE 1.1

Chapter Headings of the Provincial Famine Codes

(I)	Duties of revenue and village officers in ordinary times.
(II)	When serious scarcity is imminent.
(III)	Duties of superior revenue and engineer officers (during famine).
(IV)	Circle organization and duties of circle officers.
(V)	Gratuitous relief.
(VI)	Famine relief works.
(VII)	Wages and rations.
(VIII)	Poor houses.
(IX)	Kitchens for children.
(X)	Other measures of relief.
(XI)	Measures for the protection of cattle.
(XII)	Utilization of forests.
(XIII)	Duties of police.
(XIV)	Duties of medical officers.
(XV)	Accounts.

Source: Srivastava (1968), p.175.

Note: These were the recommended chapter headings for the Provincial Famine Codes, as per a resolution of the Government of India, 1893 (see Srivastava, 1968). The present Bombay Scarcity Manual (Government of Maharashtra, 1962) still folows a very similar pattern.

however, it is of some interest to recall the basic strategy lying at the core of the Famine Codes, and its rationale.

The backbone of the famine relief strategy embodied in the Famine Codes was the organisation of *massive public works*. More precisely, the first and foremost aim of this strategy was nothing less than to provide employment at subsistence wages and at a reasonable distance from their homes to *all* those who came forward for it (wages were to be paid in cash, and public employment was directed to the creation of public assets such as roads and canals). *Gratuitous relief* for those unable to work - but only for them - in the form of doles or kitchens complemented public works to form the core of relief measures.

One can be excused for suspecting that the motivation behind this predilection for public works lay with a puritanical prejudice against the provision of gratuitous relief. This suspicion is all the more difficult to refute because the Famine Commission Report in fact explicitly referred on occasion to "the demoralising influences of purely eleemosynary aid" [47] It is, nevertheless, worth attempting to understand the arguments which the Famine Commissions put forward in defence of the strategy they advocated.

The problem of preventing famine was, naturally, seen by the British Administration as one of protecting food entitlements in a situation where the physical availability of food was not itself problematic. One avenue of intervention could, of course, have been to aim at preventing undue increases in food prices. But the success of such measures, however, would have inevitably called for some form of "interference" with the free market - either in the form of

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47. Famine Commission Report (1880), para 111. Note, however, that what is referred to here is not just the intrinsically "immoral" character of gratuitous relief, but also the adverse effects of gratuitous relief on the "moral economy": "Even where the legal right does not exist, the moral obligation of mutual assistance is scarcely less distinctly recognized (in rural India)... Any form of relief calculated to bring these rights into obscurity or desuetude, or to break down these habits by showing them to be superfluous, would be an incalculable misfortune" (Famine Commission Report, 1880, para 108).

direct price *control*, or at least in the form of Government *participation* in trade, storage and distribution. And this was anathema to the British Administration.

Why so? It is hard not to sympathise here with Ambiranjan's very thoroughly documented viewpoint that "when virtually every document relating to the formulation and execution of famine policy over a century refer to Adam Smith and/or John Stuart Mill, it becomes well nigh impossible to dismiss the role of Classical economic ideas in the formation of economic policy".[48] Indeed these ideas were echoed with striking fidelity in the Famine Commission Reports themselves.[49]

The policies of direct price control had been emphatically and consistantly condemned by classical economists. John Stuart Mill, for instance, pronounced that

> "In cases of actual scarcity Governments are often urged (...) to take measures of some sort for moderating the price of food. But the price of a thing cannot be raised by deficiency of supply beyond what is sufficient to make a corresponding reduction of the consumption; and if a Government prevents the reduction from being brought about by a rise of price, there remains no mode of effecting it unless by taking possession of all the food and serving it out in rations as in a besieged town".[50]

This argument implicitly assumes competitive conditions, so that high prices reflect the "actual scarcity" in the first

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48. Ambiranjan (1978), p.100. See also Ambiranjan (1971, 1976). Bhatia has, here again, dissented and argued that "It is difficult to explain this palpably mistaken policy (of free trade) simply in terms of the ideological attachment of the Government of those days to the teachings of Adam Smith and John Stuart Mill... It appears that behind the facade of the theoretical argument there was the fear that the Government would have to assume a gigantic financial responsibility in undertaking to feed a vast population during the period of a famine" (Bhatia, 1967, p.107). But it is hard to take seriously the suggestion that one hundred years of official writings were consistently manipulated to maintain this "facade", and the single "letter" which Bhatia refers to in support of his contention carries little weight in the face of the voluminous evidence gathered by Ambiranjan.

49. See, for instance, the lengthy chapter on "Food Supply" in the Famine Commission Report of 1880.

50. J.S. Mill quoted in Etheridge (1868), p.7.

place rather than collusive practices or speculative hoarding. But the disciples of classical economists did not think that assumption implausible for India, where "A combination of large dealers with the object of keeping up prices is impossible".[51]

It is more difficult to understand why the British Administration viewed Government *participation* in food trade with the same abhorence. Under "perfect" competition, food trade on public account would merely result in the displacement of private trade; but this neo-classical prediction should not be taken too seriously,[52] and in the presence of important uncertainties and information costs it is arguable that judicious Government involvement can succeed in exerting a positive influence on trade activities.[53] But the British Administration held precisely the opposite view, and strongly feared that Government participation in food trade *would have disastrous disincentive effects*. Here again the influence of classical economists is unmistakable:

> "Direct measures at the cost of the State, to procure food from a distance, are expedient when, from peculiar reasons, the thing is not likely to be done by private speculation. In any other case they are in great error. Private speculation will not, in such cases, venture to compete with the Government and though the Government can do more

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51. Wallace (1900), p.48.

52. Note that instances have been recorded where the neoclassical prediction was not altogether fanciful. During the Orissa famine of 1873-74, for instance, a rare attempt at grain import on Government account apparently stimulated private trade in the other direction: Sir George Campbell noted that "ships taking away the rice of Bengal cross in the Hooghly other ships bringing up the rice of Burma and Saigon ... often the same ship brought one cargo in and took another away" and concluded that "the imports and arrangements to import on the part of the Government by keeping down prices may have been a main cause of export" (cited in Bhatia, 1967, p.109). Even in this case, however, the counter-movement was only a partial one (see Bhatia, 1967, p.84).

53. For further discussion, see Ravallion's contribution to this Volume.

than any other merchant[54] it cannot nearly do so much as all the merchants".

> "It might even become necessary for Government to import grain for sale to the public in such an event as a combination of local dealers to refuse to sell, or only to sell at prices unduly raised above the rates of neighbouring markets ... But much caution will be required in every case lest interference should aggravate the evil which it is designed to avert, and have the effect of preventing traders from entering the market while it is being operated upon by the Government".[55]

Whether the British Administration's obstinate policy of non-intervention with food trade was a wise one or not has been the subject of fierce controversies.[56] No few assessments have been obscured by pro-market or anti-market ideology. What this debate has largely obscured, however, is the fact that the problem is not usefully posed in such dichotomous terms. It would be ludicrous to suggest that the Government had the capability to supplant private trade completely in 19th century India.[57] A realistic alternative to the free market would have involved some form of coexistence between private trade and State intervention. The latter could have taken a wide variety of forms, involving any combination of activities such as public storage, public transportation, public distribution, direct price control, restrictions on internal food movement on private account, external trade regulations and anti-hoarding policies. The issue is more complicated than it has been made out to be.

Whatever the merits of the policy of non-interference with private trade, however, the fundamental problem remained that the moderation of prices within realistic bounds could

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54. Mill p.931.

55. Famine Commission Report, 1880, para 159.

56. For different viewpoints, see e.g. Bhatia (1967), Srivastava (1968), Mc Alpin (1983), Ambiranjan (1978), and Ravallion (1987b).

57. Even today, this capability is almost certainly lacking, as the miserable failure of the Government's attempt at taking over wheat trade in 1973 plainly illustrates (see e.g. Chopra 1983).

hardly have sufficed to restore the entitlements of the masses of labourers and artisans whose cash earnings virtually vanished for long periods during droughts. The need for a mechanism of income generation or transfer was therefore obvious enough. The objective of protecting vulnerable groups within the framework of a "free market" only enhanced the prominence of this mechanism within famine relief strategies.

It remains to explain why public works (supplemented by gratuitous relief for those unable to work) emerged as the preferred transfer mechanism. At this point it is important to recognise that the British Administration, while desirous to prevent starvation deaths during droughts, was also ruthlessly concerned with financial economy. It therefore felt a strong urge to concoct a system by which "the proper recipients of public charity can be most effectively ascertained",[58] and to ensure that resources were concentrated exclusively on that category. Given the weakness of the administrative structure at the time, and the large numbers of people often affected by famine, it was also felt important that the selection mechanism should rely as far as possible on "*self-acting tests*" rather than on discretionary procedures. The latter method, although found necessary for some forms of gratuitous relief (see below), was deemed impracticable as a general approach to the identification of the needy, and a few experiments in that direction were criticised by the Famine Commissions.[59]

Four varieties of "self-acting tests" were seriously tried at various stages in the early days of famine relief under the colonial administration: (i) the *distance test*: relief is provided (in some form or other) in far-apart places, on the assumption that only those in greatest need will take the trouble of travelling long distances to avail themselves of it; (ii) the *residence test*: beneficiaries are

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[58]. Famine Commission Report (1880), para 110.

[59]. See e.g. Famine Commission Report (1880), Famine Commission Report (1898), p.86, and Famine Commission Report (1901), p.25.

required to reside at the place of relief (e.g. a poor-house or worksite), and thereby forego the presumed pleasure of ordinary social life; (iii) the *test of cooked food*: relief is based on the distribution of cooked meals, which were a source of repulsion to many "starving Hindoos" at that time (particularly when cooked by, or shared with, people belonging to other castes); and (iv) the *labour test*: relief takes the form of subsistence wages in return for hard manual labour.

The distance test and the residence test, both of which required the victims of famine to leave their homes before gaining access to relief, were quickly rejected because experience repeatedly showed them to be too dangerous: Indian people were found to be strongly attached to their homes, and only left them in search of food or relief when their physical condition was one of extreme weakness and great vulnerability to disease. The Famine Commission of 1880 had already discouraged recourse to self-acting tests of this kind; later experience repeatedly confirmed their danger, and the Famine Commissions of 1898 and 1901 categorically rejected them:

> "There is ... a great accumulation of evidence to the effect that the feeling of people towards relief administered in this form is in most parts of India one of extreme repulsion; and that even in the North-Western Provinces in 1877-78 that repulsion was strong enough to cause many to lose their lives rather than to accept help on those terms";[60]
>
> ".. we do not hold the view (...) that the fact that many will attend works when close to their village, who will not follow them to a distance, necessarily proves that such persons were not in need of relief";[61]
>
> "Labour should be the only test; neither a distance test, nor compulsory residence should be imposed".[62]

The choice between the labour test and the test of cooked food was a more subtle one. Three reasons (each prevailing with varying strength over time) seem to have accounted for

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60. Famine Commission Report (1880), para 140.

61. Famine Commission Report (1898), p.110.

62. Famine Commission Report (1901), p.18.

the precedence taken by public works over the gratuitous provision of cooked food in the Indian system of famine relief. The first was the belief (which we have already noted) in the "demoralising" influence of gratuitous relief.[63] The second reason was the *impracticability* of delivering relief on a large scale by means of cooked food:

> "Acceptance of cooked food is the truest and safest test of the need for gratuitous relief, but the objection to relying exclusively on this form of relief is, that it would be difficult to work on a large scale if there were widespread distress. When a large proportion of a not very dense population has to be relieved, the organization of adequate distribution[64] of cooked food becomes almost impossible".

The third reason appeared only with the Famine Commission of 1901. The Famine Commission of 1898 had pronounced a rather favourable judgement on relief kitchens (as a means of gratuitous relief specifically), and expressed a general preference for kitchens over doles as a form of gratuitous relief *partly* on the grounds that kitchens embodied a self-acting test.[65] Indeed there was evidence from different parts of the country that "the people showed a very strong reluctance to accept relief in this form".[66] But the Famine Commission of 1901 radically reversed this judgement, altogether dismissed the idea that kitchens embodied a self-acting test, and therefore strongly favoured (grain) doles as the main vehicle of *gratuitous* relief:

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63. This seems to be what the Famine Commission of 1898 implied, for instance, when it commented after admitting that relief works were largely "unproductive": "Unsatisfactory as relief works open to all classes are from an economic point of view, it would be far more unsatisfactory *from another and still more important point of view* to accustom the people to a gigantic system of gratuitous relief on the occurrence of every severe famine" (Famine Commission Report 1898, p.233).

64. Famine Commission Report (1898), p.18.

65. See Famine Commission Report 1898, p.286.

66. Famine Commission Report 1898, p.23-24. See also pp. 18-26, 68-74, 80-81, 84-85, 88, 93, 178, 210, 286-287, and 322 of the same Report for discussions of kitchens and doles and their relative merits.

> "... gratuitous relief can properly be regulated by *personal selection* alone. Every *self-acting test* that has been tried has broken down".[67]

> "Non-official opinion is almost unanimous, we gather, in favour of doles. It is now generally admitted by the officers of the Central Provinces that *personal selection* is as necessary for kitchens as it is for village relief. This conclusion deprives the kitchens of the principal advantage expected from them, namely, the enforcement of an automatic test of distress; while the disadvantages attaching to them remain".[68]

That doles could not be the main plank of *relief* as such, followed from the assumed need for a test of distress, the impracticality of personal selection on a large scale, and the difficulties and confusion which the granting of doles often led to.[69]

The efficacy of the "labour test" as a self-acting test, on the other hand, has been repeatedly confirmed by experience until this day. Not only is the correlation between distress and work attendance usually remarkable as long, at least, as the "guarantee" of work is real (on this more below). The labour test also appears to be a very sensitive and flexible test owing to the possibility of adjusting the *wage* according to the resources available: 19th century documents are replete with examples of the supply of labour to public works expanding or contracting sharply in response to wage revisions,[70] and in Section 3 we shall encounter a more recent example confirming the persistence of this phenomenon. The preference for the "labour test" over all other forms of tests

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67. Famine Commission Report 1901, p.44 (my emphasis).

68. Famine Commission Report 1901, p.47.

69. "The drawbacks were that they (relief centres in the Central Provinces, where doles were distributed) tended to become centres of confusion and disorder, where relief was disbursed, without discrimination or enquiry into individual cases" (Famine Commission Report 1898, p.72).

70. See e.g. Bhatia (1967), p.85, 95 and 249, and Famine Commission Report (1898), p.25, 26, 34, 76, 77, 80, 83, 168, 177. The apparently high elasticity of work attendance to wages partly explains why the scale of wages was discussed at such nauseating length in all the Famine Commission Reports.

satisfactorily explains why public works became the privileged vehicle of income transfers in the Famine Codes strategy.

This being said, it is important to remember that the provisions of the Famine Codes also included gratuitous relief (usually in the form of doles) for those to whom the labour test could not be applied. Although gratuitous relief has almost invariably assumed much less importance than public works in terms of numbers relieved and expenditure incurred, its existence has undoubtedly been a crucial element of the "safety net" which the relief system sought to provide. Indeed, it was the commendable (though not altogether disinterested) genius of the pioneers of the Indian famine relief system to recognise clearly that, while the category of the "needy" could not be simply and reliably identified either by a single self-acting test or by discretionary selection, this category could be broken down into two sub-groups each of which could be effectively reached via a different selection mechanism: those (the majority) belonging to households with fit adult members, who could be taken care of through the "labour test", and a residual category which could be realistically identified on the basis of discretionary selection. At the risk of repetition, it is worth closing this discussion by quoting at some length the passage where the Famine Commission of 1880 succinctly summarises the logic of this approach:

> ".. we have to consider the manner in which the proper recipients of public charity can be most effectually ascertained. The problem to be solved is how to avoid the risk of indiscriminate and demoralising profusion on the one hand, and of insufficient and niggardly assistance on the other - how to relieve all who really need relief, and to waste as little public money as possible in the process.... Again where limited numbers have to be dealt with, and there is a numerous and efficient staff of officials, it may be possible to ascertain by personal inquiry the circumstances of every applicant for relief sufficiently for the purpose of admitting or rejecting his claim. But in an Indian famine the Government has to deal not with limited numbers, but with millions of people, and the official machinery at its command, however strengthened for the occasion, will inevitably be inadequate to the task of accurately testing the individual necessities of so great a multitude. Nor

> again is it possible to entrust the administration of public charity to a subordinate agency without providing sufficient checks against dishonesty and neglect on the part of its members. Some safeguards then are essential in the interests of the destitute people no less than of the public treasury, and they are best found in laying down certain broad self-acting tests by which necessity may be proved, and which may, irrespective of any other rule of selection, entitle to relief the person who submits to them.
>
> The chief of these tests, and the only one which in our opinion it is ordinarily desirable to enforce, is the demand of labour commensurate in each case with the labourer's powers, in return for a wage sufficient for the purposes of maintenance but not more. This system is applicable of course only to those from whom labour can reasonably be required;..... but for those who are able to work, we can feel no doubt that it is the safest and most efficacious form of State help ... The great bulk of applicants for relief being thus provided for, we believe that it will be possible for an efficient staff of officers to control with success the grant of relief, on the basis of personal inquiry and knowledge of the individual circumstances of each applicant, among the comparatively small numbers of destitute persons to whom the test of labour cannot be applied."[71]

To conclude: it would be naive to regard the Famine Codes as embodying only enlightened pragmatism, and I have in fact pointed out the role of extraneous influences such as the phobia of "interference" with private trade and the distrust of gratuitous relief on sheer moral grounds; however, under the constraints of not interfering with private trade and achieving the greatest possible measure of "financial economy", and with the objective of preventing *all* starvation deaths, the strategy of open-ended public works supplemented by gratuitous relief for the weak had an unquestionable rationale.[72]

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[71]. Famine Commission Report (1880), paras 110 - 111.

[72]. Brennan (1984) has rightly emphasisied the importance of "personalities and politics" in the framing of the first Famine Code. He does not, however, imply that the actual provision of that Code significantly reflected the uninformed prejudices or self-interested inclinations of the members of the Famine Commission of 1880. The remarkable continuity of the *basic principles* of famine relief in India

Of course, the objective and constraints which the British Administration had set for itself can, and should, be criticized. However, it must also be recognised that the policy of non-interference with private trade was not an obviously mistaken one. As for the concern with financial economy, and the restricted objective of preventing only "starvation deaths", these are still remarkably present in discussions of famine relief today - the contempt for human life (of animal life for that matter) has robustly survived both the end of colonialism and the rapid advance of material prosperity. The Famine Codes, therefore, have not lost their relevance, and the later developments of which they have been the object appear as salutary but not profound.

1.4 Modern Developments

It would not be easy to prove rigorously that the relief system which emerged and evolved from the Famine Codes had a dramatic effect on the incidence of famines before Independence in 1947. Such questions are commonly investigated on the basis of famine chronologies,[73] but in the absence of reliable information on the actual excess mortality associated with different events the use of this piece of evidence is fraught with difficulties. In fact crop failures resulting in a successfully averted threat of famine have sometimes been recorded in the annals of history as a "famine", even though little or no evidence existed of substantial excess mortality.[74] And of course, in the case of India at least the incidence of famines in any period has to

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to this day, in spite of substantial changes in "personalities and politics', strongly discredits any implication of that sort.

[73]. See the second footnote of this paper for some references of famine chronologies for India.

[74]. Vide the "famine" of 1906-1907 in Darbhanga, when "The death rate was unusually low during the greater part of the famine period when relief measures were organised and in working order" (Government of India, 1908, p.30; italics added).

be assessed against the extent of climatic vicissitudes at the time.

Nevertheless, an examination of the incidence of famines in India before and after the Famine Codes strongly suggests a contrast between the earlier period of frequently recurring catastrophes, and the latter period when long stretches of relative tranquillity were disturbed by a few large-scale famines. This pattern is unmistakable, for instance, in a comparison between the 20 years preceding and the 20 years following the Famine Commission Report of 1880. The period from 1860 was a calamitous one. From 1880 to 1896, by contrast, great success was encountered in preventing local crop failures from developing into famines. Then, in 1896-97 and again in 1899-1900, disaster struck with renewed force. During the 20th century, the incidence of famines was remarkably small even before Independence; the main failure was of course the Bengal famine of 1943.[75]

Why did the relief system fail to prevent these crises?[76] Without attempting to assess their relative importance, I will suggest here four elements of answer to this important question.

First, it is important to note that the existence of the Famine Codes does not automatically ensure their *application*, let alone their early and energetic application. The Famine Codes did include very specific guidelines on how to recognise and "declare" a famine and it was not their least achievement to considerably diminish the risk of deliberate ignorance or

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75. Considerable mortality also occurred in 1918, but this was mainly the result of a terrible influenza epidemic which affected many other parts of the world as well.

76. Note that in spite of the failure to prevent a famine altogether, the relief system often remained successful in ensuring a considerable moderation of excess mortality. The Famine Commission of 1898 claimed that "the success actually attained in the relief of distress was, if not complete, far greater than any that has been recorded in famines that are at all comparable with it in extent, severity, and duration" (Famine Commission Report, 1898, p.196). Demographic statistics also showed a clear inverse correlation between the extent of relief and that of excess mortality (Visaria and Visaria, 1982, p.130).

neglect of a crisis - an attitude which has been described as "one of the most predictable responses by Government officials" in times of famine.[77] Nevertheless this "early warning system" remained within the Famine Codes, and the problem of triggering remained an important one. During the Bengal Famine of 1943, for instance, the Famine Codes were deliberately ignored for political reasons - and this fault may well be responsible for a large part of the extraordinary excess mortality associated with that famine.[78] The fact that triggering *has*, on the whole, been successful in the pre-Independence period is itself interesting but its exploration is beyond the scope of this paper

Secondly, even for the narrow purpose of ensuring the mere survival of the population, famine relief under the British Administration often had an excessively punitive character. In particular, the level of wages paid on relief works was extraordinarily low - the extreme of stinginess being reached with the so-called "Temple ration" of 1 lb per day, which was fortunately abrogated without delay. As a result, during the most severe crises the availability of work did not always prevent a considerable enfeeblement of affected people, and their enhanced vulnerability to epidemics. This factor seems to have played a particularly important role during the famines of 1896-97 and 1899-1900.[79]

Thirdly, in the case of the latter two famines the policy of strict non-interference with private trade was particularly questionable because the existence of abundant food supplies in India as a whole could no longer be so safely assumed. The crop failures which triggered these famines had unique

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77. "Individuals and Governments have responded differently to famine.. One of the most strikingly predictable responses by Government officials has been to deny and suppress famine reports as long as possible " (Carlson, 1982, p.9). Incidentally, one can interpret this statement as confirming that when early and decided action has been taken, famine has almost always been averted.

78. The literature on the Bengal Famine is enormous and will not be discussed here. See Sen (1981) for further discussion of the non-declaration of famine in that event.

79. See e.g. Bhatia (1974) and Guz (1987).

severity for the 19th century, and they also had the exceptional feature of affecting very large parts of the country. The collapse of production for the country as a whole was unprecedented, and prices rose throughout India. The fact of continued food exports during the 1896-97 famine, taken by the Famine Commission of 1898 as evidence of the persistence of a surplus, could obviously not be interpreted in that way. It is hard to deny that in this case the refusal to prohibit exports or arrange for imports had disastrous consequences.[80]

Finally, it must be conceded that while epidemics are often exacerbated or even triggered by food entitlement failures, they do have an influence of their own as well. This was most obvious in the case of the 1918 influenza epidemic, which affected large parts of the world. The Famine Commission of 1898 and 1901 also stressed the role of cold weather, contaminated water and epidemics during the famines of 1896-97 and 1899-1900. In his rejoinder to some of the conclusions of the Famine Commission Report of 1898, Holderness even argued that in some places excess mortality had altogether little to do with food deprivation.[81]

While the control of epidemics obviously demands intervention measures beyond the mere restoration of food entitlements, the first three of the above factors point to defects of the relief system itself. As we shall see

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[80] This question is pursued at greath length in Holderness (1897), who argued, in the case of the 1896-97 famine, that "there is... a strong probability that the production of the year was much below the requirements of the population" (p.11), estimated the decline in foodgrain production to represent as much as 18 or 19 million tons (p.13), and cited a letter published in early 1897 in the Gazette of India invoking the usual reasons for not interfering with private trade in any way: "The Governor-General in Council believes that the intervention of Government as a purchaser or importer would do infinitely more harm than good, as it would cripple and discourage the agency which is best able to gauge the need, which is impelled by self-interest to anticipate it, and which alone is best able to supply it effectively" (quoted on p.33).

[81]. See the Appendix of the Famine Commission Report of 1898.

abundantly in the remainder of this paper, these three defects were largely remedied after Independence, an event which must count as marking the second turning point in the history of famine relief in India over the last two centuries. The Government of independent India rapidly did away with the policy of strict non-interference with private trade in food, and on one occasion at least the arrangements it made for the importation, storage and distribution of food played a crucial role in averting a famine. The punitive and avaricious nature of relief provisions has not altogether disappeared (far from it), but the value of human life has nevertheless appreciated in the eyes of the authorities compared to the colonial days. Last but not least, the commitment to respond to the threat of famine has increasingly assumed the character of a political compulsion.

2. Food Crises in India after Independence

This Section consists of two fairly self-contained parts. The first is devoted to a general overview of food crises in India since Independence. The second discusses famine relief in Bihar during the drought of 1966-67, with particular attention to its shortcomings. The intention of these explorations is essentially to strengthen the background against which relief operations in Maharashtra in 1972-73 (the subject of Section 3) will be evaluated. The reader familiar with the food situation in contemporary India and lacking interest in the Bihar crisis can safely go straight to the next Section.

2.1 The Reality and Nature of Recent Food Crises

According to official statistics, per capita food production in India has consistently declined in the first half of this century (see Table 2.1). In fact official statistics unambiguously show consistently declining *total*

TABLE 2.1

Production and Availability of Foodgrains in India: 1893-1985

Period	Production per capita (1961=100)	Availability per capita (1961=100)
1893-94 to 1895-96	146	-
1896-97 to 1905-06	140	-
1906-07 to 1915-16	136	-
1916-17 to 1925-26	134	-
1926-27 to 1935-36	115	-
1936-37 to 1945-46	99	-
1956	94	92
1961	100	100
1962	98	99
1963	94	95
1964	92	96
1965	100	102
1966	79	87
1967	80	86
1968	99	98
1969	98	95
1970	100	97
1971	107	100
1972	101	99
1973	90	90
1974	96	96
1975	90	87
1976	106	91
1977	96	92
1978	107	100
1979	109	102
1980	89	88
1981	102*	97*
1982	103*	97*
1983	98*	93*
1984	113*	102*
1985	106*	99*

* Provisional figures.

Sources : Pre-Independence : Calculated from Bhatia (1967), p. 315, itself summarising the work of Daniel Thorner.
Post-Independence : Calculated from Economic Survey 1985-86 (Government of India, 1986), p.120.

Notes - see over

Notes (i) Availability is calculated (following the usual conventions in Indian food statistics) as Net Production + Net Imports - Net Additions to Government Stocks, where Net Production consists of Production less 12.5% for 'Feed, Seed and Wastage'.

(ii) There are a number of other estimates of pre-Independence trends in per capita food production (e.g. Blyn, 1966, Mukerji, 1965, Sen, 1971, and Sivasubramoniam, 1960, 1965); but all those based on official statistics lead to the same conclusion of a *declining* pre-Independence trend (see text).

(iii) In the post-Independence calculations based on the Economic Survey, 'foodgrains' is understood as the sum of 'cereals' and 'pulses' (following the usual practice in Indian statistics). For pulses, 'net availability' is taken to be synonymous with 'gross production' - the resulting bias in the estimates of foodgrain production is minimal.

output over this period.[82] This confronts us with a most interesting paradox: abstracting from the Bengal famine of 1943, *the disappearance of large-scale famines in India occurred during a period of declining food availability per head.* There are compelling reasons, therefore, to attribute India's relative success in preventing famines to other factors than the improvement of food availability.

Even if we take official statistics for the pre-Independence period with a pinch of salt, it is clear that by the time of Independence per capita foodgrain production levels in India were dangerously low, and they have remained so until very recent years when a mild trend upward has slowly emerged. It is, moreover, very striking that production gains after Independence have resulted mainly in reduced imports as well as the accumulation of large stocks, *leaving net "availability" remarkably stagnant* (see Table 2.1, and also Figure 2.2 below).[83]

Another important point to note is that the growth of food and agricultural output since Independence has been very

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[82]. This conclusion is extremely robust with respect to alternative manipulations of these statistics - for further discussion, see Blyn (1966), Mukherji (1965), Sivasubramoniam (1960, 1965) and Sen (1971). Heston (1982) has expressed scepticism about the plausibility of output trends derived from official statistics because they imply (he argues) the doubtful finding of declining yields over the same period. Suggesting the rough but more plausible assumption of stable yields, he concludes: "there was very substantial growth in foodgrain and total output during the period from 1860 to 1920, both growing more rapidly than population. After 1920, however, growth in foodgrains output appears to be less, and of non-foodgrains more, than the growth in population, the overall growth being somewhat slower than the earlier period" (Heston, 1982, p.387). However, the fact that the Famine Commissions (in 1880, 1898 and 1901) asserted the existence of a surplus of foodgrains in India in normal years on the basis of consumption allowances which far exceeded contemporary standards provides support for the thesis of declining per capita production levels in the first half of this century. In any case, the adoption of Heston's cautious viewpoint, while reducing its strength, hardly modifies the direction of the argument presented in this Section.

[83]. See Lipton (1984) for further discussion of this point.

uneven across different parts of India.[84] While in irrigated regions the so-called "Green Revolution" has permitted impressive increases in yields and total output, large unirrigated tracts have (until very recently at least) experienced virtual stagnation against a background of rapidly growing population. Accordingly, there is little evidence of increasing rural incomes and employment in unirrigated areas, which still cover around two-thirds of the total cropped area. These regions have also experienced huge ecological problems (such as deforestation, soil erosion and falling water tables), and in this respect it is not at all clear that they have fared better than African countries. Last but not least, there have been droughts and crop failures almost every year in some part or other of the country since Independence, and the "entitlement failures" which threatened to ensue remained quite capable of causing massive starvation in the absence of a vigorous relief system. The case studies of drought in the States of Bihar (1966-1967) and Maharashtra (1970-73) analysed further in this paper, unambiguously confirm that the growth of food production alone would have fallen far short of solving India's food problem in the last decades.

The latter point can also, to some extent, be appreciated from a comparison of the experience of India and the Sahel over that period. Needless to say, any comparison of this kind must remain highly tentative, considering the quality of the available data and the wide variations in country-specific circumstances; in fact it is attempted here only with the greatest reluctance. I have nevertheless assembled in Table 2.2 some evidence on levels of production and "availability" of cereals for India and the Sahel[85] over the 1960-1980 period

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84. For a detailed analysis of district-wise output trends during the 60's and early 70's, see Bhalla and Alagh (1979).

85. I follow the definition of "Sahel" used in Sen (1981). The comparison with the Sahel is emphasised because for that region in recent decades food availability fluctuations have been particularly sharp and closely associated with famines.

(see also Figures 2.1 and 2.2). Here "availability" simply refers to the sum of production (net of 12.5% allowance for feed, seed and wastage), net recorded imports and, in the case of India, net depletion of Government stocks. This definition, imposed by the nature of the available data, neglects unrecorded imports (e.g. all private imports in the case of Maharashtra and Bihar) and the depletion of private stocks; it will, therefore, usually *overestimate* the instability of consumption. The neglect of unrecorded trade is likely to be particularly serious in the case of individual States within India, and that of private stocks in the case of the Sahel. Note that much of the discussion in this Section will concentrate on "cereals" or "foodgrains" rather than "calories"; however, a comparison between India and the Sahel on the basis of whatever calorie data are available leads to broadly similar conclusions.[86]

Many complex issues are, of course, involved in deciding what these figures tell us about the potential severity of entitlement crises in different places at different times. It is arguable, for instance, whether the comparison made here should be primarily based on (i) *production* or *availability* figures; and (ii) *levels* or *change*. The answer to these questions is highly contingent upon our view of how the food entitlement process works in a particular place. Regarding the first question, production and availability figures obviously give us different and complementary clues. While "availability" sounds more closely related to consumption than production, it suffers particularly badly from being an aggregative measure. If entitlement failures are seen to arise mainly as a consequence of the loss of employment or income associated with bad harvests, it is arguable that production is a more significant variable. In this case,

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[86]. See also Sen (1986). For our purposes, foodgrains are probably not a bad proxy for calories in India, where they form an overwhelming proportion of total calories. Svedberg (1987) has argued that this approximation may not be too inaccurate for Sahelian countries either. Data on calorie availability or consumption are generally much less abundant and reliable than data on foodgrains, and they will only be used occasionally in this paper.

TABLE 2.2a) : 'Production' of Cereals per capita, India and Sahel, 1961-1980 (182 kgs/cap/year = 100)

Year	India	Sahel (A)	Sahel (B)	Maha-rashtra	Bihar	Palamau (A)	Palamau (B)	Chad	Mali	Mauri tania	Niger	Burkina Faso	Senegal
1961	86	124		93		–	–	194	141	52	145	89	90
1962	86	130	–	75	...	–	–	172	156	52	150	108	90
1963	82	124	–	77	...		–	164	127	52	151	108	101
1964	82	127	–	74	70	–	–	146	115	51	144	140	110
1965	87	120	–	74	68	–	–	141	118	60	132	117	113
1966	**69**	113	–	49	**63**	–	–	124	116	49	130	117	91
1967	**72**	124	–	62	**35**	**12**	**20**	119	128	59	141	117	133
1968	88	126	–	68	75	–		120	110	27	133	115	79
1969	87	116	–	67	79	–		109	129	55	129	108	122
1970	90	98	–	63	...	–		101	89	41	135	105	75
1971	96	102	96	**51**	...	–	–	103	123	37	117	88	100
1972	92	**75**	105*	**46**	...	–		**59**	**89**	**25**	**97**	**85**	**51**
1973	83	**78**	83	**27**	...	–		72	**72**	**15**	**101**	**80**	**81**
1974	88	115	76	62	...	–		84	79	25	140	111	122
1975	82	95	104*	..	...	–	–	79	98	15$	104	124	87$
1976	96	104	102*	..	...	–		81	116	14	156	115	77
1977	87	93	–	..	...			81	96	11	171	91	54
1978	97	109	–	..	...	–		83	124	9	169	97	102
1979	99	99	–	..	...	–		82	101	15	173	99	66
1980	82	91	–	..	...	–		84	76	10	184	82	64

* Excluding Mauritania.

$ Discrete jump in population estimates.

Bold faces indicate a year of famine or averted famine.

Sources and Explanatory Notes – see next page.

Sources: The estimates presented in this table were obtained as follows:

India (1961-1980): Calculated from the Economic Survey 1985-86 (Government of India, 1986), p.120.

Sahel (1961-1980): The estimates for individual Sahelian countries (Burkina Faso, Chad, Mali, Mauritania, Niger and Senegal) have all been derived using the same formula, and the estimates for 'Sahel (A)' are calculated by aggregation over individual countries.

Production as well as (mid-year) population estimates are taken from the *FAO Production Yearbooks*; the FAO population series (unlike those of the *United Nations Demographic Yearbook*) are adjusted to achieve consistency across years. Whenever different production (population) estimates for a given year appeared in different *FAO Production Yearbooks*, the figure mentioned in the *latest* Yearbook in which a production (population) estimate was available for that year has been used.

The alternative estimates 'Sahel (B)' are calculated from Berg (1977) and the *United Nations Demographic Yearbook* (1977). They are not directly comparable to 'Sahel (A)' on a year-to-year basis because of differences in calendars.

Maharashtra (1961-1973): Production figures from the Economic Review 1973-74 (Government of Maharashtra, 1974) and the Bulletin on Food Statistics (1975, 1976). Population estimates (mid-year) from the *Bulletin on Food Statistics*, 1975 and 1982-84. To obtain per capita production, population in year t was combined with production in year (t - 1, t).

Bihar (1964-69): Production figures from the *Bulletin on Food Statistics*, 1967, 1968 and 1971, Table 4. Population figures from the *Bulletin on Food Statistics*, 1972.

Palamau (1967): See Table 2.6 below.

Notes: (i) The Economic Survey production figures for India have been preferred to the FAO figures, because the latter include rice in the husk, which is about 50% heavier than husked rice (used in the Economic Survey figures); the latter is more directly comparable to other cereals (e.g. in terms of calorie content per kg) than rice in the husk. Apart from this discrepancy, however, the FAO figures are broadly comparable to the Economic Survey figures, and the latter are generally considered as fairly accurate. The FAO figures for the Sahel, on the other hand, can at best be regarded as rough estimates. (The foregoing remarks are based partly on a personal communication from the Statistics Division, FAO.)

TABLE 2.2b

'Net Availability' of Cereals per capita, India and Sahel, 1961-1980
(182 kgs/cap/year = 100)

Year	India	Sahel (A)	Sahel (B)	Maha-rashtra	Bihar (A)	Bihar (B)	Palamau	Chad	Mali	Mauri-tania	Niger	Burkina Faso	Senegal
1961	80	115						170	123	66	121	79	109
1962	80	120						151	137	70	126	97	109
1963	77	114						145	112	63	125	96	120
1964	80	118			-	71		129	102	63	120	124	137
1965	84	113			65	68		124	106	74	110	104	139
1966	72	105			62	63		109	103	66	109	104	115
1967	73	115			45	53	=55$	106	113	67	118	106	150
1968	81	118		75	85	72		106	97	53	110	103	104
1969	80	111		74	75	74		97	117	73	107	97	151
1970	81	93		68				90	105	66	111	95	95
1971	84	101	95	55				91	114	67	96	79	136
1972	84	76	102*	57				53	85	59	80	79	83
1973	76	85	90	46				66	79	60	86	74	129
1974	82	120	87	73				81	97	77	134	104	148
1975	73	92	98*					70	97	51	90	110	99
1976	75	104						74	101	65	140	103	112
1977	77	94						74	84	66	152	84	91
1978	85	110						75	114	62	154	91	132
1979	87	101						74	91	43	153	93	108
1980	76	94						74	73	66	166	78	96

* Excluding Mauritania
$ This *includes* estimates of *private* imports.

Sources and Explanatory Notes - see next page.

Sources: As explained in the text, the definition of 'Net Availability' used here is the following: Net Availability = (Net Production + Recorded Imports + Recorded Stock Depletion)/Population, where Net Production allows 12.5% of Gross Production for 'Feed, Seed and Wastage'. The Production and Population estimates are the same as in Table 2.2a) for every region. Other sources are as follows:

India (1961-80): All figures obtained from Economic Survey 1985-86 (Government of India, 1986), p.120.

Sahel (1961-80): There are no recorded changes in stocks. Import and export estimates for each year were taken from the latest FAO Trade Yearbook for which figures for that year were available.

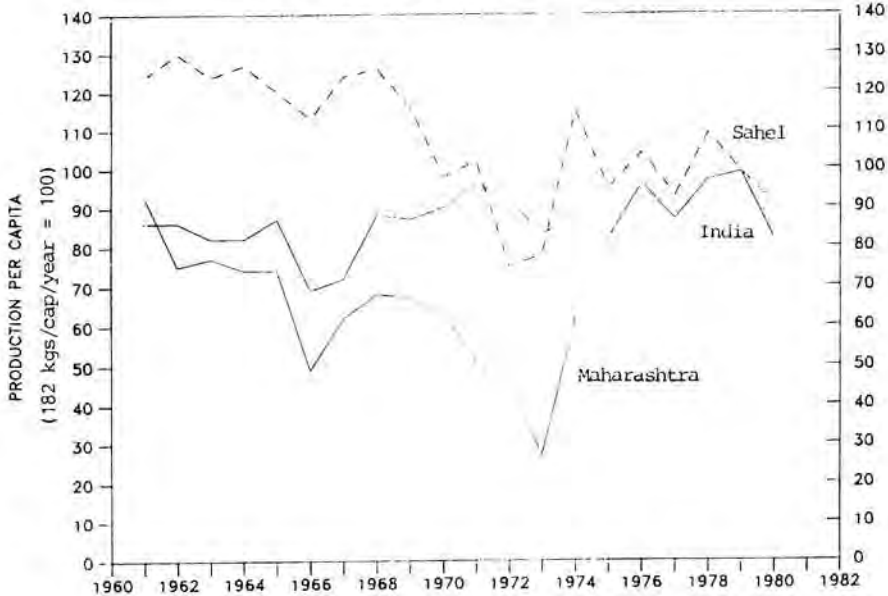
Maharashtra (1969-74): See Table 3.5 below.

Bihar (1965-69): See Table 2.5 below.

Palamau (1967): See Table 2.6 below.

Figure 2.1

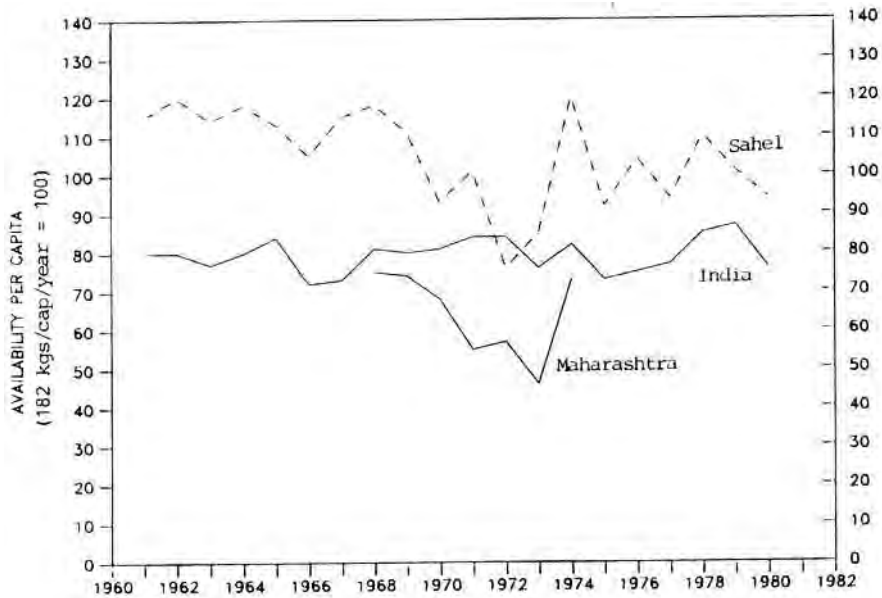
PRODUCTION OF CEREALS PER CAPITA, 1961-1980



Source: See Table 2.2a.

Figure 2.2

AVAILABILITY OF CEREALS PER CAPITA, 1961–1980



Source: See Table 2.2b.

however, it is *total agricultural output* rather than food output which is of interest. The recognition of this simple fact was indeed at the centre of the "annewari" system of early warning in India, based on assessments of harvest quality.

The second question is also important, particularly in the case of availability figures. If food consumption responds little to income and price changes (except perhaps for pure "income effects" at very low income levels), then even with a fairly high base consumption level small *declines* in net food availability are likely to be damaging, because the burden of the adjustment will fall on the poorest; even then for the poor a given adjustment will be less painful if the base level is higher. On the other hand, if food consumption is highly responsive to short-run price and income changes, then small changes in food availability around a high base level could be of little significance. The contrast is of some importance in this context, because the evolution of (aggregate) cereal production and consumption in India during the period 1960-1980 seems to have been marked by much lower base levels but also smaller fluctuations than those experienced in the Sahel.

A further issue is that of appropriate standards for comparing availability levels. In principle, one should at least adjust for differences in calorie "requirements" and in the importance of cereals in the diet. While the latter adjustment would not be likely to change the results, the basis of the former is a matter of fierce controversy (on this see the contributions of Dasgupta and Ray, and Osmani, in the second Volume of this book).

No attempt will be made here to take all these considerations explicitly into account. They are, to some extent, of secondary importance here, insofar as our purpose is not primarily to compare actual or potential entitlement crises in India and the Sahel, but rather to show that the prevention of famines in contemporary India cannot be convincingly explained solely in terms of food production or availability. The data in Table 2.2 allow us to compare both levels and change (for production as well as availability),

and also give us an idea of the magnitude of differentials in standards within which the following proposed observations remain valid:

(i) The results of a comparison of "production" and "availability" between *India as a whole* and *Sahel as a whole* over the 1960-1980 period hinge greatly on whether one compares levels or change. India has not suffered from a declining trend in production over that period, but nevertheless production/availability levels in India remain very low and dangerous short-run fluctuations do occur. The evidence suggests that *chronic* malnutrition problems are more acute in India than the Sahel (Harriss, 1982, and Svedberg, 1987).

(ii) If one compares *Sahel countries* or groups of countries with *areas* of similar (*or* greater) population size in India, it seems always possible to find an area in India which has fared no better than the corresponding area in the Sahel (e.g. Maharashtra 1960-75 vs Sahel 1960-75, or Bihar 1965-70 vs Chad 1970-75). This holds in terms of both "production" and "availability". The corresponding picture for consumption will much depend on the extent of the discrepancy between "availability" and "consumption" due to the neglect of private stocks and unrecorded trade. It is not impossible that a prolonged reduction of consumption such as probably happened in Chad and Mauritania in the early 70's did not occur anywhere in India during the period under study.

(iii) If we compare *India as a whole* with *individual Sahel countries*, some of the latter (e.g. Chad and Mauritania) have undoubtedly faced more severe food crises by any criterion.

Before moving on, it is worth reflecting for a moment on the issue of food security and national boundaries. The contrast between India and the Sahel suggests that a greater

measure of food security is typically achieved when vulnerable areas are integrated within wider national boundaries. This observation is confirmed by an examination of State-wise cereal production and consumption data in India (Table 2.3). Not only do we find that consumption differences across States are much narrower than production differences, but consumption differentials themselves appear to be extraordinarily stable over time and therefore must have very little to do with production differentials as such. Thus, in contemporary India, consumption instability is very effectively insulated from production instability; though not perfectly, as the consumption "dips" in Maharashtra (1972-73), Gujarat (1972-74) and West Bengal (1973-74) - all coinciding with local crop failures - illustrate.

The finding that a "big country" can achieve a greater level of food security, ceteris paribus, than a collection of small countries, is hardly surprising. But the precise mechanism underlying this contrast deserves further investigation. Does a poor "integration" of *food* markets across national boundaries prevent the diffusion of risks? Does the restricted movement of *factors* impinge on the diversification of income sources and exacerbate the consequences of crop failures? Is there an unutilised potential, within the Sahel for instance, for improving food security through cooperation or trade? Should we be particularly suspicious of the law of comparative advantage when it comes to food, and give greater weight to the popular goal of "self-sufficiency"? All of these questions may well deserve prudently affirmative answers. But in the case of India it is also important to recognise a less frequently mentioned source of security, viz, the possibility of implementing large *transfers* of resources towards vulnerable States during bad years. The financial resources allocated by the Central Government to drought-affected States have indeed reached impressive levels in recent years, to the point of

TABLE 2.3

Cereal Production and Consumption in India, State-wise

State	CEREAL CONSUMPTION PER CAPITA				CEREAL PRODUCTION PER CAPITA
	1970-71	1972-73	1973-74	1977-78	1977-78
Andhra Pradesh	16.05	15.25	15.80	15.85	14.30
Assam	15.70	14.81	15.33	14.38	11.18
Bihar	16.39	15.58	14.99	16.16	11.42
Gujarat	15.00	13.32	13.87	13.44	9.78
Haryana	18.13	17.57	16.56	15.22	30.16
Jammu and Kashmir	20.14	18.72	19.09	17.97	16.36
Kerala	(7.99)	(7.97)	(7.69)	(9.18)	4.44
Madhya Pradesh	16.51	17.28	17.12	16.08	17.51
Maharashtra	12.83	12.60	13.45	13.52	13.40
Karnataka	15.71	15.63	15.61	16.01	16.03
Orissa	16.12	15.22	15.80	15.97	16.27
Punjab	15.46	15.38	14.89	14.35	52.85
Rajasthan	17.91	18.17	18.76	18.18	13.56
Tamil Nadu	13.95	14.53	14.72	13.85	13.56
Uttar Pradesh	16.32	16.83	16.24	16.57	15.12
West Bengal	13.35	13.64	12.97	14.74	13.97
(Other States)	-	-	-	-	-
INDIA	15.35	15.26	15.09	15.25	14.88

All figures in kgs/cap/30 days.

Sources : Consumption figures for 1970-71, 1972-73, 1973-74 from National Sample Survey (25th, 27th and 28th Round), as summarised in *Sarvekshana*, January 1979. Consumption figures for 1977-78 from the Draft Report (No.311) of the National Sample Survey, relating to the 32nd Round.

Production figures are calculated from the *Bulletin on Food Statistics*, 1980 (pp.13-14), using population projections (for October 1, 1977) from the *Bulletin on Food Statistics*, 1982-84, pp.8-9 (assuming constant population growth rate during the 1971-81 decade, within each State).

Note: Figures for Kerala are not strictly comparable with those for other States because of the great importance, in the former case, of food items classified as 'Cereal Substitutes' by the National Sample Survey.

becoming a matter of fierce controversy among economists and politicians.[87]

We shall conclude this Section with a brief overview of food crises in India since Independence, as a background to the more detailed case studies analysed in the remainder of this paper. Over that period, localised crop failures (mainly due to drought) have occurred in different parts of the country almost every year.[88] In non-irrigated areas they recur at more or less frequent intervals. When crop failures are only local in character, food is usually forthcoming from neighbouring areas at reasonable prices, and hence the "Famine Codes strategy" of generating purchasing power in the affected areas and stimulating private trade tends to work well. The actual determination with which relief has been provided has varied from State to State and from time to time, and some obvious failures have occurred (such as in Assam in 1974-75).[89] And many of us, I hope, feel that the share of resources devoted to famine relief and similar endeavours remains pitifully low everywhere in the world, including in India. However, on the whole and by international standards the operation of the famine relief system in India in the context of local crises can undeniably be considered as impressive.

Besides dealing with these numerous local crises, India has had to cope with the threat of major disaster on three

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87. See e.g. Rangasami (1986) for a detailed discussion of these problems.

88. It is worth remembering that when a "localised" drought extends over, say, a single State, it still typically affects tens of millions of people! Note also that in the 19th century the vulnerability of agricultural labourers was so acute that localised crop failures occurring in a *single* year often caused famine - see e.g. Famine Commission Report (1880), paras 76-77.

89. See e.g. Prabhakar (1975) and Baishya (1975). It is noteworthy that this particular failure occurred in circumstances where the traditional "early warning" system was likely to fail (because the famine was *not*, in this instance, caused by drought).

occasions since 1947: in 1966-67, 1972-73, and 1979-80.[90] The first of these crises occurred in the wake of a very rare instance of virtually country-wide crop failures for two consecutive years. In both 1965-66 and 1966-67, the all-India level of foodgrain production was nearly 20% below the average for the previous 5 years (see Table 2.2 above). In terms of the magnitude and geographical coverage of crop failures, a disaster of this magnitude had not occurred since the catastrophic famine of 1899-1900. The situation was all the more precarious considering the very low base level of production, the large numbers of people affected, the sharp regional variations in distress and the virtual disappearance of "surplus areas". In Bihar, a State then counting more than 50 million people (more than twice the combined population of all 6 Sahel countries at that time), foodgrain production in 1966-67 was only about 54% the average 1961-65 level.[91]

Disaster was narrowly avoided. Massive imports were undertaken (Government stocks at the time were negligible) and relief operations launched along the lines of the Scarcity Manuals (relief works, gratuitous relief for the weak, etc.). There is some evidence that even after taking into account food movements, net food availability per capita was pitifully low in some States - Bihar being one of the most affected ones.

Officially, no starvation deaths occurred. One is inclined to be suspicious of official figures in this respect when local authorities are accountable for starvation deaths, and indeed there were non-official allegations of starvation deaths. However, the numbers involved were undoubtedly very small. On the other hand, short of starvation deaths every possible kind of damage occurred to an alarming degree: hunger and severe nutritional deterioration, massive loss of livestock, depletion of assets, and possibly even substantial

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90. The years 1985-1987 may also turn out to mark a period of acute vulnerability - but little data are available as yet on this episode, and it will be ignored in this paper.

91. Calculated from Bulletin on Food Statistics, various issues. See also Table 2.2 above, or Table 2.4 below.

excess mortality. Eye-witness accounts of the situation evoke sadly familiar pictures.

In spite of this, the 1966-67 experience has been hailed as a grand "success story" by many foreign commentators.[92] Considering the gravity of the crisis this verdict may not be entirely exaggerated. I shall nevertheless express considerable reservations about it in the next Section, where the 1966-67 crisis is further examined with particular attention to Bihar.

In my view the great "success story" of famine prevention in India is more justly dated in 1972-73, when another very severe drought hit large parts of India. The worst affected State was that of Maharashtra (again, more than 50 million people at the time), which suffered the exceptional calamity of 3 successive drought spells from 1970-71 to 1972-73. The cornerstone of relief operations consisted of open-ended public works of the Cash-for-Work type. At the peak of distress, as many as 5 million people attended the relief works in Maharashtra alone. Inter-State private trade of foodgrains was prohibited, and the Government undertook to fill the food deficit in affected States with wheat sales through the Public Distribution System. However, Government operations in food trade proved unequal to the task, and what appears to have rescued the situation is the dynamism of illegal private trade, stimulated by large price differentials between States and tolerated by realistic (or corrupt) officials.

Even after allowing for these food movements, it appears that food consumption in Maharashtra during the drought was substantially lower than in normal years, but that starvation was averted because the food deficit was rather well distributed among different socio-economic groups. There is also some evidence to the effect that nutritional damage during the Maharashtra crisis was not very great. Another important achievement of famine relief operations was to temper significantly (though far from completely) the

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92. See e.g. Aykroyd (1974), Berg (1972), Nossiter (1967) and Harvey (1969).

depletion of rural capital, and disruption of agricultural activities, traditionally associated with severe droughts in India.

In many respects, therefore, famine relief in 1972-73 represented a great improvement over the 1966-67 experience. This was all the more impressive considering that the crisis was met with little help from abroad, and with little resort to food imports. Section 3 is devoted to a case study of the 1972-73 relief operations.

The drought of 1979-80 was short-lived but its intensity and widespread geographical coverage were exceptional. Compared with the average of the previous 4 years (1974-75 itself was a drought year in many States), foodgrain output fell by about 30% in North India as a whole, and by much more in individual States. By then, however, India had accumulated large buffer stocks of foodgrains and these were used both to prevent excessive increases in food prices and to finance public works programmes. The crisis was anticipated with remarkable foresight[93] and a huge employment programme of the Food-for-Work type was undertaken. The country seems to have taken the drought in its stride with remarkable ease. However, this episode is neither well documented nor particularly edifying, and it will not be pursued further in this paper.

2.2 Famine Averted in 1966-67: A Reassessment

A proper "case study" of the 1966-67 drought is beyond the scope of the present enquiry. There is, nevertheless, some merit in attempting a brief reexamination of this important event, partly to question some of the interpretations it has lent itself to, and partly to allow a rather instructive contrast with the Maharashtra drought of

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93. See Chopra (1981).

1970-73 - the latter will be the subject of a more thorough case study in the next Section.[94]

Bihar has been widely regarded in the last few decades as one of the most "backward" places in India. In the early 80's this State had, among all the States of India, the lowest net domestic product per capita, the lowest proportion of non-agricultural employment to total employment, the second lowest literacy rate for both sexes, the third highest crude death rate, and the fourth highest incidence of rural poverty.[95] Bihar is also prone to droughts and floods, and in 1966 only a very small proportion of the cultivated area was irrigated. Yields were dangerously stagnating, and the foodgrain deficit in an ordinary year around 1966 for the State was officially

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94. An in-depth analysis of the 1966-67 drought could, I believe, yield most valuable insights into many issues related to famine relief. Unfortunately, this piece of research remains to be carried out. The most widely used source on the subject is Singh's (1967) very valuable book The Indian Famine, 1967. The author was District Collector in Palamau (one of the worst affected districts) in 1967, and for this reason the book is well-documented but not entirely detached; moreover it badly lacks academic rigour in places. The Government of Bihar (1973) issued its own Report on the drought, and similar comments apply to this document. There exist a number of other good reports, commentaries or impressionistic accounts of the 1966-67 events, including Berg (1972, 1973), Verghese (1967), Central Institute of Research and Training in Public Cooperation (1969), Gangrade and Dhadda (1973), Indian Institute of Public Administration (*), Ramlingswami et al (1971), Swaminathan et al (1969), and Sen (1967); none of them, however, provide a comprehensive and carefully documented analysis of the events (though Brass, 1986, does provide valuable insights into the political context of the crisis). A further valuable document written by Michael Windey, a Jesuit priest to whom a great deal of credit for orchestrating famine relief in Palamau should probably have gone, was handed to Indira Gandhi who later pronounced that it was "too important to be disclosed". According to a personal communication from Michael Windey, this report emphasised (amongst other things) the role of "zoning", inadequate public storage and corruption in the Irrigation Department in exacerbating the crisis.

95. These statistical indications are taken from Vaidyanathan (1987), who compiled them from various official sources, except for the crude death rate (taken from World Bank, 1984). All figures refer to 1982-83, except poverty incidence (1977-78) and crude death rate (average of 1979-81).

estimated at 1.3 million tonnes.[96] By any account Bihar in the mid-sixties was a highly vulnerable spot.

In fact it can be said without exaggeration that India itself was then a big "vulnerable spot". In the early sixties, output levels were pitifully low, yields were stagnating, the Green Revolution was hardly in sight, and output gains through expansion in cultivated areas were increasingly difficult to achieve. India's future was not regarded with greater optimism in the early 60's than Africa's future is today, and when widespread drought hit the country twice consecutively in 1965-66 and 1966-67, a terrible famine was apprehended and often predicted.

Massive imports were undertaken to augment available supplies of food. Most of the imported food consisted of food aid under PL480 and there were, at times, complicated politics involved in securing the required supplies.[97] A policy of internal "zoning" was in force, under which private trade in foodgrains across broad zones within the country was prohibited. The official purpose of this policy was to facilitate procurement from surplus zones - and presumably transfer this surplus to deficit zones.[98]

Complementary to the attempt at improving food supplies in deficit areas was the more traditional battery of relief measures, including relief works and gratuitous relief. The efforts of the Government were supplemented by those of voluntary agencies (local as well as international), which mainly organised free feeding programmes.

The food situation in Bihar was very severe. Cereal production per capita was already on a dangerous downward trend, and collapsed dramatically in 1966-67 (Tables 2.2 and 2.4).[99] The final official estimates of cereal production in

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96. Government of Bihar (1973), p.75.

97. On this see e.g. the contemporaneous issues of Economic and Political Weekly.

98. See Bhagwati and Chakravaraty (1971), and Krishna and Chhibber (1983), for detailed discussions of zoning.

99. In Bihar, the most damaging crop failure affected the *kharif* crop in the second part of 1966. The year 1966-67

TABLE 2.4

'Outturn of Crops' in Bihar, 1966-67

District	'OUTTURN OF CROPS' (In 000 tonnes)			
	'Normal'	1965-66	1966-67	1966-67 as percentage of 'Normal'
Patna	540	542	119	22.0
Gaya	698	606	138	19.7
Shahabad	918	888	435	47.4
Saran	434	422	325	74.9
Champaran	437	488	280	64.1
Muzaffarpur	374	432	220	58.8
Darbhanga	515	473	246	47.8
Monghyr	484	487	283	58.5
Bhagalpur	251	291	129	51.4
Saharsa	178	161	122	68.5
Purnea	471	397	249	52.3
S. Pargana	523	522	323	61.8
Hazaribagh	297	252	79	26.6
Ranchi	362	335	179	49.4
Palamau	176	148	48	27.2
Dhanbad	85	85	21	24.2
Singhbum	383	280	156	40.7
STATE	7403	7122	3564	48.1

Source : Bihar Famine Report (Government of Bihar, 1973), pp. 108-109.

Notes : (i) From the Report it appears that the 'Outturn of crops' refers specifically to the output of *foodgrains*, and that 'Normal Outturn' is simply the outturn in 1963-64 (see Bihar Famine Report, p.87).

(ii) The District-wise figures do not precisely add up to the State figure because of the addition in the latter of 'Other crops for which district break-up not available'.

Map. 1. Bihar Districts, 1967

Source: Brass (1986).

Bihar for the year 1966-67 (after a substantial *upward* revision of initial estimates) were put at 3.377 million tonnes.[100] If we use the average level of cereal consumption in Bihar over four rounds of the National Sample Survey in the seventies as the "normal consumption" standard, this represents barely *one-third* of cereal consumption requirements.

In order to arrive at an estimate of *net availability* of food in Bihar in 1966-67, the production figure needs to be adjusted in order to take into account (i) private stocks, (ii) private trade, and (iii) public distribution.[101]

No data exist, as far as I know, on private foodgrain stocks for that period; but there is every reason to believe that in this case the adjustment required to allow for private stocks is minimal. As we have already noted, multi-year foodgrain storage by farmers was a widespread practice in 19th century India; but their rapid decline towards the end of that century is well documented,[102] and there are strong presumptions that nowadays the practice has virtually died out (except perhaps among the larger farmers), at least in North India.[103] Nor are the reasons for this difficult to

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covers both the 1966 *kharif* crop and the *rabi* crop (early 1967). Note that there is a discrepancy in India between the "agricultural year" (July - June) and the "financial year" (April - March).

100. Bulletin on Food Statistics (1968).

101. Strictly speaking, one should also make an allowance for food aid not merged with central stocks, e.g. moved and distributed directly by international voluntary agencies such as CARE. But quantitatively this item was negligible (see Singh, 1975, p.201).

102. See e.g. the discussion in Srivastava (1968), p.331, and also Mc Alpin (1983).

103. In the village of Palanpur (Uttar Pradesh), where I conducted intensive field work in 1983-84, the practice of grain storage across years (more precisely, storage across the main Rabi harvest in April - May) has virtually disappeared. Already in 1958, the reported total grain stocks held before the arrival of the *Rabi* crop amounted to less than 5% of the current *Rabi* harvest. During recent field work in other parts of Northern India as well as Maharashtra I have also been repeatedly told that only a small percentage of large farmers, at best, store across years.

understand. The confidence with which grain prices in India can be predicted to fall after a harvest is now so great (partly due to *public* storage policies) that storing grain across a major harvest is a very unattractive way of holding wealth, particularly with high interest rates. The same argument renders it unlikely that merchants store much grain across years. In any case, whatever private storage might have taken place in Bihar during a normal year, foodgrain stocks in 1966-67 must have been particularly small since the preceding year itself was one of poor harvest. Singh (1975) confirms this hypothesis for Palamau district.[104]

Private trade is also unrecorded, but again there is every likelihood that the adjustment required on this count is minimal. Zonal restrictions of the "single-State" type were in force at the time and they seem to have been effective[105] - again for Palamau district the presumption is directly confirmed by Singh.[106]

The report of the Government of Bihar (1973) on the drought (hereafter Bihar Famine Report) arrived at very similar conclusions, and considered 10% as a "liberal allowance" for private stocks and unauthorised grain trade.[107]

There remains the question of public distribution. The Bulletin on Food Statistics publishes State-wise annual series on "Net Imports", "Issues" (through the Public Distribution System), "Procurement", and "Closing Stocks" of cereals and

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104. Singh (1975) p.36, 227.

105. See e.g. Singh (1975), p.39, 98-99, 157, and 227. On p. 156 of his book, Singh alludes without precise reference to private trade "not covered by zonal restrictions" of 1.3 million tons. But this is almost certainly a confusion with the same figure of 1.3 million tons for "total net imports" mentioned in the Bihar Famine Report (p.160). In fact, 1.3 million tonnes *exceeds* the likely magnitude of private trade even in a normal year (an idea of this can be obtained by comparing "net availability" figures with "consumption" figures from the National Sample Survey), and Singh himself emphasizes that private trade had slowed down considerably in 1966-67.

106. Singh (1975), p.36, 46, 99.

107. Bihar Famine Report, p.93-94.

foodgrains. "Net Imports" refer to imports by "Rail and River" only, and this should closely coincide with total net imports on Government account. When this is the case the identity

$$\text{(Net Imports)} - \text{(Addition to stocks)} = \text{(Issues)} - \text{(Procurement)} \qquad (1)$$

theoretically holds.[108] Unfortunately it is not possible to verify this identity it on a year-to-year basis because Net Imports are reported for the "financial year" (March to April), whereas other items refer to the "calendar year" (January to December). However, this problem hardly arises if we attempt to verify the identity over a period of several years, and indeed over the period (say) 1964-65 to 1968-69 the figures tally well. Moreover, the Bulletin on Food Statistics figures tally very well too with the month-by-month figures on "off-take" from the Public Distribution System appearing in the Bihar Famine Report (p.162), and using these month-by-month figures we can check the above identity for the year 1966-67.[109] Again, the numbers add up fairly nicely. Therefore, it seems that one can alternatively use the "Net Imports" figures or the "Issues, Procurement and Closing Stocks" figures to arrive at Net Availability estimates. Table 2.5 presents two sets of estimates, based on these alternative series of figures. It is reassuring to note that

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[108]. This is not strictly true because of minor details such as the fact that stocks are partly held by the Central Government and partly by the State Government. But since stocks were anyway very small in this case we can safely ignore these qualifications.

[109]. In doing this I have assumed that monthly issues over the period April-September 1966 (for which month-by-month data are not available in the Bihar Famine Report) were constant. This assumption is plausible and in any case rather unimportant. Monthly issues from July 1966 onwards for Palamau district are given in Singh (1975, p.96), and they were fairly stagnant until October 1966.

TABLE 2.5

Cereal Availability in Bihar, 1966-67

Year	Population (000s) (1)	Production (2)	Issues (3)	Procurement (3)	Closing Stocks (3)	Net Imports (4)	NET AVAILABILITY PER CAPITA (kgs/year) (A)	(B)
1964 (1963-64)	49580	6282	765	-	74	....	...	129
1965 (1964-65)	50552	6293	758	36	214	436	118	120
1966 (1965-66)	51537	5902	806	67	169	662	113	115
1967 (1966-67)	52532	3377	2092	10	195	1288	81	95
1968 (1967-68)	53536	7343	658	44	186	1891	155	132
1969 (1968-69)	54547	7864	485	76	184	532	134	134

(1) Mid-year estimates
(2) Agricultural year (July-June)
(3) Calendar year
(4) Financial year (April-March)

Unless otherwise specified, all figures are in thousand tonnes.

Sources : All figures except 'Net Availability' are taken from the *Bulletin on Food Statistics* (1967, 1968, 1971 and 1972), Tables 1, 2 and 4.

'Net Availability (A)' is calculated as ('Net Production' + 'Net Imports' + 'Change in Stocks') / (Population).

'Net Availability (B)' calculated as ('Net Production' + 'Issues' - 'Procurement') / (Population).

'Net Production' is calculated by deducting 12.5% from 'Production' for 'Feed, Seed and Wastage'.

Series (A) and (B) are not quite comparable for a *single* year because they refer to different 12-month periods. But they should be compatible over a number of years. See text for details.

these calculations are fairly consistent with those reported by Singh.[110]

The estimates of Table 2.5 ignore private trade and stocks altogether, but there is every reason to believe that both of these played a *greater* role in the years preceding 1966-67 than in 1966-67 itself; trade, because zonal restrictions were particularly stringent in 1966-67; and stocks, because in that year they must have been largely exhausted (see above). Thus, the figures in Table 2.5 probably *underestimate* the *change* in net availability in 1966-67 (while they may also underestimate the *level* by up to 10%).

Even then, an inescapable conclusion emerges: a dramatic decline of net foodgrain availability accompanied the drought of 1966-67 in Bihar, in spite of massive imports - a decline of the order of 30% compared to ordinary levels.

There is, moreover, strong independent evidence of a sharp decline in aggregate consumption of foodgrains. By collating the bits and pieces of information contained in Singh (1975), we can perform similar calculations to the previous ones for Palamau District. This district, slightly more populated than Mauritania (1.19 million inhabitants according to the 1961 Census)[111] was one of the worst-affected ones in 1966-67. But it was also one where relief measures were notoriously far-reaching,[112] and on balance there is no reason to believe that net food availability was better or worse in Palamau than elsewhere. Table 2.6 summarizes the calculations; the results for Palamau are quite similar to those for Bihar as a whole in the same year.

Further evidence can be gathered from direct consumption studies. In the sixties the National Sample Survey was unfortunately not collecting data on *quantities* of foodgrains

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110. Singh (1975), p.146 and 156.

111. Figure quoted in Singh (1975).

112. For instance, over the period January-September 1967, the "Daily number of persons receiving cooked food" in Palamau was about one third of the total for the whole State - while its population was only around 2.5% of the State population (Bihar Famine Report, pp.276-278).

TABLE 2.6

Net Availability of Foodgrains, Palamau District, 1966-67

Period	Gross Production (tonnes)		Public Distribution (tonnes)	Private Imports (tonnes)	Net Availability (kgs/cap/year)	
	(A)	(B)			(A)	(B)
July 66 - Aug 67	29400	48000	73972	26390	97	107
Aug 66 - Sept 67	29400	48000	80665	26126	101	112
Sept 66 - Oct 67	29400	48000	85812	22235	102	113
Oct 66 - Nov 67	29400	48000	87836	17976	101	111

Sources : For 'Gross Production (B)', see Table 2.4 above. All other figures except 'Net Availability' are calculated from Singh (1975), p.8, 36, 96-99 and 104 (the agricultural year 1966-67 being considered, following the usual practice, as the sum of *kharif* 1966 and *Rabi 1966-67*).

'Net Availability' is calculated as Net Production + Public Distribution + Private Imports, where Net Production is obtained from Gross Production by deducting 12.5% for 'Feed, Seed and Wastage'.

consumed, and inferring quantities from expenditure data is a hopeless exercise when prices change rapidly, as they did in 1966-67. However, three useful nutrition surveys were carried out during the drought by (i) the Public Health Institute, Patna (hereafter PHI); (ii) the Nutrition Research Laboratories, Hyderabad (hereafter NRL); and (iii) the All-India Institute of Medical Sciences, New Delhi (hereafter AIIMS). The quality of these surveys is difficult to ascertain, and the evidence they individually provide is very patchy; however, the tone of their common findings is clear enough.

Regarding the first of these surveys, Singh (1975) mentions that it found foodgrain intake to be 33% lower in July-August 1966 compared to a similar baseline survey carried out in March 1964.[113] A re-survey in March 1967 found that foodgrain consumption had crashed to "8.1 ounces ... per consumer unit per day" before rising again to "17 ounces per consumption unit per day" as "the nutrition and feeding programmes intensified and distribution of foodgrains extended".[114]

The relevant results of the NRL survey conducted in May 1967 in 4 drought-affected districts are summarised in Table 2.7. In this study, cereal intake in "severely affected areas" was found to be 34% below that in "least affected areas" (44% below for "labourers" and 22% below for "cultivators"). Moreover the Report states that "there had been a substantial reduction in the dietary intake in the villages affected by drought, when compared to the diets of four selected districts surveyed prior to the onset of drought".[115]

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113. Singh (1975), p.241. The area where the survey was conducted is not mentioned. Consumption of foodgrains is stated to have dropped "from 26.6 ounces to 17.9 ounces", but from the context it is quite likely that these figures refer to intake per *consumer unit* per day.

114. Singh (1975), p.246.

115. Swaminathan et al (1969), p.214.

TABLE 2.7a

Consumption of Cereals and Calories in Bihar, May 1967

	CEREAL INTAKE (gms/day)			CALORIE INTAKE (cal/day)			
	Cultivators	Labourers	All Classes	Cultivators	Labourers	All Classes	Number of Households
SAFA	445	306	371	1840	1210	1450	50
MAFA	453	312	388	1740	1280	1510	42
LAFA	573	545	566	2660	2280	2470	40

Level of per capita calorie intake per day	SAFA*	MAFA*	LAFA
< 500	8.2	-	-
500 - 899	6.1	5.7	-
900 - 1299	18.4	14.3	-
1300 - 1799	26.5	31.4	15.0
1800 - 2299	30.6	40.0	25.0
> 2300	10.2	8.6	60.0
Total	100.0	100.0	100.0

* Including contribution of calories from feeding centres.

SAFA = 'Severely Affected Area'
MAFA = 'Moderately Affected Area'
LAFA = 'Least Affected Area'

TABLE 2.7b

Income and Assets, Bihar 1967

		PER CAPITA INCOME (RS./YEAR) Agricultural Sources	Other Sources	Total	% Change in Possession of Livestock (65-66 to 66-67)	Number of Households Surveyed
SAFA	Kundah	57	53	110	-49	21
	Nawagarh	62	41	103	-36	22
	Adarshagram	41	32	74	-38	7
MAFA	Massaurah	35	77	112	-27	25
	Tarwadi	56	46	101	-28	17
LAFA	Ranipur	162	161	323	+33	17
	Kothwan	177	180	357	+30	23

SAFA = 'Severely Affected Area'
MAFA = 'Moderately Affected Area'
LAFA = 'Least Affected Area'

Source : Swaminathan et al. (1969), Tables III, IV and V.

Notes : (i) This table shows the results of a survey conducted by the Nutrition Research Laboratories (Indian Council of Medical Research, Hyderabad) in 7 villages of Gaya, Hazaribagh, Palamau and Patna Districts in May 1967.

(ii) The data on cereal consumption do *not* take into account food intake in relief kitchens. But the authors describe the consumption at free kitchens as follows : 'It was observed that about 25-30% of the *vulnerable* segments of the population (preschool children, expectant and nursing mothers) surveyed, were deriving the benefits of the supplements provided through free kitchens functioning in the villages. This amounted to 300-500 calories per person per day' (my italics). Clearly this would not make much difference to the above figures.

Both the above studies also reveal the sharp drop in *calorie* consumption which accompanied the drought (see Table 2.7 and Singh, 1975, p.241). The third study, by the All-India Institute of Medical Sciences, presents no data on consumption but mentions that "diet surveys conducted by the State Department of Nutrition at intervals of time in various parts of South Bihar between 1966 and 1967 showed that in several regions the calorie intake dropped from 2200 per capita per day to nearly 1200 calories".[116]

Yet another confirmation of the large decline in food intake comes from socio-economic surveys. In a survey carried out by the Central Institute of Research and Training in Public Cooperation (hereafter CIRTPC) in the districts of Palamau and Gaya in 1967 and covering 555 households, 37% of the respondent households reported "missing meals" as a "step to overcome their hardships"; and 95% mentioned that food was one of the sources of "hardship".[117] A hint may also be taken from a report on a survey carried out in Dolchi (Uttar Pradesh, adjacent to Bihar and also severely affected by drought) in 1967, which states: "during the preceding year 17 out of 24 households were taking three meals a day, 6 two meals a day and one household only one meal a day. But during 1966-67 the number of households taking 3 meals a day came down to 15 from 17 last year. On enquiry it was found that as many as 9 out of 24 households (37.5%) were either half-fed or on the brink of total starvation".[118] Finally, abundant eye-witness accounts of people eating wild leaves and roots, picking pieces of grain from the dust around railway sidings, undergoing appalling "skeletonisation" and even starving to death corroborate the finding of severe food deprivation.

Not surprisingly, food deprivation led to acute and widespread malnutrition. The findings of the NRL and AIIMS studies in this respect are abundantly reported in Swaminathan

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116. Ramlingaswami et al (1971), p.95.

117. CIRTPC (1969), p.227 and 231.

118. Agricultural Economics Research Centre, University of Allahabad (1972), p.18.

et al (1969) and Ramlingaswami et al (1971), respectively. The first study found a close relationship between malnutrition (assessed by anthropometric measures) and the severity of crop failures; a close positive relationship between nutritional status and the extent of relief measures; and a greater incidence of malnutrition among children than adults as well as among labourers than non-labourers.[119] The AIIMS study confirmed all these findings; added "the elderly" to the list of vulnerable groups; and noted the widespread prevalence of "famine oedema".[120] Significantly, out of 49 patients suffering from oedema and selected for intensive clinical study only 4 owned any land; 5 of them died in the hospital and the autopsies revealed that "massive oedema was the characteristic feature and the body cavities were filled with fluid".[121] The only consolation against this nutritional disaster was the absence of epidemics.

The occurrence of a sharp decline in food intake, accompanied by widespread nutritional damage, is thus obvious enough. It is much more difficult to ascertain the consequences of deprivation in terms of excess mortality. The reasons why the exercise is so difficult are that (i) mortality estimates from various sources (such as the National Sample Survey, the ordinary system of Registration, and the new Sample Registration Scheme initiated in 1965) are not even remotely comparable; (ii) the use of a time-series for a given source is also delicate, because the methods used to estimate vital statistics changed rapidly in the late 60's. In principle, these problems could be circumvented by looking at month-wise data from a particular source over a short period covering the famine; but this method would itself have to deal with the sharp element of seasonality present in such statistics.

A rigorous analysis of the demographic impact of the drought is beyond the scope of this paper. Some of the

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119. Swaminathan et al (1969), pp.214-215.

120. Ramlingaswami et al (1971), p.98-99.

121. Ramlingaswami et al (1971), p.104.

available evidence is briefly reviewed in Appendix A, and with due reservations the following conclusions tentatively suggest themselves:

(i) the mortality figures reported in Singh (1975) for Bihar as a whole are internally inconsistent as well as in conflict with the published results from the Sample Registration Scheme, from which they are supposed to originate;

(ii) the Sample Registration Scheme provides no evidence of a noticeable increase in mortality in Bihar as a whole during the crisis (Table A1);

(iii) National Sample Survey data suggest (somewhat implausibly) that while the death rate in Bihar was *lower* than in India as a whole during the years preceding the crisis, it was *higher* by about 20% in 1966-67 (Table A2);

(iv) mortality estimates based on *registered* deaths show a noticeable increase in Bihar as a whole during the crisis, the death rate being 33% higher in 1967 than in 1968 (Table A3);

(v) if the data reported in Singh (1975) for the severely affected districts of Palamau, Hazaribagh and Gaya are accepted (in spite of the discrepancies pertaining to Bihar as a whole and mentioned in (i) above), mortality appears to have shot up in these districts during the crisis (Table A4); this is confirmed by published data on *registered* deaths, which show even larger increases in mortality (of the order of 100% for the infant mortality rate - see Table A3).

Too much should not be read in these findings, which more than anything else underline the discrepancies and inconsistencies existing between different sources of data. However, one thing is clear: there is precious little evidence supporting the self-congratulatory statements that have commonly been made about the Bihar famine, such as that "No exceptional mortality was recorded. No one died of starvation".[122]

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[122]. Aykroyd (1974), p.140. Authors such as Singh (1975) and Verghese (1967) went even further and asserted that health conditions *improved* during the crisis. What is, however, plausible is that mortality did come down sharply after large-scale relief operations were undertaken. As we shall see, one of the main defects of remedial action in this event was its *tardiness*.

A separate issue from that of excess mortality pertains to how many "starvation deaths" occurred, i.e. how many people died directly from the inability to acquire any food rather than from the indirect consequences of enfeeblement. The question of direct "starvation deaths" in 1966-67 was, as always, a sensitive and difficult one. Ever since the Famine Codes made it the clear duty of the authorities to protect the people against starvation, famines have prompted public allegations of "starvation deaths", and refutation (or sometimes outright "camouflage")[123] on the part of the Government. In fact, controversies around the existence and extent of starvation deaths often provided a focus for public pressure, and played an important instrumental role in prompting the Government to act. The 1966-67 drought was no exception. Bihar alone accounted for almost half of the all-India total of 2353 officially acknowledged "alleged starvation deaths".[124] At some point the Government admitted 217 starvation deaths (all-India); but "later it was clarified that these were cases of suicide by 'voluntary starvation' and had nothing to do with... the non-availability of food ... The allegations about deaths from starvation were thus not substantiated".[125] These statements need no comment, and none of the eye-witnesses I have met had any doubts about the reality of "starvation deaths".[126] I have already referred to the five patients who died from famine oedema while under clinical observation, and there is no reason to believe that they were isolated cases.

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123. The Puri Famine Enquiry Committee (1919), for instance, contains a convincing account of how starvation deaths were disguised by directly instructing the *chowkidars* - here village enumerators - to record starvation deaths as deaths due to sickness.

124. Singh (1975), p.182-183.

125. ibid.

126. I was, for instance, very vividly told by Michael Windey how a haggard wanderer died right in front of him after he (Windey) had committed the blunder of offering the famished man a good meal.

Let me conclude this brief review of the effects of the Bihar famine by considering the *distribution* of hardship. It may seem trivial that during a scarcity of this magnitude the poor suffer most; but in the case study of the Maharashtra drought of 1970-73 we shall encounter a case of a remarkably egalitarian famine (or rather, "non-famine"); and it is of some interest to see whether a similar tendency existed in Bihar in 1966-67. Indeed it *has* been boldly asserted that the success of relief operations converted a potential tragedy into "a bonus year... a year of great blessing" for the masses.[127]

The evidence, however, strongly suggests that on this last count Bihar in fact scores badly again - in three different ways. First, we have already noted the high incidence of deprivation among landless labourers reported in the NRL and AIIMS studies (see also Table 2.7). Informal accounts of the drought confirm this observation, which conforms to the traditional pattern of Indian famines (see Section 1). Secondly, there appears to have been a pronounced maldistribution of hardship across *areas* more or less severely affected by crop failures (see Table 2.7, and also Appendix A on mortality estimates). Finally, informal reports strongly suggest that the peak of hardship occurred towards the end of 1966 - that is, before the beginning of large-scale relief operations - and subsided considerably in the following months. This is plausible in itself considering the inverse correlation between relief and distress mentioned above. It is also confirmed by an interesting survey mentioned by Singh (see Table 2.8). While the observation is a testimony to the effectiveness of relief operations, it also indicates the maldistribution of hardship across time which resulted from their notorious tardiness.

A crucial question remains: were all these disastrous outcomes the inevitable consequence of an extremely precarious situation, or did they partly betray a failure of the relief system?

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127. Verghese (1967), quoted in Aykroyd (1974), p.140.

TABLE 2.8

Famine Appreciation', Bihar 1966-67

Months considered hard	Responses
June 1966	-
July 1966	3
August 1966	39
September 1966	171
October 1966	252
November 1966	361
December 1966	363
January 1967	368
February 1967	82
March 1967	14
April 1967	12
May 1967	90
June 1967	151
July 1967	166
Total response	2072

Source : Singh (1975), p. 228.

The received assessment, as we have already noted, points in the former direction, and crisis management during the 1966-67 drought has indeed been hailed by many commentators as a grand success. However, there are good reasons to be suspicious of this received assessment, which has been based partly on the self-congratulatory writings of people whose viewpoint was far from detached and partly on the writings of foreign observers who were inclined to contrast Bihar in 1967 with Bengal in 1943 and other notorious failures, and to baptise as the "Bihar model" a relief strategy which in fact dated almost a century back and had not been particularly well followed in this instance.[128] In a trivial sense the episode was a success, because in the absence of relief massive starvation *would* definitely have occurred. But this kind of criterion of success turns the clock back all the way to the early 18th century. The effectiveness of relief operations in 1966-67 needs to be re-examined.

A comprehensive reassessment will not be attempted here. I shall confine myself to pointing out four aspects of famine relief in 1966-67 which would call for serious scrutiny as part of the needed reassessment: the delayed "declaration" of famine; the limited provision of employment; the policy of zoning; and the reliance on "commodity relief".

The Famine Commissions had all recognised the critical importance of *diligence* in starting relief operations - the Famine Commission of 1880 itself insisted that "The great thing is to begin on time".[129] Time and again experience showed that early relief measures promised a great economy of efforts and much better chances of success. This in fact was one of the very reasons for drawing up detailed contingency plans in the form of Famine Codes. The importance of a speedy

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[128]. Singh had been the District Collector of Palamau, the focus of his book. Verghese (who wrote another very influential piece) was information adviser to the Prime Minister at the time of the famine (Berg, 1973, p.217). Most of the "lessons of the Bihar experience" drawn by Berg (1973) are old principles of the Famine Codes.

[129]. Famine Commission Report, 1880, Appendix I, pp.119-120.

response also explained the prominence given, in the Famine Codes, to an elaborate system of "early warning", according to which the authorities had the *obligation* to "declare" famine, and hence set in motion the provisions of the Famine Codes, once a number of well-defined signs of imminent distress (e.g. crop failures, rise in prices, unusual migration or sales of assets etc.) manifested themselves. As we have seen, one of the major contributions of the Famine Codes was to greatly enhance the likelihood of prompt and decided action.

Famine was "declared" in Bihar on April 20, 1967.[130] This was very late indeed. It is well-known that once the monsoon breaks (normally late June in Bihar), relief operations become extremely difficult to carry out, and declaring famine only two months ahead of the rains hardly seems worth the trouble. Relief operations did take place before the official declaration of famine, but relief policy in that period was rather ad hoc, and in fact even later measures were explicitly confined to a mere "intensification" of that policy.[131]

The rules of famine declaration in Bihar are described by Singh (1975) as follows: "the facts, which determined the declaration were: (i) subsistence of more than one per cent of the population on dole for more than two months, (ii) prevalence of high prices, and (iii) turn-out of a larger number of workers on relief works".[132] These conditions had, in fact, been met in late February 1967 - if not before - when the price of coarse rice in Bihar was more than twice the 1965 level[133] and large-scale relief had already started (see Table 2.9). The reasons for delaying the declaration of famine have been entirely political, and closely connected in particular with the general election of February 1967 as well as with familiar Centre-State politics. The reader is referred to

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130. Bihar Famine Report, p.77.

131. Singh (1975), p.148; Bihar Famine Report, p.77.

132. Singh (1975), p.146.

133. Bihar Famine Report, p.111.

Brass (1986) for a detailed discussion of this issue.[134] The belated and politicised nature of relief efforts during the Bihar crisis in 1967 is undoubtedly an area of failure.

My second query is closely related to the first. According to the Bihar Famine Code, public works are supposed to form the backbone of relief operations, and moreover employment is to be provided through small-scale "village works" near the homes of the affected people.[135] The actual pattern of relief operations in 1967 is summarised in Table 2.9. Clearly the contribution of public works to the overall relief strategy was rather small. The main plank of relief, in fact, was a huge free-feeding programme organised by CARE and UNICEF with the cooperation of the Government. The beneficiaries of this scheme, mainly children and expectant or nursing mothers, received one meal a day at the local school. Also of great importance were free kitchens, organised mainly by the Bihar Relief Committee under the leadership of Jayaprakash Narayan. This pattern is quite interesting because it provides a rather impressive example of successful cooperation between Government and voluntary agencies (both local and international). However, one suspects a certain abdication of responsibility on the part of the Government. In particular, it is very hard to believe that the "employment guarantee" of the Famine Code was actually honoured, unless the free feeding programmes induced a massive withdrawal of labour supply for public works.[136] Indeed, the figures of labour attendance on relief works are rather poor for a crisis of this intensity. Over the period January to June 1967 (the period of peak labour attendance), the average number of labourers employed on relief works was nearly 450 000 (Table 2.9). During the same months of 1973 in drought-affected

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134. See also Singh (1975), pp.144-149, and CIRTPC (1969), p.20.

135. CIRTPC (1969), p.42.

136. There is some evidence that, to a certain extent at least, a withdrawal effect did operate. The CIRTPC study, for instance, noted that "In many instances, it was true that people did not work on labour-schemes and hung around the free-kitchens" (CIRTPC, 1969, p.178).

TABLE 2.9

Relief Operations in Bihar, 1967

MONTH	AVERAGE NUMBER OF PEOPLE (000's) BENEFITING FROM :				
	Cooked Food	Mid-day Meal (CARE/UNICEF)	Red Cross Scheme (Free Meals)	Relief Works	'Red Cards' (Gratuitous Relief)
	(A)	(B)	(C)	(D)	(E)
Dec. 66	NA	NA	NA (0?)	NA	...
Jan. 67	33	373	NA (0?)	228	...
Feb. 67	163	1118	NA (0?)	318	...
March 67	436	3269	244	374	...
April 67	487	3916	509	432	...
May 67	636	4282	500	607	...
June 67	795	4054	500	692	...
July 67	700	4549	NA (0?)	324	783
Aug. 67	537	4767	NA (0?)	68	...
Sept. 67	527	4553	NA (0?)	22	...
Jan.-June average	425	2835	NA	442	...

Sources : (A) and (D) are from the Bihar Famine Report, Annexures 3.7 and 10.15. Other figures are from CIRTPC (1969), pp.184-185 and *.

Notes : (i) 'Plan schemes' employed 22 3400 persons on average over the period January - June 1967 (Bihar Famine Report,p.100).

(ii) Relief works started in October 1966 (CIRTPC, p.42); gratuitous relief started in December 1966 (CIRTPC, p.*).

Maharashtra, average attendance as a proportion of the population was nearly 8 times as high! The difference may partly be due to the fact that the Maharashtra drought was a *prolonged* one, adding many farmers to the ranks of the drought victims along with agricultural labourers (see Section 3). However, ex post "distress" in Bihar in 1967 was, as we shall see, much more severe by any criterion (food deprivation, nutritional damage, excess mortality, distress sales of assets etc.) than in Maharashtra in 1973; and so unless Biharis have a much higher "reservation wage" than Maharashtrians at a comparable level of income (an unlikely proposition), there must have been a large pool of unsatisfied labour supply in Bihar in 1967.[137] To take another point of comparison, peak labour attendance in Maharashtra in *1966* was itself of the order of 500 000,[138] even though the drought affecting Maharashtra at that time was less severe, and the population less vulnerable, than was the case in Bihar in 1967. One cannot disprove the existence of a large "withdrawal effect" from free-feeding. But it is equally plausible, given the context, to infer that the Bihar Government not only delayed the application of the Famine Code considerably, but also violated one of its most crucial provisions throughout the crisis.

Thirdly, there is obviously a very big question mark associated with the effect of the national "zoning" policy on the intensity and distribution of distress. In particular, how did this policy affect food entitlements in different States of India? This is not the place to go into the controversy about the general merits or demerits of "zoning" in India;[139] but a few remarks on the specific relationship between zoning and famine prevention are in order. The issue

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137. Note that the observed contrast cannot be explained with reference to wage levels on public works: wage levels in Maharashtra in 1973 were extremely low (see Section 3), and they could hardly have been lower in Bihar in 1967.

138. Singh (1975), p.177.

139. For an introduction to the debate, see e.g. Bhagwati and Chakravarty (1969) and Krishna and Chhibber (1983).

is important because food policies akin to zoning are very often in force, or proposed, in famine situations. If private trade in grain is competitive it is easy to show that a zoning system is essentially equivalent to a set of taxes on food movements.[140] As we have already seen in Section 1, a policy of this kind may well have some merit when vulnerable areas are *exporting* food; but this was definitely not the case in 1966-67 (see below). Otherwise, a case for zoning can still conceivably arise if the Government desperately needs extra resources for financing relief measures and no socially preferable means exist of raising funds - but this is a rather remote possibility.

This argument, admittedly, runs in terms of a competitive food market. I do not share the view that this assumption is a far-fetched one in the Indian context. But in any case, where collusive practices do exist it is rather hard to see how a policy of zoning helps to counter their deleterious effects - if anything, zoning is likely to *facilitate* collusive practices.

None of this implies, of course, that food trade, storage and distribution offer no scope for a positive involvement of the Government. On the contrary, public distribution schemes can definitely have a major impact on food entitlements, and the influence of public storage and food pricing policies on private expectations and hoarding decisions can be a decisive one in famine situations. But the point is that zoning does not, as a rule, strengthen the scope for this type of intervention.

To summarise, it is hard to see how a zoning policy could help to reduce the threat of famine under the conditions prevailing in India, and if anything one would expect its effects to operate in the opposite direction. Careful empirical studies strongly confirm that zoning in India has

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140 If procurement and/or public distribution take place at preferential prices rather than at open-market prices, the system will also involve the implicit lump-sum taxes and transfers associated with "dual pricing" policies. These taxes and transfers may or may not be socially desirable, but in any case their operation is independent from that of zoning.

considerably increased the dispersion of food prices across States (and thus increased hardship for deficit households in deficit States) when it has applied. In fact, the dispersion of wheat prices reached an all-time high for the post-Independence period precisely during the 1965-67 droughts.[141] In Bihar in 1967, the price of coarse rice (the staple cereal) increased by leaps and bounds and in August 1967 was more than 4 times as high as in Haryana (Table 2.10)! Price differentials of this magnitude between States are quite abnormal, and there undoubtedly existed a big untapped potential for advantageous food reallocation within the country in 1966-67. Without going as far as to claim that India could have taken the drought in its stride in the absence of zoning, one *is* left to wonder how much this policy exacerbated the very problem it sought to relieve.

Finally, a word should be said about the reliance, during the Bihar famine, on "kind relief" (especially free-feeding) rather than cash relief (e.g. Cash-for-Work). As we have emphasized in the first Volume of this book, the question of whether food should be preferred to cash as a medium of transfer in famine relief operations should be carefully distinguished from the issue of whether entitlement support schemes should be contingent upon, and commensurate to, food delivery operations.[142] In the case of Bihar in 1967, when famine relief operations overwhelmingly depended on the successful convoying of food (mainly PL 480 food aid) all the way from the U.S.A. to the mouths of the destitute, the shortcomings of "commodity relief" in this second sense were particularly obvious. The dependence of relief operations on food delivery during the Bihar famine was, in particular, partly responsible for their great *tardiness* as well as *precariousness*. The success of relief efforts was, for instance, threatened from time to time by such extraneous

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141. See the work of Krishna and Chhibber (1983) on the effects of zoning in India.

142. Thus, food aid can be sold to provide cash income support, and conversely the provision of food rations can be based on open-market purchases.

TABLE 2.10

Cereal Prices, August 1967

	Bihar	Uttar Pradesh	Haryana	Punjab
Rice	288	150	63 to 67	83 to 89
Wheat	163	117 to 120	100 to 102	99 to 100
Maize	125	95 to 96		55 to 63

All figures in rupees/quintal.

Source: Bihar Famine Report, p.98.

factors as the closure of the Suez canal after the Arab-Israeli war, the influence or lack of influence of the US on the Aid India Consortium, or crooked Centre-State politics within India.[143]

Before concluding this Section, it is worth remarking that *each* of the four queries I have raised point to a flagrant violation, during the Bihar crisis, of some basic principle of the approach to famine relief advocated in the Famine Codes. This is not to say that the latter approach is the best possible one for contemporary India, and indeed I have argued earlier that some of the 20th century developments in famine relief have taken place in the right direction - while many further improvements are obviously also possible. The Bihar episode simply draws our attention to the danger of throwing the baby out with the bathwater. This view is confirmed from a different angle, as we shall presently see, by the success achieved in famine relief during the Maharashtra drought of 1970-73.

3. A Case Study: The Maharashtra Drought of 1970-73

The drought of 1970-73 in Maharashtra offers ideal material for a case study of successful famine relief operations: the crisis was of extreme severity, famine was uncontroversially averted, and the events are well documented. In this Section we shall see how the sudden emergence of a frightening gap between food production and food requirements failed to develop into a famine. This gap was, in the first instance, considerably narrowed by the combined operation of the Public Distribution System and private trade movements - the latter stimulated by the generation of purchasing power in affected areas. Equally importantly, the remaining shortfall was very evenly *shared* between different socio-economic groups

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143. See e.g. the fierce debates which took place in the columns of the Economic and Political Weekly at the time. The political reasons why relief came to be based on food aid rather than on trade (public or private, within or into India) are discussed at length in Brass (1986).

The area within the thick line indicates the 10 Districts most affected by drought in 1972-73 (see text). Source: Brahme (1983).

under the influence of progressive income support measures. The role of markets, politics, public works, food distribution, private survival strategies and other contributing influences will be investigated.

3.1 Background and impact of the drought

In terms of several conventional indicators of "development" (including literacy, urbanisation, life expectancy and average incomes), Maharashtra appears as one of the more "developed" States of India. However, aggregate statistics hide enormous regional as well as urban-rural differences, and this vast State strikes the traveller by its great diversity. For instance, while the 1971 Census found Maharashtra to have the highest ratio of urban population to total population among all Indian States, this ratio falls from 31% to 19% (slightly less than the all-India average) if we exclude only Bombay (with Thana) and Poona; and in a large majority of the 26 districts the rural population exceeded 80% of the total population in 1971.[144] Similarly, while in 1977-78 (the latest year for which the relevant calculations are available) Maharashtra had the third highest State Domestic Product per capita, it also had the third highest proportion of rural population below the poverty line, next only to Orissa and Madhya Pradesh.[145] Within the rural sector, there are enormous regional differences in yields as well as in the *growth* of yields, particularly between the "high" or "assured" rainfall areas of coastal and Eastern Maharashtra, and the semi-arid drought-prone areas of inland Western Maharashtra.[146] Finally, even within fairly homogeneous rural regions, one cannot fail to be struck nowadays by the sharp

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[144]. Calculated from Government of India (1979), pp.3-12.

[145]. Vaidyanathan (1987), Table 1.

[146]. The agro-climatology of Maharashtra, and its relation to drought and famine, is discussed in detail in Vincent (1981) - see also Brahme (1983).

contrast between irrigated and non-irrigated agriculture - not only in terms of yields but far more importantly in terms of incomes and employment. On the lush and busy patches of irrigated land (which constituted only 8.5% of total gross cropped area in 1970-71),[147] "progressive" farmers devote a large proportion of sown area to highly rewarding cash crops such as sugarcane, bananas, papayas and even grapes, while in the non-irrigated expanses the meagre harvest of coarse grains remains a gamble on the monsoon and the land offers a spectacle of desolation and dust during the slack season.

At the time of the onset of the terrible drought of 1970-73, Maharashtra was facing similar problems of agricultural decline as those I have described earlier for Bihar: stagnant area under cultivation; stagnant yields; and rapidly increasing population pressure (Table 3.1). As a result, per capita food production was on a dangerous *and* prolonged downward trend.[148] This downward trend turned into a disastrous crash in the early seventies, when the exceptional calamity of *three* successive drought years shattered the rural economy of Maharashtra (Table 3.2). While the aggregate picture is bad enough, the District-wise figures of food production bring out even more clearly how in several districts agricultural incomes, already so low to start with, were reduced to crumbs for several years. By any criterion, the severity of agricultural stagnation in Maharashtra and its culmination in massive crop failures in the early seventies dwarf the food crises which led to dramatic famines in the Sahel in the seventies over the same period (see Table 2.2 and Figures 2.1 and 2.2 above). The contrasting outcomes to which these two crises led enhance the importance of understanding how famine was averted in the former case.

The sufferings occasioned by the Maharashtra drought were, indeed, very much smaller than one might have expected

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147. Statistical Abstract of Maharashtra State for the year 1970-71, quoted in Brahme (1983), p.14.

148. In all likelihood this trend actually started many decades earlier - see the earlier discussion of trends in food production in India in the first half of this century.

TABLE 3.1

Cultivated Area, Cereal Yields and Cereal Production in Maharashtra, 1956-1974

Year	Population	Gross Cropped Area (thousand hectares)	Cereal Yields (kgs. per hect)	Cereal Prodn. per cap. (kgs/yr)	THREE-YEAR AVERAGES Yields (kgs/ hect)	Prod. per cap. (kgs/ year)
	(A)	(B)	(C)	(D)	(E)	(F)
1956-57	36 337	18770	522	146		
1957-58	37 115	18596	522	142	534	146
1958-59	37 909	18764	559	151	530	143
1959-60	38 720	18978	510	136	569	152
1960-61	39 880	18823	637	169	560	147
1961-62	40 487	19094	532	137	576	149
1962-63	41 806	18963	560	141	547	138
1963-64	42 798	19174	548	135	556	137
1964-65	43 825	19216	559	134	497	120
1965-66	44 886	18972	384	90	475	112
1966-67	45 982	19191	482	113	471	109
1967-68	47 115	19253	548	124	530	120
1968-69	48 284	19367	561	122	553	120
1969-70	49 490	19435	550	114	523	110
1970-71	50 709	19398	458	93	478	97
1971-72	51 927	.....	427	83	395	75
1972-73	53 159	.....	301	49	...	...
1973-74	54 404	.....	...	...	...	...

Sources: (A) *Bulletin on Food Statistics*, 1975 and 1982-84 for 1961 onwards (population figures correspond to the middle of the second of the two calendar years). Pre-1961 population figures were obtained by assuming a constant population growth rate (of 2.14%) between the 1951 and 1961 Censuses.

(B) Economic Review 1973-74 (Government of Maharashtra, 1974), p.72.

(C) Calculated from Economic Review 1973-74, p.72 and 74.

(D) See Table 2.2a.

(E), (F) Calculated from (C) and (D). The three-year average for each year is calculated as an unweighted average for the preceding year, the current year and the following year.

TABLE 3.2

District-wise Cereal Production in Maharashtra, 1967-73

District	INDEX OF CEREAL PRODUCTION (1967-68 = 100)					Cereal Production per capita, 1972-73 (kgs/year)
	1967-68	1969-70	1970-71	1971-72	1972-73	
Greater Bombay	100	77	81	54	31	
Thana	100	88	110	97	42	46
Kolaba	100	78	101	81	67	131
Ratnagiri	100	99	117	103	86	85
Nasik	100	81	107	55	26	32
Dhulia	100	106	119	74	49	54
Jalgaon	100	89	74	59	70	72
Ahmednagar	100	109	80	59	33	47
Poona	100	90	70	73	43	38
Satara	100	98	103	91	41	45
Sangli	100	90	86	90	18	20
Sholapur	100	92	51	63	18	27
Kolhapur	100	93	110	115	65	53
Aurangabad	100	89	74	48	20	31
Parbhani	100	76	54	42	41	66
Bhir	100	120	97	54	17	27
Nanded	100	77	36	48	29	51
Osmanabad	100	108	54	58	45	61
Buldhana	100	122	68	82	63	86
Akola	100	132	55	89	61	64
Amravati	100	103	61	68	79	62
Yeotmal	100	131	65	104	85	86
Wardha	100	97	59	73	68	80
Nagpur	100	96	71	76	67	49
Bhandara	100	121	139	114	58	92
Chandrapur	100	129	109	105	71	118
MAHARASHTRA	100	99	83	74	47	51

Source: Calculated from the *Annual Season and Crop Reports* (Government of Maharashtra) of the corresponding years. Per capita production figures for 1972-73 (last column) are based on District-wise population estimates (for 1973) obtained by assuming identical 1973/1971 population ratios for each District; the all-Maharashtra 1973/1971 population ratio is taken from the *Bulletin on Food Statistics*, 1982-84. District-wise population estimates for 1971 are from the Census (as given in Brahme, 1983, p.13-14.)

on the basis of the extent of ecological devastation and the almost complete collapse of agricultural incomes, employment and wages in many Districts for a prolonged period.[149] Mortality rose little if at all (Table 3.3). There were no confirmed instances of "starvation deaths". Though no longitudinal studies of nutrition are available for that period, a survey conducted by the National Institute of Nutrition (Hyderabad) in February 1973 in the "worst affected taluka" of each of four among the worst-affected Districts observed that "the incidence of the various deficiency signs, is somewhat similar to that frequently seen among the poorest sections of rural population in many other parts of the country".[150] Eye-witness accounts mention very little of the appalling emaciation that struck countless observers of the Bihar drought, and indeed a comparison of two nutrition surveys conducted respectively in Bihar (1967) and Maharashtra (1973) confirms the reality of the suggested contrast (Table 3.4). The loss of livestock was considerable, but the disposal of other assets was not large, and land sales (an indication of acute distress) were minute.[151] The extent of migration was also moderate (see below).

In contrast to Sahelian countries, of course, Maharashtra had the ability to draw fairly easily on the "surplus" available in neighbouring areas. It also had the general advantage, discussed in the previous Section, of being integrated within a larger economic and political entity. I shall argue, however, that these factors fall far short of

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149. A detailed account of the impact of the drought on rural life will be provided in the final version of this paper. Here most of our attention will be retained by food entitlement issues.

150. Krishnamachari et al (1974), p.22.

151. Interesting observations on the disposal of assets and the loss of livestock during the Maharashtra drought can be found in a number of micro-studies, including those reported in Borkar and Nadkarni (1975), Kulkarni (1974), Subramaniam (1975), and Jodha et al (1977). Land sales are also discussed in Cain (1981), where a sharp contrast is drawn with the incidence of land sales during food crises in Bangladesh.

TABLE 3.3

Mortality in Rural Maharashtra, 1968-1978

Year	Crude Death Rate	
	Sample Registration Scheme	Registered Deaths
1968	13.9	12.3
1969	15.5	12.9
1970	13.0	12.1
1971	13.5	11.3
1972	14.5	10.5
1973	13.1	11.2
1974	...	9.1
1975	...	9.1
1976	12.5	8.6
1977	14.5	9.3
1978	11.3	7.3

Source: Sample Registration Bulletin, April 1974; Sample Registration System, 1976-78 (Vital Statistics Division, Ministry of Home Affairs, Covernment of India, New Delhi); Vital Statistics of India, various issues.

Notes: (i) The figures produced by the new Sample Registration Scheme (initiated in 1965) are much preferable to the other ones.

(ii) An alternative figure of 15.6 for 1973 appears in the Sample Registration Bulletin of July 1975, with the remark "to be treated with caution". This is also the figure cited in Oughton (1982).

TABLE 3.4

Prevalence of Nutritional Deficiency Signs among Children (Age 0-5) in Severely Affected Areas of Bihar (1967) and Maharashtra (1973)

Deficiency Sign	Percentage Prevalence	
	Bihar (1967)	Maharashtra (1973)
Without any Clinical Sign	37.9	69.1
Marasmus	16.1	2.4
Kwashiorhor	2.3	1.6
Moonface	42.5	(NA)
"Protein-Calorie Malnutrition with 2 or more signs"	(NA)	6.4
Night Blindness	-	0.8
Bitot's spots	5.7	4.0
Anaemia	4.6	27.2
B-Complex deficiency	(NA)	12.8
Xeroses	NA	30.0
(conjunctival)	6.9	NA
(Corneal)	1.1	NA
Number of Cases Observed	87	151

Sources: Swaminathan et al (1969), Table VI, and Krishnamachari et al (1974), Table III.

Notes: (i) The Bihar survey was carried out in May 1967 among randomly selected households in areas classified by the State Government as "severely affected". But the authors note that "the pattern of malnutrition in the community could have been considerably influenced beneficially by the energetic ameliorative programmes which were already in operation" (p.215).

(ii) The Maharashtra survey was carried out in February 1973 in "the worst affected taluk of each of the Districts of Poona, Ahmednagar, Bhir and Aurangabad" (themselves among the very worst affected Districts - see below). The subjects were drawn from households of labourers (male and female) employed on relief works; but the authors argue that the people "could be considered as representing the population of the surrounding drought stricken villages" (p.20)

providing a statisfactory explanation for the successful prevention of famine in Maharashtra - once again, the quality of the relief system played an essential role.[152]

3.2 Production, Availability and Consumption[153]

As in the discussion of 19th century famines in Section 1, we have to consider here two closely related but nevertheless distinct effects of crop failures: the sharp reduction of food availability in affected areas, and the threat to food entitlements arising from the collapse of rural incomes. In the case of Maharashtra, it is quite clear that the improvement of food availability was an inescapable precondition to the protection of food entitlements. It is natural, therefore, to begin our investigation with a brief assessment of the food situation in Maharashtra in the year 1972-73, which marked the peak of the crisis.

Calculations of "net availability" of foodgrains very similar to those performed in the previous Section for Bihar can be carried out for Maharashtra using the same sources

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152. The following case study relies on a fairly comprehensive compilation of the scattered but already voluminous literature (in English) on the Maharashtra drought. Some of the most important sources include Subramaniam (1975), who gives an extremely detailed and useful (though far from detached) account of the events from the point of view of a high-level Government servant; Ladejinsky (1973), a vivid first-hand report; Oughton (1982), whose analysis, however, differs significantly from that put forward here; the enquiry carried out by the Government of Maharashtra (1973) itself; the studies of administrative, nutritional and other specific issues in Jodha (1975), Krishnamachari et al (1974), Mathur and Bhattacharya (1975), and Mundle (1974a, 1974b); the detailed micro-studies of Borkar and Nadkarni (1975), Brahme (1983), and particularly Kulkarni (1974); the field reports of voluntary agencies such as Oxfam; various contributions to the Economic and Political Weekly from 1972 to 1974; and a large number of newspaper reports.

153. In arriving at the conclusions reached in this subsection, I have benefited from extensive discussions with several leading experts on Indian statistics, including N. Bhattacharya, B.S. Minhas, S. Tendulkar, A. Vaidyanathan, and A.M. Vidwans. I am also indebted to Michael Lipton for several useful suggestions.

(mainly the Bulletin on Food Statistics). This has in fact already been done by Oughton (1982). Oughton takes the route of the left-hand side of equation (1) on page 53, and I have attempted my own (rough) calculations via the right-hand side.[154] Private stocks and private trade (the latter again prohibited across States in 1972-73) are ignored throughout; I shall comment on this below. The results are summarised in Table 3.5a.[155] The two series of net availability estimates for foodgrains give a consistent picture of change, although my series appears to be somewhat lower than Oughton's. The discrepancy widens substantially in 1971 and 1972, and this may be due to the removal of zoning in 1970-71 and 1971-72 (if private trade takes place by "Road and River", equation (1) ceases to hold). For the year we are concerned with, however, the discrepancy narrows down considerably. According to official statistics, then, net foodgrain availability per capita in Maharashtra for the year 1972-73 was somewhere between 90 and 100 kgs, and roughly 60% the average 1968-70 level. Another Bihar?

This finding, however, is completely unbelievable. Field reports, nutrition surveys, socio-economic micro-studies and, finally, the National Sample Survey all converge to indicate that the decline in foodgrain *consumption* in 1972-73 must have been far smaller.

For the time being, let us neglect all other sources of evidence and only consider the most important one: the National Sample Survey (hereafter NSS). According to the 27th round of the NSS (October 72-August 73), average cereal consumption per person for a period of 30 days in Maharashtra in 1972-73 amounted to 12.6 kgs in rural areas and 8.95 kgs in urban areas (Table 3.5b). With the rural-urban population

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154. The accuracy of these calculations could, in principle, be improved by using the data on month-by-month issues reported in Subramaniam (1975).

155. Brahme (1983), p.79, presents similar calculations (for cereals), based on the various issues of *Maharashtra, An Economic Review* (1983). The broad picture is the same, though there are year-to-year discrepancies. Brahme, however, appears to have neglected changes in public stocks, and her results have, therefore, not been reported here.

TABLE.3.5(a)

Net Availability of Foodgrains in Maharashtra

Year	Net Production (1)	Issues (2)	Procure-ment (2)	NET AVAILABILITY (kgs/cap/year) Oughton	Dreze	Dreze (cereals)
1968	5972	1942	567	167	156	137
1969	6262	1728	439	160	156	134
1970	6050	1609	400	167	147	124
1971	4891	1244	254	138	116	101
1972	4334	1677	122	132	113	103
1973	2670	2404	236	96	91	84
1974	6230	1979	231	157	147	133

Sources: Production, issues and procurement are from the *Bulletin on Food Statistics*, 1971 to 1976. 'Net Production' is obtained by deducting 12.5% from gross production for 'Feed, Seed and Wastage'.

Oughton s estimates of 'Net Availability' (see Oughton, 1982, p.180) are obtained as Net Production + Net Imports + Net Depletion of Government Stocks.

Our estimates are obtained as Net Production + Issues - Procurement (see text for details).

Population estimates (mid-year) are as in Table 2.2a.

(1) Agricultural Year (starting in July of the preceding calendar year).

(2) Financial Year (April - March).

TABLE 3.5(b)

Cereal Consumption in Maharashtra, 1972-1973

	CEREAL CONSUMPTION PER CAPITA kgs/30 days	kgs/year	Number of Households Sampled
RURAL	12.60	153	5249
URBAN	8.95	109	6181

Source: *Sarvekshana*, January 1979, p.133, reporting the results of the 27th Round of the National Sample Survey (October 72 - August 73).

proportions of the 1971 Census, this represents an average per capita consumption per year of 140 kgs, and implies an embarrassing discrepancy of around 50 kgs per head (a little more than 2.5 million tonnes) with our previous estimate.

Let us examine the possible sources of this discrepancy. First, could the NSS figures be wild overestimates? It is well known that NSS estimates of cereal consumption systematically exceed, at the all-India level, the "net availability" estimates arrived at by the sort of method I have used above.[156] The reasons for this are an old and unsolved riddle in Indian statistics, and many experts believe that the NSS series are on the high side. However, even if we (unreasonably) put the whole blame for this chronic inaccuracy on the NSS series, we are only led to revise it downwards by about 15-16% in the 1970-73 period and at most 20% in 1972-73,[157] whereas our concern here is with an adjustment of about 35%. We are still far off the mark.

Are there reasons why overestimation in the NSS figures should *increase* in a drought year? Answering this question in detail would lead us into the intricate (and rather boring) issue of the *source* of alleged overestimation in the NSS data, and only a few general conjectures can be made here. It is fairly well agreed that *sampling* errors in NSS data are small if one is concerned with *aggregate* magnitudes such as average cereal consumption. Among possible non-sampling errors leading to overestimation, the most frequently cited ones are the double-counting or faulty recording of wages in kind, gifts (including meals at marriage feasts), animal feeding and the like. But these sources of overestimation are *not* likely to increase in a drought year. A more relevant possibility is that respondents often report "normal" or "ideal" rather than "actual" diets. Overestimation on this count *is* likely to increase in a drought year when people frequently miss meals

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156. For an excellent discussion of this problem, see Vaidyanathan (1986). The quality of NSS data is also discussed in several contributions to Bardhan and Srinivasan. See also Bhattacharya et al (1985).

157. See Vaidyanathan (1986), p.133, Table 3, and Bhattacharya et al (1985), pp.275-283.

but may fail to report the associated reduction in intake compared to usual levels. A symmetric conjecture is that NSS estimates partly reflect the perceptions of the *investigator*, and as a result underestimate change. Indeed Table 2.3 indicates astonighingly small year-to-year changes in cereal consumption, though this may also reflect robust consumption habits. Finally, investigators in 1972-73 in Maharashtra may have been reluctant to interview poorer individuals out of consideration for their hardship, or to visit torrid, water-scarce areas. What all this adds up to precisely is anyone's guess, but it hardly explains the gross discrepancy we are concerned with in this context.

Nor can migration solve the riddle. There is no trace of large-scale migration *outside* Maharashtra in the many first-hand accounts and newspaper reports on the drought. In his very careful survey of drought conditions in Sinnar Taluka (Nasik District), Kulkarni (1974) found that a significant proportion of individuals and households had migrated in 1972-73, but 86% of the migrating households had moved less than 50 miles away, and the author incidentally notes that "most of the immigrants moved within taluka at the scarcity work centres".[158] Subramaniam (1975) also forcefully denies the occurrence of large-scale population movements.[159]

What about the reliability of the "Net Availability" calculations? Maharashtra is reputed to have one of the best statistical systems in India, and the transactions on Government account (procurement, issues, changes in stocks and imports) in all probability involve reasonable margins of error. Crop-cutting techniques are now well developed in India and production estimates are believed to be very accurate. There are occasional conjectures about the direction in and extent to which the States might "falsify"

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158. Kulkarni (1974), p.207 and Table 8.3. A "taluka" is a small administrative unit within a District. One civil servant who had been District Collector of one of the peripheral districts at that time told me that he had witnessed migration *into* Maharashtra by people in search of work!

159. Subramaniam (1975), pp.463-465 and 528-529.

production reports to the Centre in order to achieve various political aims, but it is difficult to take them very seriously. There remains the question of private stocks and trade. Private stocks can safely be ignored (for the same reasons as in the case of Bihar) since we are looking at the third successive drought year. We must, however, re-examine the issue of private trade.

During the year 1972-73, inter-State movements of foodgrains on private account were banned. The shortfall in food availability in Maharashtra was supposed to be met by the Public Distribution System. The Food Corporation of India organised the transport of foodgrains (mainly wheat) from other parts of the country and their distribution at subsidized prices through a network of nearly 30,000 "Fair Price Shops" scattered all over the State. Issues through the Public Distribution System did increase substantially during the drought period, and they certainly contributed a great deal towards alleviating the scarcity of food. However, achievements fell far short of targets. Numerous formal and informal reports testify to the fact that all over Maharashtra the actual per capita allocation of grain in Fair Price Shops fell pitifully short of the initial official allocation of 12 kgs per month.[160] The quantum of actual allocations naturally varied from place to place, but the reported figures vary from "hardly 2 kgs per month" (Kulkarni, 1974; Anon, 1972) and "5 to 10 per cent of needs" (Patil, 1973) to 4 kgs per month (Brahme, 1983). Subramaniam (1975), who is not inclined to admitting Government failures, concedes that "the public distribution system was able to supply hardly 3 to 4 kg. per month per adult".[161] And indeed, according to official statistics themselves per capita issues of foodgrains through the Public Distribution System were only 2.7 kgs per month in

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160. See, for instance, Kulkarni (1974), Table 6.7, Borkar and Nadkarni (1975), p.58, Brahme (1983), p.69, Mody (1972), p.2482, Oxfam (1972, 1973), Oughton (1982), p.182, Patil (1973), p.1617, Anon (1972), and Subramaniam (1975).

161. Subramaniam (1975), p.128.

1972 and 3.8 kgs in 1973 (Table 3.5a). This could certainly not have appeased the hunger of the people.

Meanwhile, however, the purchasing power generated by huge public works programmes was rapidly pushing up prices all over the State, and big price differentials between Maharashtra and the neighbouring States promised huge profits to illegal private trade. Interestingly enough, *private trade was also actively (though unofficially) encouraged by Government authorities.* During interviews with former District Collectors of the worst affected Districts, I have repeatedly heard the same story: "smuggling" of grain across State borders was tacitly approved by Government officials in Bombay, and openly promoted at the District level.[162] This policy was not just the result of common sense and concern for the people; in many cases its motivation arose directly from a strong anxiety about possible law and order problems ensuing from food shortages and price increases.[163] Illegal private trade was therefore brisk throughout the drought period in spite of the official ban. The micro-surveys cited above all confirm that the bulk of food purchases drew on the "open" (or black) market rather than on the Public Distribution System.

Attributing the whole of the discrepancy between the "Net Availability" and the "Consumption" estimates to illegal private trade amounts to putting around 2.5 million tonnes of foodgrains on that account in 1972-73 (see above). This is a staggering figure: it exceeds the amount of foodgrains moved on Government account over the same period, and suggests a picture of hundreds of trucks crossing the State borders every day "illegally". Thus while the most reasonable hypothesis seems to be to assign the bulk of the discrepancy to private

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162. The State Government also made representations to the Central Government in favour of the removal of "zoning" (Subramaniam, p.254).

163. One former District Collector even told me how, fearing imminent food riots, he had literally "hijacked" a load of Government-owned grain consigned by rail to Karnataka (in connivance with the local Station Master) and emptied it in the nearest go-down! Law and order is one of the main responsibilities of the District Collector.

trade, the other sources of inaccurancy discussed above may have played a non-negligible role as well.

Let us now revert to the issue of the magnitude of food deprivation in Maharashtra during the peak drought year. The figure of 12.6 kgs per capita per month for cereal consumption in rural Maharashtra in 1972-73 is the lowest ever for any State and for any round of the National Sample Survey for which such data are available (see Table 2.3).[164] It is also 17% lower than the all-India figure for the same year; but this is not necessarily a good indication of the shortfall because, as I have argued above, there seem to exist fairly substantial State-to-State variations in cereal intake which bear no obvious relation to price and income differentials and are more likely to be related (at least partly) to "dietary habits".

Table 3.6 presents cereal consumption figures for rural India and Maharashtra during the drought period as well as for the nearest years for which comparable data are available for the relevant regions. The table also shows similar figures for the 10 Districts most affected by drought within Maharashtra, representing a combined population of more than 20 million in 1971 (nearly 80% rural).[165] As before, it is worth noting the striking stability of cereal consumption estimates over time, and the fact that if anything the NSS figures are likely to underestimate consumption fluctuations from year to year. In spite of this, a drop of 16% in average cereal consumption is noticeable in 1972-73 for the 10 worst-affected Districts compared to *either* of the nearest two normal years for which comparable data are available. Given

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[164]. This statement ignores Kerala, where there is a high propensity to consume food items classified in the National Sample Survey as "cereal substitutes" (e.g. tapioca).

[165]. The definition of "10 worst-affected Districts" follows Subramaniam (1975) and includes Poona, Ahmednagar, Sholapur, Satara, Sangli, Aurangabad, Bhir, Osmanabad, Nasik and Dhulia. Subramaniam does not motivate this definition explicitly but suggests that this was an official classification. An independent attempt at classification in Anon (1972) identifies the 8 worst-affected districts, all of which belong to the above list. Population figures are from Government of India (1979), pp.3-12.

TABLE 3.6

Cereal Consumption in Rural India and Maharashtra

CEREAL CONSUMPTION (kgs/cap/month)

Year	India	Maharashtra	Maharashtra (10 drought-affected Districts)*
1967-68	-	-	14.01
1970-71	15.35	12.83	-
1972-73	15.26	12.60	11.74
1973-74	15.09	13.45	13.90
1977-78	15.25	13.52	-

* See text

Sources: Figures for all-India and Maharashtra are from the Central Sample of the National Sample Survey, as reported in *Sarvekshana* (January 1979, p. 133) and Bhattacharya et al (1985).

The 1967-68 and 1972-73 figures for the 10 worst-affected Districts are from Subramaniam (1975), p.443, and are based on tabulations of the State Sample of the National Sample Survey. Figures for 1973-74 have been calculated by Vijay Nayak and myself (using the Central Sample of the National Sample Survey, 28th Round) at the Development Economics Research Centre, University of Warwick, in August 1986.

the possibility of a small underestimation of the consumption decline in the NSS figures, we can tentatively but reasonably conclude that average cereal consumption in rural areas of the 10 worst-affected Districts was somewhere between 15 and 20% below "normal" levels.[166]

Consumption changes of this order of magnitude are nowhere as frightening as those which took place in Bihar in 1966-67. But when they affect such a large population they are quite capable of entailing disastrous consequences - it is easy to see, for instance, that if the deficit had been concentrated on (say) the poorest 30% of an already greatly impoverished population, the results in terms of excess mortality could have been catastrophic. As a matter of fact, changes in "net availability" in the Sahel as a whole in the early 70's, though almost certainly *overestimating* consumption changes, do not seem to have been much larger (see Table 2.2). This raises the question of the *distribution* of the food deficit, and brings us to a captivating aspect of the Maharashtra episode.

Table 3.7 presents cereal consumption figures by socio-economic groups for the rural areas of the 10 worst-affected District during the peak drought year, as well as for the nearest two "normal" years for which comparable data are available. The emerging picture of dietary changes is most interesting. Its most striking feature is the *broad spread across socio-economic groups of the aggregate reduction in cereal intake*, and the relative evenness of the distribution of cereal intake in 1972-73. Farm labourers (the most vulnerable group) did experience the most severe cut, but by a small margin, and their consumption level in 1972-73 was very near the overall mean.

Taken on its own, this piece of evidence supporting the occurrence of a fairly "egalitarian" reduction in food intake

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166. More detailed and painstaking estimates, based on alternative inferences from NSS figures for all available years (Central Sample as well as State Sample) were carried out in an earlier draft of this paper (Dreze, 1986). The conclusions obtained were the same as those we have drawn here.

TABLE 3.7

Cereal Consumption and Total Consumer Expenditure in the Rural Areas of 10 Drought-Affected Districts in Maharashtra

Household Class	Year	Monthly Cereal Consn. per cap. (kgs)	Per Capita Expenditure (nominal) (Rs./month)	Real p.c. Expenditure (1967-68 Rs./month) (1)	(2)	Number of House-holds
Large	1967-68	15.55	33.50	33.50	33.50	147
Cultivators	1972-73	12.77	41.35	29.68	28.98	89
	1973-74	15.26	57.71*	38.07	37.67	130
Small	1967-68	13.37	31.36	31.36	31.36	73
Cultivators	1972-73	11.08	33.87	24.31	23.74	50
	1973-74	12.90	61.38*	40.49	40.07	77
Farm	1967-68	14.47	24.01	24.01	24.01	111
Labourers	1972-73	11.45	32.85	23.58	23.02	218
	1973-74	13.68	44.69*	29.48	29.17	166
Industrial	1967-68	13.15	34.17	34.17	34.17	29
Workers	1972-73	12.02	37.23	26.72	26.09	28
	1973-74	13.34	48.29*	31.85	31.52	51
Others	1967-68	12.38	33.14	33.14	33.14	40
	1972-73	10.79	42.37	30.41	29.69	54
	1973-74	12.07	79.83*	52.66	52.11	59
All	1967-68	14.01	30.70	30.70	30.70	400
Households	1972-73	11.74	36.34	26.08	25.47	439
	1973-74	13.90	55.53*	36.63	36.25	483

* Averaged over *households*, not individuals.

(1) = Calculated by using the Consumer Price Index (CPI) for Agricultural Labourers (General Index).
(2) = Calculated by using the Consumer Price Index (CPI) for Agricultural Labourers (Food Index).

Sources: Nominal consumption and expenditure for 1967-68 and 1972-73 are from Subramaniam (1975), pp.442-443 and 435; they are based on the State Sample of the National Sample Survey (22nd and 27th Rounds).

The corresponding figures for 1973-74 have been calculated by Vijay Nayak and myself, using the Central Sample of the 28th Round of the National Sample Survey at the Development Economics Research Centre (University of Warwick).

Real expenditure figures are calculated by deflating the nominal expenditure figures. The deflator used to calculate real expenditure in 1972-73 is the ratio of the CPI for 1967-68 to the CPI for October 1972-September 1973 (unweighted average of monthly index), the period covered by the State Sample; and similarly for 1973-74 (using the sample period October 73 - June 74). Very similar results are obtained using other variants of the Consumer Price Index.

Notes: (i) The estimates of 'real' per capital expenditure are almost certainly overestimates, because the price indices used apply to Maharashtra as a whole, whereas the increase of prices (especially food prices) was more pronounced in the 10 worst-affected Districts. However, it is noteworthy that the difference in prices between these Districts and Maharashtra as a whole was in fact very moderate (see text), so that the overestimation involved is not considerable.

(ii) 'Small cultivators' are those with operational holdings of less than 7.5 acres.

during the Maharashtra droughts is admittedly rather thin. Fortunately, bits and pieces of further evidence from micro-studies abundantly confirm the plausibility of this finding. As a matter of fact, reducing food intake (*including* cereal consumption) seems to be an integral part of typical "responses to drought" in India not only on the part of landless labourers and poor artisans but *also* on the part of cultivators over a very wide range of landholding size groups. Some supporting evidence appears in Appendix B, where I have assembled the results of several micro-studies on food consumption during recent droughts in Maharashtra and adjacent States. A pioneering study of 144 "farming households" carried out by Jodha during the 1963-64 drought in Rajasthan (Table B1) clearly shows that (i) a very large proportion of households reduced their consumption of foodgrains during the drought, (ii) frugality in consumption set in largely *before* the process of asset depletion, mortgaging and migration. A study of 108 households during the drought of 1974-75 in Gujarat by Desai et al (Table B2) arrived at strikingly similar results: the great majority of cultivators in all landholding size classes were found to reduce their cereal consumption, *even though* the depletion of assets only reached very moderate proportions.[167] Incidentally, much as in the case of Maharashtra in 1972-73 this study found that the proportion of households who experienced a reduction in cereal intake during the drought was significantly *lower* for labourers and artisans than for cultivators in any landholding size class (see Table B2), and the authors themselves persuasively relate this phenomenon to the preferential support given by the system of relief works to the labouring classes. A somewhat similar, though less striking, pattern of cereal consumption changes is noted by Choudhary and Bapat during the 1969-70 droughts in Gujarat and Rajasthan (Table B3). In their survey of survival strategies for nearly 400 households during the 1983 drought in Karnataka, Caldwell et al (1986) found that "eating less... was universal ... The

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[167]. The depletion of assets in this case consisted mainly of livestock *deaths* (see Desai et al, 1979, pp.79-80).

important point is that most families still regard their ability to weather droughts as being based on savage cutbacks in their living standards, dominated by reducing food to the minimum. The rich families moved from three to two meals a day, and many ordinary families from two to one".[168] Once again, moreover, the protection of the productive base took precedence over the protection of consumption standards (see Table B4). To the best of my knowledge, no comparable studies exists for Maharashtra in 1972-73. However, the survey of two villages in Aurangabad District by Borkar and Nadkarni in May - June 1973 contains some useful hints. This study does not cover cereal consumption as such, but presents data on *purchases* of cereals for different socio-economic groups (Table B5). No indication is given about the existence of home-grown stocks, but these were most probably negligible by that time for most households. On the other hand the authors state that "in May and June when they reported peak employment and earnings through scarcity works, the households purchased slightly in excess of their current requirements because of the expected rise in the prices of food articles and the decline in their incomes in the immediate future (due to discontinuance of scarcity relief works)".[169] Thus purchases are not a very good approximation for consumption in this case. Nevertheless the rather egalitarian pattern of current purchases is itself revealing.

Two closely related objections can be raised against the foregoing evidence indicating a rather "egalitarian" sharing of the food deficit during the Maharashtra drought. The first is that landholding size is *not* a good proxy for "normal-year income", so that a fairly uniform pattern of food intake reduction across landholding size groups is quite compatible with a concentration of the burden of adjustment on the *poor*. The second objection is that, regardless of whether or not landholding size is a good proxy for *average* income, *within* each landholding class only the very poor may have suffered.

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168. Caldwell et al (1986), pp.687-688.

169. Borkar and Nadkarni (1975), p.58.

The first objection may seem surprising, but it has been seriously argued that in non-irrigated areas of India average "normal-year" incomes do *not* increase with landholding size over a very wide range of landholding sizes at the lower end of the scale - there is a "threshold effect".[170] This is not the place to enter into a general argument about this interesting theory - though it is worth noting in passing that the NSS data in Table 3.7 clearly shows a large gap between the expenditure levels of farm labourers and "small cultivators" in non-drought years. In Section 3.4 I shall review the available evidence on incomes and expenditure for Maharashtra and Gujarat (an adjacent and also semi-arid State) around 1972-73, and suggest that if a "threshold effect" existed at all in this context, it must have occurred at very low levels of landholding size; and, as we have seen, food intake reduction seems to have taken place even in the larger landholding size groups. But in any case, neither this objection nor the second one square with further evidence on the pattern of reduction in food intake from the National Sample Survey. As Table 3.8 unambiguously shows, a significant proportion of the reduction in cereal intake took place among *high-consumption* groups: the percentage of all rural households (in the 10 worst-affected Districts) consuming *more* than 15 kgs of cereal per capita per month fell from 39.0 in 1967-68 to 15.9 in 1972-73, and rose again to 36.1 in 1973-74. Moreover, since "cereals" invariably appear to have a positive and high expenditure elasticity in rural areas according to NSS data, high cereal consumption groups also indicate high expenditure groups in this case.

A consistent and fairly solid picture emerges, then, indicating a moderate but significant reduction in cereal

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170. See Visaria (1978) and particularly Lipton (1985). It must be stressed that the evidence in Visaria does not amount to a general case for the "threshold effect" hypothesis, since it is precisely based on data relating to Maharashtra and Gujarat in 1972-73 - when, as we shall see, the distribution of income and expenditure was very significantly *less unequal* than in normal years. In fact Visaria's evidence *confirms* that in normal years income must be postively related to landholding size.

TABLE 3.8

Percentage Distribution of Population by Levels of Per Capita Monthly Cereal Consumption in the Rural Areas of Ten Drought Affected Districts, Maharashtra

Household Class	Year	Per capita intake of cereals (kgs/month) upto 12	12 to 15	15 and above	Total Population
Large Cultivators	1967-68	25.5	28.7	45.8	100.0
	1972-73	44.7	30.0	25.3	100.0
Small Cultivators	1967-68	53.0	19.0	28.0	100.0
	1972-73	61.2	25.2	13.6	100.0
Farm Labourers	1967-68	41.4	19.9	38.6	100.0
	1972-73	60.9	25.3	13.8	100.0
Industrial Workers	1967-68	42.8	21.7	35.5	100.0
	1972-73	65.3	27.1	7.6	100.0
All Households	1967-68	38.5	22.5	39.0	100.0
	1972-73	58.9	25.2	15.9	100.0
	1973-74	37.2	26.7	36.1	100.0

Source : All figures relating to the years 1967-68 and 1972-73 are from Subramaniam (1975), p.446, and were derived from the State Sample of the National Sample Survey (22nd and 27th Rounds). The figures for 1973-74 were calculated as in Table 3.5.

Note: For the sample size and other details, see Table 3.7.

intake during the peak drought year, spread rather evenly across different socio-economic groups - poor and less poor, landless and landed, blue-collar and white-collar and no collar. If we trust consumer prices indices, we may also conclude that every socio-economic groups experienced a severe cut in "real expenditure" during the drought year, *except* farm labourers (see Table 3.7). There are good reasons to be suspicious of this conclusion, especially because it is based on all-Maharashtra price indices whereas the increase of prices was somewhat (though not strikingly) more pronounced in the severely affected Districts than elsewhere.[171] Nevertheless, using a different price index would not invalidate the finding that the propertied classes suffered a larger *percentage* reduction in real expenditure than agricultural labourers. And this is remarkable enough, considering that famines are widely believed to sharply exacerbate existing inequalities.[172]

The significance of the latter finding should not be exaggerated. Comparable consumption changes at different income levels are not, of course, the same as comparable declines in well-being, and it is likely enough that the *hardship* endured by agricultural labourers remained much greater than the sufferings of the propertied classes. While many first-hand accounts of the Maharashtra drought go as far as to suggest that, thanks to bright employment prospects on relief works, agricultural labourers were actually *better-off* in the peak drought year than in normal years, there is little evidence supporting the view that agricultural labourers

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171. On this, see e.g. the (fairly consistent) data on retail prices in Subramaniam (1975) and Brahme (1983). In June 1973, the price of cereals in "Scarcity Areas" was higher than in "Non-Scarcity Areas" by a margin ranging from 6% for bajra to 34% for jowar (Brahme, 1983, Table 4.15).

172. Even in the case of the Maharashtra drought, there remained some clear examples of widening inequalities. Oughton (1982), for instance, points out the contrast between general impoverishment and the increased fortunes of large farmers growing cash crops on irrigated land.

"enjoyed the drought".[173] The bulk of the evidence (reviewed in the next Section) and of the better informed first-hand accounts suggests a more plausible assessment closely agreeing with our previous observations: the plight of agricultural labourers during the drought varied from place to place and in *some* cases they may have found themselves better-off than in ordinary years; as a rule, however, they enjoyed improved money earnings (perhaps the source of the confusion) but lower real earnings.[174] The reason is simply that while labourers were getting more work than usual they were also receiving very meagre *real* wages indeed.[175]

This being said, if the hardship experienced by agricultural labourers during the drought demands compassion and protest, the fact that the traditional victims of Indian famines not only remained safely protected from starvation but also experienced a surprisingly moderate deterioration in their consumption patterns is remarkable enough. The mechanism underlying the observed "redistribution of hardship" towards the more prosperous classes deserves closer attention.

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[173]. This view has been expressed in Anon (1972b), p.2480, Garcia (1982), Subramaniam (1975), p.491, Aykroyd (1974) and Oxfam (1972, 1973) among others. Liz Oughton, who conducted extensive field work in a village of Sangli district in 1982, related to me the nostalgia of a poor labourer who told her that he "liked droughts" because they improved his employment prospects.

[174]. On this see particularly the careful studies of Borkar and Nadkarni (1975), Kulkarni (1974), and Brahme (1983), as well as the National Sample Survey evidence presented above, and Ladejinsky (1973). On careful questioning (the distinction between money and real incomes always poses a problem), most of the eye-witnesses I interviewed myself concurred with the assessment proposed here. Labourers gave different answers in different places, according to the intensity of the drought and the effectiveness of relief measures in that area. In the worst affected places they often evoked the events of 1972-73 with a shiver.

[175]. Brahme estimated the average daily wage rate on relief works for Maharashtra as a whole at Rs 1.90 for the period April to July 1973 (Brahme, 1983, p.102). Using the figures which the same author presents on food prices in drought-affected areas in June 1973, this represented a little less than 1 kg of staple cereals!

3.3 The Entitlement Process

Famines, it is now well understood, can and sometimes do occur without a substantial decline in aggregate food availability (Sen, 1981). The symmetric question of whether, and to what extent, famines can be contained in *spite* of an irreducible decline in food availability, has received comparatively little attention. This question is of great importance for the design of famine relief policies, and in particular to the issue of whether the implementation of famine relief schemes in situations of food scarcity should be *conditional* upon the timely arrival of additional food supplies. The Maharashtra experience does seem to provide an example where famine was averted in spite of a partial failure of the food delivery system, and the factors which account for this success are worth exploring.

Why did cultivators in all landholding size classes reduce their food consumption during the Maharashtra drought? Why did people who owned many acres of land as well as other valuable assets such as animals and jewelry decide to go hungry rather than (or as well as) depleting their wealth or borrowing? Before attempting to answer these questions, it is useful to take a closer look at the nature of income, expenditure and price changes that accompany a drought of the kind that hit Maharashtra in 1970-73.

For this purpose, I have assembled in Appendix C such evidence as I could gather from micro-studies and household surveys on income and expenditure patterns in Maharashtra and adjacent States around 1972-73. Many of the studies reported there, it must be said, use rather rough survey methods - particularly when they attempt to estimate "normal year income" retrospectively. Put together, however, they form a remarkably consistent picture, and their results can be summarised as follows. Firstly, there is a clear correlation (in this region and for this period) between landholding size and "normal year" income, at least across broad landholding

size classes.[176] Secondly, the Maharashtra drought resulted in a considerably more equal distribution of *current incomes* than in normal years. Thirdly, a tendency towards much greater equality in *current expenditure* was also noticeable. Finally, greater equality was accompanied by a considerable reduction in *average* real incomes and expenditure; the latter resulted from the combination of a dramatic loss of output (pushing most households in the "food deficit" category) and sharply rising prices.[177]

The observed changes in income patterns are not difficult to understand. In an ordinary year, large cultivators reap the profits of better endowments. In a drought year, however, cultivators get only small returns on cultivation expenses, and "net profits" per acre can drop to very low - if not frankly negative - values. What happens to the distribution of income then depends largely on whether or not cultivators in different landholding size groups decide to join the relief works (when they exist). During an isolated drought following one or more "good years", most cultivators commonly abstain from doing so, and this together with negative profits per acre, accounts for the impressive "reversal" of the ordinary income scale observed by Desai et al (1979) during the 1974-75 drought in Gujarat. However, when droughts recur for several years in succession, cultivators gradually lose their resilience and start flocking to the relief works in increasing numbers. This is precisely what happened in Maharashtra in 1972-73 (see below), which explains why in this event the distribution of current incomes, while far less unequal than in other years, retained the ordinary pattern.

It is, of course, not easy to predict how pronounced declines in current income for different socio-economic groups

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176. The correlation does not always appear in small samples, presumably because the variance of incomes is high. The relationship can also get blurred in places where small farms happen to have better access to irrigation facilities than large farms (presumably an exceptional situation).

177. An important exception to the operation of equalising forces must be made for the accentuation of inequality between irrigated and non-irrigated farming. See Brahme (1983) for a detailed discussion.

will affect their current *expenditures*. In principle, credit transactions and informal insurance arrangements (including patronage, diversification and reciprocity practices) could allow individual households to protect their current expenditures from income fluctuations. To the extent that the arrangements involved are imperfect and costly (e.g. the diversification of cropping patterns, or the storage of grain), a measure of correlation over time between income and expenditure would remain for individual households even if household incomes were largely uncorrelated and therefore potentially amenable to mutual insurance. In the event of a drought, however, we are concerned with income fluctuations which are not only large but also have a strongly *collective* nature; a reduction of living standards is especially inescapable in this context.[178]

There is plenty of empirical evidence to support the validity of these speculations for rural India. Several careful empirical studies have indeed shown that informal insurance arrangements are active - though far from perfect - in rural India, and allow a substantial degree of insulation of expenditure levels from income fluctuations. During droughts, however, the efficacy of insurance mechanisms is considerably eroded. In particular, the ordinary strategy of asset management for maintaining consumption standards becomes extremely costly as large-scale sales drive asset prices down. Many empirical studies of drought in contemporary India also clearly underline the very limited insurance opportunities provided in that event by alternative strategies such as

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178. For further discussion of the theoretical issues involved, see e.g. Newbery (1987) and Martin Ravallion's contribution to this Volume. The imperfection of insurance opportunities does not, of course, apply uniformly to all classes. The special disadvantage of agricultural labourers in this respect accounts for their traditional vulnerability to starvation, and the function of the relief system can be precisely seen as one of providing them with a form of insurance and shifting the burden of uncertainty towards the propertied classes.

borrowing, income transfers (including remittances), patronage, sharing or storage.[179]

Understandably enough, then, droughts in India do entail large cuts in household expenditures, *and* this applies to cultivators (large and small) as well as to agricultural labourers. Moreover, the available empirical evidence strongly suggests that the inclination of the propertied classes to protect their asset base during droughts by tightening their belts is much stronger than one might have thought (see the discussion in the previous Section, and the evidence presented in Table 3.6 and Appendices B and C). This explains, inter alia, why household consumption expenditure during the peak year of the Maharashtra drought was found to be remarkably even over a wide range of landholding sizes at the lower end of the scale (see particularly the NSS - based on findings of Visaria in Appendix C).[180]

So far we have concentrated on overall expenditure levels. If we are interested in the distribution of food,

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[179]. The empirical studies referred to in this paragraph include Jodha (1975, 1978), Lewis and Barnouw (1958), Rao (1974), Greenough (1982), Caldwell et al (1986), Ravallion (1986), Walker et al (1986), and Torry (1986a). The efficacy of informal insurance systems in rural India is the focus of the well-known controversy between Morris (1974) and Jodha (1975) - on which see also Torry (1986a). For further discussion of informal insurance mechanisms, see Ravallion's contribution to this Volume, as well as the first Volume of this book.

[180]. This finding is a little intriguing at first sight, since it implies that "current income" in 1972-73 was sufficiently strongly and *inversely* correlated with landholding size (over the relevant range) to cancel out the "normal-year income" effect. As we have already noted, a reversal of the "current income" scale is not an impossible event and indeed some household surveys did find that agricultural labourers earned better than small farmers during the drought (see Appendix C, Tables C3 and C5); the occurrence of a similar reversal at the all-Maharashtra level is, however, a little hard to believe, given that some areas were only mildly affected and that in many others cultivators were flocking to the relief works along with agricultural labourers. It must be noted, however, that cultivators had to reckon with the anticipation of sharply inflated *farming expenses* , especially on account of cattle maintenance (fodder prices rose to exorbitant heights) and/or the necessity to purchase livestock after the drought.

however, we must also consider the *pattern* of expenditure changes for different items. After all, cultivators who face sharp income changes and are anxious to preserve their capital stock could still concentrate their expenditure cuts on non-food items. As we have already seen, however, the empirical evidence refuting this conjecture is overwhelming: Indian farmers appear to be a sturdy lot, and in drought-prone areas they seem to have little hesitation in reducing their food intake (to a certain extent) rather than eating up their productive resources.

It seems, in sum, well established that the changes in incomes affecting the general rural population during a drought typically result in a reduction of consumption which, through suitable income support polices, can in principle be transferred to the most vulnerable groups. This is where the relief system plays a crucial role.

Before concluding this Section, a word must be said about the role of prices in this scenario. At the risk of simplification, the changes in real income which took place in Maharashtra in 1972-73 can be seen as having resulted from the combination of three influences: (i) the loss of crops and agricultural employment; (ii) direct income transfers through relief measures; and (iii) the increase of prices (especially food prices). The latter was due, in part, to the generation of purchasing power resulting from large-scale income support measures (as usual, mainly in the form of Cash-for-Work schemes). Exactly how much extra upward pressure relief measures were actually putting on food prices is, however, difficult to ascertain, and would depend inter alia on the elasticity of supply.[181] As we have seen, the supply of food for Maharashtra was far from inelastic in this event, and it was not the least success of relief measures to draw large quantities of food from other parts of the country (notably

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[181]. The effect of income support measures on food prices also depends, of course, on the extent to which they result in the preservation of assets rather than the increase of consumption. But it would be unfair to play down the importance of inflationary pressures on this count, since our interest *is* precisely in the increase of consumption.

Punjab, a surplus State). Nevertheless, substantial increases in food prices did occur in Maharashtra in 1972-73. If we ignore "substitution effects",[182] an increase in food prices acts very much like a lump-sum tax applying to all households *proportionately to their food purchases*. The soundness of a policy relying on an implicit tax of this kind to release the resources needed to support the entitlements of vulnerable groups depends largely on two conditions being satisfied. First, there must be a substantial pool of households whose food purchases are substantial as well as responsive to adverse real income changes but who are not immediately at risk. Second, the number of households who buy food but *are* at risk and have no access to the relief system must be small. As we have already seen, in the case of Maharashtra the existence of many cultivators struggling to preserve their asset base in the face of massive crop losses ensured that the first condition was met. As we shall see, moreover, the policy of open-ended public works supplemented by gratuitous relief for households without fit adult members ensured that the second condition was, by and large, also met. In these circumstances, it is arguable that it was hardly a mistake to provide massive cash relief to the poor *without waiting for the improvement of food supplies*.

If food consumption is also responsive to food price changes through *substitution effects*, the scope for using the incomes-prices mechanism to protect the entitlement of vulnerable groups can be expected to be correspondingly greater. Whether substantial substitition effects do take place is hard to say. Econometric studies would have us believe that the consumption of food (whether interpreted as "total food", "calories", or even "cereals"), is subject to strong income *and* substitution effects at *all* income levels.[183] There are, however, good reasons to be cautious in

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[182]. A substitution effect is a change in consumption in response to a change in price occurring over and above the effect that one would expect merely on account of the resulting change in real income.

[183]. On this, see particularly Harold Alderman's thorough review of the evidence (Alderman, 1986).

interpreting these results,[184] and even if they are valid "at the sample mean", they become quite suspect in the kind of price and income ranges relevant to a drought situation. This being said, it is interesting to note that at least one clear case of a non-negligible substitution effect can be detected for the Maharashtra drought: *urban* consumption of cereals *fell* in 1972-73 in response to sharp price increases, even though cereals are an "inferior" commodity group in urban Maharashtra (Table 3.9).[185]

Lest the reader be misled into undue optimism by the preceding discussion, let me emphasize that there is no ground for complacency about the extent to which limited food supplies can be fairly "shared" through the prices-incomes mechanism. In the event of a severe food shortage, the room for manoeuvre will inevitably be limited. And in any case, while it may always be the right calculation to protect the poor by priority and by whatever means available *irrespective* of the state of food supplies, it cannot be disputed that food entitlements are usually easier to protect the more comfortable the state of food supplies. Cash relief schemes should not (and need not!) *substitute* for efforts at improving food availability when necessary.

To summarise the findings of this Section. It is tempting to believe that, in a situation of severe food availability decline, the restraint of consumption will inevitably be concentrated on the poorest groups. Careful reasoning as well as empirical evidence do not lend support to this presumption, at least for India. In the event of a

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184. In the case of India, the need for caution arises particularly from (i) the virtually universal use of a single source of data (the National Sample Survey) in econometric studies of consumption; (ii) the common practice of estimating functional forms (such as the Linear Expenditure System and its variants) which *impose* very strong a priori restrictions on substitution effects (or their relation to income effects); (iii) the striking robustness, noted above, of cereal consumption for individual States in non-drought years.

185. For clear evidence that cereals are an inferior commodity in urban Maharashtra, see e.g. the results of the 27th Round of the National Sample Survey reported in the January 1979 issue of Sarvekshana.

TABLE 3.9

Cereal Consumption in Urban Maharashtra

Year	Cereal Consumption (kgs/cap/30 days)
1970-71	9.75
1972-73	8.95
1973-74	9.24
1977-78	9.92

Source: National Sample Survey (25th, 27th, 28th and 32nd Rounds), as reported in *Sarvekshana*, January 1979, p.133, and Draft Report No.311.

severe crop failure a broad section of the rural population experiences a dramatic decline in *current* income, to which food consumption appears to be responsive. In such a situation we can also expect food consumption to be responsive to price changes, if only through income effects. Hence, as long as the food deficit is not too large, income support policies for the most vulnerable groups should be successful (as they have been in Maharashtra) in spreading the burden of consumption reduction over a broad section of the population. This is *not* an argument for dealing with food shortages by engineering a redistribution of food from the poor to the poorest and neglecting the improvement of food supplies. Rather, it is a plea to support the poorest by priority *irrespective* of the success achieved in improving food supplies. While this recommendation may sound trivial, it runs contrary to much of the current practice and thinking in famine relief.[186]

3.4 Public Works, Public Pressure and Public Distribution

By any criterion the droughts of 1970-73 in Maharashtra must have marked an all-time record for the scale and reach of public works programmes in a famine relief operation. At the peak of labour attendance in May 1973, very nearly *5 million* men, women and children attended relief works every day in that State alone, and over the 12-month period from August

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186. It is noteworthy that even during the Maharashtra drought, when plenty of cheap food was available in India, international relief agencies such as Oxfam were still importing wheat, biscuits, milk powder and high-protein soya from countries as varied as Canada, Israel and Australia, for direct feeding programmes. Though Oxfam fed minute numbers of people, sometimes with negative results (see Hall, 1973), the field director for South India proudly reported how a poor peasant had told him that the drought "may be too big a problem for God; but perhaps Oxfam can do something" (on all this, see Oxfam, 1972, 1973). These rather unconstructive comments are not intended to denigrate the valuable work of Oxfam, or other relief agencies, but rather to suggest that their approach to famine relief involves deep-seated misconceptions - a point further discussed in the first Volume of this book.

1972 to July 1973 almost exactly 1 *billion* person-days of relief employment were provided. The average attendance in April-June 1973 exceeded 20% of the *total* rural population in 7 out of 26 districts, and it was as high as 35% in Bhir District.[187] Many informal as well as formal reports testify to the fact that in some places, virtually the whole active population of entire villages was employed on relief works. Even though wages were very meagre indeed, the contribution of relief works to total village income in 1972-73 was often enormous (see Table 3.10, and C5 in Appendix C).

Wages were paid in cash. The idea was to enable labourers to purchase food themselves, mainly from "Fair Price Shops" where grain rations of 12 kgs per head per month were intended to be available. As we have seen, the Public Distribution System actually catered for only a very small fraction of the population's food needs, and the bulk of purchases were made on the open market. However, as I have also emphasized at length, the system of cash wages served the crucial purpose of insulating the relief system from difficulties occurring on the food delivery front.

The works undertaken had, initially at least, the intended "productive nature" (as with road-building, soil conservation and irrigation works), though there came a point where the capacity to plan and implement productive works crumbled under the weight of massive attendance; this resulted, inter alia, in a mountain of nearly 30 million cubic metres of broken metal,[188] which took years to utilise and some of which is said to be still visible today along the roads! Different authors have chosen to emphasise productive achievements (Ladejinsky, 1973; Godbole, 1973), others their wastefulness (Jaiswal and Kolte, 1981; Morris, 1975). There is little doubt that the total quantity of assets created was impressive, but equally clearly the average productivity of

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187. Figures calculated from Subramaniam (1975), Table II.3 (viii). Strictly speaking, these figures are based on attendance on the last day of each month.

188. Subramaniam (1975), p.185. In some parts of Maharashtra the drought is remembered as " कडी दुष्काळ ", or "the drought of stone-breaking".

TABLE 3.10

Earnings from Relief Works and Total Income in 70 Scarcity-Affected Villages, Maharashtra, 1972-73

Percentage contribution of earnings on relief works to total income (1972-73)	Number of villages
0.0 - 20.0	7
20.1 - 40.0	8
40.1 - 50.0	9
50.1 - 60.0	10
60.1 - 70.0	14
70.1 - 80.0	15
80.1 - 90.0	6
90.1 -100.0	1
Total	70

Source: Brahme (1983), p.59. The villages were located in the Districts of Poona, Ahmednagar, Solapur, Aurangabad, Bhir and Osmanabad (all severely drought-affected).

labour must have been extremely low. Serious cost-benefit studies of these questions are not available, and would in any case face extremely complex methodological problems.[189]

Productive achievements are, however, certainly not the most important aspect of public works in the context of famine relief. While this is not the place to go into a discussion of the general merits and shortcomings of Cash-for-Work as a relief strategy, the Maharashtra experience does underline particularly clearly a number of other highly important aspects of the approach which are worth recalling briefly.

In the first Volume of this book, the distinction between the "security objective" and the "targeting objective" of relief strategies was made, and the contrasting potential of alternative selection mechanisms in achieving these two objectives was underlined.[190]

As far as the security objective is concerned, the unconditional provision of employment to *all* those who wished to join the relief works certainly went a very long way towards providing an insurance against starvation (at least to the able-bodied and their dependents; others were, in principle, covered by gratuitous relief). Now it may seem incredible that a literal guarantee of employment was provided to a rural population of 35 million and actually honoured - surely there were loopholes and people were deprived of work in many places? Because the question is so important I have relentlessly asked eye-witnesses (in the administration, in voluntary agencies, in villages) whether they thought that the guarantee of employment had been effective in 1972-73. In the vast majority of cases the answer was basically in the affirmative, though occasional qualifications were expressed

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189. A courageous attempt at solving some of these problems was made by Mundle (1974a, 1974b).

190. To recall briefly, the security objective is concerned with reaching *all* those who are at risk of starvation, whereas the targeting objective refers to the possible desire to *exclude* better-off classes from the purview of relief. The basic distinction is a familiar one in the income support literature, both for developed countries (see e.g. Atkinson, 1987) as well as for developing ones (Cornia et al. 1987; Kumar and Stewart, 1987).

on account of short-run delays and bottlenecks.[191] And the statistics, too, are eloquent enough. Even more eloquent (to say the least) is Subramaniam's clearly inflated but nevertheless revealing version of the story:

> "In every visit which was undertaken by the Chief Minister, he propounded a new slogan which in Marathi runs as ' मागेल त्याला काम ' or 'Work for all who want it'. The reverberations of this slogan from village to village, from worksite to worksite, coupled with the phenomenal industry displayed in the organisation of relief measures and the allotment of the necessary funds for implementing these measures, spread as it were a new gospel of faith and cheer and courage throughout the entire countryside, as a result of which there was an electric charge in the rural atmosphere. The slogan of ' मागेल त्याला काम ' was not merely a myth; it was a reality".[192]

How was the right to work upheld? What accounted for the "phenomenal industry" described at great length by Subramaniam, and also acknowledged (albeit in less allegorical terms) in many other first-hand accounts of the drought? Why did the Chief Minister suddenly prove so zealous and resourceful? One would like to think that humanitarian concern did play a role, but other factors must obviously have been at work as well. Two different but highly complementary types of incentives can be identified here, arising respectively from the *meritocratic* nature of the Maharashtran administration, and the *democratic* nature of Indian politics. Meritocratic pressures were most evident in the behaviour of the District Collectors, who were often found to be

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191. An anonymous and impressionistic contribution to *Janata* in 1972 (Anon, 1972), later quoted in Jaiswal and Kolte (1981, p.19) themselves cited in Torry (1986, p.17), asserts that at one point in 1972 the amount of employment provided barely reached one quarter of the amount demanded. Subramaniam himself admits that "the number of works sanctioned in the initial stages fell far short of the number required to absorb the needy people" (Subramaniam, 1975, p.402), and Kulkarni notes that "In almost all the sample villages, scarcity works were available to the persons willing to work only since October 1972" (Kulkarni, 1974, p.169); but there is clear evidence that the lull of the first half of 1972 proved only short-lived (see Figure 3.2 below).

192. Subramaniam (1975), pp.189-190.

incessantly working during the crisis. It must be remembered that District Collectors in India are very powerful, carefully trained, and often highly motivated young people. In the event of a drought, they assume full responsibility for the management of relief operations typically covering several million people. This is a rare and often much awaited opportunity to achieve distinction, or, as one District Collector put it frankly, to "boost one's ego".[193]

This being said, the reasons why the successful conduct of relief operations should be a cause for distinction in the first place cannot be understood without reference to the political influences which galvanised the entire Government into frantic action. The role of opposition parties and the Press in this context is obvious enough, if only from the 696 questions relating to the drought which were asked in the Maharashtra Legislative Assembly and Council in 1973 alone (leading to 40 resolutions), and the numerous journalistic reports which appeared in newspapers and periodicals such as the Economic and Political Weekly, Janata, The Statesman, The Times of India, The Hindu, Economic Times, and Free Press Journal, to mention only a few.[194] But direct public pressure on the part of drought-affected populations also deserves emphatic mention. Employment for all was not only a clear instruction of the Bombay Scarcity Manual, it was also - equally importantly - a *perceived right* which millions of poor men and (especially) women all over Maharashtra were determined to claim - if necessary by stopping an official's

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193. Personal communication from a former District Collector. It is hard to avoid a parallel with Mrs. Thatcher's attitude during the Falklands Campaign: "When you've spent half your political life with humdrum issues like the environment... it's exciting to have a real crisis on your hands" (quoted in The Pacifist, 25 (6), November 1987, p.16).

194. A useful bibliographical guide to many of these articles can be found in Luthra and Srinivas (1976) - see also Subramaniam (1975), chapter IV.4, where many interesting details (including the figures cited above) can be found on the influence of newspapers and opposition parties during the drought. The role of the Press in reducing the threat of famine in India is analysed in detail in Ram's contribution to the second Volume of this book.

jeep, "gheraoing" (i.e. "encircling in protest") the Block Headquarters or sending their "sarpanch" (headman) to higher authorities.[195] In pressing their demands for work, labourers and cultivators also often received the active support of local leaders, politicians and other "*netas*" and "*babus*" who were keen to build-up political or symbolic capital by getting the credit for obtaining the sanction of relief works in their village. No less important in many places was the role of local voluntary agencies, for which Maharashtra has traditionally been an extremely fertile soil and which were backing and organising the workers in their demands.

Turning now to the "targeting" issue, it may be thought that the vigorous pursuit of the security objective through the provision of guaranteed employment resulted in a poor concentration of relief resources on the needy. The evidence, however, does not support this conjecture. While work was *available* to all it was, understandably enough, *claimed* only by those in greatest need of it.

Usually the bulk of participation on public works schemes in India is accounted for by agricultural labourers, sometimes joined (particularly in non-irrigated areas) by marginal or small farmers. Income support through public works therefore typically assumes a very progressive character.[196] During very severe droughts the participation of cultivators is observed to increase sharply,[197] and during 1972-73 in

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195. It is well worth noting here that in this part of India women are commonly found to be "more vociferous and articulate in voicing their needs and complaints than men" (Padgaonkar, 1973). For a vivid account of the vocal behaviour of Indian women during a recent drought, see Bhatia (1986).

196. This is evident, for instance, from the findings of Desai et al (1979) for Gujarat in 1974-75, where participation on relief works was very strongly and inversely correlated with landholding size; and from Dandekar's survey of 1539 participants to Maharashtra's Employment Guarantee Scheme, of whom nearly 90% belonged to households owning less than 3 acres of land, almost always non-irrigated (Dandekar, 1983).

197. This phenomenon was already commonly observed during pre-Independence famines (see Bhatia, 1967), and was noticed by many observers of the Maharashtra drought including the authors of most of the micro-studies cited earlier.

Maharashtra the distribution of work was less progressive than usual if one takes landholding size as an indication of ordinary prosperity. In fact, the available evidence suggests that, during the peak months of the crisis and in the worst-affected districts, only a small measure of inverse correlation between household income from relief works and landholding size survived.[198] However, the observed progressivity of income transfers through public works during lesser crises strongly suggests that, if one considered the entire drought period and Maharashtra as a whole, the discriminatory power of the "labour test" would once again affirm itself. Note also that the inverse correlation between relief employment and *current* (non-relief) income must have been much stronger than that between relief employment and landholding size. Indeed, large farmers and (so-called) high caste individuals were notoriously reluctant to join the crowd of lesser mortals on relief works, and those who eventually did so must have been driven by acute hardship.

Special mention should be made in this context of the employment of women on public works, which in all likelihood contributes very substantially to the progressivity of the labour test. Maharashtra has a strong tradition of female wage labour, and women always form a very large proportion of the labour force on public works, often outnumbering men altogether. Relief works in 1972-73 were no exception to this rule.[199] Moreover, female wage labour tends to confer a low social status, and thus to be restricted to households of poor economic condition or (so-called) low caste. While in 1972-73

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198. On this, see Borkar and Nadkarni (1975), Table XI, Subramaniam (1975), Table IV.3(iv), Kulkarni (1974), Table 7.21, and Brahme (1983), Table 4.13.

199. See Dandekar (1983), for an extensive study of female employment on public works schemes in Maharashtra (her survey of 3080 EGS workers in 1978-79 found females to outnumber males, though official statistics put the percentage of female labour to total EGS labour at about 40% only in 1979 and 1980). In his survey of Sinnar taluka (Maharashtra) during the 1972-73 drought, Kulkarni (1974) found female labourers to be almost as numerous as male labourers on relief works, even though women were heavily underrepresented in the total working population.

hardship was so widespread that no few stories of respectable women joining the relief works could be heard, participation must have remained significantly higher among "lower" socio-economic groups. The only piece of evidence I could find on this question is shown in Table 3.11.[200]

Discriminating between prosperous and less prosperous households at a given time and place is not, however, the only dimension of the targeting objective. Equally important is a correct distribution of resources (i) between *regions* more or less vulnerable to famines, (ii) across *time*, and (iii) between different household members.

Reassuring evidence on the spatial distribution of resources appears in Figure 3.1, which indicates a striking correlation between "vulnerability" (as measured by the extent of crop failures) and "relief" (as measured by the percentage of the population attending relief works). Similarly, Figure 3.2 (showing the distribution of relief employment over time) suggests that relief operations in 1972-73 were highly concentrated on the period when the threat of famine was most serious: the summer months from April to June when, in the absence of relief, employment comes to a standstill and resources run out. In both these respects (targeting over space and time), the Maharashtra experience sharply contrasts with the all too familiar nightmare of relief arriving at the wrong time and/or in the wrong place - the example of Africa

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200. Hopefully there are better reasons for women outnumbering men on public works than that "women themselves did not like their husbands to be employed as they are not in a mood to complete the given task and ultimately women have to assist in their work" (Lodha and Khunteta, 1973). A distinct possibility is that the very narrow or absent wage differentials between men and women on public works make this employment opportunity relatively more attractive to women, who experience strong wage discrimination on the private labour market. According to the 1964-65 Rural Labour Enquiry, female wages in agriculture were roughly half as high as male wages for the same operation in Maharashtra (see Dandekar 1983, Table 1.2). On the other hand, surveys carried out in Poona, Ahmednagar and Osmanabad Districts of Maharashtra in 1972-73 indicate wage differentials of the order of 20% on relief works (see Subramaniam, 1975, p.613, and Brahme, 1983, pp.102-103). See Subramaniam (1975), p.434, for a discussion of the nature of wage differentials between men and women on relief works.

TABLE 3.11

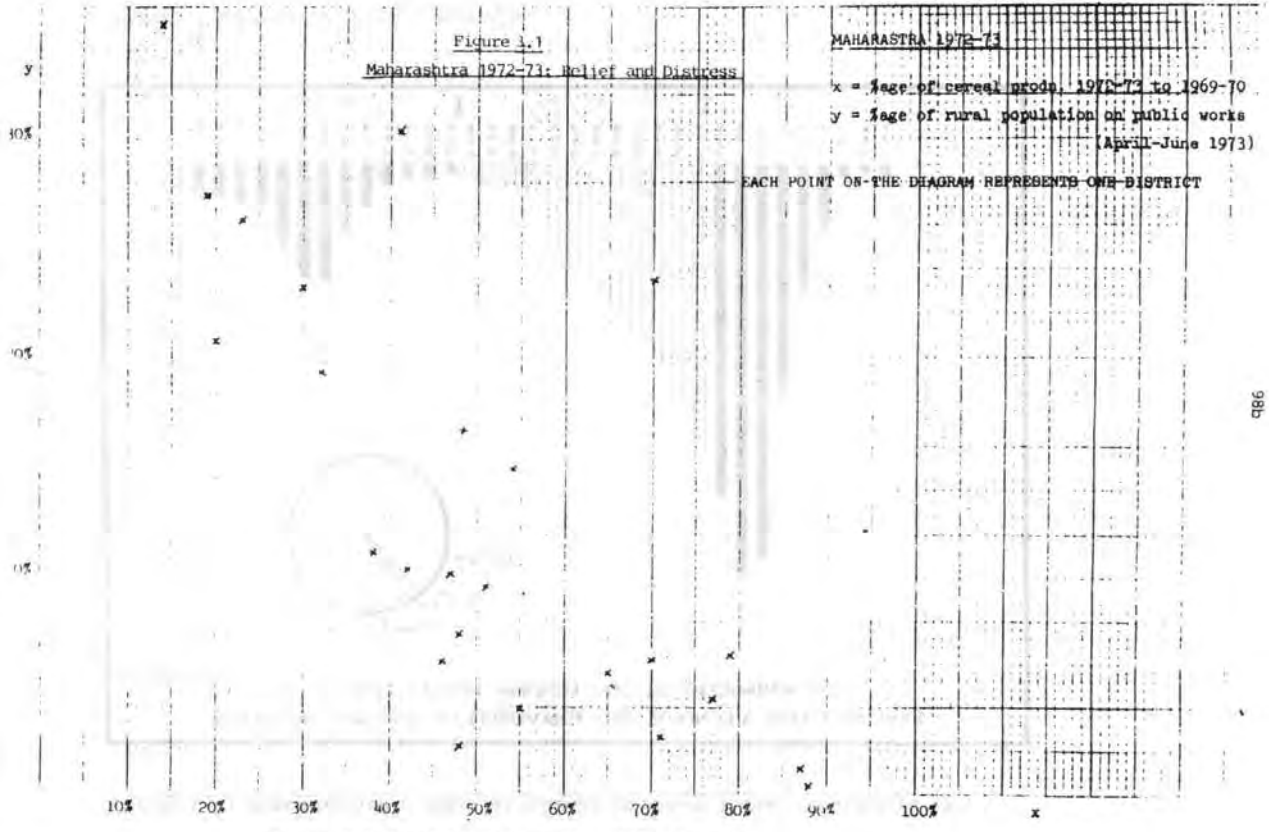
Female Participation in Relief Works, Maharashtra 1972-73 (Two Districts)

Household Class	Percentage of Female Household Members Attending Relief Works	
	Ahmednagar District	Osmanabad District
Large Cultivators	39.6	22.3
Small Cultivators	47.8	38.8
Agricultural Labourers	56.6	40.9
Village Artisans	39.0	29.3

Source: Subramaniam (1975), Table IV-3(iv).

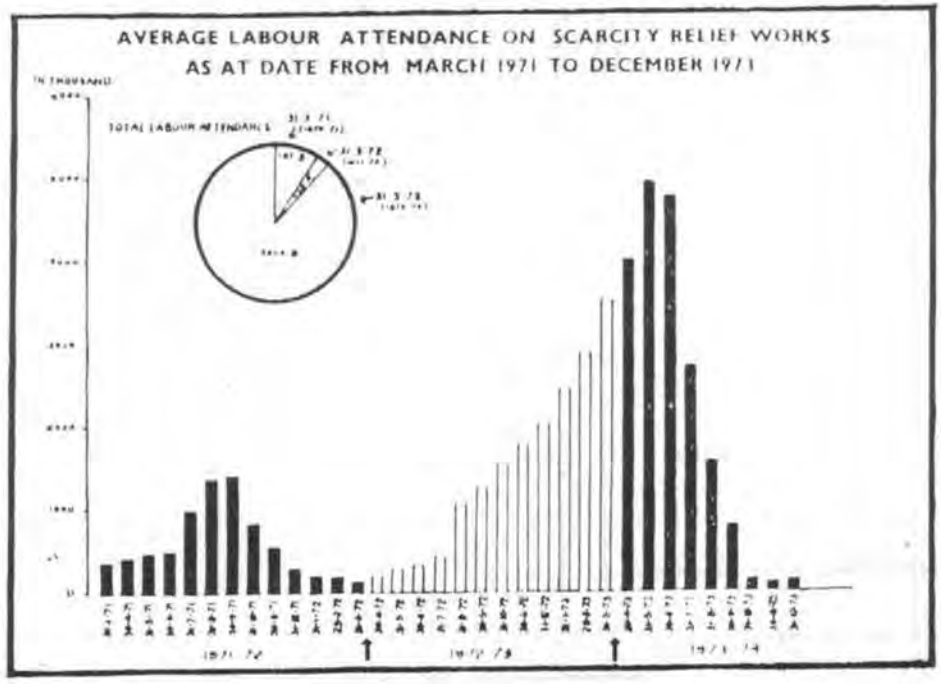
Figure 1.1

Maharashtra 1972-73: Relief and Distress



Source: Calculated from Subramaniam (1975), Appendix.

Figure 3.2 Month-by-month labour attendance on Relief Works, Maharashtra 1971-73.



in 1984-85, when the bulk of relief arrived *after* the bumper harvest which followed the drought, is one among many which spring to mind.

Intra-household distribution raises an altogether new set of questions for the choice of a selection mechanism. This is not the place to go into all the controversial issues involved. The matter was investigated at greater length in the first Volume of this book,[201] where it has been argued that in many situations the support of household entitlements will be a preferable strategy to that of individual feeding. In the case of Maharashtra, the former strategy seemed particularly commendable since (i) early intervention was possible, and (ii) a large proportion of relief resources accrued directly to women in the form of wages, and (iii) the logistical and administrative capability for organising individual feedong on a large scale was manifestly lacking.

The performance of public works as a selection mechanism sharply contrasts with the potential of the Public Distribution System in this respect. We have already pointed out the shortcomings of the latter, and from the preceding discussion it must be clear that, if the resources which the Indian Government was prepared to devote to famine relief had been allocated through the indiscriminate (and in fact, urban-biased) channel of the Fair Price Shops network, the masses of impoverished labourers for whom relief was the overwhelming source of sustenance at that time would have hardly found the support they needed to survive. Once again, this is not to say that Government intervention in foodgrain trade and distribution has no positive role to play. But it is of some importance to put the role of India's Public Distribution System into proper perspective, because it is often given much undeserved credit for the elimination of famines in that country.

The contrast between the strategy of relief works and the Public Distribution System also draws our attention to the

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201. Intra-household distribution issues are also discussed at length in Barbara Harriss' contribution to Volume 2 of this book. Gender issues in relation ot Indian famines are examined in Kynch (1987) and Guz (1987).

merits of cash relief in this particular event. In spite of India's very considerable expertise with the logistics of food, the difficulties encountered in storing, transporting and distributing large quantities of food made themselves very strongly felt.[202] It is quite plain that if the scale of relief had been limited by the capacity of the Public Distribution System to handle food, enormous hardship would have ensued. Under the Cash-for-Work strategy, however, the logistical resources of the Public Distribution System were at once augmented by those of the private sector, and the relief system was largely protected from the failures affecting the former.

The selection power of the Cash-for-Work approach, and its logistical simplicity, must also be regarded as responsible for the remarkable *cheapness* of relief operations during the Maharashtra drought. According to Subramaniam, the total public expenditure incurred on all relief measures for the period July 1972-June 1973 was of the order of Rs 1500 million.[203] This roughly represents one million tonnes of grain at local prices. By the standards of international relief operations, this is a very small price to pay for sustaining a population twice as large as that of the Sahel through a calamity of the observed scale.

None of this, of course, amounts to a general and unqualified case in favour of the Cash-for-Work approach to famine relief. The choice of a relief strategy involves broader issues than those upon which we have concentrated here; some of them are pursued in the first Volume of this book.

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202. See Subramaniam (1975), Chapter 7, for further details.

203. Calculated from Subramaniam (1975), Table II-2(ii). The cost of relief was shared by the State and Central Governments. No international assistance was officially requested, and the relative contribution of international voluntary agencies was minute. On these and related matters, see also Government of Maharashtra (1973).

3.5 Conclusion

The relief operations during the droughts of 1970-73 in Maharashtra can fairly be regarded as having been highly successful not only in terms of the narrow, traditional objective of preventing "starvation deaths", but also in terms of minimising overall excess mortality, containing nutritional damage and, finally, preserving the rural capital stock. Although the relief strategy adopted involved many departures and innovations compared to the original Famine Codes (including a strong emphasis on the role of the Public Distribution System), it is striking that its backbone has remained the familiar one of providing unlimited employment on public works at a subsistence (cash) wage. This strategy was eminently successful, in the present case, in *drawing* food into deficit areas through the generation of purchasing power in the right hands, at the right time and in the right places - in spite of the official ban on inter-State private trade of foodgrains. Progressive income support was also successful in ensuring an equitable *sharing* of available food supplies, in spite of the persistence of a deficit. Nevertheless, since the deficit was substantial but not catastrophic, while the ensuing price and income changes were rather disruptive, there is no presumption that large food deficits (involving, say, a reduction of aggregate consumption of 50 or even 30%) can be shared in the same way - except if "substitution effects" are important. While the "food delivery" and "income support" aspects of famine relief can always be profitably *separated* , it would be dangerous to let one *substitute* for the other.

4. Lessons and Questions from the Indian Experience

It is tempting to dismiss the Indian experience with famine prevention as irrelevant to other countries, and some earlier attempts at drawing "lessons from India" have arguably suffered from taking insufficient note of the specificities of

that country.[204] It is, however, difficult to escape the fact that if their answers vary from place to place, the problems posed by famine relief (early warning, public pressure, security, targeting, cost-effectiveness, market responses...) display striking similarities in different parts of the world.[205] In spite of the difficulties involved, therefore, we must persevere at this point with drawing the conclusions of the foregoing enquiry. In doing so, the contrast between India's success and the persistent drama of famine in Africa will naturally retain our attention. Many of the issues raised by this contrast will only be briefly touched upon here, and the reader is referred to the first Volume of this book for a more thorough discussion.[206]

Perhaps the most obvious but nevertheless most important conclusion emerging from the preceding analysis is simply that India does provide us with an impressive example of a fairly effective relief system, an example which we should be aware of and try to understand - just as we should be interested in experiences of successful relief in other parts of the world, including Africa. As I have stressed in the introduction of this paper, one should guard against the temptation of exaggerating India's success in this respect. Apart from its scale, the Maharashtra experience was not exceptional for India, but it is true that it was among the more successful ones. The record of famine prevention in different parts of the country since Independence has, in fact, been marked by

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[204]. This is, for instance, a clear problem with the otherwise very instructive interpretation of the Indian experience provided by Mc Alpin (1987).

[205]. Nor is it true that the right answers have always been different in India and elsewhere. For instance, the famous Report of Gooch and Mc Donald (1981), which laid the foundations of Botswana's remarkable relief system, literally reads like an echo of the Famine Commission Report written in India almost exactly one century earlier.

[206]. Before embarking on this discussion, it is worth recalling the danger of treating Africa as an undifferentiated whole: in a more careful treatment of the questions examined here, regional differences (whether economic, social or political) within Africa as well as India would have an important place.

enormous diversity. In some cases, as with Bihar in 1966-67, we have seen that large-scale disaster has only been narrowly avoided. And, in India as elsewhere, the history of famine relief is littered with disgraceful tales of corruption, opportunism and exploitation. But this being said, on the whole the famine relief system which emerged and evolved from the Famine Codes has stood the test of time, and it has certainly vindicated the claim of the 1898 Famine Enquiry Commission that "scarcities occurring over limited areas while the rest of the Indian continent is prosperous, can be successfully dealt with by a very moderate expenditure of money and without disturbing the ordinary administration".[207] The strategy of pulling food from other parts of the country by generating purchasing power in affected areas, and of relying on public works (supplemented by gratuitous relief for the disabled), both to insure everyone against starvation and to provide selective support to the more vulnerable groups, were eminently well suited to the particular conditions of the country. Of course, the principle of a guarantee of work is far from having always been upheld literally in practice. But its existence does make it difficult for the administration to ignore its duty of organising relief works when distress assumes unusual proportions. Last but not least, the provisions of the Famine Codes included an "early warning system" and reduced the ability of the administration to conceal or ignore the threat of famine. The dramatic reduction in the incidence of famines in India over the last hundred years can confidently be attributed in large measure to the quality of its relief system.

The foregoing enquiry also draws our attention to the factors which must be seen as primarily responsible for the observed performance of the relief system itself, namely: a political compulsion to support the people through times of distress; a detailed contingency plan; and a specific strategy of open-ended public works. Concerning the latter, the Famine Codes contained numerous provisions of all sorts, and one may wonder which of them have really played a major role in

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207. Famine Commission Report, 1898, p. 5.

averting famines. I have argued that the operational cornerstone of famine relief in India from the inception of the Famine Codes to the present day has been the organisation of large-scale public works - rather than, say, free feeding or other forms of gratuitous relief, the remission of land revenue, or even the vast network of ration shops, whose role in this context is much overrated. It is particularly worth stressing that the Public Distribution System as it functions today in India is at best an untargeted and at worst a regressively targeted transfer scheme, and I have argued that with current resource commitments such schemes could not guarantee adequate food entitlements to vulnerable groups in times of crisis. It would probably be wiser, from the point of view of famine prevention, to sell food wholesale and devote the resources presently absorbed in maintaining a huge network of Fair Price Shops to better planning and implementation of public works.

I do not want to suggest, of course, that public works are a panacea for the prevention of famines in Africa. Indeed I have insisted on the fact that India's famine relief strategy was particularly well suited to its specific circumstances. This being said there are no strong *a priori* reasons why public works should necessarily turn out to perform *badly* in all African countries. As we have argued in the first Volume of this book, some of the more common arguments to that effect are rather unconvincing, and public works *have* in fact proved quite effective already in a number of African countries. We should not *assume*, therefore, that because India and Africa display numerous contrasts the "Indian model" will necessarily be an inappropriate famine relief strategy in all African countries.

But again, the "lessons from India" are not in the nature of a panacea. They are mainly general principles about famine prevention which really follow from common sense and yet are too often neglected. First, in countries where a large part of the population derives its livelihood from unrewarding and risky activities, even rapid agricultural development does not obviate the need for a vigorous relief system. This is a rather obvious observation, but too often famine relief

disappears from the agenda as soon as a crisis is over, and the focus returns to "long-term development". In fact, the dichotomy often introduced between "relief" and "development" (as if they were antithetical endeavours) is probably misleading in the first place. Providing relief to distress-stricken rural populations, and thereby allowing them to preserve their productive capital, is perhaps better seen as an eminently desirable form of *investment* in countries vulnerable to famines. To put it another way, where informal security arrangements are weak there are clear social gains in buttressing or even replacing them with wider insurance mechanisms which reduce collective uncertainty and shift its burden to the more prosperous classes.

Secondly, effective famine relief depends crucially, almost by definition, on *contingency planning* - as the turbulent history of famine relief in 19th century India abundantly confirms. Once again this is a somewhat trivial statement, but it is worrying to find that to this day not a single country in Africa, except Botswana, appears to have a serious contingency plan to deal with the threat of famine.[208]

Thirdly, the design and refinement of a relief system involves a long process of *experimentation and learning over time*. The potential effectiveness of alternative relief schemes in different places depends on many social, economic and political factors about which we often know very little a priori: can the household, or (say) the tribe, be trusted as a channel of food distribution to vulnerable individuals? How will people react to different kinds of "tests"? How mobile are they? Can private trade be relied upon to move food towards famine-affected areas? How will cash schemes affect food prices? How will these price changes, in turn, affect the consumption of non-vulnerable groups, stock management decisions, or trade? Is the local administration reliable? These are all highly location-specific questions which are best answered by a combination of theoretical speculation, empirical investigation and practical experimentation. As we

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[208]. At one time the Sudan had a Famine Code, framed after the Indian model. It has, however, now been discarded.

have seen, in India the Famine Codes were framed only after more than two decades of trial and error under the British Administration.

Beyond these general "lessons", the Indian experience confronts us with a set of "questions" - which have to remain largely open as long as the nature of the contrast between India and Africa, and its consequences for famine relief strategies, is not better understood. Some examples of important questions posed by the Indian experience are the following.

First, is the *local administration* a neglected resource in the fight against famine in some African countries? Where the administration can be relied upon, it obviously provides an extremely valuable resource by ensuring access to available infrastructures, information networks and decision-making structures; by contrast, the efforts of international relief agencies are often found to be dangerously slowed down by the perceived necessity of investing heavily in transport equipment, storage, information and the like. Sceptics are quick to point out, not without reason, the weakness of indigenous administrations in many African countries. But one should guard against dismissing prematurely the potential of this precious resource. An interesting observation often found in records of famine relief operations in India, which was pursued at some length in our own case study of Maharashtra in the previous Section, is that the administration functions far better in times of crises than in normal times; and it is intriguing to find that precisely the same observation has been made in recent accounts of famine relief in several African countries, including Botswana (Holm and Morgan, 1985, Hay et al, 1985), Kenya (Cohen and Lewis, 1987; Borton and Clay, 1986), Tigray (Peberdy,1985; Nelson, 1983), Eritrea (Firebrace and Holland, 1984), Chad (Autier and d'Altilia, 1985), Niger (de Ville De Goyet, 1978; World Food Programme, 1986) and even Uganda (Dodge and Alnwick, 1986). In any case, as we have stressed in the first Volume of this book, encouraging experiments have already been made in a number of African countries using the local administration as a channel of famine relief. Finally, a valuable lesson from

the 1966-67 relief operations in Bihar (which is notorious for having one of the most corrupt and inefficient administrations of all Indian States) is the scope for fruitful cooperation between the local administration and international as well as local voluntary agencies. There is great scope here for further reflection and research.

Secondly, has the potential of *cash relief* been neglected in Africa? This question is, again, discussed at greater length in the first Volume of this book, but it is worth noting here that the most prominent advantages of cash schemes are very clearly illustrated by the Indian experience; to cite only two examples, we have seen that the use of cash relief in Maharashtra in 1970-73, and its neglect in Bihar in 1966-67, exerted a decisive influence on the outcome in both cases. For a *given* pattern of food movements, cash schemes allow greater flexibility in the planning and implementation of famine relief, by loosening the ties between the distinct endeavours of ensuring that sufficient food is available and giving vulnerable people the means to acquire food. In *addition*, cash schemes can ease the food situation by stimulating private food movements towards famine-affected areas. This second advantage, of course, is particularly prominent in the event of "local" crises, and while most recent famine threats in India have been of this type the same cannot evidently be said of Africa. However, local crises *are* frequent in Africa too, and in those cases cash schemes deserve special attention. When crises are not localised, the first advantage still remains. But a delicate issue also arises in this case concerning the extent to which cash relief schemes can be expanded in spite of the threat of failure on the food delivery front, e.g. when food aid is tardy or simply not forthcoming at all. If large groups of vulnerable people remain beyond the purview of relief, the dangers of triggering adverse inflationary pressures canot be overlooked. But the precise nature and extent of this danger remains poorly understood, particularly in the context of African countries - this should be a priority area for theoretical as well as empirical research.

Thirdly, should *targeting* be regarded as an important principle of famine relief in Africa as well as in India, and if so what are the available mechanisms to carry it out? While the case for devoting much greater resources to famine prevention efforts is compelling enough, the scope for greater effectiveness in the use of existing resources also deserves close scrutiny. Successful targeting is only one of the contributing factors here, but again the Indian experience strongly suggests that it is potentially a very important one. Of course, the nature of the targeting problem may well differ in India and Africa. For instance, in those African countries where intra-village inequality is relatively small, targeting may basically reduce to a question of allocation over *space* rather than between socio-economic groups. Where populations are fairly mobile and migration is the traditional "coping strategy" in times of distress, the value of the "distance test" may deserve reexamination. Where local institutions can be trusted to distribute food equitably among vulnerable and less vulnerable households or individuals, self-acting tests may be altogether unnecessary and greater reliance could be placed on discretionary allocation. The need for experimentation and learning is again apparent here.

Finally, do *public works* deserve greater attention as a famine relief strategy in Africa? The advantages and disadvantages of the approach are, of course, numerous and can only be assessed in context. The Indian experience, however, suggests that the considerable self-selection power of public works should receive considerable attention in such an assessment. The chief advantage of public works, as we have plainly seen in the case of Maharashtra, is that they allow *large* transfers to be carried out, while restricting those transfers to the most vulnerable.[209] A household from which two members work for the modest wage of 2 kgs of grain per day each earns as much as 120 kgs per month - in a country like India it is inconceivable that gratuitous transfers of this

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[209]. Of course, when intervention is belated large numbers of people may become too enfeebled to be effectively relieved through public works. The provision of employment is intrinsically an early intervention strategy.

magnitude could be successfully restricted to the poor (assuming the latter could be reliably identified in the first place).[210] Is the problem very different in Africa?

While the current record of public works in Africa is not usually considered to be particularly good, this verdict is largely based on their allegedly poor productive performance - a consideration which should be regarded as secondary when famine threatens. In terms of famine prevention, many successful experiments with public works have in fact been made in different parts of Africa, including Botswana (Hay et al, 1985; Holm and Morgan, 1985; Borton, 1984), Ethiopia (Holt, 1984; Government of Ethiopia, 1987; Admassie and Gebre, 1985), Lesotho (Bryson, 1986), Cape Verde (van Binsbergen, 1986), and Chad (Autier and d'Altilia, 1985). Paying greater attention to these important "success stories" might take us some way towards answering this last question.

To conclude. The greatest difference between India and Africa in the context of famine prevention may well be a political one: the absence, in the latter case, of either a commitment or a compulsion to support the people in times of distress. The role of war in exacerbating food crises in Africa also needs indefatigable emphasis. Nevertheless, the existence of genuine political problems should not be an excuse for the perpetuation, in African countries, of famine relief systems which in all likelihood have many curable defects - including, in most cases, that of not existing in the first place.

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210. The use of nutritional status as a criterion of eligibility admittedly has some valuable discriminatory power. This approach, however, has already been criticised in the first Volume of this book.

5. Summary and Conclusions

India's success in preventing droughts and other natural disasters from developing into large-scale famines since Independence is not a spurious one. The entitlement system defined by the operation of the economy and the ordinary level of State provisioning leaves a large part of the population highly vulnerable to entitlement failures in times of crisis. On several occasions, famine would undoubtedly have occurred in the absence of early and effective intervention to protect the entitlements of vulnerable groups. If the Government of India can and should be criticised for having gone little further than espousing the earlier colonial view that "while the duty of the Government is to save life, it is not bound to maintain the labouring community at its normal level of comfort",[211] the measure of success it has achieved in the pursuit of this narrow objective is, by international standards, commendable enough.

Two conspicuous milestones characterize the historical development of India's relief system in its modern form. The first one corresponds to the submission of the Famine Commission Report of 1880, and the simultaneous advent of the Famine Codes. The Famine Commission of 1880 saw the loss of employment and wages for agricultural labourers and artisans during droughts as the primary cause of famines, while it pronounced that food was rarely in short supply for the country as a whole. Accordingly, the famine relief strategy embodied in the Famine Codes consisted of generating purchasing power in affected areas, and letting private trade ensure the physical supply of food. Moreover, the preferred income transfer mechanism consisted of open-ended public works supplemented by gratuitous relief for the weak. The self-selection feature of relief works was relied upon to ensure financial economy while providing a universal guarantee against starvation.

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[211]. Circular of the Government of India No. 44F, 9th June 1883, quoted in Famine Commission Report (1901), p.35.

It would be simplistic, however, to regard today's relief system as a mere legacy of the British Administration. In fact, important changes have occurred since Independence, which marks the second milestone of the recent history of famine relief in India. In particular, the real resources allocated to relief have increased, and the range of measures they support has broadened; the Government has resolutely entered the previously sacrosanct domain of food supply management, and ensured a large measure of price stability; and, last but not least, the real but weak commitment of the British Administration to the prevention of famines has evolved into a political compulsion to respond, as democratic institutions buttressed public pressure.

A detailed study of the drought of 1970-73 in Maharashtra, while admittedly concentrating on one of the most striking successes of the relief system, clearly underlines the high standards of effectiveness which it is capable of achieving. Against the background of a dramatic and prolonged collapse of agricultural production and food availability, the massive provision of employment succeeded not only in stimulating private food trade in a situation where the Public Distribution System had proved inadequate to the task of filling the initial gap between availability and requirements, but also (and even more strikingly) in ensuring that the remaining deficit was distributed with astonishing evenness across different socio-economic groups. Accordingly, this devastating drought only had moderate consequences in terms of asset depletion, nutritional damage and excess mortality. The case study also highlighted the crucial role played (inter alia) by public pressure, cash relief and public works in averting a dramatic crisis. Public pressure galvanized the Government into prompt and decided action. Cash relief enabled the logistical resources of the public sector to be supplemented with those of the private sector, and insulated income support strategies from food delivery failures. Last but not least, the reliance on public works as the main income transfer mechanism ensured both a sharp concentration of resources on the needy (the "targeting objective") and, perhaps even more importantly, the provision of a nearly

universal protection against starvation (the "security objective").

Only preliminary reflections have been offered here on the question of whether the Indian experience conveys important lessons for other countries, especially those of Africa. Many complex issues are involved, some of which can only be tackled on the basis of sustained empirical investigation. Meanwhile it remains pertinent to ask whether, in spite of the political obstacles one might expect, significant improvements could not be achieved in many African countries by (i) paying greater attention to the persistent need for a relief system in countries where a large part of the population derives its subsistence from relatively unrewarding and insecure activities; (ii) acknowledging the vital importance of contingency planning for effective relief; (iii) concentrating on the anticipation, recognition and cure of sharp declines in living standards, rather than on the mere prevention of starvation deaths; (iv) giving a greater role to the local administration, and studying the incentives which can make it work; (v) working *separately* on the support of incomes and the delivery of food, rather than making the former contingent upon, and commensurate to, the latter; (vi) considering more sympathetically the potential of cash relief; and (vii) taking a more flexible view of the possible role of private trade.

It is fit to conclude this paper by tempering its congratulatory tone. In fact, it can be argued that the foregoing diagnosis of success in crisis management is contingent upon the existence of acute and lasting famine vulnerability in the first place. The disappearance of large-scale famines in India has indeed coexisted with the resilient persistence of mass poverty and hunger. As we have emphasized in the first Volume of this book, moreover, this colossal failure is avoidable and, therefore, inadmissible.

APPENDIX A

Mortality in Bihar, 1966-67

TABLE A1

Death Rate in Rural Bihar

(Sample Registration Scheme)

Period	Source	
	Singh	Sample Registration Bulletin
July 1966-July 1967	16.8	
August 1966-July 1967		15.4
July 1966-Dec. 1966	16.9	16.9
Jan. 1967-June 1967	14.2	
July 1966-June 1967		15.7
July 1967-June 1968	13.2	15.0
July 1967-Dec. 1967	10.3	
Nov. 1966-Oct. 1967		14.6
Jan. 1968-June 1968	11.6	11.8
1968		14.9
1970		14.5
1971		14.6
Jan. - June 1971		12.7
July - Dec. 1971		16.9
1972		19.0
Jan. - June 1972		15.1
July - Dec.1972		22.6

Source: Singh (1975), p.243 and *Sample Registration Bulletin* 1968, 1973 and 1974, various issues.

Note: It can be seen that the figures reported by Singh are internally inconsistent (since 16.8 could hardly be an average of 16.9 and 14.2 with roughly equal weights), and also in conflict with the official figures of the Sample Registration Bulletin.

TABLE A2

Rural Death Rate in Bihar and India, 1963-64and 1966-67
(National Sample Survey)

Period	Bihar	India
Feb 1963-Jan. 1964	10.1	12.4
July 1966-June 1967	12.4	10.4

Source: *National Sample Survey*, Report Nos. 175 (18th Round) and 210 (21st Round).

Notes: (i) The individual observations consist of a death rate for 365 days prior to the date of interview. Hence, the reference period "1963-64" (say) strictly speaking spans the period February 1962 - January 1964, but with much heavier weight on the second half of the latter.

TABLE A3

Registered Deaths in Gaya, Palamau and Hazaribagh Districts of Bihar and in Bihar as a whole, 1966-1968

Death Rate

	1966	1967	1968
Gaya	14.7	24.6	8.1
Palamau	13.5	17.1	13.6
Hazaribagh	11.3	22.7	10.7
Bihar	11.4	13.9	10.4

Infant Mortality Rate

	1966	1967	1968
Gaya	107	132	63
Palamau	93	112	60
Hazaribagh	62	63	42
Bihar	74	72	51

Source: *Annual Report on Vital Statistics of Bihar, 1968* (Patna: Government of Bihar), and *Condensed Annual Vital Statistics Report for the Years 1966 and 1967* (Patna: Government of Bihar).

TABLE A4

Mortality in Gaya, Palamau, Hazaribagh and Bihar, 1966-1967

Period	Death Rate			
	Gaya	Palamau	Hazaribagh	Bihar
July 1966 - Dec.1966	17.2	19.2	19 8	16.9
July 1967 - Jan.1968	16.6	12.6	12 3	10.3

Source: Singh (1975), p.243, who presents this as data collected by the Sample Registration Scheme (but see Table A1 above).

Appendix B

TABLE B1

Monthwise Consumption of Foodgrains for a Sample of 52 Farming Households from a Village in Jodhpur District, Rajasthan, 1963-64 (Drought Year)

Foodgrain Consumption Class (gms/day)	Oct 1963	Nov 1963	Dec 1963	Jan 1964	Feb 1964	March 1964	April 1964
	Percentage of Households in each Consumption Class						
300-450	7.7 (-)	21.3 (-)	34.6 (1.9)	48.1 (5.7)	57.7 (3.8)	60.5 (5.7)	69.2 (7.6)
451-600	21.2 (67.3)	25.0 (73.0)	38.5 (69.2)	34.6 (74.9)	35.5 (76.8)	32.7 (78.7)	25.0 (78.7)
601-750	71.1 (32.7)	53.8 (27.0)	26.9 (28.9)	17.3 (19.4)	5.8 (20.4)	5.8 (15.4)	5.8 (13.9)
	Percentage of Households which Took Following Step :						
							TOTAL
sold inventories	22.9	40.9	55.0	50.1	52.2	35.3	36.7	100.0
sold assets	-	1.4	-	-	2.1	0.7	4.2	8.4
mortgaged assets	0.7	-	2.8	5.6	14.5	26.4	22.2	68.8

Source : Jodha (1975), p.1613.

Notes : (i) Figures in parentheses indicate the corresponding details for the year following the drought year.

(ii) "Inventories" here refer to items such as fuel wood, dung cakes, timbers, ropes and mats, spinned wool, ghee, pickles, stocks of provisions, clothing etc. (see Jodha, 1975, p.1620).

TABLE B2

Change in Cereal Consumption for 108 Households in Dandhuka Taluka, Gujarat, 1974-75

Household Class and Nature of Change	All Cereals	Wheat	Rice	Jowar	Bajra	Number of Households
Large Cultivators :						24
Increased	-	5	-	22	14	
Decreased	75	22	59	5	7	
Stopped	-	-	23	-	36	
No change	25	73	18	73	43	
Medium Cultivators :						24
Increased	-	-	-	7	7	
Decreased	75	23	65	-	29	
Stopped	-	-	15	-	50	
No change	25	77	20	93	14	
Small Cultivators :						24
Increased	-	5	-	10	6	
Decreased	85	52	35	20	50	
Stopped	-	-	47	-	19	
No change	15	63	18	70	25	
Labourers :						30
Increased	-	7	-	9	14	
Decreased	47	33	36	22	29	
Stopped	-	-	29	-	-	
No change	53	60	35	69	57	
Artisans :						6
Increased	-	-	-	-	-	
Decreased	50	-	50	-	33	
Stopped	-	-	50	-	-	
No change	50	100	-	100	67	

Source : Desai et al. (1979), pp.4-5 and 72.

Note : Each entry in the table indicates the percentage of households who were consuming the specified item in 1973-74 (a good year) and adopted the specified 'change' in 1974-75 (a severe drought year). Maize was not consumed by any households in 1973-74 and for this reason does not appear in the table.

TABLE B3

Consumption of Foodgrains (gms/adult unit/day) in Gujarat and Rajasthan Villages, 1970-71 (normal year) and 1969-70 (scarcity year)

	GUJARAT			RAJASTHAN		
Size of Operational Holding	Normal Year (1970-71)	Scarcity Year (1969-70)	Nb.of Households	Normal Year (1970-71)	Scarcity Year (1969-70)	Nb. of Households
'Big'	956	895 (94%)	1	668	593 (89%)	7
'Large'	996	780 (78%)	10	715	605 (85%)	17
'Medium'	812	732 (90%)	29	595	507 (85%)	40
'Small'	648	577 (89%)	36	612	512 (84%)	31
Non-Operators	557	523 (94%)	24	578	603 (104%)	5
All Households	740	657 (89%)	100	626	535 (85%)	100

Numbers in brackets indicate 'scarcity year' consumption as a percentage of 'normal year' consumption.

Source: Choudhary and Bapat (1975), p.394.

Note: For Rajasthan, 'foodgrains' here includes foodgrain substitutes *(kair ki chhal, bhurat, chandalia etc.)*. During the scarcity year, the consumption of foodgrain substitutes virtually disappeared in each landholding size group, while that of foodgrains marginally *increased*.

Table B4

'Disaster-Avoidance Strategies' Reported by 365 Households During the 1983 Drought in Karnataka

Type of Strategy	Specific Action	Percentage of Households Concerned
Reducing Consumption	Eating less food all levels	'Nearly all'
	Eating less food to point of hunger	35
	Changing type of food eaten	9
	Spending less on festivals	18
	Spending less on clothing	15
	Postponing marriages	7
	Spending less on entertaining and visiting	3
	Removing children from school	1
Selling Possessions	Animals	6
	Valuables	2
	Land	1
Employment	Changing rural employment	3
	Changing to non-rural employment	3
	Working on natural resources	1
	Some family members migrating	2
Exchange Transactions	Securing loans	13
	Food from members of their community	1

Source: Caldwell et al (1986), Table 1.

Note: This drought was milder than that of Maharashtra in 1970-73. On the other hand, relief operations were only undertaken on a modest scale (at least in the sample villages).

TABLE B5

Purchases of Cereals in May-June 1973 in Two Villages (Aurangabad District, Maharashtra)

Household Class	Quantity purchased (kgs/head/month)		Number of households	
	ADUL	BHADJI	ADUL	BHADJI
Cultivating 50 acres and above	14.2 (25.0)	15.4 (25.0)	1	1
Cultivating 25-50 acres	14.8 (25.0)	12.6 (25.7)	3	5
Cultivating 15-25 acres	14.1 (25.0)	17.3 (26.6)	10	5
Cultivating 10-15 acres	14.9 (22.8)	14.5 (23.0)	5	6
Cultivating 5-10 acres	14.5 (24.3)	18.5 (31.2)	22	7
Cultivating less than 5 acres	14.7 (23.7)	18.7 (31.45)	17	4
Agricultural Labour	14.7 (25.5)	16.4 (24.4)	17	4
Artisans	13.7 (26.6)	15.2 (29.6)	7	4
Others	13.3 (28.4)	- (-)	10	0
All households	14.4 (24.9)	15.4 (26.9)	105	36

Source : Calculated from Borkar and Nadkarni (1975), pp.14-15 and 48-49.

Notes : (i) Figures in brackets indicate the percentage of purchases made at Fair Price Shops.

(ii) The authors note that 'in May and June, when they reported peak employment and earnings through scarcity works, the households purchased slightly in excess of their current requirements because of the expected rise in the prices of food articles and the decline in their incomes in the immediate future (due to discontinuance of scarcity relief works)' (Borkar and Nadkarni, 1975, p.58).

(iii) No indication is given about the existence of home-grown stocks, but these were most probably negligible for most households.

Appendix C

TABLE C1

Household Incomes in Panchmahal District (Gujarat), 1972-73

Landholding Size (hectares)	Income Per Household (Rs/year)			No. of Households Surveyed
	Farm	Non-farm	Total	
Above 5.0	7585	41	7627	8
4.1 - 5.0	7055	1428	8482	5
3.1 - 4.0	4084	1298	5382	8
2.1 - 3.0	2951	437	3388	19
1.1 - 2.0	1827	950	2777	97
0.1 - 1.0	1180	633	1813	57
Landless	0	1325	1325	5
All Classes	2156	809	2964	199

Source: Sambrani and Pichholiya (1975), pp.95-96.

TABLE C2

Household Incomes in Dandhuka Taluka (Gujarat), 1972-74

Household Class	Year	Relief Works	Other Wage Income	Non-wage Income	TOTAL INCOME	No. of Households Surveyed
Large Farms	1973-74	0	33	4213	4246	24
	1974-75	240	121	-764	-403	
Medium Farms	1973-74	0	65	3326	3391	24
	1974-75	189	163	-763	-411	
Small Farms	1973-74	0	530	1242	1772	24
	1974-75	254	2260	-87	427	
Landless Labourers	1973-74	0	826	17	843	30
	1974-75	447	413	7	867	
Landless Artisans	1973-74	0	1533	0	1533	6
	1974-75	442	799	0	1241	

All figures in Rs. per year.

Source: Desai et al. (1979), pp. 4-5, 65.

Note: 1974-75 was a drought year in Gujarat, but not 1973-74.

TABLE C3

Incomes in Two Districts of Maharashtra, 1972-73

Household Class	Household Income Per Capita (Rs/Month)			
	Ahmednagar District		Osmanabad District	
	Latest Normal Year	1972-73	Latest Normal Year	1972-73
Large Cultivators	36	24	32	23
Small Cultivators	23	24	16	20
Agricultural Labourers	21	24	16	22
Village Artisans	18	17	28	24

Sample Size: 27 households for each Household Class in each District.

Source: Subramaniam (1975), pp.436, 598.

Notes: (i) This table presents the results of a survey carried out by the Directorate of Economics and Statistics, Government of Maharashtra.
(ii) Small cultivators are those "possessing" less than 7.5 standard acres of land.

TABLE C4

Incomes in Six Villages of Satara District (Maharashtra), 1972-73

Landholding Size Class (hectares)	Household Income Per Capita (Rs/Month)		No of Households Surveyed
	'Normal Year'	Drought Year (1972-73)	
4.0	446	283	139
2.1 - 4.0	251	218	204
0.11 - 2.0	260	213	526
0	215	208	121
Average	286	222	990

Source: Brahme (1983), p.76.

Note: A very similar pattern of income changes was observed in a village of Sholapur District (Brahme, 1983, p.73-75). In another sample of households in Poona District, incomes were found to be unrelated to landholding size both in the drought period and in the previous year, but (i) the sample was drawn exclusively from among relief workers, and (ii) the author notes that large-scale relief works were in operation during both periods (Brahme, 1983, pp.66-68).

TABLE C5

Incomes in Two Villages of Aurangabad District (Maharashtra, 1972-73)

Village Adul

Landholding Size Class (acres)	Household Income Per Capita (Rs/year) Relief Works	Farming	Other Income	Total Income	No of Households Surveyed
> 50	91	-	-	91	1
25 - 50	165	-36	23	152	3
15 - 25	359	-22	25	362	10
10 - 15	210	- 7	21	224	5
5 - 10	239	-22	7	224	22
< 5	240	- 5	40	275	17
Agricultural labour	287	16	30	333	17
Artisans	169	56	79	304	7
Others	83	-16	346	413	10
All Households	230	- 6	59	283	92

Village Bhadji

Landholding Size Class (acres)	Household Income Per Capita (Rs/year) Relief Works	Farming	Other Income	Total Income	No of Households Surveyed
> 50	188	61	1	250	1
25 - 50	94	104	88	286	5
15 - 25	167	-21	43	189	5
10 - 15	138	-24	181	295	6
5 - 10	193	-1	21	213	7
> 5	259	-11	1	249	4
Agricultural labour	193	13	168	374	4
Artisans	183	63	65	311	4
All Households	153	28	76	257	36

Source: Calculated from Borkar and Nadkarni (1975), Tables I, II and XI.

Note: Adul was much more affected by the drought than Bhadji.

TABLE C6

Incomes in 15 Villages of Drought-Prone Districts of Andhra Pradesh, Karnataka and Tamil Nadu, 1978-79

Household Class	Total Income Per Household Rs/year			
	Anantapur (Andhra Pradesh)	Bijapur (Karnataka)	Coimbatore (Tamil Nadu)	All Villages
Large Farmers (above 10 hectares)	37 906	24 753	91 732	51 464
All Cultivators	4 669	3 408	9 921	5 999
Marginal Farmers (below 1 hectare)	2 201	2 067	5 082	3 117
Agricultural labourers	1 942	1 812	2 954	2 236
Artisans	3 231	11 051	5 259	6 517
Others	4 442	3 137	8 609	5 396
All Households	3 676	3 094	6 308	4 359

Source: Nadkarni (1985), Table 9.1.

TABLE C7

Household Expenditure in Selected Villages of Gujarat and Rajasthan, 1969-70 and 1970-71

Size of Operational Holding	Total Household Expenditure (Rs/year)			
	GUJARAT		RAJASTHAN	
	Normal Year (1970-71)	Drought Year (1969-70)	Normal Year (1970-71)	Drought Year (1969-70)
Big	3 985	5 087	1 489	1 378
Large	3 693	3 812	1 950	1 743
Medium	2 124	1 595	1 766	1 581
Small	1 305	1 203	1 135	1 019
Non-Operators	1 010	855	916	1 137
All Households	1 737	1 532	1 540	1 398

Source: Choudhary and Bapat (1975), Table V.6.

Note: Data Collected from a sample of 100 households each from villages of both Gujarat and Rajasthan.

TABLE C8

Poverty and Landholding Size,
Maharashtra and Gujarat, 1972-73

Percentage of Households Below the "Poverty Line"

Operational Holding Size (acres)	Gujarat	Maharashtra
0	36.8	60.0
< 1.0	44.0	63.6
1 - 2.5	39.8	66.6
2.5 - 5.0	41.2	59.4
5.0 - 7.5	37.3	58.8
7.5 - 10.0	29.9	57.5
10.0 - 20.0	24.4	47.7
> 20	13.5	36.1
All Households	34.7	57.3

Source: Visaria (1978), itself based on a tabulation of the 27th Round of the National Sample Survey.

Note: The "poverty line" is defined here as an expenditure level of Rs 15/month/capita at 1960-61 prices.

TABLE C9

Incomes in Nasik District (Maharashtra)
('Normal Year' and 1972-73)

Landholding Size Class (acres)	Income Per Capita (Rs/year) 'Normal Year'	1972-73	Population
> 10	481	206	820
5 - 10	274	168	741
0.01- 5	202	146	763
Landless Agricultural Labourers	138	152	288
Other Landless	212	205	314
All Households	293	175	2926

Source: Calculated from Kulkarni (1974), Tables 7.21 and 7.23.

Notes: From the text in Kulkarni (1974), it seems that 'normal year' refers to 1971-72.

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