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RURAL PROGRESS is published to facilitate dissemination of information, exchange of experience in integrated rural development in Africa and to generate more informed interest in the concept amongst all concerned. For further information, please write to the Editor, Rural Progress, Economic Commission for Africa, P.O. Box 3001, Addis Ababa, Ethiopia.

EDITORIAL

SOME ASPECTS OF RURAL DETERIORATION IN AFRICA AND PROSPECTS FOR DEVELOPMENT

"Thirty years ago, at the dawn of the political independence of most of our countries, the African continent was not engulfed in the multiple crises which threaten to paralyse us today. Indeed, the mood of the early 1960's was one of hope and promise, high expectations and confident assertions about our abilities as a people to take control of the affairs of our emerging nation-states. Our national flags flew high and proudly. They still fly high, and we should be thankful and proud of that. But, beneath the flags today the very faces of the masses of our people, our children, youth and rural women, show such agonizing strains and frustrations born out of hunger, unemployment, ill-health and manifold misery. So, what went wrong in our development and in our social development in particular?" 1/

This is an admittedly lengthy quotation from one of the statements of an eminent personality of Africa. It was made in June 1988. It sums up well the sad reality of Africa today. In the face of such a statement and many other well-documented reports and publications, which corroborate it, it is illogical and even ironical, in the eighties to talk about "rural development" in Africa, which is basically rural despite the United Nations resolution no. 1987/40 on Social Aspects of Rural Development. The apparent discrepancy between the two may possibly be resolved if the words "rural development" are substituted by "rural deterioration". With such an amendment the quotation and the two resolutions become consistent with each other and even mutually reinforcing in ringing the bell of alarm but also implicitly calling for reappraisal of priorities, strategies and institutions for development of the member States of Africa, some of which were spelled out in the last issue of this journal.

To put the matter in perspective it needs to be recognized that Africa, even after independence, continued to suffer from the colonial legacy of distorted priorities. The colonial powers introduced crops which were grown solely for

their own benefit and profit. This meant that the best land, extension services, credit facilities and infrastructures were geared to those producing these cash crops, who did not have access to these benefits. This bias towards exportable cash crops meant that the post-colonial economy and infrastructure continued to remain oriented toward dependence on a monoculture, or in some cases, on few mineral resources for foreign exchange earnings. As a result of this bias, even after independence the rural food producing areas still to a large extent retained the traditional technologies of their forefathers, with the consequent implications for productivity. In fact, the hand hoe symbolizes the low productivity of Africa's subsistence agriculture - specially its cereal sub-sector. An absolute decline in food production in Africa since the early 1970's is now a well-documented and repeatedly quoted reality. 2/ To illustrate the point with another example, Nigeria, which alone accounts for about twenty percent of the region's population, at the time of independence in the sixties, was left with a per capita income of Naira 40, one doctor per 50,000 people and marginal literacy. Even then, Nigeria, by comparison, was better off. Zaire did not have a single African doctor, engineer or lawyer. 3/

Given this background the continent made remarkable progress in the post-colonial period up to a period of time. Some of the indicators of this progress are:

- i) increase in life expectancy at birth from 39 years in 1960 to around 50 in 1985;
- ii) fall in infant mortality from 38 death to 16.5 per thousand;
- iii) the rate of adult literacy rose 36 per cent;
- iv) the availability of doctors, dentists, nurses and hospital beds rose to 910, 170, 480 and 3820 per million respectively; 4/ and
- v) regional per capita GDP rose by about 40 per cent between 1960-1975.

The impact of all these and other gains was a sharp increase in the population of the region from 223 million in

1950 to 544 in 1986, with adverse implications on savings, investment, employment, food self-sufficiency ratio, nutritional status and socio-economic infrastructure, as we shall see after pointing out the need for extreme caution in interpreting aggregate data.

Let us take the medical facilities; their distribution by urban-rural sectors are not available. However, it is common knowledge that their distribution is highly skewed in favour of the urban elite and the affluent. Most people cannot afford medical treatment. Access to it, particularly to hospitals, is also limited by the distance one has to cover to reach them. Studies in Africa show if they are located within 5 km., other things remaining the same, one out of two who needed care availed themselves of it. The ratio drops to 1:46 if the distance is between 33-40 km. Access to them is culture-bound too. A maternity centre, with male gynaecologists and nurses, would be avoided by expectant mothers in a largely traditional and illiterate society. 5/

Similarly, the level of illiteracy, despite the post-independence gains, continues to remain the highest in the world. 54 per cent of the adult population are illiterate. The gain of 36 per cent literacy may seem impressive. But, the percentage gain in quantitative terms were in many cases offset by poor quality and virtual irrelevance of the contents of the formal education syllabuses to the immediate requirements of the economy of Africa. A lot of them were unemployable for the added attitudinal problem, i.e., disinclination to accept manual or blue collar jobs. Thus, the number of people who are actually functionally literate is likely to be lower than the percentage figures quoted here. Furthermore, despite the percentage gain in literacy, the absolute number of people who are illiterate has risen due to substantial increase in population and inappropriately oriented development policy.

Moreover, if one were to disaggregate the national/regional indicators of socio-economic changes since the sixties by sector and occupation the disaggregated data for Africa in common with other developing regions would show:

- 1) anti-rural bias in resource allocation, benefiting a small fraction of the population; 6/

- ii) inequity in access to productive resources; 7/
- iii) disparity in rural and urban income 8/ and in socio-economic infrastructure;
- iv) neglect of the agriculture sector, specially its cereal sub-sector; 9/
- v) declining self-sufficiency in food; 10/
- vi) severely eroded economic base to either develop and/or to absorb the shocks of drought and desertification or of imported inflation or of external debt servicing.

The impact of all these effects is being made more severe by a sharp rise in the rate of increase of Africa's population since the fifties. 11/ In the early days the African population was relatively small. The rates of population growth were 0.4 and 0.9 per cent between 1750 to 1850 and 1850 to 1950 respectively. It rose steeply to 2.2 per cent between 1950 and 1970. 12/ By 1986 the population had increased to 544 million with a birth rate of 3.2 per cent - the highest in the developing regions. This drastic increase in population meant, *inter alia*, less per capita availability of naturally fertile and more easily and safely accessible land with water, to slash, burn and cultivate, reduction in the "rest period" to recover its fertility, diversion of existing cultivable land for non-agricultural purposes, such as habitat, and horizontal extension of agriculture to marginal land. Given the fact that cultivation techniques and equipment largely remained unchanged over the centuries, adoption of yield-raising inputs and technology was nominal, the labour input was mostly derived from the comparatively malnourished female population, the productivity per acre, in aggregate terms, started suffering an absolute decline by the seventies. Furthermore, the African subsistence agriculture and limited industrial base and service sector could gainfully employ only a part of this increased population. The rest remained under- or openly unemployed, providing the main links between economic stagnation and increased poverty.

In a situation like this, increased poverty meant a desperate bid for physical existence, in which a lot of people perished due to a combination of starvation and

malnutrition. 13/ Thus, those perished, by definition, belonged to the disadvantaged segments of the population, mostly of the rural sector. Emergency relief and rehabilitation operations became the preoccupations of the national authorities at various levels and also of the international community. Rural development had to take a back seat.

One could go on noting other socio-economic indicators. But, the preceding paragraphs are enough to point to the sad reality that life in Africa continued to remain something to be suffered rather than enjoyed. The limited accumulated stock in the form of infrastructure, public utilities, schools, clinics, cultural recreation and other facilities faced heavy depreciation or erosion due to gradually reduced allocation available for their maintenance and improvement specially since the eighties. 14/ This is particularly true of the facilities which were built in the rural areas. The rural people did not generally have a vocal or influential lobby to safeguard their interests. Hence, the budgetary cuts, due to economy measures of the mid-eighties affected their interests disproportionately.

The budgetary cuts understandably had to be selective, given the power base in most states in Africa. The widely advocated proposal for "disarmament for social development via economic growth" could not be generally reflected in the "restructuring exercise" at country level which was undertaken following the socio-economic crisis of the eighties. The power base had to be strengthened in the interest of stability, national integrity, continuity of policy and development itself. In the process, the competitive relationship, 15/ not only in terms of resources, but also in the critical areas of attitudes and perceptions between development and arm's race were overlooked. Thus, lower resources were available for development, as indicated by the socio-economic deterioration in the eighties. 16/ Africa's economic under-development increased the opportunity cost of non-productive expenditures. Ruth Sivard analysed 141 states in terms of their overall socio-economic standing; African countries ranked overwhelmingly towards the bottom: of the lowest 52 states 36 were African. Only three atypical African states (Libya, Gabon, and Mauritius) ranked above mid-point. Defence expenditures appeared to have a negative effect on availability of resources for health, nutrition and

education. Although Africa as a whole had a per capita GNP that was less than that of Latin America, African states spent one-third more per soldier than did Latin American countries. The increased military capabilities were being achieved largely to the detriment of other social needs. 17/

Also overlooked was the need to create a persuasive climate to follow the principles of "social maximum" and "social minimum" of current consumption 18/ to generate savings and investment for self-reliant development, with a social conscience. The time-honoured maxim "there is a time to sow and a time to reap" and that the intervening period calls for austerity was ignored. The propensity was for conspicuous consumption by the rich and the powerful elites. A wide gap developed in the process between them and the rest of the population, most of whom reside in the rural areas.

Consequently, "...the reality...particularly in Africa is that large proportions of the population are undernourished, drink dirty water, live in very poor and unhygienic houses, wear very old and torn clothes, lack access to health care and education services and do not in most cases take part in the making of decisions that have direct impact on them. This scenario is particularly true for rural areas...whilst populations continue to be afflicted by abject poverty, small sections of our populations enjoy life styles comparable to the wealthy classes in the developed world..." 19/

The effect of these realities is to sociologically divide a region, nation or country into groups, with conflicting interests and perceptions. Let it be recognized that those privileged few, who sit around a dining table, and those who wait on them or those who get their shoes polished and the bare-footed, malnourished children, wearing torn clothes, who polish them for five cents, may, by birth, belong to the same country, tribe or clan. But, in reality they belong to two different worlds. The life for the former is to enjoy and indulge into extravaganza 20/ and for the latter, being destitute and caught in a "deprivation trap" of poverty and powerlessness, besides others, to suffer and pass away prematurely unsung and unnoticed. Such sharp contrast understandably subverts development, generates tension, and perpetuates the deprivation trap and dependency syndrome.

The developmental goals and priorities themselves became prerogatives of the ruling elites, their allies and the techno-bureaucrats. People hardly mattered, specially those living in rural areas. The scope for their participation was limited by the frequency distribution of observed means to acquire state power. 21/ Hence, the internal resources were diverted to build up enclaves of efficiency, affluence and comfort in and around the capitals and city centres, with supplementary external finance. The rural sector was assigned to be the hinterland to provide raw materials and vital wage goods, viz., food for the city dwellers on exploitative terms. The dichotomy of interest between the rural and urban sectors was near complete, and the nations had to cope with sharply conflicting interest groups. Hence, it is rather unreal to talk about the development of the rural sector of Africa at all since the urban bias of development was the norm of the day. The more candid and meaningful inquiry would be into the rural deterioration in Africa since the seventies, unless of course, one equates a school here, a clinic there, a feeder road, some gains in formal literacy, or in life expectancy as indicators of rural development. Physical changes in rural areas by themselves do not constitute development. Let us again take life expectancy as an indicator. Is a positive change in this indicator by itself conclusive evidence of socially sensitive development? It could be argued that such a gain in life expectancy might mean prolonged indignity and poverty in a situation of skewed distribution of productive assets and widespread un- and under-employment. A life, prolonged by preventive and curative facilities, but condemned at birth to be denied the equity of opportunity to realize its potential and robbed of gainful employment, dignity and fundamental human rights can hardly be a coveted option. This is already well recognized by a member State whose ruling party states as one of its principles the right of the individual to dignity and respect. 22/ It is recognized that any argument in favour of a return to a shorter, more dignified life would be met with strong opposition, since it could be taken as an argument for the revocation of the achievements Africa has attained.

In fact, this deterioration in the rural sector was a reflection of a combination of factors 23/ such as:

- 1) The declining trend in per capita incomes since the eighties. GDP per capita declined by 2 per cent

during 1980-1986 in the region. The decline is likely to continue in the short run. Export prices fell in real terms by about 40 per cent for agricultural food crops and by about 30 per cent for agricultural raw materials between 1980-1986; 24/

- ii) The gap between demand and supply for labour widened in the eighties. The increased supply of labour in the face of declining aggregate demand for it has led to more under-employment both in the rural sector and urban informal sector. Its rate has increased from 38 per cent in 1975 to 58 per cent by the mid-eighties. The number of under-employed rose from 63 million workers in 1983 to 95 million in 1985; 25/
- iii) The decline in primary school enrollments in at least twelve member States between 1980-1985. Indicators of quality of education - books and other instructional materials, laboratory facilities, class sizes, pupil/teacher ratio, etc. - all showed a drastic decline particularly in the rural areas; 26/
- iv) The life expectancy at birth decreased in at least eight countries during the eighties;
- v) The infant mortality has increased in at least nine countries;
- vi) The nutritional status of the children in rural areas deteriorated; 27/
- vii) The daily per capita calorie supply in nineteen countries were below the minimum WHO/FAO average standard of 2200 calories a day;
- viii) As much as 70 percent of the African population live in absolute poverty, the overwhelming majority of which live in the rural areas. 28/

In view of some of these factors, a study concluded, inter-alia, "Available income distribution data showed as far back as the mid-1970s that income inequities in Africa as measured by Gini co-efficient of income concentration was

around 0.428 for Africa, 0.446 for Latin America and 0.384 for Asia. With rising poverty levels in Africa, the index of overall income inequities would have also increased in the 1980s to the point where they would now be among the highest in the world..." 29/

The risk of further deterioration of rural life has a high probability in Africa if the historical trend scenario were to continue in the nineties and beyond. Given:

- i) the anticipated further increase in population; 30/
- ii) the continuity of non-people based power structure; 31/
- iii) the Legal obligation to service the external debt unless cancelled or rescheduled; and
- iv) the virtually nominal investment of 0.2 to 0.3 per cent of the GDP of the member States to develop appropriate technology as against the recommendations of the Lagos Plan of Action to invest 1 per cent 32/.

The Lagos Plan of Action and the Final Act of Lagos, 1980, FAO's Agriculture toward 2000, Africa's Priority Programme of Economic Recovery, 1986-1990 and the United Nations Programme of Action for African Recovery and Development, 1986-1990, were designed to facilitate Africa's recovery and development primarily on its own socio-economic steam. These were followed, besides others, by FAO's African Agriculture: the Next 25 Years (1986), the Report of the International Conference on Africa: The Challenge of Economic Recovery and Accelerated Development, 1988, and the perspective study "Beyond Recovery: ECA-Revised Perspectives of Africa's Development (1988-2008)", 1988. The last document specifically and emphatically maintained, inter alia, the need to develop the rural sector in Africa first "without which no genuine development can be expected" (p. 196).

Despite the adoption of the above-mentioned Plan, Programmes, Reports, Study and the Declaration of the Heads of State and Government of the region, which was adopted in 1985, the performance so far, particularly in agriculture and its cereal sub-sector, the industry and transport sectors

continue to remain very poor 33/. The poor performance in the rural sector and also in the cereal sub-sector is documented in the case studies, which are published in this issue. The adverse impact on the life of the disadvantaged segment of the population, most of whom live in rural areas, is being aggravated by a population growth rate of 3.2 percent, a projected debt burden of US\$ 300 billion and a debt service ratio of nearly 40 percent of the export earnings. 34/ If this trend were to continue, the perspective study cautions, "... There are signs of a possibility - a sad possibility - of Africa remaining permanently retarded, of an Africa desperately in search of an elusive development and of an Africa that is chronically in economic difficulties... the indications are loud and clear: a change must be established in Africa at all levels - social, economic and political - to ensure that Africa escapes the sombre possibility of not seeing the genuine development in the coming twenty years..." (pp. ii-iii).

Africa, being endowed with considerable development potential, cannot be destined to meet with such a sad fate. The above scenario is not that divine-ordained inescapable, inevitability for rural Africa, despite the maximum "history repeats itself". One can learn from history and reverse its course, as Japan did despite serious resource constraints. 35/ This is how Africa, despite its balkanization, established the proud record of regaining its political independence. The record was established by the dedicated and collective efforts of the African people themselves.

One can note the positive impact of the collective will of the African people. During the latest food deficiency crisis in a number of the member States, the magnitude of hunger and premature death was mitigated by time-honoured traditions of solidarity, reciprocity and extended family ties at the village level. One could see spontaneous shared austerity for the sake of humanity.

The same spirit, in a more rarified and scholarly environment, was reflected in Khartoum, Sudan in 1988. In the International Conference on the Human Dimension of Africa's Economic Recovery and Development, over two hundred African scholars, with social conscious, asserted in one voice, that "the human dimension is the sine-qua-non of economic recovery". They said, "we, the delegates here assembled, will not abide by economic rationale, will not

tolerate economic formulas, will not apply economic indices, will not legitimize economic policies, which fail to assert the primacy of the human condition. That means, quite simply, that no structural adjustment programme or economic recovery programme should be formulated or can be implemented without having, at its least, detailed social and human priorities. There can be no structural adjustment or economic recovery in the absence of the human imperative... Fundamentally, it means that the vulnerable and the impoverished, the uprooted and the ravaged, women, children, youth, disabled, aged, the rural and urban poor, every group and individual in society who is in some way disadvantaged, must be given paramount consideration in the socio-economic development process. That is a sacrosanct principle. And in the service of that principle, health, education, welfare and all related social sectors become indispensable components of every national policy, every national programme, every national plan, and every regional and subregional collaboration..." (p. 37).

The shorthand version of this bold enlightened declaration is: Development with a Human Face as underlined in the ECA document on African Alternative for Structural Adjustment and Recovery (1989). Such a development course will necessarily require a re-examination of the existing priorities, strategies, formal bureaucratic structure and the political decision-making process at all levels. A reconsidered set of priorities could mean some for all instead of all for some. This means a trade-off between sophisticated material conveniences in the enclaves in favour of social cohesion; in other words, a will to settle down for a less than technically optimal level of economic growth, with capital accumulation by a few in favour of greater social homogeneity or shared life. Such a trade-off may require reversal of the propensity to produce what is not domestically consumed, and to consume what is not internally grown, for example, by opting to change consumers' taste and preference from imported rice in favour of internally produced rice, ^{36/} or from white bread made from imported wheat which may be perceived as "modern" and "convenient", to indigenous food crops which could just as well be used to produce bread. ^{37/}

This could further mean more of rural health centres and less of sophisticated hospitals in the cities, more of barefoot doctors, less of specialists, more of functional

school education, less of unemployable graduates, more of institutionalized grassroot-based development dialogue and less of centralized planning, more of internalized development with one's own resources, less of dependence on external aid and technical assistance, and more of objective and pragmatic decisions and less of ideologically oriented ones. These are feasible if people themselves are squarely behind the steering wheel of development for them to ensure that they will be both the object and subject of development. Out of the current socio-economic crisis and eerie silence of the graveyards of millions of lost lives may develop positive dissatisfaction and a collective consensus and vision in the nineties to herald the dawn of the third phase of Africa's struggle: self-reliant development with appropriate priority, social conscience and accountability, which will be consistent with its factor-endowments, history and culture. Such development in the context of Africa, logically, has to start from the grassroots and nurse them rather than trample them. 38/

FOOTNOTES

1. Prof. A. Adedeji, Opening statement of the ACARTSOD Regional Workshop on "The African Social Situation", Tripoli, Libya, 26-30 June 1988, pp. 2-3 (hereafter referred to as Tripoli Statement).
2. A. Adedeji, The Paralysis of Multiple Debilitating Crises, Addis Ababa, 1985, p. 18.
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6. See for example:
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 - (ii) FAO, African Agriculture: Next 25 Years, Rome, Italy, 1986, pp. 1-2; and
 - (iii) A. Adedeji, The Paralysis of Multiple Debilitating Crises, op. cit., pp. 18-19
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10. ECA, Apparent Discrepancy between Increasing Resource Allocation to Food and Agriculture in Africa and the Declining Performance of the Sector (E/ECA/CM.10/21), Addis Ababa, 1984, p. 3.
11. R.S. McNamara, The Population Problem: Time Bomb or Myth, Washington, D.C., 1984, p. 7 (Table III).
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21. S. Morcos, Rural Development in Africa: A Retrospect, paper presented in the UN Interregional Seminar on Integrated Rural Development, Shanghai, China, 16-31 August 1983, pp. 7 and 14 (Table I).

22. Tanganyika African National Union, The Arusha Declaration and Tanu's Policy on Socialism and Self-Reliance, Dodoma, 1967, p. 1.
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24. ECA, Beyond Recovery, ECA-Revised Perspectives of Africa's Development, 1988-2008, Addis Ababa, p. 12 (hereafter referred to as Beyond Recovery).
25. Ibid., p. 23.
26. Ibid., p. 24.
27. United Nations, Report of the Interregional Seminar on Integrated Rural Development, Shanghai, China, 16-31 August 1983 (TCD/SEM.84.1), New York, 1984, p. 6.
28. UNICEF, Third Rural Child Nutrition Survey, 1982, Nairobi, 1983, p.22.
29. ILO/JASPA, op. cit., p. 15.
30. R.S. McNamara, op. cit., p. 7.
31. Prof. E.P. Kibuka, op. cit., p. 19.
 Prof. Kibuka states, inter alia, that: "This powerlessness of large proportions of the populations is mainly a product of the predominance, on the African continent of regimes that are totalitarian and cannot tolerate concepts of power sharing. The result is that the majority of the people can neither influence the location of social services and facilities nor the prices of their farm products. Their wishes and aspirations even in matters that are of fundamental importance to them are simply ignored. This state of affairs has the effect of perpetuating the rift between the rulers and the ruled. This scenario represents the kind of situation that requires urgent policy intervention if social deprivation must be thrown overboard and social development be entrenched."

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CASE STUDIES ON THE IMPLEMENTATION ASPECTS OF INTEGRATED RURAL DEVELOPMENT IN AFRICA

Introduction

The purpose of the paper is to report on the main findings of the five case studies on the implementation aspects of integrated rural development projects in Africa, draw certain policy-oriented conclusions and make recommendations. The studies were carried out in Tanzania, Ghana, Mauritius, Malawi and Zimbabwe.

The paper has five sections. The first four sections cover :

- i) administrative aspects of implementation of the projects,
- ii) their financial aspects,
- iii) co-ordination of project activities, and
- iv) delivery of project outputs.

The conclusions and recommendations are given in the last section.

Section I : Administrative Aspects of Implementation

Ghana's Volta Region Agricultural Development Project (VORADEP) owes its origin to the Government's policy to decentralize responsibility for development.^{1/} Mauritius started the Rural Development Programme to meet the national priority objective of job creation.^{2/} Malawi's Karonga-Chitipa rural development project in its north region is intended to maintain regional parity.^{3/} Tanzania's Tanga Integrated Rural Development Programme (TIRDEP) is a follow-up of the successful district based Lushoto Integrated Development Project.^{4/} Zimbabwe's Gutu District Co-ordinated Agricultural and Rural Development Programme is illustrative of its preference for a co-ordinated approach to rural development.^{5/} All the five projects/programmes were prepared by an international funding agency/a donor country in collaboration with the countries concerned. Table I gives the main features of these projects.

The country studies show a variety of administrative arrangements to implement the projects. Ghana set up an

ad hoc Committee of fourteen, including four beneficiaries, to implement its VORADEP. The Committee appointed a manager to be the administrative head of the project who, like many other senior staff members, were seconded from a ministry. They were supplemented by temporary appointments - local as well as international. The seconded staff, although they were given 20 per cent of their salary as project allowance, continued to maintain their primary loyalty to their parent ministries, based in Accra. This problem was to some extent resolved later by making a bulk allocation of all central government's grants to the project. This helped in better control of the staff of the various departments involved in the project implementation. The study stated that the temporary local appointees understandably were not as committed to the project's success as they would have been if they were assured of job security and career advance. The subsequent appointment of zonal co-ordinators, although well intended, created dissatisfaction amongst some of the highly qualified professionals, who were required to report to the former for co-ordination purpose.

Similarly, the expatriates had to establish rapport with their local counterparts, justify their higher salary and privileges by performance and show their willingness to phase themselves out by training the counterparts. Despite these delicate matters, the inter-personal relationship amongst the project staff was good. The Monitoring and Evaluation (M & E) section, which is so vital to monitor performance, was also given due importance.

In contrast to Ghana, Mauritius had a permanent cadre of staff for its Rural Development Unit (RDU), which is a part of the Ministry of Economic Planning and Development. It is generally responsible for overall direction, supervision and co-ordination of the sectoral elements of the over-all rural development programme. A six-member Project Co-ordination Committee (PCC) was set up for the project under review. It also had its M & E Unit to monitor performance and serve as a management tool. The project and its implementing agency enjoyed wide support from the political leadership across the board and the rural people. It thus should not have had, prima facie, any problem. However, the experience was different, as will be seen later in the paper.

Tanzania's TIRDEP is a partnership in development between Tanzania and Federal Republic of Germany. It initially started as a rural development planning exercise at District level. However, the donor country was later persuaded to extend the exercise for the entire Tanga region. The programme subsequently became responsible for implementing thirty-one out of forty-five projects, which were prepared by it. 6/ Each project had detailed plans of operation and a separate administrative unit for it. Funds were allocated directly to these individual projects.

Each project was expected to have staff from both Germany and Tanzania. This joint responsibility was intended to avoid :

- i) inadequate participation by the Tanzanians in planning and implementation;
- ii) inadequate knowledge on the part of Tanzania officials, who will take over the projects after completion; and
- iii) insufficient degree of co-ordination and integration of TIRDEP - supported activities into the Tanzanian official structures.

However, this condition was not always realised. Tanzania occasionally could not provide the counterpart staff to work with the German staff members. The expatriates thus had to carry out most of the planning as well as implementation of the programme. Moreover, a substantial element of training for counterpart staff remained unutilized due to shortage of qualified Tanzanians. In addition, the turnover rate of the local staff was rather high, which adversely affected the implementation of the TIRDEP's projects and necessitated extension of the programme.

Both Governments wished "the withdrawal of German specialists by the earliest date possible and so to enable the self-reliant takeover of Tanga Region's development process by the relevant Tanzanian authorities." However, due to limited continuity of the Tanzanian staff, this objective of national self-reliance in trained manpower was not fully realised.

Zimbabwe's project was being implemented in a "logical framework". Its each phase has specific goals and physical targets to be achieved in a given time. What is not completed in the given period is incorporated into the next phase, following the system's approach. The implementation of the programme is the responsibility of a team, which is composed of staff drawn from the relevant sectoral ministries. The Programme Team (PT) is temporary and is dissolved once implementation of the programme is complete. Membership of the PT is limited to the period a sector's contribution is needed. The members of the PT have the authority of their respective ministries to join the Team and to use the Ministries' resources for the Programme's purposes in an agreed framework. But the PT members are not relieved of their other normal duties. The PT gets its mandate from and is answerable to the Provincial Development Committee. At District Level the controlling authority is the District Development Committee. The Agricultural and Rural Development Authority (ARDA), a parastatal body, provides the secretariat to the PT. ARDA has the additional responsibility of re-scheduling it, if necessary, monitoring and evaluation and co-ordination of the project activities. The schedule of programme work is drawn in regular meetings. The meetings decide on responsibilities and actions to be taken. The decisions of the meetings are binding on all concerned.

Malawi has been implementing a "regional integrated rural development approach to agricultural development" since the late sixties. This approach is reflected in its several multisectoral projects from 1968/69. The primary responsibility in Malawi for implementing the project and the National Rural Development Programme (NRDP) rests with the Ministry of Agriculture (MOA). MOA has been reorganized and strengthened for this purpose. However, the organizational changes in it also led to :

- i) problems in establishing new posts;
- ii) frequent staff turnover;
- iii) frequent vacancies; and
- iv) consequent lack of management continuity.

The Programme Manager under MOA is responsible for co-ordinating the planning, implementation, monitoring and evaluation of the project. He is assisted by the technical departments concerned in implementing their respective

components in the project. He has considerable autonomy within the framework of decentralization programme. It appears, in retrospect, the autonomy was given too early before the senior staff members were recruited to assist the Manager and even before the adequate supporting staff, with required experience, were on the job. The programme management, specially its financial aspect, thus suffered in the first two years. The situation, however, improved with the help of MOA headquarters. Some of the programme activities were carried out even though the post of Senior Field Development Engineer-remained vacant throughout the phase.

Section II : Financial Aspect of Implementation

All the projects are mostly financed by foreign aid or grants, as will be evident from Table I. Once an agreement with either a funding agency or donor country becomes legally effective as of certain date, the release of foreign exchange to finance the programme should pose no problem. And yet it did as the experience shows. This is because the pre-condition for the release of foreign loan/aid to it is the availability of the stipulated local currency. The release of the latter has been irregular and inadequate in amount, as the case in Ghana indicates. In fact in 1985 "no capital fund was released to the project ... although an amount of C155.3 million was requested". Irregular, and even worse, non-payment of local currency component seriously affected the implementation schedule, the rate of delivery and led to cost escalation in Ghana. Similarly, the limit imposed upon the Project Manager and his Sectoral Heads to sanction expenditure, without approval of MOA or obtaining bids, turned out to be too restrictive and time consuming.

Mauritius had also some problems regarding payment of its own share of the total cost of the project. The project account, which was intended to give financial autonomy to the manager (now Commissioner) or RDU, became inoperative since January 1984. Every payment for project expenditures since then was made with the approval of the Ministry of Finance. Besides this deviation from the set procedure, Mauritius did not have any difficulty with the funding agency either for reimbursement or disbursement.

Tanzania's TIRDEP had no problem of getting funds in bulk. Its difficulty was in disbursing the funds, most of which came from a donor country. The main reasons for inability to spend the funds were as follows :

- i) the projects, which were included in the TIRDEP, were broad ideas of perceived requirements of the rural people. Their technical feasibility and financial viability had to be worked out and a separate document for each activity prepared for approval of the donor country before funds could be released;
- ii) Tanzania had an acute shortage of both inputs as well as essential commodities since 1979. When the programme was initiated, it was assumed that most project inputs would be locally obtained, an assumption which was not realised at the time funds were available for disbursement; and
- iii) Tanzania did not have enough counterparts to be attached to the expatriate specialists.

Zimbabwe faced some problems in releasing counterpart funds at the initial stage of implementation. They were made available to ARDA in September/October 1986. In the interim period, the donor country used its own resources to pre-finance the project. ARDA has full authority to disburse the funds according to the provisions made in the capital development programme for three years and approved by the Government. The involvement of various specialists for each sectoral activity ensures that the disbursement of funds is properly monitored and controlled.

In Malawi in the course of implementation of the project, weakness in financial management was noticed and over-expenditure under the head "operating cost" found. The report on the findings resulted in the development of improved monitoring procedures and tighter financial control. Annual work plans were introduced showing the project activities for the coming year in details and corresponding budget provisions made to facilitate financial management. Also regular expenditure monitoring meetings were started. These helped senior staff members to know their respective sections' financial position. A request for revision of the

budget was then prepared if necessary. It included adjustments to original financial estimates and more provision for operating cost. The plans for building livestock dipping tanks were dropped since funds were inadequate to meet the higher standards of their construction.

Section III : Co-ordination of Project Activities

In Ghana's VORADEP there were three levels of co-ordination, viz.:

- 1) co-ordination within various operational departments of VORADEP;
- ii) co-ordination between VORADEP and the Volta Regional Administration; and
- iii) co-ordination between VORADEP, the Ministry of Finance and Economic Planning and the Ministry of Agriculture.

The link between the project authorities and that of the relevant bodies and ministries was provided through their representations on the Board of Directors. The Board was expected to meet once a month to review the project's implementation programmes and, if necessary, modify them taking into account the Government policies which might affect the implementation process. The Board of Directors, through the representatives of the relevant bodies and ministries, were expected to provide the feedback on decisions taken in the Board meetings.

Within the project, the Chief of Field Operations was responsible for the co-ordination of activities of various technical departments. The co-ordination within it had been generally effective. For example, the training and visit system allowed the subject-matter specialists to advise farmers through Extension Officers. Every week these Extension Officers had to send a feedback from farmers to the subject-matter specialists for their technical advice. Similarly, dialogue and feedback from the farmers to the project had been very constructive. However, existing farmers' organizations, through which the project could get suggestions, was not active enough. In contrast to co-ordination at the first level, according to the Ghana

study, there were problems at the other two levels. The study mentioned specific cases to substantiate its statement. One such case was that decisions, which were taken at the Board meetings, with regard to policy matter did not get reflected in the overall fiscal policies, which were formulated by the Ministry of Finance and Economic Planning. The policy of the Ministry of Finance, therefore, failed to recognize the Government's commitment to the project. A clear example of it was the failure to release the required counterpart local currency for the project's implementation.

In Zimbabwe the PT for the Gatu District Project was an integrated part of the provincial and district development institutions. The programme of work is carried out by the PT through regular meetings, convened to discuss and decide on all the relevant aspects of the programme. A special feature of the PT was the availability of the resource persons who were usually attached to the team to correct the shortcomings in the planning and implementation. Each institution, which was represented in the PT, was responsible for its own specific programme/component in relation to the success of other components. Working groups were formed, as required, for different programme components, which had to achieve the annual targets, as included in the plan of operation. The financial management system, followed by the PT, had similarly been worked out in consultation with the Ministries of Finance, Economic Planning and Development and the Ministry of Lands, Agriculture and Rural Settlement.

In Tanzania the Regional Development Committee (RDC) is the supreme planning organ at the regional level. Its membership is composed of senior bureaucrats, technocrats, party officials and members of the parliament. Tanga has its RDC. TIRDEP's initial responsibility was to draw up a regional plan for RDC. Hence, it managed to work itself in the Tanga Region's Planning and Administrative structures so much so that TIRDEP, although largely foreign financed and managed, came to be regarded as partners in Tanga's rural development. The co-ordination between TIRDEP and RDC was thus well established. The fact, however, remained that TIRDEP was a "foreign show". The expatriates had their problems of perception. RDC or its staff or even the beneficiaries understandably might have had the usual attitude of letting the "donors" manage the TIRDEP. There was a Tanzanian counterpart to the Programme Co-ordinator of TIRDEP. He had no authority over the project managers. He

simply maintained liaison functions. Similarly, some of the Tanga Projects were implemented by RDC and the rest by TIRDEP although most of the funds come from the donor country. Separate 'Financing Agreement' for each of them had to be signed by both sides. This was done to avoid the "danger of expatriates running their measures parallel to and independently of the regular governmental frame of activities without proper linkage with other projects", thus leading to an isolated existence of projects.

However, as TIRDEP pointed out : "The objective of a development policy which favours the execution of an increasing number of projects by means of financing agreements runs a danger of over estimating the capacity of local executing bodies". A good example of this experience was derived from its Construction Unit. It was set up to plan the implementation of a number of construction projects, such as primary schools, teachers' village stores, buildings and for the rural roads rehabilitation in Handeni District. This was done on the assumption that construction planning capacity was the bottleneck due to "lack of an efficient organization to ensure timely delivery of materials and supervise construction works". However, it was later found out that the real problem was lack of skilled artisans, coupled with a serious shortage of construction materials. The Unit had to become the executing agency as well for these projects due to these subsequent findings.

Mauritius' PPC was required to meet twice a year to review progress, approve reports and work programmes and resolve outstanding policy issues. However, PCC met only four times since its formation in May 1983. It did not meet even once in 1985. Mauritius also set up in December 1984 a Programme Implementation Committee (PIC) to monitor implementation of the project. It met 17 times since January 1985. PIC had been serving as a useful forum for thrashing out many problems arising in course of implementation. It had so far contributed towards greater understanding and co-operation among the different executing agencies, who might have otherwise worked at cross-purposes. The Mauritius' study refers in details the inter-agency bottlenecks the small scale irrigation scheme at Riche Terre ran into. It took three years to sort them out.

The Malawi study maintained that co-ordination was, by nature, difficult since it could not be enforced by order. It involved discussion, compromise and agreement and depended on the goodwill and flexibility of the parties concerned. It stated that co-ordination at planning stage between ministries/departments became crucial when national investment programmes in rural areas were undertaken. In Malawi, where most of the rural development projects were the responsibility of its MOA, inter-departmental co-ordination became important at take-over/maintenance stage. For example, the roads would have to be upgraded to facilitate the spread of extension messages and an increase in various other activities in rural areas. These new activities have to be considered at first in planning the roads and later in their implementation and maintenance phases. The office of the President and Cabinet in Malawi was responsible for co-ordination of rural development projects at planning stage. During implementation the Principal Secretary in the MOA took the initiative to discuss with his counterparts inter-ministerial problems. It was an ad hoc arrangement. The reason for leaving the initiative with the Principal Secretary of MOA was that rural development there was primarily equated with agriculture. In fact, there was some question-mark regarding inclusion of medical facilities as part of rural development there.

Section IV : Delivery of Project Outputs

One of the major constraints to the implementation of Ghana's VORADEP was delay in construction of project infrastructure, resulting in consequent delays in the delivery of project outputs to the beneficiaries. For example, field equipments and machinery were obtained one year behind the delivery schedule, project transport after two years' lag. It took four years to build office accommodation. The staff quarters still remained to be built. The percentage of the overall achievement of physical targets as of 30 April 1986 was only 58.2 per cent. The chain reactions of these delayed delivery/construction had been a mixture of frustration among the project staff and rising cost of the project as a whole. The project had suffered additional costs due to increases in the prices of local materials and in salary and wages.

The delay in the delivery of project outputs and irregularity in releasing local funds led to re-scheduling of the project and scaling down its activities. The size and number of buildings, roads, dams, drilling of boreholes and irrigation schemes had to be reduced. In addition, the duration of the project had to be extended by one year to enable completion of the reduced volume of project inputs. The project spent only 35 per cent of its foreign exchange component as of June 1986.

In Mauritius there was no difficulty in procuring the equipment and materials for rural infrastructure building under the "Rural Development Component". The farm inputs and consultancy services were also readily available. The most serious bottleneck was the unavailability of land. Thus, land-based project activities viz., sericulture and irrigated litchi production could not be started on time. In fact, agriculture sub-project was dropped in 1984 and litchi production limited to 25 acres as against 60 acres. Similarly, only 2.5 per cent of agricultural credit was disbursed as of May 1985. Mauritius took a series of measures in 1985 to speed up the implementation of the programme, particularly the credit component, and yet as of June 1986, only 8 per cent of the total project fund was disbursed. Given this performance, either the duration of the project has to be extended or part of the loan cancelled in due course.

In Tanzania TIRDEP managed to come up with a Regional Plan for Tanga, despite limitation of data and time, within three years. It was its priority assignment. The plan projected that the production of cassava and maize would increase by 29.5 per cent and 6.15 per cent respectively in 1979/80 over the base period of 1973/74. The estimated increase in production of these two crops in 1979/80 was by 24.7 and 67.2 per cents respectively. Thus, the projected growth rates compared favourably with the performance.

TIRDEP also had considerable success in promoting small scale industries. Its bee-keeping and honey processing project in Handeni district led to the increase of beehives by almost three-folds in 1983 over 1981 and that of honey collected by 130 per cent in the same period. TIRDEP had also been supporting projects in polytechnical education to develop agricultural education materials for primary schools

and for the promotion of primary health care for Pangari District. The district has now a hospital bed for every 48 people as against 761 persons for the country as a whole!

In implementing the various projects the most trying problems the TIRDEP faced are:

- i) the shortage of equipments, spares and consumer goods;
- ii) shift in government policy relating to villagization and the primary co-operative societies;
- iii) lack of spontaneity in project generation from below;
- iv) preference for technological sophistication by the donor country; and
- v) time-consuming process of consultation between the technicians, the Government and the Party in finalizing the plans and projects.

These are some of the factors, which explained substantial undisbursed funds of the programme.

Zimbabwe's Gutu District Programme was only in its second year of implementation at the time of preparing the case study. It had already managed to:

- i) recruit all required staff;
- ii) build offices and houses and acquire most of the materials and equipment; and
- iii) prepare the rural water supply project.

In the first year of its implementation, 1985, the agricultural component was scaled down since the agro-services were still being restructured, and the programme had not yet been formally launched. The other components of the programme, such as of co-operative development, and livestock development had a delayed start.

In Malawi the economic base of rural development was strengthened by substantial increase in the production of rice and maize through higher yield and extension of cropped

area. The production of cotton also showed an upward trend. However, it would be inappropriate methodologically to attribute these gains to the project alone, since there could be other explanatory variables. To help develop livestock, the existing livestock development centre had been expanded and new dip tanks installed. Similarly, credit facilities had been extended to farmers to adopt improved input packages and better cultivation methods. The research, training and refresher course of the staff were also specifically geared to the requirements of the project. To make the project participatory, ad hoc committees, representing local people to deal with credit recovery and programme implementation, were being used. They were also involved in the content and organization of extension and training programmes and in the demarcation and use of pilot grazing areas and movement corridors for cattle.

However, in delivering the outputs, the project suffered from (i) indeterminate priorities between various activities; (ii) difficulty in preparing annual work programmes and (iii) in establishing an effective M & E system. A planning economist was later appointed to take care of these limitations. Similarly, to strengthen financial control, an expatriate financial controller was appointed. One of his duties was to train a Malawian counterpart in all aspects of accounting, budgeting and financial control.

In Malawi, despite fair amount of experience in rural development behind, a misunderstanding regarding the role of MOA seems to persist. MOA has been given a multi-sectoral responsibility in implementation. MOA sometimes built rural roads and even health centres. Such works are generally outside the competence of MOA.

Section V : Conclusions and Recommendations

The studies show most of the technical work in preparing the projects and implementing them was carried out by the foreign aid institutions/donor countries, which is indicative of inadequate indigenous capability. The related point to be taken note of is the "gestation" period and extension of the initial implementation schedule. Several years of work, negotiations and missions were carried out before the projects could start. Similarly, the duration of some of

them had to be extended by one to two years. The consequence was cost escalation. The other matter of some concern is the ratio of cost-sharing between the external donors and the recipient countries. It was generally 4:1, which is inconsistent with the principle of self-reliance.

To implement the projects, the countries made a variety of administrative arrangements. They vary from ad hoc committee to secondment of staff from various concerned ministries to an autonomous project management to a permanent cadre of staff. They all had multi-disciplinary staff, except in one case, where the implementation was left to the MOA.

Three out of the five projects suffered from (i) serious inadequacy of staff; (ii) their inexperience; (iii) high rate of turn-over; (iv) problem of hierarchical loyalty and (v) uncertainty regarding job security of temporary staff. The senior jobs were manned by the expatriates due to non-availability of enough qualified and experienced staff from within the countries. These factors point to the need for accelerating the indigenous human resource development.

A development programme requires satisfactory co-operation of the country's civil service. It in itself is an exercise in good human relations. The entire bureaucracy needs to be either supportive or active for its success. However, the reality is: civil service is generally cautious and slow-moving and is bound by regulations and procedures. It has the tendency to examine every aspect of their involvement in great details. In contrast, the planning and development administration has to be creative, dynamic and flexible. There is a need for convergence between these two approaches, if the latter is to work in harmony with the former. Assuming the co-operative spirit is there, two of the case studies show an inappropriate designation of an executing agency may seriously affect the implementation of the programme. Similarly, it is inadvisable to drastically change the object of a programme if it is a follow-up of a preceding one. If Phase I was devoted to vocational and on-job-training, in say, building trade, it is impractical to drastically change its objective in Phase II and concentrate on, for example, rural credit. If such change is carried out, it is better to adhere to the changed objectives instead of in the course of implementation, taking premature decision again substantially revising the objectives. Shifts in decisions adversely affect implementation of a project.

In addition to these factors, the country study shows that the non-release of local fund on time or its inadequate release could be a bottleneck in implementation and may even lead to either reduced activities or extension of the project. If funds are released but their expenditure is not constantly monitored, unauthorized or over-expenditure could result under one "budget line", meaning less availability of funds for another "budget line".

Another important factor in programme implementation is co-ordination. Co-ordination within the programme in all the countries was ensured through periodic meetings and by the offices of their executive heads. However, co-ordination between project authority and the concerned ministries, which are located at national capitals and between the local authorities was difficult to attain. This is understandable since co-ordination, specially horizontal and between separate entities, is generally possible by enlightened goodwill and persuasion only.

Sound planning is necessary but not a sufficient condition to realise its objective. The crux of the matter is the implementation rate of a plan. The rate, inter alia, depends on some of the factors discussed in this paper. If the rate is not satisfactory enough, planning, in retrospect, turns out to be a costly academic exercise. Hence, it is essential that the member States take all necessary measures to step up their own implementation capacity so that their ex-ante objectives would closely approximate to ex-poste progress in rural development.

In order to improve the implementation rate, the following suggestions may be considered, viz.:

- 1) Given the scarcity of resources in relation to conflicting demand on them, the priorities between the objectives of a rural development programme/projects have to be appropriate to optimise the benefits. To ensure appropriateness of the priorities, they need to be based on dialogue with and consensus of the prospective beneficiaries. Their wish and order of priorities should be respected as long as :

- a) they may not risk any damage to the eco-system;
- b) they do not conflict with the legitimate priorities of the rural people of other areas; and
- c) they are consistent with national objective, which ought to reflect consensus. This is essential to generate spontaneous participation of the beneficiaries in the implementation of programme/projects and to ensure their sustainability.

ii) Once the priorities are set, an exercise should be undertaken to harmonize the various sectoral activities at the planning stage and their implementation schedule.

iii) Assuming the first two steps have been taken, it is necessary to realistically determine the total outlay of a programme/project, specially its local currency component. Once the latter is decided upon, the entire amount should preferably be deposited in the designated account in advance before starting implementation, as has been suggested by one of the case studies.

iv) A national co-ordinating mechanism at the highest possible level, possibly in the office of the President, as has already been done by Nigeria, should be set up with the planning commission as its secretariat. It has to be recognized that co-ordination by courtesy between separate entities hardly works.

v) The usual practice is to establish fairly autonomous project authorities for implementation. This practice needs to be reviewed. It may be more pragmatic to entrust existing ministries/departments to implement the planned activities, which are within their sphere of technical competence and jurisdiction on grounds of better accountability, continuity and loyalty of the staff concerned.

vi) The officials of the member States should be made responsible for implementation, with expatriates in advisory role. This may mean reversal of the existing practice and may need the enlightened willingness to suffer occasional costly mistakes or delay in the short-run in the interest of building up national capability. Self-reliance has to be preferred to better performance on borrowed steam.

vii) The locally available inputs such as building materials and technology, if they are comparatively economic enough, with adjustment if necessary, in delivering the planned outputs should be used. The flexibility in project design and in technological choice should be the guiding principle. This may mean settling for, say, locally burnt bricks in preference to cement-blocks for building primary schools, small scale irrigation projects to large dams and so on.

viii) Monitoring and evaluation system should be set up in all ministries, concerned with development; outputs/physical targets to be achieved in a given time frame ought to be specified and performance monitored. Any shortfall or delay in performance should be thoroughly inquired into for taking corrective actions. For, the opportunity cost of delay or shortfall in delivery can be very heavy indeed.

TABLE I

Table Showing Major Features of the Programmes
Total Outlay (in million)

Country	Major Sectoral Activities	Area	No. of beneficia- ries	Foreign Exchange in US\$	US Dollar Equivalent of Local Currency	Total Cost US\$ in million	Duration
Ghana	i) Food production, special- ly maize and yam ii) Infrastructure develop- ment, with priority for feeder roads, water boreholes and rural health education centres iii) Institution building, with priority for training of extension staff and restructuring of the Ministry of Agriculture in the districts and zones.	Volta region of an esti- mated area of 20,500 sq.km.	60,000 farm families in 1982-1983. Number raised to 100,000 families between 1984-86.	42 (86%)	7 (14%)	49 (100%)	Seven years (1981-87)
Mauritius	i) Agricultural credit to finance horticulture, sericulture, livestock and food production ii) Rural development, viz., rural health centres, storage and marketing facilities, training and transport. iii) Monitoring and evaluation.	29 out of 98 village council areas 500 sq.km. (estimated)	114,500 persons	6 (73%)	2.26 (27%)	8.26 (100%)	Five years (1983-87)

Country	Major Sectoral Activities	Area	Number of beneficiaries	Foreign Exchange in US\$	US Dollar Equivalent of Local Currency	Total Cost US\$ in million	Duration
Tanzania	i) Preparation of Regional Development Plan ii) Small scale irrigation iii) Agric. extension, training and mechanical services iv) Land Development v) Production of cassava, maize, coffee, other crops & livestock vi) Regional seed multiplication farm vii) Rural socio-economic infrastructure (viz., water, roads, electricity, education, mass media and market places)	Tanga Region of 26 800 sq.km	1.23 million people	43.20 (86%)	7.20 (estimated) (14%)	50.40 (100%)	Thirteen years (1972-73 to 1984-86)
Zimbabwe	i) Rural water supply ii) Development of agriculture horticulture and livestock iii) Agricultural services and co-operative development	Gutu District: Area: 7196 sq.km.	184,000 people	6.60 (88%)	0.90 (12%)	7.50 (100%)	5 years (1985-89)

Country	Major Sectoral Activities	Area	Number of beneficiaries	Foreign Exchange in US\$	US Dollar Equivalent of Local Currency	Total Cost US\$ in million	Duration
Malawi	i) Increased production of rice, maize, cotton and coffee	Karonga-Chitipa districts of the Northern Region: Area 8 900 sq.km.	11,000 farmers	estimated 8.50 (80%)	estimated 2.1 (20%)	10.60 (100%)	10 years (1972-82)
	ii) Extended Rural Health facilities						
	iii) Provision of credit						
	iv) Construction of market places						
	v) Research, Training and extension services						

Source: Country studies of Ghana, Mauritius, Malawi, Tanzania and Zimbabwe.

FOOTNOTES

1. A. Asante, The Volta Region Agricultural Development Project, Accra, September 1986, p. 13 (hereinafter referred to as Ghana Study). The source of statements and data relating to Ghana will be Mr. Asante's paper unless otherwise indicated.
2. K.C. Li Kwong Wing, A case study of implementation aspects of integrated rural development in Mauritius, Port Louis, September, 1986, p. 6 (hereinafter referred to as Mauritius study). The source of statements and data relating to Mauritius will be Mr. Li Kwong Wing's paper, unless otherwise indicated.
3. M.L. Muwila, Some Implementation Aspects of Integrated Rural Development: Projects in Malawi, Lilongwe, 7 November 1986, (hereinafter referred to as Malawi study), p. 28. The source of statements and data relating to Malawi will be Mr. Muwila's paper, unless otherwise indicated.
4. I.M. Kaduma, Implementation Aspects of Integrated Rural Development in Tanzania, Tanga, September 1986, p. 2 (hereinafter referred to as Tanzania study). The source of statements and data relating to Tanzania will be Mr. Kaduma's paper, unless otherwise indicated.
5. K.R. Majome, A case study on the implementation aspects of co-ordinated agricultural and rural development programme (in Gutu District, Masvingo Province, Harare), Zimbabwe, 23 October 1986, (hereinafter referred to as Zimbabwe study). The source of statements and data relating to Zimbabwe will be Mr. Majome's paper, unless otherwise indicated.
6. The implementation of the remaining fourteen projects is the responsibility of the Regional Commissioner.

TECHNOLOGY AND FOOD PRODUCTION IN AFRICA :

THE CASES OF MAURITIUS, SIERRA LEONE AND UGANDA

Introduction

Africa is predominantly an agrarian economy and may remain so at the year 2000 and possibly beyond. Its agriculture today is primarily subsistence-oriented with production of food as the major activity. It is to be expected since food comes first and is the most basic of the basic needs for survival. The purpose of this paper is to discuss the role of existing technology in relation to food production in Africa. The basis of the paper is the case studies which were carried out in Mauritius, Sierra Leone and Uganda in 1986.

The paper is arranged in four sections. Section I gives an overview of the current level of technology in these countries. Section II reviews the existing national rural technological policy and its appropriateness, and Section III the current institutional and infrastructural support. Section IV attempts to evaluate the impact of existing technology on food production in these countries.

Section I

Agriculture is the dominant sector in all three countries, viz., Mauritius, Sierra Leone and Uganda. In Uganda 93 per cent of the population is dependent on it, which contributes 58 per cent of GDP and 99 per cent of the exports. Sierra Leone is also an agrarian economy, despite its mining sector. Agriculture there supports 75 per cent of the population and provides 32 per cent of GDP and 20 per cent of foreign exchange. In Mauritius too, agriculture is the leading sector. Its agro-based industries earn two-third of the foreign exchange.

In Uganda, 80 per cent of the farmers depend entirely on primitive hand-hoes for cultivating the land 1/. These are in serious short supply. The production of hand-hoes for cultivating went down from 200 000 (1977) to 113 000 (1984). The effect of shortage of hand-hoes has been aggravated by (i) departure of migrant workers and (ii) increased enrolment

of rural children in school. Experiments with tractors have been a failure so far. Similarly, ox-ploughs for tillage have not been an available alternative. "Present production is 50 ox-plough per month far below the number needed to satisfy the backlog estimated at 50,000 and annual replacement requirements of about 5,000" 2/. Planting is done by broadcasting seeds, weeding by sharpened sticks and knives, harvesting by hand and knives, processing by sticks, storage on farm in receptacle structures, transport of farm products mostly by roads and their marketing by the private sector: (i) village markets and (ii) small scale urban traders.

In Sierra Leone, hoes, axes, machetes and sickles constitute 80 per cent of farm equipments 3/. Tractors and animal drawn ploughs are limited in use. The various stages of production from ploughing to processing is broadly similar to that in Uganda. Land and labour is in relatively abundant supply in Sierra Leone. Hence, there is no felt need at farm level to adopt capital intensive technology.

The case of Mauritius provides a sharp contrast 4/. Although agriculture is its major economic activity, Mauritius is essentially a mono (cash) crop country, the crop being sugar. 90 per cent of the land is taken up by sugar plantations, three-fourth of which is owned by 21 sugar estates. The preference there is to "move straight from hand-tools and hand-operated implements to sophisticated mechanized equipment" 5/, partly due to a sharp decline in population growth from 3.12 per cent (1952-62) to 1.4 (1972-82). All the processes of production except harvesting, have been largely mechanized. The use of hand tools is generally limited to some vegetables and fishery.

Section II

Uganda's policy was intended to "ensure adequate food supply and improve the quality and increase the quantity of export crops" 6/. The country was divided into eleven agro-ecological zones to make technological policy location specific. It had an effective information network upto 1972. Uganda, taking a top-down approach, also established large and subsidized co-operatives, called Group Farmers' Scheme and provided them 800 tractors by 1968. It also set up a Tractor and Agricultural Implements Hire Scheme. The former

proved to be a costly failure due to farmers' resistance. The latter is still in operation but on a very limited scale.

Its research programme was geared to raise yield in "laboratory conditions" without consideration to cost-effectiveness, replicability in different areas and acceptability by farmers and to the need for co-ordination between various parties concerned. Moreover, improved varieties of seeds were in short supply, so also agro-chemicals, fertilizers and farm implements. Besides, the country's technological policy overlooked the need of "making the best use of 'informal' innovative capacities that are organized outside it" 7/.

It has recently adopted more pragmatic policies to:

- i) incorporate vocational courses in farm schools' curricula;
- ii) introduce basic education to facilitate technological awareness, increase imaginative innovation and technological diffusion in rural areas;
- iii) rehabilitate agro-industries;
- iv) encourage small scale industries to produce farm implements;
- v) re-introduce effective extension services; and
- vi) give greater emphasis on non-traditional cash crops and diversified agriculture.

Sierra Leone does not have an explicit rural technological policy 8/. Its two successive Five-Year Plans mentioned "a more efficient mechanical cultivation programme" and "a techno-economic transformation" of agriculture. And the favoured strategy was to import tractors to mechanize cultivation. It proved to be inappropriate for the majority of the small farmers for a variety of reasons. "The technical efficiency of a technology is a dimension of its appropriateness which can be evaluated irrespective of the set of policies under which agricultural production takes place. But in the final analysis, whether a given technology is introduced to farmers and popularized is largely determined by the agro-mechanization policies of the Government" 9/.

Mauritius' mechanized and virtual mono-crop-sugar has been noted in the preceding section. In 1983, Mauritius adopted a new food policy to, inter alia, "promote self-reliance in respect of food requirements, taking into account the country's potential in food crop production and the profitability of such activities" 10/. Traditional agriculture and rural informal sectors are labour intensive. The decision to also promote these activities, through training and subsidized capital, resulted in more jobs which are desirable since the informal sector forms part of the nation's cultural heritage.

Section III

Uganda has five centres for scientific and technological development. In addition, it has 23 institutions - university colleges, training centres, co-operative colleges and district farm institutes. These are specifically geared to agriculture and either sponsored or controlled by the Government. They provide courses ranging from one day on demonstration plots to graduate degree in veterinary science and to non-degree training in forestry, fishery, co-operative marketing and extension services.

However, historically dating back to colonial days, these organized facilities including 4,000 extension workers are generally geared to cash crops (cotton and coffee) and animal disease control. Most of them are not effective due to lack of adequate resources, low morale of researchers and total absence of inter-face between researchers and extension workers. Similarly, technological transfer by researchers have been constrained by limited budgetary allocations, increased cost of imported inputs and scarcity of foreign exchange.

There are 3,500 primary co-operatives which are primarily intended for agricultural marketing, of which 2,300 mainly deal with processing and marketing of cotton and coffee. Thus, while the marketing of export crops is well organized, the same cannot be said of the delivery mechanism of inputs and farm implements; which are in serious short supply. The short supply of implements is largely due to continued decline in the indigenous manufacturing capacity, partly due to involuntary exodus of Asians from Uganda in the seventies.

However, Uganda has been trying to recover and encourage indigenous innovations/innovators. It appreciates the need of building blocks by a mix of local knowledge and imported ones for national technological development. In Uganda, opportunities for technical education and training exist at various levels, including four vocational training centres. "Government is currently busy establishing awareness and importance of the indigenous innovation within the general populace. In order to achieve this, work options other than those in the formal sector of the economy are encouraged and funded. Coupled with this, the youth is becoming increasingly aware that out-of-school sources of skill, experience and knowledge are also important" 12/

In addition, several non-governmental organizations are actively promoting technological development through indigenous research, one of which is joint energy and environment project. 13/

In Sierra Leone, research and development in agriculture, with farm technology components, are undertaken by several institutes, including the University of Sierra Leone. Their research so far focussed on crop production and processing equipments. Some large scale manufacturers are currently fabricating a wide range of hand tools, animal drawn ploughs and crop processing equipment. In addition, small village workshops also produce farm implements.

The marketing and distribution of the farm implements are now in the hands of large number of indigenous and exploitative trading enterprises upon whom depend a tangled web of small intermediaries. Similarly, the Government extension services suffer from the constraints of:

i) Lack of appropriate technology. However, non-governmental organizations try to reach out, on a limited scale, to farmers with their advisory services and farm equipments. The repairs and maintenance of the equipments are mostly provided by the rural blacksmiths.

ii) Even if there was one, the impact of the extension worker would have been marginal since there is no provision for informal training for farmers to develop their absorption capacity. There is no effective outreach programme.

There has been a recent shift in Government's tractorisation policy in favour of identification of rural non-farm activities including the fabrication of farm technology and provision of various support services to upgrade and make them more productive. This policy shift should facilitate indigenous innovations and promote innovators.

In Mauritius, the bulk of agricultural research in the non-sugar sector (such as tea, tobacco, rice, fishery and livestock) is undertaken by various departments of Ministry of Agriculture and by the University of Mauritius. The Mauritius Sugar Industry was originally set up to carry out research in sugar. It has recently started doing research in cereal crops as well.

In addition to the Agricultural Extension Service of the Ministry of Agriculture and private training centres, there are 11 schools/centres/units/boards, which provide extension services and training facilities of various levels of sophistication and in different occupations, such as manufacture of farm equipments, their repair and maintenance, fishery, handicrafts and building construction. Their activities are co-ordinated by a Central Training Office, which was established in 1964. It will, thus, be seen that Mauritius has a network of organizations to carry out an outreach programme for research and development.

The result of this interface is reflected in growing indigenous capacity of Mauritius to manufacture boilers and heavy machinery for the sugar estates, mechanical harvesters, food-crop driers, seed processors, fertilizers and a number of simple tools, most of which is in the private sector. This partly explains its preference for mechanization to use of manual labour in farm and non-farm activities.

Section IV

The impact of existing technologies on food production in Uganda could be better assessed if there were a regular flow of inputs to the rural sector. Group farms, once banked upon as the basis for mechanization (which was considered as synonymous with tractorization) were a "resounding failure largely because the concept itself was culturally unacceptable and unpopular in many parts of the country". 14/

Uganda, thus, settled for individual holdings and for technology appropriate to them given the current stage of its socio-economic development. The country study shows the demonstrated scope for impressive gains in productivity as two examples 15/ given below show:

Crops	Normal Farm with Improved Husbandry but no Irrigation	Experimental Station(kg/ha)
Maize	1,500	3,000
Rice	2,000	7,000

The hand hoe continues to remain the major constraint in realizing the potential productivity increase 16/. A few hoes, a panga, an axe and two or three machetes complete the equipment component of a farmer. Hence, agriculture (specially the cereal sub-sector) continues to remain subsistence-oriented. The productivity of the fishery, although is better than that of agriculture, could be considerably increased. "The livestock industry is still in its infancy and technology has yet to be applied" 17/. The commercial poultry farming collapsed in the 1970s. The use of imported engine-power saws to cut down trees has resulted in indiscriminate felling. The saws, although they produce more charcoal 18/ for the city dwellers, leave behind deforestation. In the "informal sector", the metal working group is meeting the critical shortage of farm implements.

In Sierra Leone too, the farm productivity is considerably low. The estimated 330,000 farm families depend on simple hand tools, family labour, small acreage and very little bio-chemical inputs with some exceptions. There has been no attempt to introduce yield increasing technologies (mechanical and bio-chemical). Hence, "under conditions of shifting cultivations... yields have been falling as fallow periods have had to be reduced in the face of population pressure" 19/ over fertile land.

The staple food - rice - is grown under upland cultivation, where, because of the use of primitive

technology and limited non-use of biochemical inputs, productivity is very low. However, the yield of rice per acre is comparatively higher in swampland. And yet, the farmers are reluctant to switch on the swamplands for a variety of reasons. One of the reasons is that "the traditional farmer is a risk-averter and the possibility of a crop failure weighs heavily with him" 20/.

Mauritius exports what it produces (namely sugar and tea) and imports what it consumes (viz. rice and flour). There is not enough fertile land suitable to increase domestic food supply. The area under rice is only 4,000 hectares 21/. The major constraint is lack of investment funds. Even then, experiments under different irrigation systems to produce more cereals are being carried out. Their comparative results are not yet available. However, the Mauritius case study states that the productivity of both land and labour is higher in the food crop sub-sector than in the sugar. This comparative advantage is of marginal benefit to the country since the Mauritian soil is such that only a fraction of it is suitable to grow rice.

Conclusion

The country studies show that all the three are food-deficient. In Uganda, the break-down of law and order and expulsion of the expatriate community since 1972 were the major reasons for its set-back in food self-sufficiency. In Sierra Leone, the predominance of hand-hoes and inadequate use of bio-chemical inputs are the contributory factors. Mauritius is a refreshing study in contrast in respect of technology and the benefits. Its limiting factor is soil, most of which is unsuitable for rice cultivation.

These three countries' food deficiency is, in a way, a reflection of Africa's needless hunger. Its self-sufficiency ratio has been declining since the 1960s. It was 86 per cent in the 80s and may fall to 71 per cent for cereals by the year 2008 22/. The consequences of this declining trend are poverty, malnutrition, hunger and famine. Over a million people have paid the sad price with their lives in the recent past 23/. Many more millions are barely alive clinically and are sustained through massive aid at the cost of their dignity.

Such tragedy was not unavoidable even at the current level of technology and population growth rate if only the priorities in resource allocation in the member States of the region were appropriate. Despite all the emphasis placed on increased food production in Africa by the Lagos Plan of Action (LPA), the share of the public sector allocation for agriculture averaged 7 per cent in the 1978-1982 period 24/. If the FAO survey results are indicative, African countries have been allocating a lower percentage of public resources to agriculture than those in Asia and the Pacific.

Similarly, despite the recommendation of the LPA to gradually allocate up to 1 per cent of the GDP to develop appropriate technology, the resource allocation by the member States in 1985 varied from 0.2 to 0.3 per cent of the GDP 25/. Hence, the decreasing self-sufficiency is a logical corollary of inadequate investment to improve farm productivity. In fact, it has been argued that "... Africa's current problems have less to do with drought than with the fact that it cannot feed itself whatever the weather..." 26/, given, inter-alia, the current level of technology, unattractive farm prices and degradation of soil.

It has also been maintained that the problem of African agriculture is not primarily weather related. "Rain alone will not wash away hunger" 27/. Radical change "will come only if there is genuine resolve to correct what is wrong at home - what has failed to work - what has worked to produce greater unfairness and alienation - models that have proved unsuitable to Africa's people. This is not a plea to move to the left or to the right, but to move in those directions that the needs of real development dictate..." 28/.

FOOTNOTES

1. E. Lugujjo, Impact of Rural Technology and National Technological Policies on Food Production, Productivity, Employment and Income Level and Distribution in Uganda, ECA, Addis Ababa, 1985, p. 1 (Herein after referred to in the text as Uganda Case Study). The source of statements and data regarding Uganda will be Mr. Lugujjo's paper unless otherwise indicated.
2. Ibid., p. 8.
3. J.D. Rogers, the Impact of Rural Technology and National Technological Policies on Food Production, Productivity, Employment and Income Level and Distribution in Sierra Leone, ECA, Addis Ababa, 1985, p. 1 (Herein after referred to in the text as Sierra Leone case study). The source of statements and data relating to Sierra Leone will be Mr. Rogers' paper, unless otherwise indicated.
4. A.Y. Maudarbocus, the Impact of Rural Technology and National Technological Policies on Food Production, Productivity, Employment and Income Level and Distribution in Mauritius, ECA, Addis Ababa, 1985, p. 2 (Herein after referred to in the text as Mauritius case study). The source of statements and data relating to Mauritius will be Mr. Maudarbocus' paper, unless otherwise indicated.
5. Ibid., p. 6. "The bullocks, or any other animals for that matter, are no longer used in Mauritius for ploughing, land preparation or transportation".
6. E. Lugujjo, op.cit., p. 16.
7. Ibid., pp. 16-17.
8. J.D. Rogers, op.cit., p.4.
9. Ibid., p. 5.
10. A.Y. Maudarbocus, op.cit., p.8.
11. Ibid., p. 8.

12. E. Lugujjo, op.cit., p. 25.
13. Ibid., pp. 25-26.
14. Ibid., op.cit., p. 27.
15. Ibid., p. 27.
16. Ibid., p. 30.
17. Ibid., p. 29.
18. Charcoal and firewood constitute an industry by itself and meet almost 80 per cent of Uganda's national energy requirements.
19. J.D. Rogers, op.cit., p. 8.
20. Ibid., p. 10.
21. A.Y. Maudarbocus, op.cit., p. 16.
22. A. Adedeji, The Paralysis of Multiple Debilitating Crises, ECA, Addis Ababa, 1985, p. 19.
23. ECA, Second Special Memorandum by the ECA Conference of Ministers: International Action for Relaunching the Initiative for Long-Term Development and Economic Growth in Africa, Addis Ababa, 1985, p. 5.
24. ECA, Evaluation of the Implementation of the Regional Food Plan for Africa (1978-1984) and a Preliminary Assessment of the Food and Agricultural Aspects of the Lagos Plan of Action (E/ECA/CM.11/37 of February 1985), p. 15.
25. ECA, Current Economic and Social Crisis Facing Africa and some Concrete Project Proposals on the Role of Science and Technology (S&T/IGCESTD/1/7 of 25 September 1985), Addis Ababa, 1985, p.3.
26. S. Woods, Africa: A Prophecy of Boom, Not Doom, in Development and Co-operation, DSE, Berlin, September/October, 1985, p.2.

27. ECA, Agricultural Credit and the Mobilization of Resources in Rural Areas, Addis Ababa, (ECA/PBD.4/7), 1986, p.3.
28. S.S. Ramphal, the Trampling of the Grass, ECA, Addis Ababa, 1985, pp. 20-21.

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