

DISCUSSION PAPER

*Preliminary material and interim research results circulated
to stimulate discussion and critical comment*

**Towards a Strategy for the Rural Poor
in sub-Saharan Africa**

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AGRICULTURE AND RURAL PROBLEMS

TOWARDS A STRATEGY FOR THE RURAL POOR
IN SUB-SAHARAN AFRICA*

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This paper considers the current economic vulnerability of sub-Saharan Africa (SSA) and the role rural development can play in overcoming this problem. It briefly explains the background to the critical shortage of foreign exchange, and the failure of agricultural growth to keep pace with population growth in many SSA countries. It stresses that development among the rural poor should be the centrepiece of future efforts, and examines the obstacles to be overcome and policy choices to be made in achieving such a focus. It does not argue that there is a comprehensive strategy appropriate to all countries in the region, but suggests an analytical approach to the elaboration of strategy in different national and local contexts.

* This paper is a shortened version of a working paper with the same title prepared by the authors for the Economic and Planning Department of the International Fund for Agricultural Development. It attempts to distil the result of recent experience with rural development strategy and projects in Africa, but it is written with a general audience in mind, hence the absence of footnotes and references.

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Economic Vulnerability in SSA *

The most general and well documented symptom of economic vulnerability in SSA is the rapid deterioration in the balance of payments of countries in the region. For Africa as a whole (excluding S.Africa) the IMF has estimated that the current account deficit on non-OPEC countries more than doubled between 1977 and 1981. It remained close to 1981 levels (US \$-14.0bn) in 1982 and 1983. The IMF estimated that gross foreign reserves of the region at the end of 1983 met only three weeks' import demands.

Evidence that SSA's problems are only partially explained by the recent world recession is particularly strong in the case of agricultural production. In most countries of the region agriculture accounts for the largest share of GDP, and is the source of employment and incomes for a large majority of the population. Agricultural production is thus fundamental to general economic performance, and to the welfare of the population.

Although agricultural production data are highly unreliable, those that exist at least suggest the magnitude of current deficiencies. Taking the region as a whole, and most SSA economies individually, 1970-81 annual rates of agricultural production and export growth were below those for population growth and below those of the previous decade. Estimated total food production grew at 1.7 per cent annually, and food production per capita was approximately 10 per cent lower at the end of the period than at the beginning. Reliance upon food imports (and food aid) has accordingly grown. The total volume of agricultural exports actually fell.

While a majority of states still rely on agriculture for the largest portion of export earnings, employment, and incomes, in some states the pattern of economic development has been strongly influenced by mineral or manufacturing production. At least 15 SSA economies derive a higher proportion of their export earnings from fuels, metals and minerals (including diamonds) than from agricultural exports. However, development in other sectors has generally failed to compensate for the problems of agriculture, in some cases has made matters worse and has in several instances been crippled by low food, foreign exchange and raw material inputs from agriculture. The growth of industrial output in SSA averaged about 3.3 per cent a year in the 1960s, and 1970s

* In this paper, sub-Saharan Africa (SSA) is defined as the continent of Africa and geographically associated islands excluding Morocco, Algeria, Tunisia, Libya, Egypt, the former Spanish Sahara, Republic of South Africa and Reunion.

(including mining, construction and utilities, as well as manufacturing) - well below the averages experienced elsewhere in the developing world. Although there has been impressive growth of manufacturing output in some countries (eg, Kenya, Tanzania, Ivory Coast) over extended periods, most of this growth has achieved very limited employment creation relative to volume of investment and has been based upon the simpler forms of import replacement. Without the development of complementary export markets (inhibited by world recession and the similarities among industrial structures in neighbouring African countries), or a significant expansion of internal demand (constrained by agricultural performance as well as international conditions) the limits of such patterns of industrial growth appear to have been reached for the time being.

Furthermore, the existing industrial capacity, and the infrastructure which serves distribution systems, tend to reflect the international relative prices of earlier periods. Capacity requiring intensive use of imported inputs, and in particular of imported energy and skills, has either become uneconomic as relative prices have changed, or, worse, has become inoperable in circumstances of extreme foreign exchange shortage. In many countries, the burden of supporting these structures, and (in the absence of adequate domestic food production) of feeding the urban populations that have grown with them, rests with the foreign exchange earning capacity of agriculture.

The domestic effects of the reduction in foreign exchange availability have quickly become evident. In many countries there are severe shortages not only of imported consumer goods, but of essential inputs for potentially efficient productive activities, including transport, processing, storage, health, education, agriculture and manufacturing. Such shortages - often compounded by misallocation of the supplies that remain available - cause under-utilisation of capacity and breakdowns in transport systems; these, in turn, reduce the output and sales upon which government tax revenues depend. Resultant difficulties in reducing budget deficits tend to magnify the balance of payments problem. Attempts to ration foreign exchange, and to use price controls to dampen the inflationary impact of supply difficulties have sometimes encouraged the growth of parallel markets and smuggling, thus further reducing the availability of goods in the legal distribution system. Shortages of basic goods in rural areas create a disincentive to increases in marketed production, while breakdowns of transport systems have an even greater disincentive impact. Governments have been forced to reduce real expenditure on new projects and existing services in an effort to contain the balance of payments problem. These cuts risk further dampening of expansion prospects and jeopardise the major post-independence achievements

of expansion in education and health services, associated with great advances in literacy and reductions in mortality rates.

The human cost of recent experience in the region has been enormous. Since levels of nutrition in 1970 were already inadequate for a majority of Africans and external account constraints limited food imports, the slow growth of food production has been associated with increases in hunger and malnutrition-related diseases. This is not only true of those economies - such as Angola, Uganda or Zaire - which have suffered dislocation from war or other upheavals, but in the past few years it has also become true of ones which previously had experienced improvements in nutritional standards, such as Tanzania.

Decelerating agricultural output growth has contributed to the overall decline in average real rural household incomes in most SSA economies; the decline has sometimes been worsened and sometimes alleviated by changes in agricultural product prices relative to the prices of rural household purchases of urban goods and services. The deterioration in real income has been particularly severe for peasant producers of export crops, for those in isolated areas which have lost effective access to markets and for those hit by environmental catastrophes (eg drought or chronic ecological degradation). While the producers of export crops have commonly enjoyed incomes above the median of rural (and sometimes national) household incomes - at the price of considerable instability in those incomes - the other two groups are predominantly among the rural poor.

Recent Development Policy

Political stability has often required levels of wages and public spending which, in the absence of controls, raise demand for imports to levels which available foreign exchange earnings cannot sustain. When a balance of payments crisis has ensued, governments have often opted for controls to protect foreign exchange reserves. In some cases subsidies for urban consumers, controls, taxation of rural production, costly marketing systems and shortage of incentive goods have helped to reduce incentives to rural producers and to reduce relative rural incomes. Rural people have reacted by migrating to the towns, by producing less, and/or by refusing to market their output through formal channels and withdrawing into subsistence production, smuggling or parallel markets.

Immediately following independence there were few short-run alternatives in most countries to continued dependence upon agricultural or mineral exports. Prospects for a long run reduction in this dependence were viewed in terms of

import-substituting industrialisation - with associated provision of large scale infrastructure - and the 'transformation' of traditional agriculture to yield a surplus upon which industrialisation and national economic integration could be based. Thus, in rural areas, it was thought necessary for nomads to become settled, for crop production to be increased by large-scale often mechanised schemes (following the successful example of the Gezira scheme in the Sudan), and for marketing to be channelled through large commercial or state organisations. Countries sympathetic to both market-oriented and centrally-planned forms of economic organisation (or a mixture of the two) adopted major elements of this approach.

The combination of this strategic orientation with the pressures upon macroeconomic policy already described often led to an incentive structure biased against exports in general and agricultural production in particular. Hence the now widely-voiced criticisms of over-valued exchange rates (often linked to the maintenance of urban real wage levels), subsidies for better-off urban consumers at the expense of rural producers, tariff structures and trade and payments licensing systems. It also contributed to an emphasis in the allocation of public resources upon large-scale infrastructure and the build-up of recurrent subsidies to urban areas instead of agricultural investment, rural services, and especially the kinds of projects that would have raised living standards in the poorer rural areas from which migrants tended to come.

Foreign advice has in the past favoured an emphasis in development strategy on large-scale capital formation in infrastructure and industry. Flows of foreign aid have been directed in line with this approach, with consequences that are now familiar: a bias towards capital-intensity and complex techniques; a preference for large projects with a high proportion of foreign exchange costs; lack of emphasis on maintenance, recurrent cost support and training; failure to reach the poorest groups and the more remote areas. The maintenance of the capital stock created by these flows now absorbs a substantial part of government revenues and foreign exchange earnings.

A Response With A Rural Focus

It is clear that, if these problems and constraints persist, the countries of SSA will suffer a downward spiral of deterioration with appalling consequences for their peoples. It is arguable that weather, terms of trade deterioration, invasions (eg Angola, Tanzania) and civil wars (eg Chad) are the main causes of the poor performance. However, whatever the causes, domestic responses are needed; African economies cannot sustain their

populations and societies (or governments) with average regional growth of food production two-thirds that of population and growth of agricultural exports negative. Some progress in food production - though not so clearly in per person availability - seems to be institutionalised and modestly steady in other parts of the world: but food output per person is falling, unstable and without institutionalised support on a serious scale in most low-income countries of SSA.

The poorest groups in SSA are predominantly rural dwellers engaged in agriculture. This is the fundamental reason why raising the output and incomes of farmers (and rural workers in general) is central to development strategy in the region. Moreover, weaknesses in the rural sector in many countries have made the process of adjustment to international economic shocks all the more difficult. Rural development is the area of strategy where short-term adjustment, long-term growth, and provision of basic services and nutritional needs for the poorest all call for measures to raise agricultural production by the quickest means, raise the proportion of available resources allocated to rural development, and close the gaps between the real incomes of rural producers and those of urban workers.

The proportion of the population in SSA dependent upon agricultural activities to provide a livelihood tends to be higher than in other parts of the world. In the low-income countries of the region approximately 80 per cent of the labour force provides for cash or subsistence needs from agriculture (probably including rural non-farm activities), while in the region as a whole the proportion is in excess of 70 per cent. About one person in ten among labour force participants receives a regular wage or salary, while the other nine rely on self-employment or self-provisioning activities for their own and their dependents' livelihoods. Agriculture provides most of these self-employment and subsistence livelihoods.

Even if industrial and service sector employment grow at rates corresponding to the most optimistic prognosis for general economic growth, more than two-thirds of new entrants to the SSA labour force will seek agricultural employment and incomes. The labour force is expected to grow at three per cent a year from 1980 to 2000 on the basis of ILO projections. This growth rate implies the addition of 110 mn workers to the labour force over the period, of which in excess of 70 mn will need to derive their incomes from rural work. The same ILO data suggest that about 97 mn workers were absorbed in agriculture and rural non-farm work in 1980, so that the projections imply an increase of more than two-thirds in the labour force seeking rural work by the year 2000. Such projections are, of course, subject to a very wide margin of error, but the magnitudes are sufficiently large to indicate the priority that must be given to rural development.

Providing a livelihood for these additional workers and their dependants implies an increase in output for self-provisioning from the small farm (or the livestock herd in pastoral systems) - and also for local exchanges with village artisans, whose opportunities will expand as the market for rural non-farm services expands. In some areas, the expansion of non-farm work opportunities is vital to ease pressure upon scarce cultivable land. Where land is less scarce, non-farm services are in any case needed to enable farmers' innovations and new infrastructure to be maintained by locally-available skills.

The relationship between agricultural production, rural development and the balance of payments is not simply a matter of agricultural exports. It is true that the rate of increase in agricultural export earnings has fallen sharply since the mid-1960s, and earnings have declined in a number of countries, but the terms of trade and volume difficulties causing this problem have been compounded by the movement of population to the towns and the subsequent rise in food imports. Part of the solution to structural balance of payments problems thus lies in increased domestic food production, and the reduction in migration rates which improved rural incomes and services could bring.

Limited market size places a constraint upon further industrial and service sector development which the generation of new rural incomes can relax. Very few SSA countries are in a position to accelerate industrial development by reliance upon manufactured exports, and current world economic conditions make it unlikely that the prospects for exports of manufactures will improve significantly in the near future. Without additional demand stimulated by rural development and agricultural production, the potential for optimally-sized production runs and full use of capacity will be reduced. Current patterns of import-substituting industrialisation are in any case heavily dependent upon subsidies or protection, and while under some circumstances these may contribute to higher domestic product, they tend to reduce real incomes outside the industrial sector.

These arguments in favour of a strong rural emphasis in future development strategy also point to an important distinction between growth of agricultural production and improvement in rural welfare. An increase in agricultural production, without a relatively even spread of the incomes thus generated, will not maximise employment, reduce migration and create a substantial new market for industrial output. Conversely, increases in agricultural output and productivity are unlikely to be sustained unless direct investments in productive capacity are complemented by improved health and education services, transport and marketing facilities, and the growth of rural service industries

(from implement supply and repair to retail distribution of consumer goods). A strategy of rural development therefore requires attention to the distribution of productive activity, as well as its growth, and to the expansion of non-farm activities in rural areas.

Rural Development and the Rural Poorest

The case for a redirection of effort toward rural development rests not only upon its potential benefits for the majority of the population (and for the poorest sections of the population); it also draws support from the contribution which accelerated rural development can make to improving food security, strengthening the balance of payments, reducing migration (and thus improving urban welfare), creating mass markets for non-agricultural goods and services and increasing domestic industrial input supplies. Where urban consumers now buy in 'parallel' markets, increased food production can reduce the cost of food to them without requiring lower prices to growers.

These benefits will not be secured, however, if the measures taken within a rural development strategy tend to by-pass large sections of the rural population - either because the measures deliberately ignore important groups (eg promotion of highly-mechanised export crop or staple grain estates), or because measures intended to be of general applicability are appropriated by well-placed farmers (eg credit or extension facilities more easily taken up by commercially-oriented smallholders). The majority of rural producers in SSA are only 'part-participants' in production for cash - much of their effort is devoted to provisioning, watering, fuelling and housing themselves and their immediate families. The strengthening of the production systems under which they do this is therefore vital; it provides the foundation from which additional marketed surplus can come without displacing traditional mechanisms of food security. Other approaches to rural development, less directly aimed at traditional production and the poorest groups, are likely either to bypass such groups and reinforce inequality, or even to have negative effects by drawing away important labour inputs.

This argument implies that the appropriate emphasis of a rural strategy in SSA countries will be upon small farmers and herders producing their own basic household food requirements, and also either a food crop surplus or an industrial or export crop to generate cash income. The emphasis in production is likely to be upon food crops for domestic consumption, in particular on root crops and, in many cases, inferior (coarse) grains which tend to form the bulk of the diet of those at nutritional risk - which is not to say that opportunities to expand incomes by producing

other types of marketed crop should be ignored. Among nomadic peoples dependent upon livestock for subsistence, there will be a corresponding emphasis upon food supply and, since there is less potential for product diversification, income generation will also depend upon strengthening the livestock economies. The emphasis in provision of support facilities and social services should be upon the same groups, and such provision should form an important part of projects - recognising that inadequate access to these facilities reduces incentives, affects human productivity, and probably hampers aptitude for innovation.

It is not clear that areas where the poorest groups are concentrated in general have low potential cost benefit ratios for investment. There will be exceptions where initial infrastructure costs are substantial, or in those ecologically sub-marginal zones into which increasing numbers of people are being forced by the pressure of population growth. In general, however, there is no correlation between size of holding and yield per acre or cost of production among SSA's small and medium scale farmers. Investment, service and information starved households (including those headed by women) might be expected to show a higher marginal output response to additional resource injections than those previously better supplied.

Elaboration Of A Strategy For The Rural Poor

An analytical approach

The divergence in present situations, policies and problems makes the attempt to devise an operational strategy or even a common set of priorities beyond the broadest level (eg calls for more food production, more export earnings, more rural income) hazardous. If undertaken in too generalised a fashion, it is likely to point national strategies in a common direction which, in reality, matches the circumstances of no one country. Just as farmers know one does not grow actual crops on average annual rainfall (and its average seasonal distribution) so agricultural planners should appreciate that strategies for actual agricultural sectors are not best designed on the basis of some regional SSA average set of experiences, policies and problems. The real need is for an analytical approach to development strategy for the rural poor which will permit workable strategies to be elaborated in differing local circumstances. It should point to the questions that need to be asked, the items in the policy environment that may need attention, and the issues that are commonly neglected.

Whatever the individual circumstances, however, no direct efforts to promote rural development are likely to succeed if the wider economic and social policy environment is inimical to a

government's professed goals. If rural development initiatives in, for example, public expenditure allocation, pricing policy or infrastructure provision, are offset by urban wage rises, heavy taxation of rural production and expensive marketing systems then there is likely to be little progress. In any real state, the achievement of a framework of policy and institutions conducive to rural development is not simply a matter of benign government; it requires that the poorest rural groups gain sufficient access to assets, services and influence upon decision-making to be able to ensure their position against other competing groups. Rural development efforts need to be directed towards improving this access, as well as towards the more obvious goal of improvement in living standards.

Emphasis on smallholder production and on food may make it easier to achieve convergence of output and distribution aims, and a focus upon the poorest. It does not guarantee it. In several countries (eg Mozambique, Zambia, Kenya) highly favoured large-scale commercial farms produce most of the marketed foods and, given present supporting systems, could respond most rapidly to new incentives. Similarly, not all smallholders have equal advantages or disadvantages with respect to farm size or location. Concentration upon the more aggressive, better off small-holders - particularly if combined with removal of territorial producer price equalisation - may accentuate income differentials within the smallholder sector, yielding most benefits to those already at higher income levels and located near major urban markets. It is therefore necessary to devise criteria for identifying the poorest groups and evaluating the measures most likely to reach them, to remove existing obstacles to local development, and to emphasise those elements of national strategy most likely to create conditions in which the poor can benefit.

Identifying the target group

There are relatively few cases in SSA where inequality (and landlessness) within a low-income rural area makes it impossible to consider the people of the area as the target group, in the sense that households share similar levels of nutrition and income, and face similar problems in raising output. This is not to argue that there are no intra-rural inequalities, but to suggest that the first task in a poverty-focused strategy is usually to rank the food/income levels and relative vulnerability of different areas.

There are two broad distinctions that can be made among poor rural areas, relevant to the formulation of distinct strategies. The first is between semi-arid drought-prone areas with major fluctuations in total product, and irrigated or securely rain-fed

areas. The second is between areas with major research inputs, adapted to packages economically attractive to farmers, on or near the threshold of availability (all of which is likely to imply that wider infrastructure provision is relatively good), and other areas. Clearly, in areas that are securely rain-fed and have opportunities for innovation readily available the potential for output increases is likely to be great, and straightforward measures such as the provision of credit can yield quick results. In areas at the other extreme, the required measures are likely to be different and more complex.

These distinctions encompass a range of areas where incomes and food security are exposed to differing degrees of risk, around differing initial levels of yield and food-availability per person. The risks which need to be assessed are those of climatic and other events which, taken in conjunction with the initial level of food availability per person, place significant proportions of people in an area in substantial danger of undernourishment sufficiently severe to endanger physical or mental health, work capacity or infant or child growth.

In the least favourably-placed areas, the risk is that several different sorts of unfavourable contingency are imposed upon an initially low base level. Both the contingencies and the level are of two types: social and environmental. For example: environmentally, people in semi-arid and eroded (or over-grazed) areas tend to suffer low levels of nutrition and income. Socially, younger children in large families, especially those with relatively little access to additional land, are similarly exposed. As regards risk, several environmental factors interact - variability of annual rainfall (unfortunately highest in semi-arid areas), liability to pest attack or weed infestation, concentration upon one marketed crop with high price instability. Socially, risk depends mainly upon exposure to disease, and on the costs of doing something about disease when it strikes; again, both tend to be relatively high for families with large numbers of children, which are also the families likely to be at the lowest absolute level of income and nutrition per head.

Such an analysis provides a means for deciding how groups at risk differ. It also provides pointers to the appropriate means for improvement. Low-risk, well-served areas are probably best helped by improved access to inputs - provided that the inputs, and technical packages in general, have been fully field-tested in local conditions. In areas of high risk, efforts to reduce the vulnerability of output and incomes to drought, pests, or disease may enhance people's willingness to invest, and thus to improve the average level of income and nutrition; that, in turn, makes a given level of risk more tolerable. On the other hand, introduction of further risk - eg use of fertilisers in an insecurely watered, poor area - is unlikely to succeed if the

expected (average) returns to the new technique are quite high. An improvement in the base level of incomes and nutrition - for example, by use of better seed varieties - would also increase people's ability to withstand risk: in a bad year, achievement of, say, a quarter of average production would be more tolerable if the average were larger, and more surpluses from good years could be stored to cope with bad ones.

Direct risk-reduction measures are rarely straightforward to implement (or uncontroversial). It is vital, however, that they are attempted where possible, and that projects in risk-prone, poorly-served areas are not restricted to provision of credit and technical assistance. The failure of straightforward credit projects in such areas in the past has helped to reinforce the myth that African peasants (especially those predominantly engaged in growing their own food) cannot handle credit, whereas the fault probably lies with inadequate diagnosis of the constraints upon, and vulnerability of, farming systems. In risk-prone areas, there will often be a strong case for provision of free or low-priced health care, pest control, and even of direct irrigation measures. For example, where drought-risk is high, the case for reducing risk of Quelea bird attack, perhaps by varietal selection (of crops) is strengthened. Methods of water conservation are controversial and uncertain, but in some areas it may be possible to advance micro-irrigation: the use of sand rivers, low-lift pumps, (since rivers and streams can be deep enough even in areas of poor rainfall), or rainwater catchment tanks.

Recognising the role of women

The strengthening of self-provisioning production system also implies recognition of the role of women in African agriculture, and efforts to reduce social and economic discrimination against them. Despite the widespread dependence of traditional production systems upon female labour, very little extension effort or addition to infrastructure has been specifically directed towards women. New cash crops, and the adoption of technical innovations, have tended to be regarded as a male preserve, while the emphasis upon males as targets for extension work has itself diverted resources and attention from subsistence food production systems. Part of the problem is a lack of female extension workers, but there is also a need to appraise priorities for rural investment against the particular type of labour input that will benefit from them: for example, accessible pure water and an accessible communal or household woodlot may make relatively little difference to male productivity but a substantial difference to the number of directly productive hours women can contribute during seasons of peak labour requirement.

The issue is all the more pressing since in many countries, subsistence farming is not 'traditionally' organised and unchanging but has been forced to adapt to developments elsewhere in the economy: in Zambia, for example, an ILO mission estimated that in poorer rural areas from which migration has been most rapid up to half the households may now have female heads. Rural investment and extension which ignores women will, in those circumstances, do little to boost rural incomes.

Export crops in perspective

Because of the emphasis placed in the colonial period upon the development of cash crops for export, and because in some countries (notably in east and central Africa) export crop expansion by-passed large sections of the rural population, it is sometimes implied that agricultural export production is in itself undesirable. In fact, the choice of crop (or of alternative forms of land use, such as livestock-herding) will depend upon a range of more complex factors: local ecology, domestic and international market conditions, comparative domestic resource costs, and - where product choice is integral to elaboration of a poverty-focused strategy - the extent to which poorer local farmers can participate in production.

The potential role of export crops in national economic strategy will thus vary according to international market conditions for the crop concerned, and local circumstances. It is inappropriate to call either for a generalised emphasis upon promotion of agricultural exports, or sole concentration upon production for the domestic market.

Until such time as it becomes possible to assert greater producer control over international markets, there are four lines of national action on export crops which may be strategically appropriate, depending on country and crop. In each case, it is not only the economic and social viability of the export crop that must be considered, but also the potential loss of alternative production - the 'output opportunity cost'.

First, a country could seek to maintain its present market share for its principal exports, but refrain from acting to raise it substantially if that would have a significant impact on prices - either directly, or by helping to trigger a general export expansion response by other producers to maintain their market share.

Second, a country could pursue selective expansion of crops for which global demand is characterised by high income elasticities, and positive taste and preference changes over time, which

outweigh negative effects on producer incomes from price elasticities of demand. Cashewnuts, citrus fruits, out of season and 'exotic' (in high income countries) fruits and vegetables are examples relevant to some regions of some SSA countries.

Third, there may be scope for more systematic extension of pre-export processing of existing agricultural exports. This has the potential not only to increase domestic value-added (provided processing can be undertaken on an economic scale and with the standard of quality control required for subsequent export) but also to minimise the effects of raw material price declines. Success with this option depends upon action to remove restrictive business and trade practices in consumer countries which prevent processing in countries of origin.

Fourth, in a similar vein, there could be further scope for identifying agricultural inputs to industry, and substituting for those now imported (eg vegetable oils, oil seeds, cotton). In these cases, industrial input crop production would not raise exports, but would reduce imports and strengthen both domestic manufacturing and its linkages with the agricultural sector.

Within the framework of a general emphasis upon food production and strengthening of traditional systems, there are some circumstances where efforts to increase the involvement of the poorest in non-food cash crop production may be worthwhile. First, where food crop and export crop expansion can be sustained by the same infrastructure and technical support systems, they can reinforce each other in the development of an area: this appears to have happened in Mali and Upper Volta with cotton as the export crop and millet and sorghum as food crops. Second, where the provision of additional cash income can increase food security, and lower nutritional risk, a cash crop element may be required - for example, where there is excessive dependence upon a nutritionally inferior crop such as cassava. Third, and most obvious, are the cases where food requirements and cash supplements can be met from the same source: in maize production, livestock-based systems, or development of smallstock.

Pricing and procurement policies

Inadequate price incentives for marketed production are now commonly thought to have been a major obstacle to agricultural output growth in SSA. It is clear that shifts in relative prices among crops affect farmers' choices among their production options, and that even aggregate supply of agricultural commodities is somewhat affected by price incentives; the scale

and speed of this aggregate effect, and the effect on the rural poorest, are much more doubtful or, at least, variable from case to case.

The impact on output depends upon what the constraints are; price increases will be effective in raising output if existing prices are so low as to mean there is no effective market, or if they allow the purchase of additional inputs, but not if the key constraint is peak season labour demand and no substitute can be purchased. Except in isolated or remote areas, there is little evidence to suggest that there is much spare capacity in peasant production systems unless additional inputs, knowledge, labour or market access are injected. In general, increases in money prices will be of little use if neither input nor incentive goods are available to be purchased. Apparent problems with price levels are often due to poor purchasing and payment administration. Prompt cash payments at relatively assured prices and times (announced well before the sowing season) and at buying points readily accessible to farmers, could be as effective an incentive to increased marketing - and even increased output - as formal price increases.

Procurement, transport and storage systems (public and private) are frequently weak, especially for food crops, and still more for the coarse grain and root crops which could form the marketed surplus of subsistence-orientated producers. Buyers are unavailable, or marketing systems high cost (whether as a result of inefficiency or of very high distributors' margins makes little difference to the grower). Transport is high cost, unreliable and scarce. Combined with inadequate and badly located storage facilities, the transport weaknesses often entail long haulage distances and the need to move the entire commercialised crop in a few months, contributing to both increased costs and physical shortage. Inadequate commercial storage can lead to appalling grain spoilage rates in store - up to 15 per cent a year in Tanzania, in comparison to a global norm of 2½ per cent and even better performance in Zimbabwe (1½ per cent achieved in 1980). Research in Africa and elsewhere suggests that on-farm storage of grain is usually relatively low-loss; incorporation of simple on-farm storage methods (eg hard pads) into output-increasing projects could thus yield worthwhile results.

For the root crops and coarse grains grown by many poor farmers, the lack of an effective market to absorb production beyond self-provisioning requirements can be one of the key constraints on raising incomes. Local private trading is likely to be the principal marketing channel, and assurance of substantial purchases at known prices may be difficult for farmers to achieve. The strengthening of local marketing with, for example, credit and storage facilities can make an important

contribution, as can encouragement to large-scale public and private marketing agencies to deal in root and coarse-grain crops. However, what can be achieved depends heavily on whether a substantial urban market for the crops exists in normal years - as it does for root crops in West Africa but not for millet, sorghum and cassava in East Africa.

Rural infrastructure

Poor access to basic rural services may be a cause of production problems for three reasons. First, it encourages the rural population to leave the land if urban income prospects are even roughly similar because those for pure water, primary education and health care are often much better. Second, water and firewood collection can take up very large portions of women's working time and can use up hundreds of calories a day; this will have evident implications as to the crop production potential of rural water and woodlot programmes. Third, better education and better health are investments in people, and especially in SSA healthy (able to work harder) and educated (able to learn how to work more effectively) people are central to the solution of all priority problems.

The improvement of rural infrastructure is likely to be the key element of a risk-reducing strategy for the rural poor in the risk-prone, poorly-served areas. There are, however, difficult problems in selecting approaches to infrastructure provision. The poorest areas are often those where road-building, well-boring, construction of schools or health centres by conventional means are most difficult and costly. There are instances where infrastructure provision has in fact damaged the interests of the poor: the best known example is that of water provision for nomadic livestock-herding people - availability of wells has often encouraged sedentary cultivators or herders to move onto the land, thus reducing the land area available to the pastoral people.

Research and technical choice

There are wide differences in the degree of access to appropriate technological packages, but it has been argued that the pace of development and injection of output-improving techniques has generally been slower in SSA than elsewhere. This can be attributed to a combination of lack of emphasis upon research; poor use of existing research facilities; above all, failure to field-test the economic viability and safety of potential innovations on the small farm in the ecological areas, farming systems and other circumstances where they are supposed to be adopted. There has also been a lack of suitable extension and

delivery facilities for technical changes (eg micro-irrigation, animal traction) which are known and proven. Frequent changes of advice reduce farmers' confidence in research results and extension agents; conflicting advice has been given on such crucial matters as crop-mixes and the timing of ploughing and sowing with a view to water conservation. In the medium term, it will be essential to develop African research expertise in the agriculture and small-farm economics of technical improvements, including new varieties, especially for coarse cereals and root crops.

Misplaced emphasis on 'modern' farming systems has occasionally contributed to ecological damage that has weakened subsistence farming. For example, many African soils are not suitable for deep ploughing or even physically able to stand up to heavy equipment (which may compact light soils, permitting more rapid erosion, or break up hard pans previously preventing upward percolation of saline water). Similarly, pure stands (as opposed to intercropping) may reduce output in the medium term because, in the absence of compensating inputs, they increase net offtake of nutrients or lead to enhanced wind and water erosion.

It is important to ensure that research initiatives build in, from the beginning, procedures to test the applicability of outcomes at the level of the subsistence farmers' plots in the various ecologies, economic circumstances and degrees of risk-proneness within the region to which the results are supposed to apply. Given the volume of research results coming into practical use in other parts of the developing world, it is possible to be optimistic about potential in Africa provided that this basic field-testing requirement is met.

Technical choices must take into account cost-effectiveness, adaptability and impact upon the poor. For example, where there is a labour constraint (seasonal or otherwise) the welfare of the very poor may depend on the choice of animal rather than mechanical techniques of traction. Where labour is plentiful many poor people will rely on labour income, and again avoidance of job-destroying mechanisation will be preferable. Many areas of Africa (eg Western Sudan) are going directly from hoe-cultivation to tractor-civilisation with no serious consideration of the intervening animal option. Mechanised options mean heavy concentration of income in few hands, potential monopoly rents to those who can obtain licences to import, in many cases deterioration of top soils and wind erosion, and no improvement in yields. They can be justified where there is a binding labour constraint yet (at least in some seasons) spare land, and where the animal traction option is for some reason demonstrably impracticable or inferior; but the important task is to consider the alternatives.

There are similar problems with the choice between area-increasing and yield-increasing technology where land is available and the objective is to reach the rural poor. Land-increasing technology can sometimes operate with minimum additional purchased inputs (and therefore risk), whereas yield-increasing technology requires more finance and inputs to ensure success. This choice, however, needs to be made with great care. Area-increasing technology can make greater demands on transport, storage and marketing facilities; it must also generate sufficient return to cover labour and other costs of land preparation. Area increases will also be of little benefit to the poorest if better-off farmers expand their cultivated area without significantly increasing their demand for labour.

Support systems and rural institutions

The attitudes of politicians and officials to peasants are often a major problem. Lack of understanding and resort to coercion are more characteristic than respect and a willingness to learn from the peasant. Where local institutions are dominated by 'imported' (expatriate or African) officials, decision making tends to reflect these attitudes. They reinforce the general weakness of support systems for rural development. The organisation of development activities through home-grown institutions controlled by farmers and villagers is often important for overcoming the effects of these attitudes: it can ensure that farmers' views are transmitted to other authorities, and elicit a positive village response to suggestions from outside. Understanding of the local social system is a pre-requisite for fostering village institutions; the lack of adequate rural institutions is due in part to failed attempts to create structures that could not be meshed with the social organisation of the people intended to use them - hence, for example, the widespread difficulties experienced with the promotion of cooperatives.

Suggested institutional reforms and administrative improvements must in any case be within the capacity of the state concerned, and must be put forward in a way that will not encounter major political or bureaucratic resistance. The balance between public and private sector is rarely a matter of straightforward choice; there will be local political preferences, and probably multiple options under either ownership framework. For example, with input delivery systems, the requirement is usually to increase efficiency and input availability, and wider competition and incentives may be needed; but it does not follow that incentives cannot be provided within the public sector, or that competition cannot involve various parts of the public and/or cooperative sectors, as well as, or even instead of, the private sector - as the experience of Bangladesh shows.

Consulting rural people

One obvious way to assess the needs of a target group, and the obstacles to meeting them, is to ask the farmers themselves, and to ask them in an open-ended, unbiased way that produces answers reflecting the farmers' own views and not what they think the questioner wants to hear. The answers can upset preconceptions, and can be surprisingly diverse even in relatively small areas. The point is not that rural communities always know best - although they are at least as likely as outsiders (including national experts) to know what is best for themselves. Rather, it is necessary to stress that this sort of appraisal of rural needs is likely to be an important corrective to impressions gained in casual visits by urban-based officials (or overseas experts) and to the common political and bureaucratic assumptions about farmers' needs and behaviour. It is equally important to realise that projects and programmes which do not respond to farmers' own perception of their needs will have a high chance of failure. If six kilometre daily walks for water eat up 25 per cent of women's working time at harvest season (and use 300-350 calories), or baboons spoil up to 33 per cent of maize cobs, then pure water and vermin control are strategic priorities in that context, and little will be achieved until they are addressed.

Regional approaches

Shared national problems can sometimes best be tackled on a regional basis. Moreover, certain food security problems can only be tackled if there is a co-ordinated effort among neighbouring states. Where there is extensive legal and illegal cross-border trade in food - as is the case in many parts of West Africa - food security cannot be ensured by national action alone: administration, controls and incentives in one state affect the perceptions of producers, traders and consumers in neighbouring states.

There is a long history of regional collaboration over agricultural and veterinary research programmes in SSA. Such collaboration urgently needs expansion and development, especially in risk-prone, semi-arid areas - hence the focus on research collaboration among the Sahelian states and those of the Southern Africa Development Co-ordination Conference (SADCC). The search for such regional opportunities is an important part of the elaboration of strategy in a national and local context.

Problems of Implementation

Administration

Probably the most widely cited reason for the failure of rural development projects and programmes in SSA is poor administration - a combination of a lack of administrative skills in the first place, and maladministration once a project structure is in place. The problem has its origins not only in the physical shortage of adequately trained people (in any case, in terms of qualifications such a shortage no longer exists in a number of SSA countries, at least at higher levels - the middle level personnel situation is usually much poorer), but also in the lack of incentives for qualified, experienced and adaptable nationals to work in rural projects. However, even the personnel issue is only part of the problem - national and local administrative structures have tended to become over-burdened, conservative and, in some cases, have even broken down altogether.

There are two types of response to this problem. The first, and most commonly adopted, is to set up an organisation for project administration which is independent of government structures (at least as far as recruitment, procurement and budget management are concerned), and in which there are substantial requirements for technical and administrative expertise - to be met by use of expatriates, and the institution of a training programme for highly-educated 'counterpart' staff who are supposed to take over the project in three, four or five years' time. It is now evident that this approach has multiple disadvantages: it is not locally replicable, and so the project becomes an enclave rather than an example; it does little to strengthen national or district administration (indeed, potential conflicts with government administration can frustrate the purposes of both project and government); it adds to future recurrent costs and skill demands, and is thus liable to collapse after a donor allocation has been spent; it is an expensive use of available resources, especially in foreign exchange terms; above all, it usually implies a structure independent of, and certainly not controlled by, the rural community it is supposed to serve, it therefore does not build up local institutions or community participation, and risks a lack of response by farmers to an alien imposition.

The alternative response tries to develop project administration from elements of the local social structure, and to minimise use of scarce (foreign and national) high-level skills. IFAD has experimented with such an approach, for example, in a recent credit project in Mali with an unusual degree of local participation in the running of the project. Expanded and

improved training of middle-level personnel - e.g., field extension workers, research technicians, data collection assistants - can be seen as a complement to this approach.

Infrastructure cost and provision

The second set of implementation constraints concerns the alleged high cost of providing rural infrastructure in SSA. The cost of construction of major physical assets (roads, bridges, schools, hospitals, irrigation channels) is likely to be relatively high if construction is undertaken by conventional means - employing a company, using mechanised techniques and skilled labour. There are two types of explanation for this problem: the first emphasises factors contributing to high costs, such as wage rates (relative to productivity), protection of industry, lack of economies of scale and transport difficulties; the second points to the relative underdevelopment of non-farm construction and service activities in rural SSA compared with other regions of the world. Part of the response to this difficulty lies at the macroeconomic level, especially wage policies, and other aspects of incentives to deploy skills in rural areas. But more direct responses are possible within projects, by seeking low-cost solutions for particular infrastructure needs, and by deliberately promoting (with training, credit and market information) the development of locally-provided non-farm services.

There is great potential for the mobilisation of rural communities to provide labour, local materials and cash to meet substantial portions of the capital and maintenance costs of smaller-scale rural infrastructure. The facilities amenable to this construction approach include: feeder roads (dry season building); 'boxes' to provide passage across shallow or seasonal water courses (ie concrete or brick base on the riverbed, not a bridge); clinics; godowns (up to about 100 tonnes storage capacity); primary schools; housing for public service workers; shallow wells; water pipe trenches, woodlots and watershed tree plantations; small-scale irrigation (rills, furrows, check dams); terracing, contouring and other soil works; land clearing, including bush clearing for tsetse eradication if there is a use to which the cleared land can be put which will keep the bush down.

There are a number of basic requirements for realising this rural construction potential. The population has to be moderately dense, or clustered in villages. There must be village institutions with local roots, and legitimacy to propose, select and participate in decisions on projects; the views of these institutions must be incorporated into any schemes proposed by national governments or external agencies, so that rural

residents will respond to such projects because they see them as theirs. A set of complementary inputs will be needed - provision of which is an obvious part of a rural development project: skilled labour; simple designs for rural community use; training in the construction and maintenance of simple facilities; materials not locally available; tools; recurrent inputs for rural services (eg a nurse, or drugs for a clinic); monitoring of progress.

This is a case for rural self-organisation that is relevant not only where costs are high, but also - of great importance at present - where budgetary resources are severely strained. More rural production and infrastructure can be secured without a large budgetary burden, on condition that a village council and a village fund controlled by villagers are established. It will encourage villagers (and possibly even more dispersed rural communities) to act together and to gain experience in drawing resources from government. It is therefore likely to provide a starting point for organising to participate and bargain. Village or communal direct investment does not depend on any particular ideology underlying national political and economic programmes; both Kenya and Tanzania, for example, have had high levels of such local investment for almost two decades.

Information constraints

The preceding discussion of administration, technology and infrastructure constraints upon project success has suggested that solutions are available provided sufficient options are examined, and priority is given to rooting the project in local communities and institutions. Projects are also hampered by information deficiencies in the formal process of project preparation and appraisal. Unsatisfactory information and appraisal not only distort the workings of a project, they also bias the selection of project focus in the first place. The situation is especially bad for projects aimed at subsistence cultivators.

First, data about output and sales in African agriculture are weak and unreliable. In very few SSA countries are estimates of 'subsistence' production (which usually includes short distance and minor crop cash sales) based on actual local level estimates, and in only one or two on proper crop-cutting sampling of output or analogous (and difficult) procedures for root crops and mixed stands. As a result estimates of levels, trends or changes - especially year to year - cannot be accepted as realistic without checking both methodology and basic data (if any). In agricultural production as a whole, for several countries there is a variety of output series with quite different coverage, basis of estimation and resultant levels and growth rates of

output. While appearances may help to check the plausibility of series they too can be deceptive, especially if year to year variations have been high. Even for export crops official output figures are often highly inaccurate. For 'minor products' (which in cases where root crops, cooking bananas, vegetables, poultry, eggs, meat and milk are significant, can amount to a high proportion of total domestic food production and even of cash sales by rural households) there may be no serious estimates at all, or at best rough guesses based on non-random observations of a few farms, or of a few households' calorie intaken patterns and levels. In many cases these gaps or guesses are even more serious at regional and local levels - which are the important data sets for project design. The lesson is not to abandon data use, but to keep its reliability in perspective, to complement it by building local survey elements into projects, and to devote resources to strengthening national data gathering and processing capabilities.

Second, deficiencies are possibly even worse in information about farm management and agricultural practice. The number of carefully studied cases appears fortunately to be growing, but for many different crops and ecologies there are few accurate, detailed studies of typical input and output patterns of African farmers, and even those which do exist are rarely random and numerous enough to allow national or regional aggregation. Previously available information has often led to wrong advice (such as that about intercropping and deep ploughing, previously cited), and it also greatly adds to the range of uncertainty and potential error in project design and appraisal. The same is true where proposed technical packages have not in fact been field tested in the project area, or in closely similar conditions; likely levels and combinations of input requirements and output potential can vary greatly from location to location, and the differences can undermine project calculations derived from elsewhere. The same imperatives for project appraisal apply here: available information must be treated with scepticism, field tests must be built into the project, and efforts to strengthen field research are a necessary complement to direct income and output-raising activities.

Appraisal techniques

These deficiencies can be compounded by established lines of project analysis. Projected rates of return are often heavily dependent upon the actual results of untested innovations and on somewhat artificial estimation of uses of labour time freed by projects such as pure water systems and wood lots. They are also critically dependent on estimates as to how many farmers will adopt new practices, take up loans, use new services, have actual access to new inputs - none of which are easily subject to any

accurate ex ante forecasting. World Bank evaluation of project appraisal and performance suggests that accuracy of rate of return predictions depends more heavily upon adoption rate predictions than upon any other factor except relative prices. Whether this means that the basic problem is in extension or that good technical packages result in high adoption and poor in low is somewhat less clear. The degree of optimism or pessimism in projections varies widely, but it is not often spelled out explicitly enough for any decision-taker or outside analyst to form a meaningful judgement on how cautious, or otherwise, cost and benefit stream estimates have been. Projections tend to be single point - especially for rates of return but often also for additional output. Output increases are often calculated on the basis that without the project there would be no change which is not normally the most likely alternative. The single point estimates are sometimes qualified by sensitivity tests, but these do not make the basic uncertainties as clear to the non-technical reviewer as would an indication of the potential range of assumptions. There is a need to test the sensitivity to price errors of, first, the value of project outputs and inputs, and, second, choice of actual outputs and inputs by farmers.

The non-fulfilment of apparently precise and technically rigorous projections is in itself damaging to the prospects for increased allocation of resources to rural development projects. It is probably better to combine efforts to improve data on output and farming systems with a realistic recognition that investment in rural development always involves a substantial, if variable, degree of risk and uncertainty. The wider justification for taking the risk is no less apparent if the risk in individual projects is evident.

Reaching the poorest

The most obvious implementation difficulty is that of reaching the poorest groups at all when they are located in the least ecologically-promising areas, receive least by way of social and physical infrastructure provision from governments, and are liable to find resources intended for them diverted to richer and more skilled people. In this environment, even well-designed, organised and staffed programmes can run into great difficulty.

There are no simple rules for overcoming this basic problem. But it is more likely that new resources will reach their target if the method of delivery is relatively simple in organisation, concentrates on the food products relied upon by the poorest groups, and brings with it social and other services which reduce risk. In situations of skill scarcity, foreign exchange and government revenue shortage there will be little point in setting up activities heavily reliant on future imports and government

support; if these things are available they are in any case more likely to be appropriated by those already accustomed to using them.

Conclusions

Without an acceleration of rural development the prospects for recovery from the deteriorating economic conditions currently being experienced in large parts of SSA are poor. The required strategy of rural development, if it is to have lasting positive effects, must concentrate upon the poorest rural groups: those most at nutritional risk because they cannot afford or produce enough food or secure access to adequate preventive health care, and those least well served by existing infrastructure and opportunities for innovation. In terms of production the priority most neglected by current strategic proposals, and perhaps most promising in itself is to increase output of cheap calorie sources by poor rural people for their own consumption. This, however, does not imply abandonment of efforts to produce marketed food or industrial crops where a significant income advantage to the poorest is likely to result. In areas of high vulnerability, the principal focus will be upon risk reduction, by direct means (such as irrigation schemes) and by indirect means involving wider access to public services. In areas where output and incomes are already more secure, growth requires greater availability of new input packages and the financial resources for farmers to apply them. Where possible, the keynote of the strategy as a whole, and of efforts to relax individual constraints should be the active participation of the rural community: self-organisation, community contributions, and minimum imposition of outside structures and personnel consistent with the requirements of innovation and technical improvement.

Elaboration of the strategy in the highly varied country and regional circumstances of SSA requires simple steps to identify the priority areas - which tend to be co-incident with target groups - and to classify them according to degree of risk, access to services, and ecological type. In each set of circumstances, the common problems noted in SSA will have differing importance and implications - identical responses will not suit all circumstances. Project design itself must be adapted to meet known obstacles, and appraisal techniques would benefit from a more realistic appreciation of information weaknesses and basic uncertainties.

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