OVERVIEW

Food Security in Developing Countries: Issues and Options for the 1990s[1]

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1. Introduction

The food insecure, to paraphrase St. John, are tragically always with us. Yet, food security as an issue and food security planning as a priority wax and wane — according to the perceived severity of food security problems, the institutional enthusiasm of governments or aid agencies and the extent of competition from other development fashions. The history of food security accordingly shows two distinct waves: the first, stimulated by the world food crisis of 1972-4, peaked in the early 1980s[2]; the second, catalysed by the African famines of 1984-85, gathered momentum through the late 1980s.[3] The first wave was responsible for a series of large-scale, highly visible and generally rather unsatisfactory food production initiatives in Africa.[4] The second wave is more modest but also seems more likely to have lasting effects: it has produced a large number of national plans which take explicit account of macroeconomic constraints and propose smaller scale and separable projects, more in tune with new 'process' approaches to multi-sectoral planning.[5] Whether the new wave can be sustained remains to be seen. It may, as Kennes delicately hints later, find itself displaced by new concerns such as the environment. Nevertheless, this seems an appropriate point to take stock, assess the different approaches to food security planning and see what issues are likely to dominate in the 1990s.

The papers in the *Bulletin* approach the question of food security from different perspectives. Four are by academics and deal with substantive issues: Payne with malnutrition and its relationship to food insecurity; Belshaw mainly with the role of agricultural growth in securing food security; Ellis with markets and market intervention; and Maxwell, Swift and Buchanan-Smith with targeted interventions. The last three of these papers are based on case studies, respectively in Ethiopia, Indonesia and the Sudan. The remaining four papers are written (in their personal capacities) by agency representatives: they deal not only with substance but also with planning issues. Between them, these papers, by Hindle (for the World Bank), Kennes (for the European Community), Huddleston (for FAO) and Dearden and Cassidy (for the UK Overseas Development Administration) report on practical food security planning in close to two dozen countries, mostly in sub-Saharan Africa.

It would be misleading to claim unanimity across such a spread of institutions and country experience. Nevertheless, all the contributors (with qualifications by Dearden and Cassidy) share a belief in the value of a focus on food security and all are preoccupied with common themes: with the meaning of 'food security'; with approaches to food security planning; and with the substantive issues of growth, market management and the design of targeted interventions. This paper adopts a similar agenda: section 2 reviews the ways in which the term 'food security' is used; section 3 compares the approaches to food security planning; and section 4 takes up briefly the substantive issues. Section 5 draws together the outstanding issues for the 1990s.

2. What is 'food security'?

'Food security' is one of those terms — 'rural development' [Chambers 1983:146] and 'farming systems research' [Merill Sands 1986] are others — which authors feel obliged to define or redefine at frequent intervals. In the case of 'food security', the different definitions on offer partly reflect no more than a desire for product differentiation in a crowded market. In other respects, however, they do offer genuine differences of emphasis: on the importance of subjective assessments of food insecurity; on the relationship between malnutrition, access to food and livelihood security; and on the need for an efficient national food system.

In 1981, at the height of the first wave of interest in food security, Clay argued that 'food security is a problem most often conceptualised as a macro phenomenon — deviations from trend in aggregate consumption' [Clay 1981:5]. He went on to argue that macro indicators concealed the proper concern of food security analysis with the sources of vulnerability of particular groups: the urban poor, the rural landless and small or marginal farmers [ibid]. Clay's strictures at that time were probably more true of some agencies

[1] Thanks for comments to Gaie Mendelssohn, Margie Buchanan-Smith and other colleagues. Responsibility is mine.

[2] Clay 1981, Valdes 1981, European Community 1981.

[3] World Bank 1986, Gittinger *et al* 1987, FAO 1989, CIDA 1989.

[4] Kennes in this volume, Tuinenburg 1987, Lipton and Heald 1984.

[5] Korten 1980, Maxwell 1989.

(e.g. FAO [Huddleston in this volume]) than others (e.g. the European Community [Tuinenburg 1987]), but they were reinforced by concurrent work on poverty and entitlements [Sen 1981] and by a tradition of research on the multi-dimensional causes of malnutrition [Berg and Austin 1984]. As a result, most definitions of food security, though not necessarily all governments, now give primacy to individual access to food.

Each of the threee international agencies represented in this volume has its own definition of food security. The World Bank defines it as follows:

> 'Access by all people at all times to enough food for an active, healthy life. Its essential elements are the availability of food and the ability to acquire it. Food insecurity, in turn, is the lack of access to enough food. There are two kinds of food insecurity: chronic and transitory. Chronic food insecurity is a continuously inadequate diet caused by the inability to acquire food . . . Transitory food insecurity is a temporary decline in a household's access to enough food' [World Bank 1986:1].

The FAO definition runs along similar lines. As given by Huddleston in this volume, the ultimate objective or goal of food security is:

> 'to ensure that all people at all times have both physical and economic access to the basic food they need . . . Food security has three specific aims: ensuring production of adequate food supplies, maximising stability in the flow of supplies and securing access to available supplies on the part of those who need them.'

The EC also has a definition of food security, summarised in the paper by Kennes:

> 'Food security can most simply be defined as the absence of hunger and malnutrition. For this to be possible, households, villages or countries must have enough resources to produce or otherwise obtain food. This condition is necessary, but not sufficient, because the resource must also be used well.'

To supplement these definitions, Maxwell [1988, 1989a] has proposed a wider concept in which:

> 'A country and people are food secure when their food system operates efficiently in such a way as to remove the fear that there will not be enough to eat. In particular, food security will be achieved when the poor and vulnerable, particularly women, children and those living in marginal areas, have secure access to the food they want. Food security will be achieved when equitable growth ensures that these groups have sustainable livelihoods; in the meantime and in addition, however, food security requires the efficient and equitable operation of the food system.'

Finally, yet another gloss is put on the definitions by Maxwell, Swift and Buchanan-Smith in this *Bulletin*, arguing that the now conventional distinction between chronic and transitory food insecurity disguises the varying intensity of food insecurity. They argue that it is very difficult to distinguish in practice between chronic and transitory food insecurity and suggest that:

> 'another dimension has to be introduced, to describe the intensity or severity of episodes of food insecurity.'

In comparing these different approaches, there are three common themes. First, all focus on access to food rather than simply on supply. Following Sen [ibid], 'entitlement' to food can be obtained by production, trade, labour, inheritance or transfer. Food security is therefore concerned not just with the level and variability of food production, but also, as Clay [ibid] proposed, with the causes and dimensions of poverty and with the effectiveness of public and private distribution systems.

A second theme is the attention to variability as well as to trends, with all the definitions highlighting seasonal and inter-annual variability in food production, food prices or ability to acquire food. The distinction between chronic and transitory food insecurity has become central to food security analysis.

The third theme, implicit in the definitions, is the broad mandate of food security, encompassing production, marketing and consumption issues and ranging across levels of analysis from the household to the national and international economy. Belshaw refers to this in his paper as the 'food chain'.

There are, however, important differences between the various approaches, and four of these are worth discussion. First, there is a difference in the unit of analysis, with the EC referring to households and all the other definitions to individuals. The allocation or misallocation of food within households is difficult to estimate and appears less skewed than often allowed [Payne in this volume], but there is enough evidence about the unequal allocation of household resources in general to suggest that the individual is a more appropriate building block than the household for food security analysis [Evans 1989].

A second difference is the varying emphasis given to the perceptions and feelings of the food insecure themselves, in the wider context of livelihood security. Thus, whereas the World Bank refers to 'enough' food and the FAO to 'adequate' food, Maxwell refers to 'removing the fear that there will not be enough to eat'. This does, of course, complicate matters. Payne discusses in some detail how difficult it is to estimate for different kinds of individuals (with different

nutrition and disease histories and different workloads) the food intake requirements implied even by concepts like 'enough' or 'adequate'. He also warns against inferring conclusions about food intake from anthropometric outcome indicators which may result from other causes like disease. Incorporating the perceptions of the food insecure themselves will make matters even more difficult, both for prescription and diagnosis. Nevertheless, it remains necessary to incorporate subjective feelings because of the way poor people will modify their attitudes to food in order, for example, to preserve their asset base or in other ways protect their livelihoods [de Waal 1988, 1989, Maxwell 1989a]. There is an additional point that livelihood strategies will be designed to cope with the perceived threat of food shortfall rather than with any objective indicator or one specified by outsiders.

Thirdly, there are differences in emphasis regarding the efficiency of the national 'food system', the arrangement of agro-ecological and socioeconomic factors which determines the production, marketing and consumption of food. The national picture is left implicit in the World Bank definition, referred to indirectly in the FAO formulation, but brought out explicitly in the definitions by the EC and by Maxwell. Kennes remarks that the resources deployed in food production or trade must be 'used well' and Maxwell states explicitly that the food system should be 'efficient and equitable':

> '"Efficient" means that all stages in the food chain, from production to final consumption, should be efficient in a social welfare sense. Production policies should take account of dynamic comparative advantage; marketing margins should provide no more than normal profits in the long term; and consumer prices should reflect real scarcity values. "Equitable" means that the benefits of production should be equally distributed and that food should be available to all.'
>
> [Maxwell 1988:2]

Belshaw makes a similar point in his paper.

Finally, it is worth drawing attention to the distinction between mild and acute food insecurity as an additional dimension of analysis. This is similar to the distinction between mild and acute malnutrition and the point made by Maxwell *et al* overlaps with the point made by Payne: that only acute malnutrition may require intervention. As Payne points out, this is a significant qualification because people have a much higher capacity than previously thought to adapt to low or variable food intakes: in particular, small size may sometimes be an indicator of efficient adaptation rather than of continued nutritional stress.

At one level, these different definitions of food security can be glossed over: the essential focus on access to food is shared and all the approaches attempt to deal simultaneously with production, marketing and consumption. At another level, however, differences of emphasis do result in different programmatic outcomes, for example in the different priority given in famine relief to food supplementation and asset preservation [de Waal 1988]. It is interesting to see, therefore, how the overall concept of food security translates into planning methods and programme content.

3. Approaches to Food Security Planning

(a) The case for 'food security'

One starting point for a discussion of approaches to food security planning is to ask what is special about food security, in whichever of its mainfestations it appears: as Hindle observes, his colleagues in the World Bank 'wanted to know how food security analysis differs from a spectrum of alternatives, from simple (sic) agricultural sector reviews to general development strategies'. Reading the papers in the *Bulletin* suggests that the answer to this question can be couched in different and progressively stronger ways.

The first answer to the question of how to justify a focus on food security is that it directs attention to a key basic need of the poorest and most vulnerable groups. As Dearden and Cassidy remark:

> 'Whether people have enough food is politically highly sensitive in all but the most totalitarian societies. And it is a matter or life and death to the poorest and economically most vulnerable people in any country.'

In this formulation, which is largely shared by Hindle, food security is essentially a proxy for poverty: the use of nutrition and food security indicators provides a convenient way of measuring changes in poverty; and a focus on food security ensures that the needs of the poorest are not neglected in policy formation. Food security is thus as much as anything else about 'balance', a valuable counterweight to the emphasis on macroeconomic adjustment and 'getting the prices right'. Payne and others might argue with the proponents of this position that the interpretation of food security indicators is less unambiguous than they might like to believe. Nevertheless, there is no doubt that the 'food security as a proxy for poverty' position has been influential, for example in discussions on the social dimensions of structural adjustment [Cornia *et al* 1987].

A stronger version of the argument for food security is provided by Kennes. He accepts the moral and political case for a focus on hunger, but then goes on to argue that the problem can only be tackled by an integrated approach. In particular, Kennes sets out the background to the European Community initiative in 1981 on Hunger in the World: the world food crisis of

the 1970s stimulated increased aid flows and increased investments in agriculture and rural development, but these 'did not improve the basic trends as regards the food situation'. A more comprehensive approach was required, to improve household food security 'by concentrating projects on the least favoured areas and population classes'. Kennes is mostly concerned here with chronic food insecurity and with production projects to relieve poverty: in this sense, his position overlaps with the proxy for poverty position. However, he is also concerned with marketing and pricing policies and thus with questions of access to food by consumers. The key argument for food security planning in this formulation is then that optimal food outcomes cannot be achieved without integration across sectors and ministries. The objective, as Huddleston suggests, is 'a coherent, internally-consistent approach to the development of the food and agriculture sector, which will achieve the ultimate goal of food security'.

To the extent that integrated planning does take place across sectors, the third and potentially most exciting plank appears in the case for food security planning, namely the opportunity to find gaps and exploit synergies. The role of food security planning in finding gaps in existing policy is noted by Huddleston. The paper by Maxwell, Swift and Buchanan-Smith contains practical examples from North Sudan: the synergy between livestock and cereal markets, leading to the idea of intervention in livestock markets to preserve the assets of poor people and thus prevent destitution; synergy between growth strategies directed to the traditional rainfed sector and greater food security in marginal areas; and the synergy between strengthening local government relief agencies and better local administration of rural development.[6] In these cases, the argument for food security analysis is that it produces new or better justified policies and programmes that might not otherwise have been considered.

(b) The scope of food security policy

If these arguments make the case for food security planning, the next set of questions concerns policy instruments and planning methods. Here, it is important to note that the range of policy instruments available to food security planners is very wide. With food security as defined in Section 1, focusing broadly on livelihood security and on the efficient and equitable operation of the food system, and with the parallel emphasis on gaps and synergies, it may seem that little is excluded from food security planning. Food production, food marketing and food consumption may already seem large as policy spaces, but at least they are bounded.[7] The problem arises with the need to protect or increase incomes, so as to sustain entitlements and access to food. Here, food security overlaps with employment and can find itself drawn into broader issues of rural development and industrial policy.

In general, food security manuals preserve a dainty ambiguity on this subject. All agree that the primary concern of food security is with the production, marketing and consumption of food: with increasing and stabilising food supply, with reducing and stabilising food prices, and with targeted food and nutrition interventions aimed at vulnerable groups [World Bank 1986, Huddleston in this volume]. In practice, however, most find themselves drawn at the margin into questions of macroeconomic management and non-food issues of agricultural and rural development. One example is the interest in cash crops as a route to better nutrition and food security (see the papers by Kennes and Huddleston in this *Bulletin*, Kennedy 1989, Maxwell and Fernando 1989, Bouis and Haddad 1990). Another is the concern with non-agricultural employment as a source of diversified and stable incomes.

The papers in the *Bulletin* deal in different ways with the problem of incorporating non-food issues. The macro-economy receives the most attention. Dearden and Cassidy emphasise the importance of growth as the long-term solution to both poverty and food security and Kennes describes the way in which the European Community's concern with the constraints on food security has led it to give greater priority to macroeconomic structural adjustment. Both Huddleston and Hindle specifically incorporate a macroeconomic component in their model of food security. This is seen most clearly in Hindle's diagram of 'modules' for analysis, which places trade and exchange rates, and fiscal, monetary and public sector reforms in the pole position of the food security grid. Other non-food components at the micro-level appear in Hindle's diagram and in the practical examples given by Belshaw and by Maxwell, Swift and Buchanan-Smith. Belshaw, in particular, lays great stress on the relationship between macroeconomic performance and food security. He makes the important additional point that when food security fails, famine relief is a severe drain on resources that would otherwise be available for macroeconomic growth. Food security projects in low potential, drought-prone areas often appear to have low short term rates of return in a purely economic sense: however, an argument in their favour is that they produce large savings on famine relief in the future, thus releasing resources for development.

(c) Procedures and planning methods

The objective is wide-ranging; the tool-box is large.

[6] On this point, see also Hubbard 1988, Buchanan-Smith 1990.

[7] For a classification of measures in the food security tool box, see Timmer, Falcon and Pearson [1983:64].

What procedure should then be followed in food security planning? As Hindle asks, 'What do I do when I get off the plane in Ndjamena?' The answer, in Chad or elsewhere, and presumably as applicable to government officials in their own countries as to visiting missions, seems from the papers here to be to begin by thinking of food security as an 'organising principle', which will produce a coherent policy stance [Huddleston] and an overall strategy rather than a series of projects labelled food security [Hindle]. Nevertheless, strategies are supposed to lead to action, and, as Belshaw describes for Ethiopia, food security strategies will lead to a set of linked policies and programmes designed to improve access to food. These strategies may result in greater concentration of resources on the food sector and will certainly aim to produce greater coherence and 'integration of instruments' [Kennes].

These statements of principle do, however, beg a number of questions, particularly on how to choose priorities or calculate trade-offs. Neither Hindle nor Kennes offers any advice on this, but Huddleston reports on a new FAO method, founded on the use of a multi-criteria table [see also FAO 1989]. This approach is designed to help evaluate the costs and benefits of alternative project components and to help put complete food security programmes together. The main focus is on impact and on the total cost of the programme.

Ranking tables of the kind presented by Huddleston do offer a way of clarifying conflicts and resolving choices in food security planning. Maxwell [1988] has adopted a similar approach, which begins by identifying the key food insecure groups and then tracing the impact on food security through changes in income, income distribution and the level and stability of food production and prices [see also Evans and Diab 1988]. A short list of plausible interventions can then be evaluated in terms of effectiveness, implementability and consistency with other policies (Figure 1).

Figure 1 **Criteria used in evaluation of food security interventions**

Scale	Consistency with Government policy
Speed	Administrative feasibility
Cost-effectiveness	Sustainability
Equity	

Source: Maxwell and Belshaw 1990

When it comes to the implementation of these interventions, food security planning in its most ambitious form places a heavy strain on government agencies and donors. Kennes, for example, describes the difficulty of comprehensive 'policy dialogue' between donors and recipients. Belshaw describes similar problems of communication between government departments. Such problems of multi-sectoral and multi-disciplinary planning are familiar from such fields as integrated rural development [Korten 1980, Korten and Klaus 1984, Rondinelli 1983, Birgegard 1987] and multi-sectoral nutrition planning [Field 1987, Berg 1987]. The 'process' approaches which these have generated seem well-adapted to food security planning. Maxwell [1989b] has identified the principal lessons for food security: integrated planning but independent implementation ('no super ministries'); the importance of a bias to action over planning ('start small and grow'); the value of risk-taking and innovation ('pilot projects'); and the importance of addressing explicitly the need for new modes of organisation in multi-disciplinary team work ('task cultures not role cultures').[8]

4. Issues in Food Security Planning

Food security clearly touches on a wide range of topics, both in theory, and, as the papers show, in practice: structural adjustment and growth; income distribution and welfare; buffer stocks and trade; pricing and marketing; food aid and financial aid. Indeed, the range of topics is wider even than the papers suggest, since some debates — emergency relief is a notable example — are deliberately eschewed in the papers here.

In addressing such a range of issues, it might be expected that the agency views would reflect different ideological positions, but in fact this is not the case. A common feature of the papers by Hindle, Huddleston, Kennes and Dearden and Cassidy is their emphasis on a pragmatic, case by case approach to food security. Indeed, this retreat from ideology into contingency theory is itself an important theme of the 1990s. There are, nevertheless, differences of emphasis in the papers here.

Of the topics discussed, three raise issues which run through all the papers in the *Bulletin*, with the summary statements in the Agency views supplemented by the more detailed analysis in the other papers. These issues are growth and the balance between food and non-food production; market intervention; and the scope for targeting. In general, the bias of the discussion is to sub-Saharan Africa, with some cross-references to Asia: Ellis, however, concentrates on Indonesia's experience in market management.

[8] On the issue of organisational cultures in multi-disciplinary research, see also Maxwell 1986.

(a) Growth

Growth in agriculture can contribute to food security in at least two ways: first, through growth in food production, to better availability and, under certain circumstances, to lower food prices; and secondly, through higher incomes, to greater command over food. There are obvious potential trade-offs between alternative growth patterns, both within agriculture and between agriculture and non-agriculture, as well as geographically between regions. Belshaw explores these in the case of Ethiopia, arguing in particular for a greater emphasis on sustainable agricultural development in low potential areas. In addition, however, the mechanisms are complex: lower food prices may be bad for food producers, whose incomes may fall if the demand for food is inelastic [World Bank 1986:7]; and even higher food output may not make a big impact on food security if it is associated with higher variability and greater risk to food supplies [Pinstrup-Andersen and Hazell 1985, Anderson and Hazell 1989].

The complexities and qualifications can be illustrated by the debate on food self-sufficiency which is addressed by a number of the authors. Their shared position [Hindle, Huddleston, Kennes] is that the frequent emphasis in developing countries on food self-sufficiency is misguided: growth in non-food agriculture, including cash crops for export, can have a greater impact on incomes and, provided that food marketing systems function well, sometimes a large assumption, simultaneously improve command over food.

There is a good deal of evidence to support this position, especially in the literature on cash crops and nutrition [Von Braun and Kennedy 1986, Maxwell and Fernando 1989]. In many cases, cash crops and food crops turn out to be complementary rather than competitive, so that increased cash cropping is associated with more food production rather than less: this is because of technical and financial complementarities in farming systems and because of sharing of inputs between one class of products and the other. Even where this is not so, case studies show that the increased income resulting from cash cropping is partly spent on increased food consumption [Bouis and Haddad ibid]. Furthermore, cash crops are often more labour intensive than food crops, so that incomes and access to food for the poorest are improved by a switch from food crops to cash crops, at least in the short run [Kennedy ibid].

However, there are important qualifications to these generalisations about cash crops and food security. One is that cash cropping may undermine the food security of the poorest groups if it is associated with rapid increases in social inequality [Maxwell and Fernando 1989:1683-1686]. Another is that under certain circumstances food prices may rise, even where marketing is inefficient. The possibilities here are illustrated in Figure 2, which shows the impact of cash cropping on food prices in a range of situations, where the degree of self-sufficiency and the transport costs for food both vary. In all these diagrams it is assumed that cash crops compete with food production and that an expansion of cash cropping causes the supply curve for food to shift to the left. At the same time, cash cropping results in an increase in income, so that the demand curve shifts to the right.

It can be seen from Figure 2 that the impact of these changes on food prices depends on the degree of self-sufficiency and the size of transport costs. In the best case, where the region is not self-sufficient either before or after the introduction of cash cropping, there is no difference at all in food prices. In the worst case, where the region remains self-sufficient despite the increase in demand, because transport costs are high, the impact on food prices is severe. The importance of this finding is that food security is often most precarious precisely in regions where transport costs are high: Darfur in Sudan is a case cited in the *Bulletin* by Maxwell, Swift and Buchanan-Smith. In this case, increases in food prices associated with increased cash cropping could harm poor people who do not share in the higher incomes associated with cash crops.

The analysis in Figure 2 assumes competitive markets and reflects the consensus in the literature that prices should reflect free market levels. Kennes, however, takes an interestingly different line, setting out the case for protection of the agricultural sector. This is one issue where the European Community has taken a somewhat different position to other large donors.

Protection, according to Kennes, can be justified on economic or non-economic grounds:

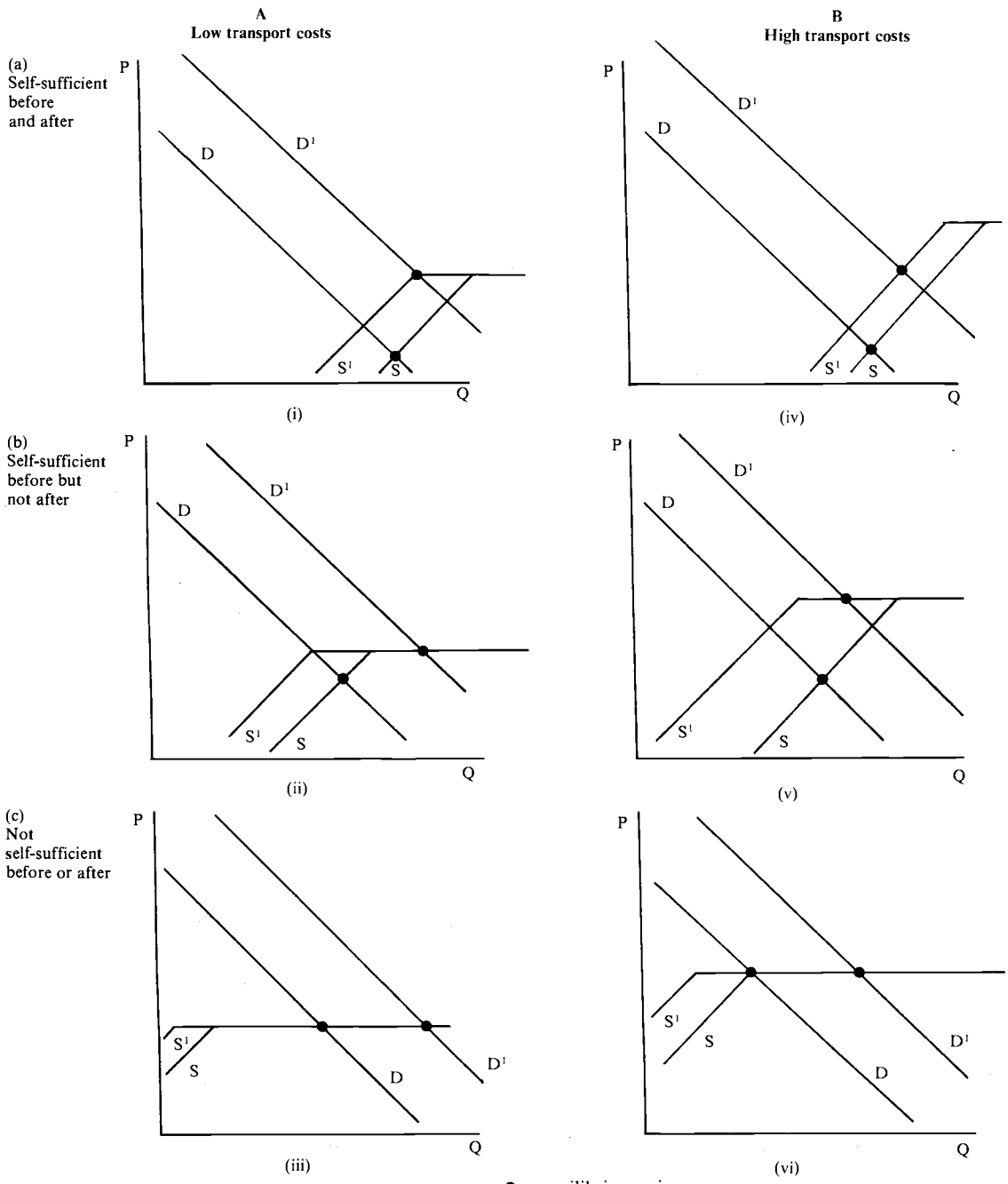
> 'Economic arguments particularly concern the compensation for excessively low (international) prices, possibly resulting from dumping or from an overvalued exchange rate, and the gradual achievement of competitive production through learning by doing (the infant industry argument)... There can also be important non-economic arguments to justify protection, for example to diminish pressures for migration and to safeguard the environment.'

Ellis' case study of Indonesia in this volume provides an example of protected rice production, with self-sufficiency achieved and maintained through price protection, fertiliser subsidies and large-scale public investment in irrigation and new technology. As Ellis notes, the budgetary costs were high, but financed by Indonesia's large oil revenues. This factor alone means that the lessons may not be transferable to SSA.

The Indonesia case shows that prices (protected or not) are important to agricultural growth. However, it is interesting to find all the authors laying equal or greater emphasis on non-price policy. Huddleston, for

Figure 2

Cash Crops and Food Prices



example, lists research, extension, input supply, credit and consumer goods as elements of a balanced policy towards agriculture. Belshaw adds land and tree tenure and labour market regulation. There is certainly no sign of 'pricism' [Lipton 1987] in these papers.

(b) Market intervention

There is a conventional wisdom on market intervention, which can be summarised in three propositions: that public sector sales and purchases should be kept as low as possible, so as to provide incentives to traders; that stocks should kept to the minimum required for emergency relief; and that inter-annual fluctuations should be handled largely by trade. The benefits of this model lie in reduced fiscal outlays, in a smaller burden on state administrative capacity and in an active private sector; the costs lie in larger price fluctuations than might otherwise be the case and in increased risk of food shortage in bad years. This version of the conventional wisdom is particularly associated with the World Bank. It is not expressed strongly in the paper by Hindle, but is certainly found in the World Bank policy statement on food security, Poverty and Hunger [World Bank 1986].

What might be called the World Bank position is persuasive to many [see e.g. Dearden and Cassidy and Shuttleworth 1988], but raises problems which the papers by Huddleston and Kennes both identify. Huddleston, for example, accepts that:

> 'the size of... reserves should be related to the lead time necessary to arrange for food imports or food aid to meet domestic consumption requirements.'

but then goes on to cite circumstances where larger scale public or quasi-public intervention may be necessary: where the private marketing system has broken down; where hoarding or speculative activities create artificial food scarcities; and where large fluctuations in output produce occasional surpluses which may affect prices and disrupt production. Huddleston is careful to stress the need for a pragmatic approach and for cost-benefit analysis of any intervention, but there is a clear implication here that a stronger case may exist for intervention than the World Bank would allow.

Kennes, quoting the EC Council of Ministers, finds himself in a similar position:

> 'The bulk of food marketing can most effectively be undertaken by the private sector, but the public sector must intervene where the private sector fails and must prevent abuses of monopoly situations. Furthermore, the government should "contain" the market by preventing excessive price fluctuations that harm both small producers and consumers.'

Like Huddleston, Kennes is careful to qualify any general statement of principle with references to the specificity of local situations, but at the limit the statement of principle quoted above could certainly be taken as an interventionist's charter. It is worth noting, too, that the conditions justifying intervention — breakdown of private trade, artificial food scarcities, occasional surpluses and large price fluctuations — are all characteristic of food systems in SSA.

Two of the papers in the *Bulletin* shed light on the costs and benefits of intervention. Ellis discusses the role of Bulog, the national logistics agency, in Indonesia. The overriding objective of rice self-sufficiency in Indonesia and the use of price policy to help achieve this objective have already been discussed. Ellis also describes the three roles of Bulog, (a) as the state provisioning agent of rice rations to the armed forces and civil service, (b) as the managing agent of the national food security reserve and (c) as a price stabilisation agent responsible for ironing out inter-seasonal and inter-annual fluctuations in rice production. These objectives are met by establishing fairly wide floor and ceiling prices to 'contain' the market. Bulog bought six-seven per cent of domestic production in the 1980s and only once has exceeded 10 per cent. Nevertheless, it was successful in stabilising prices and in satisfying both annual procurement needs and carry-over targets. Unfortunately, the costs and benefits of the various operations are not distinguished in the Bulog accounts, so that it is not possible to identify the costs of the stabilisation operations. Nevertheless, while stressing the benefits, Ellis implies that the costs are considerable.

As Ellis suggests at the beginning of his paper, the temptation to generalise from the Indonesian experience is very strong but must be resisted: the resources available were greater than elsewhere and there was sustained political commitment to self-sufficiency. In addition, wetland rice has proved amenable to 'sustained and stable' increases in yield. Ellis does not give the figures, but it is likely that the coefficient of variation of rice production is fairly low. None of these conditions apply in SSA, and the paper by Maxwell, Swift and Buchanan-Smith makes the discrepancy clear in one case, that of Sudan.

In Sudan, the Government has also intervened in the market of the principal staple, in this case sorghum, but with very different effects. As described by Maxwell, Swift and Buchanan-Smith, but in more detail elsewhere [IDS 1988; Shuttleworth 1988; Maxwell 1988, 1989a], sorghum accounts for about three quarters of cereal production and for about two thirds of cereal consumption. Nearly all production is rainfed and 90 per cent of marketed surplus is generated by a large-scale mechanised sector,

supported by subsidised credit, a favourable exchange rate for inputs and floor prices implemented by the Agricultural Bank of the Sudan. The coefficient of variation of production is high, 28 per cent. The objectives of intervention in the Sudan have been similar to those in Indonesia — national food security and price stabilisation — and the instruments also similar — floor prices and public sector sales at fixed ceiling prices, combined with controls over trade. However, in Sudan, price fixation was associated with very high implicit resource transfers from consumers to producers and with an unfavourable impact on income distribution. It is also possible that the market was destabilised in the long run because of frequent changes of policy. Maxwell [1988] concludes that a free market in sorghum might actually have been more appropriate than erroneous government intervention.

The worse performance in Sudan than in Indonesia is partly the result of inexperience, weaker administration and a lesser political commitment. However, it also reflects the greater difficulty of working with a rainfed crop subject to large inter-annual fluctuations in output and with a bi-modal agricultural sector. The lack of resources to operate an explicit tax and subsidy system and the consequent tendency to rely on implicit resource transfers is also notable. There are more successful cases of public sector market intervention in Africa, but the constraints in Sudan are not untypical and reinforce Ellis' warning on the non-replicability of Indonesian experience.

(c) Targeting

The final issue which cuts across the papers in the *Bulletin* is targeting. Targeting is most commonly taken to refer to interventions like food subsidies or public employment programmes, designed to reach specific vulnerable groups. It is strongly supported by the authors represented here as a way of reducing the cost of food security interventions. Dearden and Cassidy, for example, identify subsidies or other real income transfers as appropriate responses to transitory food insecurity and argue that 'to minimise costs, these arrangements should be targeted on the most needy'. Hindle agrees that 'targeted interventions are the only realistic approach for Africa'.

A strong belief in targeting forms part of the conventional wisdom on food security. Nevertheless, as IFPRI has shown [Pinstrup-Andersen 1988], the feasibility and desirability of targeting vary from case to case. The best case scenario is one in which the target group is small relative to the population; there is political support for redistribution; a targeted intervention can be implemented with little leakage; the extra purchasing power delivered to households results in increased consumption by vulnerable groups; the cost is explicit rather than implicit; and the fiscal burden is offset by taxing the rich. The worst case scenario, by contrast, is one where targeted interventions have to reach a high proportion of the population; targeting is unpopular; the consumption subsidy is small; and the programme is funded by an implicit tax on producers or a large budget deficit. Of the consumer-oriented food subsidies in nine countries studied by IFPRI (only one of them in SSA), the experimental food discount scheme in the Philippines came closest to the best case; and the very large wheat subsidy in Egypt, closest to the worst.

The problem with these generalisations lies in their application to a world where administrative capacity is already overstretched and where there are political obstacles to redistribution. These constraints help to account for the prevalence of the generalised consumer subsidies, often funded by implicit taxation of producers, which are the bête noir of structural adjustment programmes. In Africa, especially, it is hard to find examples of successful targeted programmes. As Hindle remarks:

> 'All the (food security) studies (carried out by the World Bank) have struggled with the issue of how to implement targeted interventions effectively and efficiently in Africa.'

The problem of targeting in Africa is explicitly addressed here by Maxwell, Swift and Buchanan-Smith, with a case study of Sudan. They examine a range of food security interventions (FSIs), from national food policy to regional and district projects and community-based interventions in the realm of the 'moral economy': the package of FSIs in Sudan includes a generalised subsidy on wheat, the sorghum market intervention discussed earlier, both long term rural development and short term famine relief in rural areas and a variety of community sharing mechanisms.

Maxwell, Swift and Buchanan-Smith find that the package of FSI's in Sudan has:

> 'benefited the rich, the urban and the core, rather than the poor, the rural and periphery.'

They find that FSI's have been funded more by implicit resource transfers than by explicit taxes and that macro policies like the sorghum or wheat price interventions have tended to swamp local interventions. Explicit socioeconomic targeting has not been successful, but there has been some geographical targeting and there is potential, despite the rapid spread of market relations, for strengthening community and local government FSIs.

Sudan is a difficult case and it may be as unwise to generalise from Sudan to SSA as it is to do so from Indonesia. Nevertheless, Sudan has many features in common with other countries of the region: large numbers of people food insecure, instability in food output from year to year, a high degree of intervention

in the food system, a chronic fiscal crisis and a very weak administration. The main conclusion may then have wider relevance: improved targeting is possible. The key first steps are to ensure consistency between policy at the macro and micro levels and eliminate the large implicit taxes or subsidies which counteract local interventions. From there, targeting can be successful in programmes which are geographically specific, self-targeting in administrative terms and designed inter-alia to support traditional community food security interventions. There is a strong case for interventions which focus not just on safeguarding current income and food consumption, but also on longer term livelihood interventions that reduce vulnerability.

The implication of this last conclusion is of course that poverty alleviation is at the heart of food security, which brings the discussion back full circle to growth. Dearden and Cassidy recognise this explicitly when they argue for long term and sustainable poverty alleviation programmes with an emphasis on human resource development and conservation. This is growth targeted on the poor. The challenge in the fight against chronic food insecurity is:

> 'to design growth-oriented development programmes which . . . attain the minimum poverty alleviation objective of ensuring that none of the most vulnerable are made worse off . . .'

5. Priorities for the 1990s

The 'tour d'horizon' represented by the papers in the *Bulletin* ranges over concepts, methods and issues of substance. Despite the obvious gaps — emergencies, Latin America, health — it is possible to discern on the horizon many of the issues that are likely to dominate the debate on food security in the 1990s.

The clear implication of the Agency papers is that sub-Saharan Africa will continue to occupy first place on the institutional agenda. This is despite the larger numbers of food insecure in Asia and reflects both the long term development crisis in Africa and the severity and visibility of famine in the continent in the 1980s. Much of the conventional wisdom on food security is based on experience in Asia and Latin America. One important task for the 1990s will be to extend the kind of analysis that Ellis has provided here and look more critically at the limitations of Asian experience for the special circumstances of SSA.

As the problems of SSA come to be studied in more detail, one refreshing conclusion from the papers is that pragmatic approaches are likely to prevail. This suggests a need for more concentrated and more integrated country case work than has been the case in the 1980s.

A focus on integrated food security planning at the country level will also force greater integration between topics. The papers in the *Bulletin* constantly return to the imperative of growth and to the links between food security, structural adjustment, agricultural development, the environment and even population. This is not to downgrade food security as an 'organising principle', but the need for greater integration does suggest the need for institutional change, both in governments and in aid agencies. The European Community was ahead of the field in national food security planning and has learned this lesson: hence Kennes' comments on the difficulty of policy dialogue and the importance of setting the overall framework for equitable growth before dealing with food security. The papers by Hindle and Huddleston show that their agencies too have taken this point.

Within the field of food security more narrowly defined, five topics highlighted in the *Bulletin* will feature prominently in the 1990s. To these might be added a sixth, the design of safety nets to prevent destitution in both rural and urban areas.

The first set of issues concerns the meaning and measurement of food security. The variety of definitions explored in Section 2 suggests that there is still conceptual and empirical work to do on the harmonisation of concepts and on the relative importance of different components of food security at different levels of aggregation. Furthermore, as Hindle suggests, the question of measurement remains problematic. Malnutrition is only one facet of food insecurity but Payne's comprehensive review shows how difficult measurement is. Meanwhile, planners need geographical and socioeconomic 'maps' of food insecurity, so that they can assess the impact of alternative measures on particular groups of food insecure individuals. One solution to this dilemma may be the wider use of methods of rapid rural appraisal, modified for use in Rapid Food Security Assessments [Maxwell 1989c].

The second issue concerns the methods of food security planning: the balance between formal econometric methods and informal checklist approaches; the design of multi-criteria tables for choosing interventions; experimentation with process approaches to food security planning. Of the papers in this volume, only Huddleston deals in detail with method. There will be much to be learned in the 1990s by comparing the methods used in different countries and by different international agencies.

Turning to substance, the third issue will be about structural reform of the food system, particularly the liberalisation of internal markets and of external trade. As the earlier discussion showed, there are still marked differences of view on the extent to which liberalisation should be pursued. There are also difficult choices to be made about process: about the phasing of liberalisation and about the residual arrangements the state should make. Ethiopia is only

one country facing these stark choices.

The fourth issue is how to improve targeting in SSA. The paper by Maxwell, Swift and Buchanan-Smith leaves many unanswered questions about how to harmonise macro and micro policy and about alternative approaches to self-targeting in rural areas. The strengthening of community coping strategies is also an important research area.

The fifth issue is highlighted by Kennes and concerns the future role of food aid. As a recent literature review makes plain [Thomas *et al* 1990], food aid to SSA is insufficiently understood. The research agenda is likely to focus on improved integration between food aid and financial aid, including the vexed questions of 'monetisation' of food aid and the management of counterpart funds [Roemer 1989].

Finally, an issue not discussed in the papers, but likely to be of central importance to food security in SSA in the 1990s, is the strengthening of rural and urban safety nets, to prevent destitution and guarantee food security in emergencies. A key issue is likely to be scope for expanded public works on the Asian model, in countries where population densities are much lower and technical supervisory capacity more thinly spread [Maxwell and Belshaw 1990].

This agenda suggests that food security will continue to offer a fertile field for researchers and planners in the 1990s. The objective need for research and action on food security will remain strong. May as much be said for the commitment of governments and aid agencies to the food insecure.

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