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DEVELOPMENT: KEY ISSUES

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(Editor)

PAPERS DELIVERED AT A SYMPOSIUM ON 3 AND 4 MAY, 1979, UNIVERSITY OF THE NORTH

DEVELOPMENT: KEY ISSUES

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Geography/Psychology Building, University of the North

PREFACE

Six of the seven papers published here were presented at a symposium with the theme *Development: Key Issues,* held on 3 and 4 May 1979 at the University of the North. The symposium was arranged by the Academic Liaison Committee in collaboration with the Department of Geography to mark the inauguration of that part of the new Geography/Pcychology Building housing the Department of Geography. Prof. J.A. Groenewald's paper was read on 2 May 1979 at a meeting arranged by the Academic Liaison Committee, and is included because of its relevance to the theme of the symposium.

The theme was selected not only to highlight the University's interest, but more specifically that the Department of Geography, in the field of development.

The contributors are all well-known present or former academics and/or researchers, and their publications, conference and symposium contributions, and service to bodies dealing with development issues are generally respected and highly acclaimed. Five of them are trained geographers, while Dr. Leistner is an economist and Prof. Groenewald an agricultural economist. The wide scope of the concept *development* is reflected in the seven papers: Dr. Leistner's and Prof. Fair's papers deal with development at the international/regional level; Prof. Groenewald concentrates on the approaches to effect rural change; Prof. Daniel, with reference to the Ciskei, addresses himself to the problem facing the establishment of a national growth point and agriculture; Mrs. Moody places agricultural development within a broad framework; Dr. Makhanya illustrates the value of remote sensing; and Prof. Louw looks critically at the role and type of education required for a developing society.

The financial assistance of the University of the North in sponsoring the symposium and the publication of the papers is gratefully acknowledged.

Prof. P.S. Hattingh
DEPARTMENT OF GEOGRAPHY
JANUARY 1980

(Cover photograph: The University of the North and adjacent town of Mankweng in their rural setting).

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CLOSER UNION IN SOUTHERN AFRICA AND THE QUEST FOR A NEW INTERNATIONAL ECONOMIC ORDER

G M E Leistner

INTRODUCTION

Pleas for closer union between the states of Southern Africa are a periodically recurring feature of the South African scene. At the present time, once more, one hears a great deal about a Southern African association of states or defence alliance or common market or commonwealth, and so forth. The present paper seeks to indicate that deliberate efforts to promote international economic co-operation in our region are in fact desirable and in keeping with world-wide trends.

Southern Africa with its diversity of rich and poor, whites and people of colour, is representative of the world at large and the so-called North-South conflict in particular. This conflict is reflected above all in the poorer countries' demands for a New International Economic Order (NIEO) entailing world-wide redistribution of power and wealth. In South and Southern Africa too, the diverse countries, peoples and races are striving to establish a political and economic order that promises fulfilment of their respective desires for self-realization, dignity and material wellbeing.[1] Not surprisingly, the objectives pursued in the various quarters differ vastly from one another.

The quest for a NIEO

The two decades after World War II have witnessed the political emancipation from colonial rule of about 100 countries. As a consequence, membership of the United Nations Organization rose from 51 in 1945 to 150-odd today. Most of these hundred, all of them economically more or less backward, soon discovered that notwithstanding their political independence they could not free themselves from the scourges of hunger, disease, illiteracy, superstition, extreme social inequalities, and many change-impeding traditions. This has given rise to a world-wide discussion of the causes of underdevelopment and of appropriate policies to eliminate it. The fact that this debate has not yielded anything like unanimity up to now, reflects the enormous complexity of the issues involved.

---

1. The paralells in respect of population and income values between South Africa and the world at large are striking:

		Population	Income
South Africa (1977):	Blacks	72% (incl. Transkei)	26%
	Others	28%	74%
World (1976):	"South"	72%	21%
	"North"	28%	79%

Sources: World Bank (1979); South African Institute for Race Relations (1979, 49 & 161).

This complexity becomes apparent when one merely attempts to define the meaning of the central concept *development*. On closer, inspection, *development* is found to refer to at least three quite distinct levels of actual life (Von Kortzfleisch, 1979): Firstly, the level of economics and technology where efficiency of resource allocation is the guiding principle; secondly, the level of the political and legal orders where equality and justice are the guiding principles; and thirdly, the level of culture and religion where the principles of individuality and self-realization are guiding action.

Without analysing these diverse principles, it is obvious that each of them leads to quite different policy prescriptions. If, for instance, *development* is viewed purely in terms of economic and technical efficiency, a very high price may have to be paid in respect of social inequality and political dependence. On the other hand, if *development* is understood simply in terms of equality and justice, the people concerned may be condemned to economic stagnation and political repression. If maximum individual freedom is considered to be the essence of *development*, extreme inequalities in respect of economic and social opportunities are likely to be unavoidable.

Since the First UN Conference on Trade and Development in 1964 (generally referred to as UNCTAD I), the less-developed countries (LDCs) have banded together in the so-called Group of 77. This group, which today comprises over 100 members, formulates and presents the demands of the LDCs *vis-á-vis* the highly industrialized countries of the northern hemisphere. Initially these demands were formulated in terms of development aid and the conditions of international trade, and had no significant impact on public thinking in the industrial countries and even less on international economic relations.

The international climate changed dramatically after October 1973 when the OPEC (Oil Producing and Exporting Countries) began to raise oil prices to hitherto unimaginable levels. LDC leaders concluded that by forming world-wide cartels for their agricultural and mineral products, they could compel the industrial countries to pay far higher prices and make other concessions that would gradually lessen the inequalities of production and wealth between North and South. The Sixth Special Session of the UN in 1974 marked a turning point in international relations in that the Group of 77 made it clear that their objective was no longer merely to improve the functioning of the existing international economic system, but rather to change radically its purposes, mechanisms, and structures (Sauvant, 1977, 6).

The broad objectives of the NIEO as formulated by the UN (1974a) in *Resolution 3201 (S-VI)*, stem from the belief that the prevailing IEO is basically inequitable because the industrialized countries' power is so great that it allows them to lay down conditions for trade, investment and economic relations generally which enable these countries to exploit the LDC s. The UN (1974b) *Programme of Action for the Establishment of a NIEO* lists the following broad areas of action.

1. Fundamental problems of raw materials and primary commodities as related to trade and development;
2. International monetary system and financing of the development of developing countries;
3. Industrialization;
4. Transfer of technology;
5. Regulation and control over the activities of transnational corporations;
6. Charter of Economic Rights and Duties of States;
7. Promotion of co-operation among developing countries;
8. Assistance in the exercise of permanent sovereignty of States over natural resources;
9. Strengthening the role of the UN system in the fields of international economic co-operation; and
10. A Special Programme of the UN.

The salient proposals made in terms of this programme have been ably summarized as follows by Van Dam (1977, 128):

> "The abolishment of trade obstacles to manufacturers from the Third World; the stabilization, at remunerative levels. of crucial commodity prices; international development assistance to the tune of 0,7 p c of gross national income, to gradually reach 1 p c; Third World access to world liquidity in the form of special drawing rights; to reschedule foreign indebtedness of Third World countries with inherent balance-of-payment problems; to impose an international taxations on scarce, wasteful or contaminating resources; and, last but not least, to reach for food self-sufficiency in eligible Third World countries in order to accelerate their development 'take-off' ".

Approaches

A remarkable feature of the NIEO debates since 1974 is that the LDCs' demands are directed far more at the Western industrial nations rather than at Soviet Russia and other Communist countries. Somehow the former are being held responsible for the backwardness and relative deprivation of the South. The former colonial masters are expected to compensate for what is believed to be past as well as still ongoing exploitation.

More particularly, colonial rule is being accused of having oriented the agricultural and mineral production of the dependencies towards overseas markets and the needs of consumers in metropolitan countries, whilst at the same time stifling local processing and manufacturing activities in order to guarantee outlets for metropolitan exports. After political independence, these structures are said to be sustained notably by multi-national corporations and the operation of international commodity markets. The erratic fluctuations of these markets are believed to prevent LDCs from achieving export earnings that are high enough to ensure economic and social progress. In the case of African countries, their so-called *"balkanization"* and even the phenomenon of tribalism are reckoned among the growth-inhibiting legacies of the colonial era. The theoretical underpinnings of this *"new orthodoxy"* have been provided by Karl Marx

who taught that all countries go through basically the same stages of development, whereas Lenin and his disciples sought to demonstrate that imperialism has interrupted and gravely retarded this *"natural"* growth of the raw-material producing countries in order to serve the selfish interests of the capitalist powers. Hence the socio-economic state of the LDCs is viewed as not just economic *"underdevelopment"* but as the inevitable consequence of the working of the capitalist world economy.

A theory which firmly puts the blame for a country's backwardness on outside agents and thereby relieves its own people and their leaders of responsibility for changing the situation through their own efforts and sacrifices, has obvious attractions. The influence of this theory is strengthened enormously by the fact that non-Marxist Western thinking too is based on the assumption that there is an unbroken continuum between traditionalism and economic underdevelopment as the one extreme and modernization, industrialization, and development as the other. It is believed that the change towards modernity is inevitable and can be accelerated by providing the *"right"* impulses.

Given these approaches, it is understandable why the so-called North-South dialogue is essentially a catalogue of grievances and demands which the Group of 77 present and to which the industrialized North reacts. Due to three fundamental factors this is largely a *"dialogue of the deaf"*.

1. All the participating countries approach the discussions from a narrow nationalistic viewpoint rather than from the premise that economic welfare increasingly requires genuine world-wide co-operation.
2. All participants basically assume that *development* is essentially a question of the *"right"* inputs, such as investment funds, education, and modern technology; in other words, that development is a question of manipulating *material* factors (rather than resulting from the appropriate *mental* attitudes).
3. Each side in this *"dialogue"* seeks to present a united front, but such artificial unity renders meaningful discussion of real issues extremely difficult.

Evaluation

One or more major international conferences have been held annually since 1974 as part of the striving to bring about a NIEO. To date, the concrete results of the intellectual, financial and physical efforts devoted to these conferences and related gatherings have been negligible. A recent evaluation calls them *"pathetic"* (Rhein, 1979, 11). What is more, most of what is being discussed in countless meetings within the framework of the North-South dialogue, has little relevance for the people of Africa, Asia and Latin America. In fact, more and more critical minds in LDCs are asking whether the NIEO debate is not a sham battle. It is suspected that the ruling élites of the LDCs have effectively perpetuated the structure of exploitation established by colonialism, and through their ineptness and egotism have made the lot of their peoples worse than it was before independence. Mohamed Babu (1978, 69), Tanzania's former Minister of Economic Affairs

and Development Planning, puts this view as follows:

> "When political leaders call for the so-called "New Economic World Order" what they are saying in effect is that their economic policies since independence have proved to be a disastrous failure; that having exposed their workers and peasants to ruthless exploitation by both internal and external forces, they now seek a scapegoat on which to direct their wrath; that they have no solution to the crisis of which they are themselves responsible and now they are asking for external forces to bail them out."

Like many others (see, e.g. Amin, 1973; Nsekela, 1977), Babu considers that a drastic revision of present economic structures is needed if Africa is to develop meaningfully. They preach the gospel of self-reliance as the only means to liberate the masses of peasants and urban workers from what they see as the neo-colonial bondage maintained by an unholy alliance of their ruling classes and overseas commercial interests. Similar views are being propagated by Latin American writers (e.g. Frank, 1976; Prebish, 1964). Without paying closer attention to the political ideologies underlying their criticism, one can only welcome this emphasis on self-help and self-reliance as distinct from the prevalent tendency to expect a NIEO somehow to emerge from redistribution of wealth from the northern to the southern hemisphere. As Rhein (1979, 11) points out, international development efforts can render only a marginal contribution towards LDC development. The really significant efforts must be those of the LDCs' own governments, élites and people at large. Whatever may be contributed by way of development assistance, opening up of markets, stabilization schemes or massive transfers of technology, all this cannot compensate a lack of domestic efforts by the LDCs:

> "There can be no economic development without the firm will to go ahead, without hard work, without savings and investment. International resolutions are no substitute for a development policy that is defective or even non-existent, and for an inadequate mobilization of the people" (Rhein, 11).[2]

This spreading realization of the need for efforts by the LDCs themselves is reflected in the advocacy of co-operative efforts by these countries, notably in the form of regional co-operation in respect of trade, research, industrial planning, infrastructures, and so forth.

Regional growth poles

The growing emphasis on *"collective self-reliance"* co-incides with the observation by economic analysts that the so-called Third World by no means presents the uniformly miserable picture of poverty, hunger, overpopulation, and so forth as suggested by tendentious popular writings; that in fact these countries vary enormously with regard to resource endowment, per caput incomes, economic dynamism, etc.; and moreover that a small group of LDCs, such as South Korea, Singapore, Taiwan, Brazil, Mexico and Venezuela, are gradually but inexorably moving into ever more prominent positions in the world economy.

2. Free translation by present author.

As Rhein (1979, 14-15) points out, the NIEO is emerging independently of the futile North-South discussions in the form of a *multipolar development pattern* built around regional powers such as Nigeria, Brazil and Venezuela. In present-day Africa, for instance, self-sustaining growth in the least-developed countries like Chad, Upper Volta, Somalia or Lesotho cannot possibly be generated from within these countries or by means of resource transfers from overseas. However, powers such as Nigeria, Ivory Coast, Kenya or South Africa.[3] From its earliest years, the UN Economic Commission for Africa (ECA) has strongly advocated regional grouping as an indispensable precondition for the economic progress of its members because most of these countries in isolation offer too narrow and weak a basis for growth generally and industrialization in particular.

Briefly then, it is becoming clear that groupings of the LDCs around economically leading regional powers offer far more favourable prospects for the emergence of a NIEO than the prevailing emphasis on world-wide redistribution of wealth. It is against this background that efforts to establish closer ties between the countries of Southern Africa must be assessed.

CLOSER INTRA-REGIONAL TIES IN SOUTHERN AFRICA

Current ties

The ECA and others who advocate regional co-operation as a means of promoting development in Africa, generally exclude South Africa from their proposed groupings.[4] This is patently absurd because the economic interaction between the BLS countries (Botswana, Lesotho, Swaziland), Rhodesia, Malawi and others with South Africa is incomparably closer than that with, say, Zaire, Angola or Tanzania. But in the absence of many formal regional agreements, even South Africans propogating the concept of closer economic union, often seem to overlook the existing dense network of intra-regional ties which, in fact, entail a far higher degree of economic interlinkage than that between, say, the members of the Economic Community of West Africa States (ECOWAS) at the present time.

There is no need here to elaborate on the varied strands tying together the countries of Southern Africa. The oscillating migration of hundreds of thousands of workers across national borders to mining and industrial centres in South Africa; the vitally important network of rail, road and air transport and telecommunications linking Southern African countries with each other and the rest of the world; the emerging regional electric power grid; the significance of South Africa, and to a lesser extent Rhodesia, as purveyors of food and consumer goods to neighbouring countries; the role of both these countries as sources of investment capital, technical know-

3. Mugomba (1978, 271) states that Kenya has attained *"the status of an African middle power comparable to the position now occupied by South Africa, Nigeria and the Ivory Coast in their respective zones."*

4. Cf. UN/ECA (1975).

how for agriculture, mining, industry and so forth; the many common features with regard to climate, geology, soil, fauna, flora, insect and other pests, population factors, and economic structures — these and related issues have forged economic bonds that have persisted and in many respects even gained strength notwithstanding profound ideological differences and political efforts to terminate existing ties.[5]

Special mention must be made of the South African Customs Union which encompasses the Republic of South Africa (RSA), South West Africa/Namibia, Botswana, Lesotho, Swaziland, Transkei and Bophuthatswana. With the exception of Botswana, they are also members of the rand currency area. This group of seven countries, of which three are not recognized internationally, obviously form the core of the Southern Africa economic community. What are the prospects of these, and perhaps more, countries evolving into a Southern African Economic Community?

As will be shown below, the answer depends above all on political factors. At the present time, political issues draw together the RSA, Rhodesia/Zimbabwe, SWA/Namibia, Transkei and Bophuthatswana. Again, political issues strongly separate these countries from BLS as well as from states outside the core group, that is, Zambia and Mozambique. Malawi is the only member of the Organization for African Unity (OAU) maintaining diplomatic ties with South Africa; its economic links with the rest of Africa are far less important than those with South Africa and Rhodesia. The RSA has offered to conclude formal defence treaties with its neighbours but none exists at present.

A factor not always sufficiently appreciated is the extent to which the seven *"core countries"* are bound together by their common heritage of past British rule with its legacy of British legal, administrative, commercial, cultural and other practices and traditions, and notably the English language. Equally well known and inadequately appreciated is the fact that all indigenous black languages in Southern Africa (and beyond) belong to the closely-knit family of Bantu languages and their common cultural background.

The striving for closer union

The present upsurge of interest in a closer and more formal grouping of Southern African states is only the latest manifestation of the long-standing South African desire to erase or at least diminish the importance of the somewhat artificial boundaries drawn across this region during the heyday of European imperialism.

What are the motives behind this quest for a larger grouping?

Until recently, economic considerations have clearly prevailed. In the past few weeks, co-operation for external defence has come to the fore[6] —

5. For more details see Leistner (1974; 1978).

6. See, for example, *Sunday Times*, 8 April 1979.

presumably in response to the threatening breakdown of negotiations with the Western contact group over South West Africa/Namibia and also the Western nations' expected refusal to recognize the Zimbabwe/Rhodesian regime elected in April 1979. Up to the time of writing, no clear picture of the South African Government's objectives had emerged. It has been speculated, though, that mounting pressure from East, West and the UN inducing the RSA to retreat into a *"Fortress Southern Africa"*, bounded by the Kunene and Zambezi in the north, the Mozambique border in the east, and the ocean around the rest. A recent analysis by Deon Geldenhuys (1979, 10) suggests that *"the envisaged solidarity could... easily be interpreted as an attempt to extend the frontiers of the 'white garrison'"*.

The BLS countries would presumably be captive inmates of the *"fortress"* while the actual *"garrison"* would be made up of international pariahs — South Africa, Namibia, Zimbabwe, Transkei, Bophuthatswana and such other former homelands as may opt for independence from the RSA. This bloc of pariahs might well have sufficient economic leverage to wage full-scale economic or even military warfare against it an unattractive proposition. More particularly, the bloc's economic power lies in its position as the leading supplier to the West of crucial raw materials such as chrome, vanadium, manganese, platinum, gold and gem diamonds. Furthermore, any major economic or military onslaught against the bloc would have grave repercussions on the BLS countries, Mozambique, Malawi, Zambia and even countries further north. Lastly, even though the countries in question are highly dependent on exports as a source of income[7], the experience of South Africa during World War II and under the present international arms embargo, and also the experience of Rhodesia under sanctions since 1965, suggest that whereas the disruption of external economic breakdown — on the contrary, the need to adapt to outside economic coercion will stimulate inventiveness and structural change. However, one must not make light of the sanctions threat. If sustained for an extended period, trade and other boycotts could have serious repercussions on employment, especially of blacks.[8]

In brief then, even though the contours of a possible regional defence alliance are still far from clear, the emergence of such an alliance is a distinct possibility if present trends in international relations between Southern Africa south of the Zambezi-Kunene line and the rest of the world continue.

What about the economic rationale behind the striving for closer union? Basically the position has not changed greatly since 1944 when Professor Raymond Burrows (1945, 23) described it in these words:

> "Unfortunately, South Africa seems to be interested in neighbouring territories mainly as potential customers. A few indefatigable optomists even look on Africa as a vast hinterland crying out for the Union's industrial products and anxious to pour its wealth into her bilingual lap."

7. Exports as a percentage of GDP were as follows: South Africa (1977) 47,4%, SWA (1974) 68,5%, Rhodesia (1973) 25,0%.
8. See Spandau (1977), Hasse (1977), Strack (1977), for detailed discussion.

From hindsight, *"indefatigable optimists"* seems unduly sarcastic bearing in mind South Africa's very appreciable trade with black Africa, and notably her continuing trade and other economic ties with ideologically incompatible countries such as Mozambique and Zambia.

Although there exists a fair amount of South African literature advocating closer economic ties in Southern Africa, one searches in vain for a clear-cut presentation of the advantages (and disadvantages) for both South Africa and her neighbours. It is generally accepted that greater freedom as well as co-operation in respect of intra-regional mobility of capital, labour, technology and infrastructural services are bound to enhance the economic well-being of all the countries concerned. This optimistic conventional wisdom contrasts with the findings of a study by The Economist Intelligence Unit which states with regard to the prospects of South African trade with Africa (Burgess, 1976, 9):

> "... the prospects have been widely exaggerated. Most of the countries known to have shown an interest in trade with South Africa are both small and bankrupt. Given the effects of international increase in the price of oil and the effects of the long droughts on the economies of many of the sub-Saharan African countries the prospect of significant markets in Africa is a *chimera*. In fact a contradiction is inherent; if the countries in need of the food and fertiliser are 'underdeveloped and famine stricken states' they will not be in the position to place multimillion rand orders unless offered very easy credit terms."

However, even though the arguments in favour of the smaller neighbouring economies being tied closely to the RSA may not be very strong, the arguments in favour of disengagement are unquestionably far weaker. Thus whereas several detailed studies of the benefits or disadvantages derived by the BLS countries from membership of the South African Customs Union, arrive at negative or inconclusive findings, the fact remains that on balance these countries consider it preferable to maintain the present links.[9] What economic benefits and problems could the RSA's neighbours expect from closer union? The answer depends largely on the type of union envisaged.

A large school of thinking in South Africa sees the European Economic Community as the model for progressive integration in Southern Africa. The successive steps of integration would be on the pattern outlined by Bela Balassa (1961, 2), a free trade area, a customs union, a common market, an economic union, and complete economic integration.[10]

9. See e.g. Cobbe (1974), Ettinger (1973), Robson (1969; 1978), Mosley (1977; 1978), Selwyn (1975), Landell-Mills (1979).
10. Balassa defines these degrees of integration as follows:
> "In a free-trade area, tariffs (and quantiative restrictions) between the participating countries are abolished, but each country retains its own tariffs against nonmembers. Establishing a customs union involves, besides the suppression of discrimination in the field of commodity movements within the union, the equalization of tariffs in trade with nonmember countries. A higher form of economic integration is attained in a common market, where not only trade restrictions but also restrictions on factor movements with some degree of harmonization of national economic policies, in order to remove discrimination that was due to disparities in these policies. Finally, total economic integration presupposes the unification of monetary, fiscal, social and countercyclical policies and requires the setting-up of a supra-national authority whose decisions are binding for the member states."

Although formally South Africa and her immediate neighbours, bar Rhodesia and Mozambique, are joined in a customs union, they are virtually a common market because not only trade but also capital and, to a lesser extent, labour are moving freely throughout the area - labour movements are subject to certain administrative restraints (Breytenbach, 1979).

Experience everywhere has shown that the free movement of commodities and production factors tends to widen rather than narrow the discrepancies between highly developed and less developed regions in a common market. The very appreciable problems experienced with efforts to industrialize the South African homelands and also the BLS countries are a case in point. The enormous *"economic distance"* between these countries on the one hand and the Pretoria-Witwatersrand-Vereeniging industrial complex on the other, cannot readily be bridged by means of investment concessions, tax holidays, equalization payments, and the like. In other words, it is extremely difficult to establish industries in areas with a low purchasing power, a poorly developed infrastructure, and with a large distance from major markets against the competition of large and well-established enterprises located inside a vast market.

Under conditions of such inequality, the less developed areas generally tend to stagnate or even regress economically. Without elaborating on the theme, it should be obvious that a policy aimed at complete economic integration of the whole of Southern Africa would have to include far reaching measures seeking to equalize growth, investment, and revenues between the very unevenly endowed sub-regions of this area.[11] Such equalization, in turn, could not possibly be achieved harmoniously unless the governments of the countries concerned were joined in one or more joint decision-making bodies where the economically weaker ones would have an effective say over common matters. Again, experience elsewhere has amply demonstrated how very difficult it is to attain agreement on revenue and other sharing between self-governing or sovereign independent states.

This outline of well-known problems merely indicates that the popular South African approach to economic integration is fraught with economic and political problems. A far more promising approach lies in the systematic and step-by-step strenghthening of existing intra-regional links rather than grandiose but impractical schemes. Concretely, one should envisage the extension and modernization of infrastructural ties, co-operation in respect of commodity marketing, agricultural and other research, standardization, exchange of technology, training institutions and so forth. The primary task is the solving of common problems, and has been ably described as follows by a Nigerian economist writing about West Africa (Onyemelukwe, 1974, 100):

> "Problems of the tse-tse fly, locusts, irrigation, and in industrial management techniques, industrial research and so on, provide challenging problems for common facilities in research, the exchange of information, mutual visits and so on. For people in Africa who are now looking for ways of giving practical realisation to their new sense of African unity, there is a lot to keep them busy in these ... areas, without seeking for more in order to keep up with their European counterparts."

11. For further discussions see Leistner (1976).

A 1975 UNCTAD report on Economic Co-operation Among Developing Countries notes the limited impact on growth which trade liberalization and external protection have had, and states that, *"... most important, emphasis should be shifted decisively from trade matters toward joint endeavours in the development of regional industrial and agricultural resources and of a common transport infrastructure."* This new emphasis on production should also embrace *"common approaches to the transfer of technology and the development of indigenous technological capacity, and to foreign capital and transnational corporations"* (quoted in Sauvant & Hasenpflug, 1977, 441).

Practical steps towards closer union

South Africa today is marked by rapid change, mounting outside pressure, and a profound re-assessment of priorities and objectives. As long as the resulting uncertainty prevails, it is difficult to put forward specific suggestions with regard to closer regional union. A greet deal will depend on whether or not the future will be overshadowed by worsening confrontation with the rest of the world. Assuming peace and a degree of outside pressure at a level not significantly above the present one, the following considerations concerning closer economic union may warrant further thought.

Definition of objectives

The hitherto extremely vague official South African pronouncements on closer union in Southern Africa suggests that the matter has not, so far, received serious attention. The multiplicity of terms in use - *commonwealth, bloc of states, confederation, defence alliance, common market, economic union,* etc — merely indicate a general desire for closer bonds. Having regard to the evolution of the South African Government's plans for a new constitution, this vagueness is understandable. However, clearly defined objectives are called for to guide policy and day-by-day administrative decisions.

Creating the right climate

Once the objectives are clarified, there has to be a concerted effort to convince not only the governments of neighbouring states but also their public that South Africa's objectives are in the best interests of their countries too. We South Africans seem to have difficulties comprehending our neighbour's suspicion that their economically weaker position is to be exploited, that South Africa is practicing a *"Rand imperialism"* and, above all, that they are to be made politically subservient. Deeds certainly speak louder than words in allaying such fears. But efforts at creating the *"right climate"* must involve not merely members of governments and officials but also trade organizations, research bodies, universities, and so on.

Broad consensus within South Africa

Efforts by the South African Government to bring about closer regional union cannot in the long term promote peace and progress unless they enjoy the broad support of all South African population groups. The suspicion is sometimes voiced that greater regional union is merely a ploy to perpetuate white domination. This can easily be disproved once South Africa attains the constitutional dispensation where, in accordance with the Government's declared objectives, no population group will be subservient to another, so the major decisions — like those concerning closer economic union — will no longer be taken unilaterally by whites only. Assuming that South Africa will evolve into a confederation of states, that would inevitably entail common institutions where major decisions such as these would be taken. Black South African emmissaries and delegates involved in negotiations to bring about closer regional union, would presumably lend greater credence to these efforts than the presence of only white South African spokesmen.

Organizational measures

Once meaningful progress has been made with the foregoing, the necessary organizational measures will suggest themselves more readily than at present. Note must be taken of the reference to *"international secretariats to regulate the affairs of the 40-million people living south of the Kunene and Zambezi"* recently made in the House of Assembly by the Minister of Foreign Affairs, Mr Pik Botha (*The Star,* 4 December 1979).

It is not clear whether concrete thought has already been given to the actual functions and composition of these secretariats. At any rate, one might start with a statutory body, to be called the Southern African Affairs Centre (SAAC), the initial functions thereof would be purely exploratory and advisory. Under the guidance of an international, multidisciplinary council comprising representatives of government departments, public utility corporations, private sector organizations, and research bodies, a small but expert staff of economists, agronomists, engineers, etc. would have the task of pinpointing areas of international co-operation and preparing draft proposals, and these discussions in turn should serve as focal points for an ongoing public debate of practical measures. This would eventually help to crystallize opinion throughout the region on certain concrete objectives and projects.

One of the first assignments of the proposed SAAC might be an investigation into the possibilities of expanding the geographical scope and responsibilities of existing intra-regional organizations and institutions such as the South African Customs Union Commission, the Rand Monetary Area Commission, the South African Reserve Bank, the Southern African Regional Commission for the Conservation and Utilization of the Soil (SARCCUS), and the Southern African Regional Tourism Council (SARTOC).

At the same time attention could be paid to widening the scope of national bodies to become regional ones — service organizations such as the Council for Scientific and Industrial Research (CSIR), the SA Bureau of Standards (SABS), the SA Mint, the Onderstepoort Veterinary Research

Institute, and the Africa Institute of South Africa are cases in point. Furthermore, it might be whorthwhile to investigate the desirability of federating or uniting the multitude of professional bodies and private sector trade organizations in the region such as the Federated Chamber of Industry or the National African Federated Chambers of Commerce, whilst medical and nursing professions, pharmacists, teachers, engineers, architects, accountants, lawyers, to name but a few, also suggest themselves. A unified regional system of degrees, diplomas, certificates of proficiency and the like for the various professions, trades etc. would be equally worth being investigated.

In a paper presented in July 1978, the Prime Minister's Economic Adviser (Brand, 1978) suggested that closer intra-regional economic co-operation could begin with the co-ordination of industrial strategies, and policies of economic stabilization and competition. Such co-ordination would be greatly facilitated by co-operation in the development of planning instruments, notably standardized systems of national accounts and macro-economic models based thereon. On the same occasion, the Economic Adviser spoke of the need for a secretariat (or secretariats) to carry out technical aspects of intergovernmental contacts.

Generally, the central secretariat — SAAC or whatever the name — would be a centre for study and documentation serving the region in similar fashion as the OECD secretariat serves the Organization's members. Concurrently, the development of an international bureaucracy would need attention. In a sense, the numerous white South African officials temporarily seconded to Lesotho, Malawi or the New States in South Africa (formerly homelands), represent the nucleus of such bureaucracy. There is still a serious void as regards black and brown technocrats capable of filling senior posts in intra-regional institutions. Apart from the obvious direct need, the training of highly qualified black and brown technocrats in itself would be tangible proof that South Africa takes seriously the proclaimed objective of intra-regional co-operation (with the implicit need for common institutions). Moreover, the psychological impact of black technocrats representing a South (a Southern) African Confederation in international gatherings outside Southern Africa, could be appreciable.

Although purely speculative, the foregoing can indicate that in many respects closer ties with their obvious advantages for all countries concerned, could be realized by utilizing and, where necessary, expanding in scope, already existing bodies and institutions.

CONCLUSION

In a climate of mutual goodwill and comprehension, closer ties between the countries of Southern Africa would contribute significantly towards economic development and political stability. Initially, the degree of integration cannot realistically be envisaged as complete economic union. However, limited but purposive steps towards meaningful and ever closer co-operation and co-ordination can have a major effect on the whole region. The region offers an investment potential unique in Africa, but this

cannot be fully explored because of the present tensions in the area — tensions which, in turn, attract extra-regional forces seeking to destabilize the region. Intra-regional harmony and co-operation would produce a "climate" in which this unique potential could be unlocked to the benefit of all inhabitants of the region.

There should be no illusions about the difficulties facing serious efforts at co-operation, notably the problems arising from ideological differences as well as unequal levels of development between the countries in question. The as yet unresolved issues of peaceful co-existence over the long term between the races in South Africa is probably foremost among the stumbling blocks on the road to closer regional union. Quite possibly, the reverse is equally true. That is, that in the long term, peaceful co-existence within South Africa can be realized only *via* effective regional co-operation between the countries of Southern Africa.

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TOWARDS BALANCED DEVELOPMENT IN SOUTHERN AND EAST AFRICA: A STATEMENT OF THE PROBLEM

T.J.D Fair

The central theme of this paper is the inequality of development manifested at world level as between developed and developing nations and at national level within countries as inter-regional inequalities. These two issues, Brookfield (1978, 122) states have surfaced as " *the call for a New International Economic Order"* or *"the revolt of the periphery"*, and as *"a growing and healthy concern for regional inequalities"*, rural development and a *"redistribution of income and assets in favour of the poor"*.

While the two issues are closely interrelated, we are concerned primarily with the second i.e. with the *spatial* dimension of national inequalities in the countries of southern and east Africa. Space permits us to look only at the nature of the problem and how remarkably similar the problem seems to be in these countries. Moreover, we will note that all the governments of these countries are very much concerned with unequal development and that they are making very considerable efforts to reduce its impact.

DEVELOPMENT

Development may be used *"in a neutral sense to cover the general social, economic and political transformations"* which affect countries (Gilbert, 1974). However, it is also used in a more positive sense to mean *"the movement upward of the entire social system"* (Myrdal, 1975) or *"the realization of the potential of human personality"* (Seers, 1972), necessitating the reduction of *"poverty, unemployment and inequality"*. But development is *"very much a question of values"* Smith, 1977, 206) - *"whose values and goals?"* For Third World countries development now generally means the reduction of dependency upon one or more of the great powers and the creation of a greater degree of *"self-reliance"* among the people of Third World nations (Seers, 1977; Brookfield, 1978, 122).

Within nations development means *"a general improvement in the well-being of the population undergoing the process - if not immediately, then at least as a future prospect"* (Berger, 1977, 52). Thus *inequality of development* entails *"the unequal access of individuals and groups to the material and non-material resources of a society"* (Hinderink & Sterkenburg, 1978). Such inequality has very much a *spatial* dimension for development as welfare improvement is concerned with *"who gets what where?"* (Smith, 1977,7)., i.e. *"with a major emphasis on its distributional impact". Spatial inequality* of development, then, is the spatial manifestation of socio-economic inequality. The term development will be used in both its neutral and positive senses throughout this study but the meaning of the different usages should be clear from the context.

SPATIAL INEQUALITY OF DEVELOPMENT

A number of writers have drawn attention to the problem in general in Third World countries:-

Lipton (1977,28) - the poor countries have enjoyed more development in the last two decades than in the previous two millenia. Yet hardly any impact has been made on the heartland of mass poverty. The rural masses are as hungry and as ill-housed as ever.

Chenery *et al* (1974, 19) - the basic fact that the poor are disproportionately located in the rural areas and are engaged in agriculture or allied rural occupations is well established.

Seidman (1977, 410) - refers to the rapid growth of the export enclaves, on the one hand, and the persistent rural poverty of the masses, on the other; (1974, 4) - while several countries in Africa have achieved significant increases in per capita income the benefits have mainly been concentrated in a few urban centres. The wealthy few live in these centres with the vast majority of the population, the poor, continuing to live in rural areas.

Soja (1976, 4) - there is perhaps a greater concentration of economic wealth and political power in the primate cities of Africa (relative to the remainder of their national territories) than in any other equivalent region in the world. In country after country, there is a similar pattern: one large city, almost always the political capital, dominates the national urban, economic and political systems. Almost all manufacturing activities are concentrated in these urban giants which also monopolize the educational, commercial and communications infrastructure as well.

The model that emerges is a core-periphery one - core urban regions of wealth and power attracting more and more people, and peripheral rural regions of poverty, neglect, stagnation and out-migration of the able-bodied. The critical problem is that the *gap* between rich and poor regions is growing and, as a manifestation of the gap between rich and poor people it provides *"a potential for conflict"* (Smith 1977, 18).

The gap is not merely urban/rural. Chenery (1974, 21) points out that, while the rural sector is generally more equal than the urban, considerable income inequality occurs within the rural sector. Moreover, as rural migrants flood to the city and fail to find employment, inequalities between rich and poor multiply as an intra-urban problem.

DEVELOPMENT AS REDISTRIBUTION

Clearly, then, the meaning of development in Third World countries has moved away from an earlier emphasis upon *growth*, the efficiency syndrome, to a heavy emphasis upon *equity* as well or, as Chenery (1974) has stated, *"re-distribution with growth"*. Moreover, as the mass of the inhabitants of Third World countries, and especially of Africa, are rural dwellers, development strategy is shifting, whether effectively or not, towards a more rural bias. The goal of regional development in Third World

countries has now become *"to reduce poverty and to correct urban bias"* (Brookfield, 1978, 128).

The objectives have been emphasized by leaders of African countries either in public pronouncements or in introductions to national development plans, and within the framework of their chosen political and value systems. Among the first was the policy to emerge in **Tanzania** after the Arusha Declaration of 1967. Pres. Nyerere committed the country to socialism as the vehicle for *"participation, national self-determination and egalitarianism"* (Chenery, 1974, 272). *"We have stopped, and reversed, a national drift towards the growth of a class society, based on ever-increasing inequality and the exploitation of the majority for the benefit of a few"* (Nyerere, 1977). Since 94% of the people of Tanzania were rural dwellers, *"the interests of rural people came first"* (Mascarenhas & Claeson, 1972) and rural reconstruction and agriculture assumed overwhelming significance. The *rural* contribution to national self-reliance was given priority.

In **Zambia,** in introductions to the First (1966) and the Second (1971) national development plans, Pres. Kaunda stressed that through the concept of *"Humanism"*, an African socialism, *"the disparity in the standard of living between the rural masses and the comparatively limited urban and industrial sector"* would be narrowed. *"Social justice"* necessitated the implementation of the rural sections of the development programme first. The aim of government was the *"transformation of the economic and social structures inherited from the colonial era in order to provide a radical improvement in the living standards of the whole population"*.

In **Botswana**, Pres. Khama in introducing the national development plans for 1970-75 and 1976-81, stated that there were three main objectives in that country's national development - social justice, equality of opportunity and persuasion rather than compulsion. *"We need to maintain national unity by spreading benefits as evenly as possible throughout the country". "The greatest challenge ahead of us is undoubtedly that of rural development". "Rural-urban migration in search of employment has reached an alarming rate". "Balanced development is in the long-term interest of all areas".* Unlike the dominant role of government in a socialist Tanzania and Zambia, the Botswana government wishes to strike a balance *"where private initiative has ample scope within the general confines laid down by government."*

Overall, and within the chosen political framework, one can accept Seidman's (1973, 6) statement that the goal of socio-economic development in Zambia and most African states today is to *"achieve a balanced, nationally integrated economy capable of attaining increased productivity and higher levels of living in all sectors"* - agricultural, commercial, industrial, and spatially in all regions. The extent to which existing political, economic and social structures will permit the attainment of this goal and the extent to which success has been achieved thus far are dealt with subsequently.

THE MEASUREMENT OF DEVELOPMENT

Development, however, if looked upon as national integration means more than simply the integration of the economy. Rather, as Friedmann (1973, 70) has stated, national spatial integration is *"the extension over a given territory of a common basis for social life"*. In this sense, national spatial integration has four main dimensions (Friedmann, 1973, 83):

1. the *political,* necessiting a more decentralized and democratic decision-making machine rather than a highly centralized autocratic one;
2. the *socio-cultural,* necessitating the diffusion of innovations and modernization from core areas to the periphery, as well as, if required, the retention and promotion of traditional values in rural and urban areas;
3. the *economic,* necessitating the spread of modern economic activities, rising incomes and an improved quality of life to all parts of the nation rather than a concentration of employment opportunities and wealth in a few major centres;
4. the *physical,* necessitating the design of a balanced settlement pattern rather than one that is unbalanced and dominated by a primate centre.

All these dimensions of development, aimed at attaining a more balanced national structure, i.e., a more equitable distribution of socio-economic well-being, are interrelated. It is, however, the *political* dimension, the location of decision-making and control, that is the critical process to which the others are ultimately related (Friedman & Wulff, 1976, 11). Rozman (Friedmann & Wulff, 1973, 15) has shown *"for even pre-industrial societies, it is* the distribution of effective political and economic power *which, in the end, determines the spatial organization"* of a national system and its evolution.

Therefore, what *criteria* does one use to measure spatial inequality of development?

First - distribution of political power. Who is in power; where is power located; what form of political system; how autocratic or democratic is the system?

Second - the distribution of the elite and peripheral cultural groups. Who are they, where are they located; the levels of, and the investment in, education, health and welfare as between urban and rural areas?

Third - the distribution of economic activities, employment and income between urban and rural areas, and the differential investment in economic infrastructure.

Fourth - the pattern of distribution of population in cities, towns, villages and rural areas, the migration patterns between them, and the investment in physical infrastructure as between urban and rural areas.

All these dimensions cannot be measured quantitatively and, for some, data are not available in all countries. Moreover, in attempting to achieve national integration, either fully or partially, some governments place more emphasis on dimensions than on others according to their ideologies and political systems.

THE SPATIAL MANIFESTATION OF UNEQUAL DEVELOPMENT

The origins of Africa's present unequal pattern of development clearly lie in colonial times when traditional or pre-capitalist economies were penetrated by or integrated with the modern money economy of Western Europe. By the nature of colonial economies only those areas were exploited which yielded mineral, agricultural and forestal wealth on a scale which justified attention. Associated with these areas were the administrative and commercial centres by which links were maintained between mother-country and colony. *"The largest number of towns and cities of tropical Africa were established during the colonial period"* - *"expatriate-initiated"* towns as Hance (1977, 131) has termed them.

Consequently, there arose a pattern of productive *"islands"* of development often set in vast seas of subsistence farming and classified as *"coastal"*, *"highland"*, *"irrigation"* and *"mineral"* islands by Hance (1977, 137-8). This core-periphery spatial model was indicated by Friedmann (1966) as typical of the colonial stage of development and the model had been applied to an analysis of regional development patterns in Africa by Green & Fair (1962). The model represents the spatial manifestation of the *"dual economy"*. In the 25 years encompassing World War II, an increasing imbalance built up between modern development in the *"islands"* and stagnation in the periphery. Moreover, that stagnation was in a large part attributable to the out-migration of the able-bodied from periphery to wage earning in the core. By the early 1950s no less than 85% of the value of tropical Africa's produce entering world trade came from these *"islands"* comprising no more than 4% of the area (Hance, 1958, 5). While the indigenous African towns, found mainly in West Africa, grew by 45-55% between 1930 and 1956, the expatriate colonial towns of the core areas (e.g Dakar, Abidjan, Lagos, Leopoldville, Nairobi, Lusaka, Salisbury and Johannesburg) grew by 100-800%. Moreover, these primate cities in many countries accounted for 50-70% of the urban population, and well over 50% of these populations were migrants from rural areas.

The period since 1960, witnessing the independence of black states, has been marked by generally rapid economic growth (slower more recently) and by the persistence and often the widening of the gap in the economic growth and physical development of the core areas *vis a vis* the periphery. In examining these more recent trends in the countries of southern and east Africa, it is remarkable that the widening urban-rural gap is of universal concern to governments despite the considerable differences in economic structure, level of economic activity and degree of urbanization in the various countries (Table 1). In all these countries, however, the greater part of the population, especially the poorer population, is still found in rural areas and this geographic fact is of paramount significance to policy

makers. Moreover, the potential for urban growth, through migration, which such a population poses, raises for the policy makers threats of serious political and social disruption.

TABLE I
SOUTHERN AND EAST AFRICA : ECONOMY AND POPULATION.

Country	GDP per Capita[1] US$	% GDP from agriculture[2]	% Population rural		Size of largest core city	
South Africa	1 320	8	52[3]	(1970)	3 973 000[4]	(1970)
S.W. Africa	800	16	76	(1970)	77 500	(1975)
Rhodesia	540	14	82	(1973)	564 000	(1977)
Zambia	540	13	63	(1974)	483 000	(1976)
Swaziland	470	28	85	(1972)	25 115	(1978)
Botswana	330	25[5]	86	(1976)	37 300	(1976)
Mozambique	310	?	90	(1970)	389 000	(1970)
Kenya	220	26	87	(1977)	1 100 000	(1978)
Lesotho	180	37	96	(1966)	26 300	(1972)
Tanzania	170	35	94	(1977)	622 000	(1977)
Malawi	150	47	92	(1978)	289 000	(1978)

1. Africa Institute of South Africa (1978, 44).
2. Africa Institute of South Africa (1978, 45).
3. 67% of the black (African) population.
4. Pretoria — Witwatersrand — Vereeniging (PWV) region.
5. N.D.P. 1976-81.

South Africa

South Africa's core-periphery structure originated with the discovery of gold and the rise of the Pretoria-Witwatersrand-Vaal Triangle (PWV) region and the associated ports (Browett & Fair, 1974). The country enjoyed rapid economic growth after becoming a republic in 1961. However, Table 2 indicates the high degree of concentration that occurred in the major core areas and the general persistence of this trend (Fair, 1976). Moreover, Table 3 indicates the increasing concentration of the wealthier white population in the core areas and, only recently (between 1960 and 1970), a halt to the concentrating tendencies of the total population as a result of government efforts to stimulate homeland development, on the one hand, and to contain the growth of the urban black population, on the other. Nevertheless, in 1970, 74% of the South African black population was still resident in peripheral areas, i.e., in white rural areas and small towns and in the homelands.

TABLE 2
GROSS GEOGRAPHIC PRODUCT AS A PERCENTAGE

	All Sectors			Secondary and Tertiary Sectors		
	1955	1968	1972	1955	1968	1972
PWV*	38,4	40,7	39,6	42,2	46,9	46,4
Rest of S.A.	61,6	59,3	60,4	57,8	53,1	53,6
South Africa	100,0	100,0	100,0	100,0	100,0	100,0
PWV/CT/DBN*	55,5	59,3	59,1	64,6	70,0	69,9

*Includes those parts of the homeland areas regarded as integral parts of the metropolitan areas of Pretoria and Durban.

TABLE 3
DISTRIBUTION OF POPULATION AS A PERCENTAGE

	Whites			All Races		
	1936	1060	1970	1936	1960	1970
PWV*	26,7	35,2	38,6	14,3	19,2	18,5
Rest of S.A.	73,3	64,8	61,4	85,7	80,8	81,5
South Africa	100,0	100,0	100,0	100,0	100,0	100,0
PWV/CT/DBN*	40,7	51,6	55,8	21,1	28,7	28,5

*Includes those parts of the homeland areas regarded as integral parts of the metropolitan areas of Pretoria and Durban.

Government response to the heavy concentration of activity in a few metropolitan areas and the need to make the rural areas more viable, goes back to the report of the Rural Industries Commission of 1940 (South Africa, 1940), more recently to the Tomlinson Commission on the socio-economic development of the Bantu Areas (South Africa, 1955), the report of the commission of enquiry into the European occupancy of the rural areas (South Africa, 1959) and the National Physical Development Plan of 1975 with its stated aim of achieving *"a more evenly distributed settlement pattern"* (South Africa, 1975). A key question that arises is the degree to which the PWV region in particular can be regarded as *generative* with respect to the peripheral areas, especially the homelands, i.e., pumping new life into these areas, or as parasitic, i.e., draining the peripheral areas of labour and wealth and underdeveloping rather than developing them. The debate is a crucial one so far as national development is concerned.

South West Africa

South West Africa is too sparsely settled and too far flung to be viewed in sharp core/periphery terms. Nevertheless, while its total population increased by 4,9% per annum between 1960 and 1970 to reach 850 000, Windhoek's population increased from 36 000 to 61 260 or at a annual rate of 5,4%, and stood at 77 500 in 1975. At present, more important than spatial dichotomy and urban/rural relationships is the ethnic division of its population which, in terms of the League of Nations mandate, South Africa was obliged to promote in material and moral ways. The recommendations of the Odendaal Commission (South West Africa, 1964) which reported in 1963 were strongly directed to the development of the rural areas. As the territory approaches independence with the goals of political and economic integration uppermost, it remains to be seen to what extent the new government will promote a spatially-oriented development policy.

Rhodesia

Rhodesia's marked core/periphery structure manifested itself early in the country's history. Sectorally, the core is *"the capitalist sector employing more than a million people and producing 95% of G.D.P."* and the periphery is the subsistence, tribal economy producing the remainder and accounting for 59% of the African population classified as *"rural household population"* (Leistner, 1976, 15). Spatially, the pattern of economic development is highly uneven with comparatively small *"island-like"* areas where the capitalist economy is mainly concentrated and the large areas of periphery with limited development, actual and potential.

Even greater, however, is the disparity between the Salisbury core and its subsidiary, Bulawayo, and the rest of the country. Salisbury, during the period of Federation (1952-1963), grew disproportionately as the capital city of both Rhodesia and the Central African Federation. These two cities in 1974 accounted for 78,6% of the total White, Asian and Coloured population of Rhodesia and for 71% of the total urban population (all races). Moreover, 76% of employment in the industrial sector was concentrated here (Leistner, 1976, 128).

The most comprehensive government reaction to this growing imbalance was the report of the Select Committee on decentralization in 1972 (Rhodesia, 1972). It reported that while

> *"nothing should be done that will impair the continued growth of national economic development, experience in other countries has proved that if economic development is allowed to go its own way, without planning and without control of industrial location, large cities tend to concentrate virtually all development within themselves and thereby develop such a power of attraction that* **their growth takes place at first to the exclusion of, and later at the cost of, the rest of the country" (p. 37).** *"We therefore recommend that economic development be intensively promoted in selected growth points in accordance with the national economic development plan"* (p. 38).

Moreover, the committee noted that

> *"by far the greatest economic problem that faces the country today is providing sufficient job opportunities for the African population. Most of the African work-seekers today come from the Tribal Trust Lands far from the main centres of industrial development . . . creating problems of accommodation and control in the metropolitan areas"* (p. 81-82). *"The general opinion . . . is that the economic development of these areas (tribal areas) is* **the country's foremost problem"** (p. 82).

Subsequent political events have prevented plans for decentralization of economic activity, on the one hand, and encouraged the stream of rural migrants to the cities, on the other.

Zambia

At the time of independence in 1964, Zambia's inherited spatial dichotomy was that between the enclave of modern mining, agricultural and urban development, the Copperbelt and the line-of-rail on the one hand, and the rest of the country on the other. In 1964, 89% of the country's G.D.P was generated in this enclave, 65,5% in the Copperbelt alone. By 1970, it was estimated in the First NDP (1966-70) (Zambia, 1966) that the concentration would be reduced to 85% but it seems from other evidence that the gap is not being reduced. In 1968 the three provinces along the line-of-rail accounted for 50% of the population (55,6% by 1978), for 84,4% of employment in all sectors including agriculture (83,6% in 1974) and for 91% of earnings from employment. Mineworkers and wage earners in other sectors, earned K1300 and K640 per head in 1968 compared with K145 for peasant farmers who represented 71% of the total numbers employed (I.L.O., 1969, in Shaw, 1976). In 1970, 40% of the Zambian population living in urban areas generated over 90% of the G.D.P compared with the 60% in rural areas accounting for 10% (Seidman, 1974b).

That the gap was increasing between core and periphery is borne out by the fact that in the Second NDP (1972-76) it was pointed out that *"the line-of-rail provinces, which contain 50% of the country's population, absorbed 82% of the total capital expenditure (earmarked in the First NDP) leaving the remaining 18% to be shared among the other five provinces. This development has aggravated in all probability the rural-urban migration"* (Zambia, 1971, 167).

The colonial government in its development plans of the 1940s, 1950s and 1960s (Northern Rhodesia, 1948, 1951, 1962) was well aware of the implications of this dichotomous pattern. It placed considerable emphasis upon rural development in these plans, i.e., on peasant agriculture and on social services and on building *"stable rural communities"*. After independence, the First NDP of the new government placed great stress upon *"the transformation of the economic and social structures inherited from the colonial era in order to provide a radical improvement in the living standards of the whole population"* (Zambia, 1966, v). *"A constant preoccupation of my Government"*, stated the President, *"is the disparity in the standard of living between the rural masses and the comparatively*

limited urban and industrial sector" (p.vi). In the Second NDP (Zambia, 1971, v), the President evoked the concept of *"Humanism"*. It called for *"self-reliance"* and placed *"emphasis on rural development ... where the majority of our people live"*. This emphasis should give a fresh impetus to the Government's policy of *"back to the land"*. The Third NDP due in 1979 should provide evidence of the extent to which the strategies proposed in the first and the second have proved successful.

Swaziland

Following the remarkable expansion of the 1940s and 1950s in mineral, agricultural and forestal development, Swaziland at independence (1968) comprised four small enclaves of modern development responsible for no less than 90% of its output of primary and manufactured products. But only 22% of the African population lived in these areas. The remaining 78% were in the peripheral subsistence areas (Fair *et al,* 1969). More recently, Maasdorp and Fair (1976) have concluded that the picture which emerges in the mid-1970s is one of widening disparities between cores and periphery so far as the major growth sectors - agriculture, manufacturing and tourism - are concerned. Moreover, Crush (1978) adds that *"regional inequalities in health and wealth have if anything intensified and what was once called the colonial legacy - its distinctive human landscape - is still very much present"*.

This trend is reflected in population movements. The growth rate for Swaziland was 2,8% per year between 1966-1976 but 7,2% in the Mbabane-Manzini urbanized core (1966-72) and 10% in Mbabane itself. Although Swaziland's degree of urbanization is still extremely low, the Second NDP (1973-77) specifically aims to counteract these tendencies (Swaziland, 1973). It states that *"rural development programmes occupy a central position in Swaziland's development strategy"* and *"in the absence of positive action to develop the rural areas, the contrasts between urban and rural communities are likely to increase with most benefits from economic development accruing to the relatively small portion of the population who finds employment in the modern urban economy"* (p.29-30).

Botswana

At independence in 1966 Botswana established a new capital, Gaborone, in place of the previously externally-located Mafeking. It is in and around this new centre that a substantial concentration of activity and population is taking place. Between 1964 and 1976 the district of Gaborone (37 300 in 1976) has seen a population growth rate of 20,8% per year compared with 2,3% for the country as a whole (725 500 in 1976). Wages per head in the government sector were 3,8 times higher than in agriculture in 1971 and increased to 4,1 times in 1975. In 1971, 10% of the population lived in towns, 14% in 1976, and 26% are predicted to do so by 1991. Clearly the bulk of the growth in towns will be in Gaborone but 74% of the Botswana will still be rural dwellers in 1991 (Botswana, 1976).

While the aim of the First NDP of the Bechuanaland and Protectorate (1963-

68) was *"to equip the Territory for early self-government"*, subsequent NDPs after independence stressed that the goal was *"not solely to achieve high rates of economic growth but for the nation as a whole to share the benefits of development"* (Botswana, 1976, ix). The three objectives of *"social justice, equality of opportunity, persuasion rather than compulsion"* are complemented by spatial policies which stress that *"the greatest challenge ahead of us is undoubtedly that of rural development - if the majority of Batswana are to benefit from the dramatic increase in the pace of development. In the modern sector, the townsfolk must not be allowed to benefit excessively from the investment which the Government makes in social services to the neglect of the villages"*.

Lesotho

Between 1966, at independence, and 1977 Lesotho's population growth rate averaged 2,1% per year while that of Maseru and its environs, the country's only urban centre of any consequence, grew by 7,5% per year to 26 300 in 1972. Polarization of economic opportunity in Maseru (other than out-migration to South Africa) is matched by a *"stagnant periphery"* where *"traditional rural activities provide a source of income for about 85% of the people"* (Moody, 1975). Government response to Maseru's growth is contained in the Growth Centre Plan of the Department of Community Development (Lesotho, 1972) among the objectives of which Moody (1975, 8-9) lists the following: to effect an even and fair distribution of wealth, to prevent or lessen an exodus from the country into the more industrializing areas and to bring essential services, facilities and amenities nearer to the people at the grass roots.

Kenya

At independence the East African countries of Kenya, Tanzania and Uganda had inherited a strongly polarized space economy. The distribution of natural resources (land, water, minerals) was such that with colonial development *("exploitation"* some would say), an *"island"* pattern was inevitable (Fair, 1963). Although at independence in 1963 Kenya's population was mainly rural (91% of the total), there has been a growing disparity between Nairobi and Mombasa, on the one hand, and the smaller towns and rural areas of the country on the other. Nairobi's population has been growing at 8% per year compared with a national growth rate of 3,5% (Kenya, Economic Intelligence Unit, 1978). Since 1962 its population has more than trebled to 1 100 000 in 1978. Nairobi and Mombasa will absorb about two-thirds of the rural-urban migration in the latter half of the 1970s (Kenya, Area Handbook, 1976, 77). The two cities now account for 10,8% of Kenya's total population and for about 70% of its urban population, but about 87% of Kenya's population remained rural.

In line with these trends it is not surprising that in its Second NDP 1970-74 (Kenya, 1970) the government adopted a policy of more balanced spatial development, i.e., *"a strategy for the decentralized development of urban service functions as a basis for the better distribution of secondary activities and the simultaneous stimulation of agricultural and rural*

improvement" (Gilbert, 1976, 161). The Third NDP (Kenya, 1974) amplifies this concept so that *"the overall national strategy will incorporate the continued expansion of the dual foci ... Nairobi and Mombasa, and the design of four levels of a settlement hierachy, corresponding to local district development in a classic 'central place' formulation"* (Gilbert, 1976, 161). If the plan is successful the new and improved centres could absorb about one-third of the people moving to urban areas (Kenya, Area Handbook, 1976, 78).

Behind this spatial strategy lies the overall policy first enunciated in the development plan for 1966-70 (Kenya, 1966, 77) of working *"towards a more equitable distribution of income"*, to *"ensure the development of the people in all areas, regardless of how poor or remote the areas are"* (p 76) and to generate an *"agrarian revolution"* which *"will eventually transform the way of life of the majority of our people"* (p i). These objectives were repeated in the Third NDP 1974-78 (Kenya, 1974,iv) as goals of *"social justice, economic independence and an improved standard of living"* with the emphasis remaining on rural development. The incomes gap, however, was still large in 1972. African workers in modern sector wage employment earned an average of K£287 per year compared with only K£24 of workers on small farms and settlement schemes (p 2).

Tanzania

When Tanzania became independent in 1961, Dar es Salaam and Tanga dominated its *"enclave"* space economy even although only 6% of the population lived in towns. In the capital city was centred the political, social and economic elite and the colony's power base. The level of national economic integration was low. Unlike Kenya's acceptance, but modification, of an existing settlement pattern within a capitalist economic framework, Tanzania, following the Arusha Declaration of 1967 opted for socialized development and the radical redesign of its colonially inherited pattern. Tanzania's (1970) second plan for economic and social development (1969-74) emphasized self-reliance and the interests of the rural people as paramount (Mascarenhas & Claeson, 1972). The main objective of spatial policy was to reduce *"urban primacy and regional inequalities by a dual thrust towards integrated rural development and the redistribution of economic growth over a number of secondary centres and away from the capital"* (Gilbert, 1976, 162).

The strategy of decentralization thus embodies the following:

1. physical limitation on the growth of Dar es Salaam,
2. the establishment over a ten-year period of Dodoma in the interior as the new capital,
3. the promotion of nine secondary towns as centres of regional administration, service provision and industry,
4. the establishment of ujamaa villages at grass roots level, and
5. the transference of power in regional affairs from the central government to the regions (Mascarenhas and Claeson, 1972).

The strategy is aimed at implementing the spatial aspects of a socialist policy, i.e. at achieving *"participation, national self-determination and egalitarianism"* (Chenery, 1974, 272).

Malawi

Malawi's spatial characteristics derive rather from regional imbalance than from urban/rural disparities. Only 7,6% of the population lived in urban areas in 1977 (3,9% in 1966). Most development in colonial times was concentrated in the southern region since the only external rail link ran southwards to Beira. Moreover, here was located the capital, Zomba, and the chief commercial centre, Blantyre. In 1966, the southern region accounted for 5% of the population. The policy of government is now *"to ensure that the fruits of development are spread as evenly as possible throughout all sections of the population and all parts of the country."* (Malawi, 1971, 5). Among the measures taken to achieve this objective was the establishment of a new capital city at Lilongwe in 1972 in order to provide a focal point nearer the centre of the country (Richards, 1974), as well as the creation of rural growth points in order *"to bring to remote areas social and economic services and thereby reduce development and service imbalances between rural and urban areas, and between more accessible and more remote areas"* (Malawi, 1978).

The need for such a spatial strategy lies in the fact also that out of an economically active population of 1 500 000 less than 150 000 are in paid employment (excluding 250 000 working in neighbouring territories). The income of the remainder is derived from small-scale agriculture and *"it is in this sector that the national development effort is being ... concentrated"* (Malawi, 1971, 1) in order to provide both *"food and cash"*. The government aims also at minimizing the income gap between urban and rural areas in order to avoid the proliferation of a *"privileged urban class"* (Malawi, 1971, 3) at the expense of rural dwellers and in order to reduce the rate of rural-urban migration and its attendant *"serious social and political problems"*.

CONCLUSION

This brief review has shown how persistent has been the core/periphery gap inherited by most countries of southern and east Africa from colonial times. Sectoral inequalities are manifested in strong spatial inequalities irrespective of the economic structure and strength, degree of urbanization and political system of the countries concerned. Moreover, government response is almost universally aimed at reducing the gap, or preventing it from growing, mainly by directing attention heavily to the rural areas in order to reduce sectoral and regional income inequalities, to raise the level of living of the rural poor and to contain rural-urban migration. Brookfield's (1978, 128) comment that the goal of regional development in Third World countries is now *"to reduce poverty and to correct urban bias"* is highly applicable to the countries of southern and east Africa as the evidence indicates. The intention and the performance of governments, however, in achieving this goal may differ widely from country to country. Before

assessing the degree of success or failure of policies aimed at achieving more balanced development, the causes of the disparities, both sectoral and spatial, will be examined in general terms.

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A MULTIDISCIPLINARY OR INTERDISCIPLINARY APPROACH FOR RURAL CHANGE

J.A. Groenewald

THE SETTING: NEED FOR RURAL CHANGE

Before the Second World War, problems pertaining to living standards and the quality of life in those countries with low *per capita* incomes received rather scant attention on the part of the international intellectual community. After World War II, however, an increasing awareness of the pressing moral and economic necessity to improve the lot of those living in less developed areas, regions and countries, has asserted itself.

Many development efforts were, unfortunately, based largely on an intellectually misguided urban development bias which also found its way into equally misguided political policy actions. This resulted in disappointments; growth targets often optimistically foreseen did not materialise.

According to Lipton (1977, 89-90) this urban bias developed from three distinct modes of socio-economic thought, which were also intertwined with ideological considerations: Forms of Marxism for which socialism requires rapid, large-scale industrialisation; *"neo-classical"* economic thought assuming that diminishing returns would soon choke off agricultural development, and also that rapid adaptation to unequal wages would define urban bias out of existence; and, idyllic populism that discredits rural development either by a theoretical vacuity or by regarding it best to keep rural life *"unspoiled"*.

This urban bias has lead to ideologies of *"big push"* industrialisation, actively pursued by many governments and economic aid organisations. It has more recently been argued convincingly by some authors, including Lipton (1977) and Power & Holenstein (1976), that the urban bias ideology has, in fact, often been a force retarding development and improvement of living standards. The "big push" dogma has fallen short of the mark on a number of scores:

1. Its proponents have consciously or unconsciously ignored the basic importance of interrelationships and inter-actions between industrial and agricultural development as embodied in Agriculture's contribution to raw materials, foreign exchange, its market creating potentialities, and its potential to have important effects on industrial labour costs and labour efficiency by food provision.

2. This approach did not take due cognisance of high capital requirements involved in the creation of urban jobs, the relative capital scarcity and high costs of capital present in most less developed regions.

3. Another common mistake was to take it for granted that industries should, by necessity, be situated in urban concentrations. There was no practical awareness of differences among market-oriented industries, material-oriented industries and *"foot-loose"* industries as discribed, *inter alia,* by Barlowe (1978).

4. The proponents of urban bias did not adequately perceive the rapid population growth made possible by modern health services, and its effect on the potential success of rapid urban-based industrialisation.

   During the period 1970-75, the average population growth rate in less developed countries amounted to 2,3% per year and in Africa, excluding North Africa, to between 2,6 and 2,7% per year (Agile, 1977). In contrast to this, population growth rates in Japan and Europe during their early stages of modern economic development were much lower; the growth rate tended to vary between 0,7 and 1,5% per annum (Power & Holenstein, 1976, 141). This rapid population growth in less developed regions leads to a rapid increase in food requirements and also to a situation in which it becomes practically impossible to create enough new urban opportunities for people entering the job market. Unemployment and underemployment are natural results.

5. In addition, most modern industrial technology, being developed in relatively labour scarce/capital abundant countries, is capital intensive, thus limiting the proportion of population which can benefit from such development in a capital scare/labour abundant situation. Urban bias could thus perpetuate and aggravate existing income inequalities and inequitabilities in the less developed world.

The situation has been reached where certain realities must be faced: In most less developed regions, rural areas will for decades to come have to house, employ and sustain a large and rapidly growing population. Urban centres cannot, given a rapid rate of population growth, hope to cope with total population needs in the absence of substantial contributions from the rural sector. Neither will much be gained in the way of quality of human life by engendering urban slums for those displaced from rural areas. Experience also shows that less developed countries cannot indefinitely rely on the developed world to carry on with food aid. The danger of food becoming a weapon of international power politics has also become real (Power & Holenstein, 1976, 32).

Rural development has become an important priority, for the sake of both the rural and the urban populations of (particularly) the third world.

THE RURAL SCENE IN LESS DEVELOPED REGIONS

The typical rural scene in less developed regions is rather grim. Dire poverty prevails over large parts. Rural *per capita* incomes are considerably lower than those in urban centres. Lipton (1977, 430) presents data pertaining to twelve countries, including five in Africa. In eleven o these, the urban/rural ratio varies between 1,27 and 3,24. In the twelfth (Zambia) this

ratio is as high as 9,38. With few exceptions,[1] this difference grew during the nineteen-sixties (Lipton, 1977, 434). Such differences act as powerful incentives for young men particularly to migrate to cities regardless of whether they can be reasonably certain of finding employment. This in its turn, depresses rural life even more. At the same time, these rural areas experience a rapid population growth. This growth in de *de facto* population present in South African homelands has been approximately 2,4% per annum (Stadler, 1970). Such a high population growth has the effect of slowing down, or even nullifying increases in *per capita* income. It also leads to a high dependency burden. In less developed regions of the world 44,5% of the 1970 population (39,5% in Southern Africa) were either younger than 15 years or older than 65; in developed regions, this figure amounted to 36,3 per cent (Agile, 1977). Population growth has been shown to be closely related to perceived costs and benefits of having children: costs on education, ability to buy new consumer goods, security value of children, their contribution to family labour or revenue, and realism of aspirations for higher living standards play important roles together with other cultural considerations (Friedmann, 1961; Mueller, 1977; Krasovec & Singh, 1978). Low incomes and inequal distributions thereof are normally associated with higher birth rates. So too are food shortages (Ahmed, 1977).

High population growth together with low growth rates in food production have in the period 1953 to 1971, caused demand for food to outstrip food production in 41 out of 71 less developed countries for which Power & Holenstein (1976, 41-43) made calculations. Of the 25 African countries included in their analyses, eleven experienced this problem. This aggravated existing problems of undernourishment. Children are often worst off (Power & Holenstein, 1976, 45). Local food shortages, inadequate nutrition and the ensuing susceptibility to debilitating deseases form a vicious cycle in many rural areas (Lele, 1977). Chronic hunger induces depression and apathy, and those affected lose their motivation and energy for work. This has been a serious problem in many tropical parts (Power & Holenstein, 1976, 50).

Agricultural production in less developed countries has been much smaller than the potential as implied by natural resource endowments. Efficiency is often very low, and varies considerably among farmers (Shapiro, 1977). This leads to poverty and inequalities in income.

Infrastructural development is generally poor in the rural areas of less developed regions. This applies to physical, economic and social infrastructure. Roads and other communication means are often exceptionally poor. Marketing outlets for farm products, as well as provisioning centres for farm inputs are typically underdeveloped or almost non-existent. The same applies to trade centres where consumers' items

1. Malawi ranks among these exceptions.

can be bought. This lack of infrastructure acts to increase the economic distance from markets, and reduces or even destroys incentive. Credit facilities are likewise poor, thus leading to lack of credit and often to exorbitant rates of interest. Power & Holenstein (1976, 110) note interest rates as high as 40% in some parts of the world, and also mentions that in Africa as a whole, only approximately five per cent of farmers receive credit from banks or legally recognised credit institutions. Social amenities are also generally poor, including educational opportunities. According to Lipton (1977, 261) rural children seldom get even half the urban children's chances of education. Rural schools generally also do not devote any attention whatsoever to the farming skills needed in a predominantly agricultural rural society. This problem is further compounded by the recurring tendency that the higher the level of education, the faster is the exodus from the land. A study in the Ivory Coast revealed, for example that with men, the exodus ratio amounted to 8 for illiterates, 42 for literates and 61 for those with Primary School Certificates (Roussel, 1970).

Governmentally supplied infrastructure is often also badly organised and/or inefficient, and very often functionally not well-designed for purposes of rural development. Conflicts, inconsistencies and duplication are often prevalent, as illustrated *inter alia* in Brazil by Dias *et al.* (1973, 211-213). Government institutions have often developed into their present form merely from historical convenience, without much relevance to functions involved with development and improvement of productivity in production and in the quality of life in rural areas (Mosher, 1971). Agricultural and business legislation affecting rural areas is often not truly geared to the natural, economic or sociological conditions pertaining there, and is thus often ineffective (Dias *et al* 1973, 213-216; Paiva *et al.,* 1973, 213-221; Reader, 1972).

Land tenure arrangements are often not conducive to rural development. Many efforts to rectify this have, unfortunately, either been too much ideology or imitation bound or have in other respects been ill adapted, particularly to local natural economic, psychological or sociological conditions (Reader, 1972; Hughes, 1971; Paiva *et al.,* 1973, 213-216; Warriner, 1964).

Thus, the rural scene in large parts of the world is depressing. It is one burdened with poverty and very inequal incomes; with poor education and a skill drain; with a population growth outstripping means to cope with this larger population; with poor infrastructure, poor social amenities, and a dearth of opportunities of improving its lot by its own efforts; and of production being far less than its potential and needs. Basically it amounts to gross underutilisation of natural and human resources which, if optimally used, could have yielded a far better quality of life directly to the rural population and, indirectly through economic linkages, to the urban population. Change is urgently needed.

RURAL CHANGE: THE APPROACH

The starting point must obviously be a consideration of goals for the rural

sector. Achievement of these goals should be striven for, keeping in mind the limitations in the resource base.

The platitude of a goal of the fullest, most balanced rural growth provides a useful point of departure. The next step would be to consider what should be included in this goal, and to proceed further on what would be involved in attempts to approach the goal thus defined.

Economic — and therefore ultimately also social — life in rural areas will for long, if not always, centre around those primary productive activities that create products from natural resources: Agriculture, forestry, fisheries and also certain types of mining. One of the main challenges is to modernise and commercialise these so as to create rising *per capita* incomes — particularly perhaps for those at present worst off — to engender rising living standards, and promote a higher living quality in rural areas.

Now, what does a modern primary economic sector entail? According to Mosher (1971, xiv) it has five main characteristics:

1. Technology and efficiency are constantly being improved.
2. Kinds of commodities produced constantly change in response to changes in demand and changes in relative costs of production.
3. The quality of land, the competence of labour and the forms and quality of capital equipment utilised are steadily being improved.
4. The proportions in which factors of production — land, labour and capital — are employed go on changing in response to changed economic, demographic, technological and social conditions.
5. A modern primary sector is adequately served by private and public institutions which are continuously being adapted to new requirements. These institutions also, in their turn, comply with the four requirements listed above.

The institutions can be conveniently classed into three groups (Mosher, 1971, 5-8):

1. Commercial support activities include the manufacture and distribution of inputs, marketing, transportation and processing services to handle products and production credit facilities.
2. Non-commercial activities are vitally needed activities utilised by producers, but for which they do not pay directly. This includes agricultural research, education and vocational training.
3. The milieu is a combination of influences affacting the primary sector, but which is common also to non-primary sectors. It involves economic influences such as non-primary sector employment opportunities, price and tax policies, trade opportunities, income distribution and transport facilities. It also involves cultural influences such as traditions and values of people, the extent of general education and the structure of society. It is also made up of political factors such as land

tenure policies, policies involving mineral and water rights, general development policies, and people's participation in the political process.

Thus, it is necessary to institute changes in the support activities and milieu so as to allow primary production as well as these activities to expand in a desired direction. Within this framework, *"rules of the game"* must be specified and developed.

It must be borne in mind that these rules are man-made arrangements guiding the behaviour of people towards each other and towards their own and other people's property and belongings. They can be conducive or antagonistic to development (Dorner, 1974). These rules define rights, privileges, responsibilities and obligations as well as exposure to others' protected rights and privileges. Dorner (1974) lists three main requirements in this respect:

1. Since economic growth is a requirement of development, institutions must be designed to support the processes necessary for such growth: introduction of the right technology, incorporation of capital, factor mobility, exchange production specialisation, etc. Traditional institutions are often lacking in this respect.
2. Requirements listed above are also dependent on a certain degree of stability, order, and security of future expectations. Legal force cannot ensure this in the absence of a genuine confidence in the system by the great majority of the people.
3. These institutions and rules, in order to avoid inconsistencies and unnecessary duplication, must be consistent among themselves and form an integrated, cohesive system.

The interplay of economical and social acceptability with legal enforcement efforts, as mentioned in the second point by Dorner, and the effect of such interplay on the success or failure of rural development efforts, is amply illustrated by Reader (1972).

The acceptability of possible changes, and hence the chance for such changes to succeed, is tied up with people's perception of the advantages and disadvantages potentially involved with change. Every person is in dialogue with his environment and he perceives certain characteristics subjectively in relation to his own norms and desires. In his decision-making, perception fulfils a mediating function between personal and environmental functions and decision-making (Düvel, 1975). This is of particular importance to rural development planners. It was, for example, found that the planological approach to agricultural extension was in direct conflict with the value of people in a rural black community in Southern Natal (Lilley, 1975). Thus, this approach did not have a chance of success. Discussing some reasons for the failure of certain aspects of the *"green revolution"* in parts of India and Sri Lanka, Chambers & Farmer (1977) and Harriss (1977a) concluded that erroneous perceptions of what would actually constitute progress reigned among some agricultural planners,

due to insufficient cognisance of local factors. Perceptual differences between agricultural planners and farmers aggravated the mistakes made.

This mention of support activities and institutions implies that economically, the rural areas should not be viewed only as primary production areas with other activities mainly centered in urban centres. This notion receives support from quite a few authorities. Mureithi & Otieno (1978) argue that even labour-intensive agriculture, because of its seasonal labour requirement peaks, is unlikely to provide year-round full employment in rural areas. They advocate a system in which much development work involved with structures such as feeder roads, school buildings and irrigation works should be phased into the slack agricultural periods so as to utilise and employ seasonally underemployed agricultural labour. The same two authors advocate the establishment of small-scale local industries in rural areas to supplement rural employment opportunities and to provide more income to small-scale farmers as well as landless farm workers. Some light industries are more suitable than others. The two authors regard the following as obvious cases: (1) processing of agricultural products, for example, fruit and vegetable canneries, flour and rice mills, wood-working factories, etc., (2) fabrication of inputs: feed mills, fertilizer mixing plants, small tool-making shops, brick works, etc., and (3) production of consumer goods and building material for local use. To these three, a fourth one should be added: (4) cottage industries. The two authors cite a few other authors in support of such rural-based industries (Johnston, 1974; Johnston & Kirby, 1975; Heyer *et al.*, 1969; Mureithi, 1973). It has also been stressed that agriculture can thus combine with industry without undermining the age-old social asset — the village. Several villages can, in fact, combine to organise such industries co-operatively and it may be wise for authorities to change administrative boundaries to coincide with such voluntary rural projects (Halperin, 1964). An added advantage of such rural industrail projects will be that it will render it feasible to bring certain urban attractions — cinemas and other recreation media, community halls, sports clubs and, particularly, better educational facilities — into the rural orbit and thereby improve the quality of rural life. Even electrification can be made more feasible. Such a change in environment by itself can, particularly if accompanied by better retail outlets, create an increased demand for revenue, and thus act as an incentive to improve production in the primary sectors (Leistner, 1970).

Basically, this could thus lead to a more dynamic rural economy in which response to economic phenomena — including economic incentives — becomes more flexible. Although African peasants have, in contrast to a popular misconception, proved themselves to be responsive to market opportunities (Arrighi & Saul, 1976), their present poverty coupled with high-risk situations which occur, and which in early development stages is aggravated by initial commercialisation of inputs, gives rise to what is regarded as a threshold of critical minimum effort before they will actively adopt new innovations.

A further goal to strive at is a smaller population growth in rural areas. Increased *per capita* revenues can be expected to *initiate* a slow-down, but

more definite, concerted action is needed for this purpose. Better nutrition through a better diet is an equally important and related need.

The relationship partially stems from the importance of women in this respect. Although in Africa women have traditionally been regarded as socially inferior (Ransom-Kuti, 1961), it has been shown that where economic development does occur, the inferiority of their status declines (Patel & Anthonio, 1975).

Yet, in many extension situations, the role and power of women are often still underrated by the powers that be. Women do aid in agricultural decision-making (Patel & Anthonio, 1975; Kennedy, 1977). In addition, their direct contribution to food production is often not adequately noticed. In many parts of the Third World they produce substantial amounts of food, almost exclusively for domestic purposes, in gardens around their houses. These gardens are usually women's domain. Produce from such gardens improves both the taste and nutritional value of the staple diet, and sometimes involves a modest but useful addition to family income. Their raising of ducks, chickens, rabbits and pigs on a small scale fills a similar role. In addition, women have more power in making family decisions than is usually appreciated. Husbands do make concessions for the sake of peace in the house. This applies particularly where urban drift occurs, with husbands temporarilly leaving their homes in order to work elsewhere (Kennedy, 1977). This, is of course, common in black society almost throughout Southern Africa. However, the completely uneducated, illiterate woman has less decision-making authority and at the same time is more tradition-bound than one with a fair education (Kennedy, 1977).

The aspect of the role of women presents some exciting opportunities and also some problems. Firstly, extension regarding family aids and family planning should, in the first instance, be aimed at women. So also should be extension on diet. But what about the dissemination of knowledge regarding vegetable culture and care of certain types of live-stock? Can men really convey such knowledge efficiently to women? And yet, agricultural extension has traditionally been regarded as a male domain. This factor also raises the question whether the school education given young girls in rural areas is even remotely approaching an optimal choice.

ACADEMIC DISCIPLINES AND RURAL CHANGE

At this stage, an effort will be made to define the role to be played by the so-called intellectual community in this extremely important facet of modern life: rural change.

It may be in order to recapitulate the goals briefly. The main goal is to have the fullest, most balanced rural growth possible. This implies modernisation of primary production and hence of institutions serving the rural sector. It implies the determination of arrangements which are satisfactory to the people involved and which will simultaneously foster development. It entails diversification of economic and social activity within rural areas. It should engender fuller utilisation of human and natural

resource bases, as well as the generation of other material aids to production. It embraces better family planning, better nutrition and recognition of the role of women.

Such goals can obviously not be reached without the contributions of the intellectual community. The diversity of facets also renders it impossible for adherents to one particular academic principle to achieve the needed results.

A few aspects of this holistic problems could be briefly reviewed. Surveys are needed to establish within reasonable bounds of accuracy the resources available in rural areas, as well as problems related to the use of such resources. This would include natural, financial and human resources. Knowledge is also needed of how to best utilise such resources for stated purposes — knowledge, thus, of technology. Agricultural technology needs to be environment-specific and cannot always be conveniently transferred from an area where it is succesful to another. Much known modern agricultural technology was developed in, and is adapted specifically to, the developed regions of the world. Economically a large portion of this technology is inappropriate for less developed regions, since this technology was specifically developed for areas with scarce, highly-skilled and expensive labour, and abundant, relatively cheap capital — exactly the opposite position from that which usually exists in less developed regions (Sen, 1974). The importance, from a purely economic point of view, of technology being geared to existing economic and resource relationships is amply illustrated by Ruttan (1974) and Sawada (1974). Other dangers inherent in the indiscriminate transfer of technology stem from its higher riskiness in certain new areas (Dias, 1977). The efficiency of any technology is influenced strongly by both the ecological and socio-economic setting in which it is employed (Dias, 1977). The promotion of some of the "green revolution" technology in parts of India and Sri Lanka, which were naturally, economically and sociologically less suited for it than the so-called *"Delta"* areas, has led to marketing problems, because local demand preferred the taste of traditional varieties; to water problems, because the new varieties have higher water requirements; to inequalities and local strife, because of the increased scarcity of water; to increased unemployment because some of those who could introduce the new technology profitably also found it profitable to mechanise (Chambers & Farmer, 1977; Dias, 1977; Chinnappa, 1977; Harriss, 1977b). When new technology heightens competition for access to scarce resources, poorer cultivators are liable to be forced into greater dependence on their wealthier neighbours or on traders (Chambers & Farmer, 1977). New technology should meet five criteria (Chambers & Farmer, 1977):

1. Productivity in terms of scarce resources
2. Equity in the distribution of benefits
3. Stability in the human ecosystem
4. Continuity in employment and the flow of benefits
5. Livelihood intensity.

Obviously, the scientist capable of developing new technology in, for

example, a new high-yielding cultivar is not in a position to access the relevant aspects involved in some of these criteria. Simultaneously, hydrologists, soil scientists, geographers, economists, sociologists, ethnologists and psychologists able to access some of the other facets cannot hope to do the work of genetecists. A two-way traffic of information is needed.

This lengthly discussion of research needs (and also extension needs) involved with the technology needed for rural change can also be applied to practically every other facet. Where new spatial ordering is needed, agriculturalists, socialists, town planners, geographers, economists and sociologists will be needed. Legal experts will be needed for these and many other aspects. The promotion of rural industry creates a need for lawyers, business economists and agricultural economists, together with the disciplines mentioned. New labour-intensive technology for some of these industries needs to be developed by engineers. Other facets mentioned earlier illustrate a need for agricultural and science extension personnel, educationists, nutritionists, etc.

A problem often arises in terms of co-operation and co-ordination in research, planning, extension and action involved when so many disciplines should be part and parcel of the scheme of things.

This problem can be perplexing and may retard needed development in rural areas. It is for this reason that, in conclusion, some differences between multidisciplinary and interdisciplinary approaches will be briefly discussed.

MULTIDISCIPLINARY OR INTERDISCIPLINARY APPROACHES

It must be abundantly clear that a rather large variety of disciplines in all three classifications of systemised knowledge — the natural sciences, social sciences and humanities — will have to be involved.

Although boundaries between conventionally recognised disciplines have become blurred over the last few years, they still represent separate domains of skill and specialisation. The main distinction between the totality of all knowledge and any particular discipline can be seen within the context of systems. The totality represents a big system, consisting of a group of related sub-systems which provide a basis for specialised knowledge in fields such as, for example, chemistry, sociology and ethics. Each discipline treats elements external to its particular subsystem as beyond its field of interest, and often tends to ignore it.

But for many real-life problems, such as the rural development problem, lines of interaction between sub-systems can no longer be ignored.

Two alternatives have traditionally been proposed to deal with this problem: multidisciplinary and interdisciplinary action (Brand, 1973).

In the multidisciplinary approach, a given real-world situation is simultaneously examined from the perspectives of different disciplines.

People in particular disciplines often do not do much more than note implications of the findings from other disciplines for their own field. A multidisciplinary approach has the disadvantage that often it does not culminate in a logical whole or, if so, only after prolonged communication. It has the advantages that the participants can keep on concentrating on the aspects they are good at, and that the superficiality often found in interdisciplinary efforts is avoided (Brand, 1973). An interdisciplinary approach is mainly focussed on the types of interactions between disciplines, or those not adequately catered for within disciplines. Herein lies both its weakness and its strength. It can become superficial because of its lack of insight in the conventional disciplines. It may develop into a new specialised field which ends up with the same common limitations of other specialised fields. Interdisciplinary approaches on the other hand have the advantage of focussing on the often neglected interactions. They should not, however, be attempted by groups or people deficient in their original disciplines.

The answer probably lies in a well managed combination of multidisciplinary and interdisciplinary approaches. Systems analysis presents a very useful and promising framework for this combined approach. Systems analysis is general enough in nature to cope with these possibilities. This point should become clear with the following condensation from a work on systems analysis (McMillan & Gonzalez, 1965).

A system is a set of objects accompanied by relationships between the objects and between their attributes. It operates within an environment which is a set of all those objects, a change in whose attributes affects the system, and also of those objects whose attributes are changed by the system. The attributes of some activities are indigenously determined and can be changed by action, while others cannot. A system can be divided into subsystems, and attention can be bestowed in detail on behaviour of the subsystems or of the systems as a whole. Systems can be open or closed. Within such a systems approach, provided ample provision is made for feedback of information, a combination of multidisciplinary and interdisciplinary research, planning and execution can be accommodated. The use of PERT (Program Evaluation and Review Technique) in scheduling all action presents some exciting possibilities. Being a technique mostly used in the field of engineering - e.g. scheduling different sequential and simultaneous events in construction — a proposed use of it for agricultural development projects (Robbertse, 1974), if judiciously applied, presents great opportunities.

It may possibly be stated in conclusion that the problems of rural change cannot be solved by a monodisciplinary approach. Neither will a dogmatic choice between either a multidisciplinary or an interdisciplinary approach be able to fully utilise whatever skills are available. Both approaches can successfully be incorporated in a well-designed systems approach.

The main requirement in agriculture, in commercial services, and in government action is improved management. The same applies to disciplinary involvement in the development problem.

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ASPECTS OF DEVELOPMENT IN THE CISKEI

J.B. McI. Daniel

The Ciskei is a developing territory which is currently facing many challenges, and which has many needs. For example, there is the need for the acquisition of adequate land and land consolidation; there is the need to improve the well-being of the people and there is the need for economic development. Two representative issues related to economic development have been selected for more detailed discussion — the proposal in the National Plan for the Ciskei, to establish Middledrift as the National Growth Point and the problems of agricultural development with particular reference to the recently started Keiskammahoek Irrigation Scheme. The difficulties of determining the right priorities in development planning are well known. This paper is a plea to provide alternative strategies of development and to monitor the development projects which have been started.

THE CISKEI : AN OVERVIEW

The Ciskei is a small country, covering some 942 000 hectares. There are no known mineral deposits that could be exploited and in terms of developing irrigation farming there are only five rivers of importance. The headwaters of the Black Kei encircle the extreme northern area and the amount of water available for development is limited and will have to be shared with the Republic of South Africa. The Fish River water suffers from salinity; the waters of the Buffalo River are virtually committed to urban uses in Zwelitsha, Mdantsane, King William's Town and East London. Most of the lands at present irrigated by the Kat River are in the Republic but when consolidation plans are complete the Kat River Dam will be in the Ciskei. The Keiskamma River is the only catchment within the full control of the Ciskei Government. The Keiskamma has been the subject of a full river basin survey and is the most important source of water for development purposes. The need for the development of agriculture is illustrated by the fact that in 1973/74 the gross value of farming and forestry production was R4,7 million, or under R11 per head on average (Benbo, 1975). A survey of two Ciskeian rural communities in 1975 revealed that 40% of the households failed to produce sufficient food for their own requirements (Daniel & Webb, 1978). The projected demand for maize in 1980 is 63 000 tons and the anticipated deficit is 45 000 tons (Nicol, 1978). Clearly agricultural development is a matter of some urgency.

The *de facto* population of the Ciskei in 1970 was 530 000, the total black population being 526 000 (512 000 Xhosa). Some 47% of the Xhosa population is in the economically active age category of 15-64 years. There is therefore a high burden of dependency. The fact that 48% of the population is under 15 years of age implies that a marked increase in population numbers can be expected. Before the turn of the century the

population could number more than a million. In practical terms this means creating about 8 000 new jobs each year. Relating population increase to housing needs, it is estimated that in the next twenty years 300 000 houses will be required — 15 000 a year.

A study of the Ciskei development must be viewed against the following four considerations:

1. The problems of underdevelopment.
2. The small countries issue, especially in relation to the smallness of the domestic market.
3. The policy of separate development.
4. The core-periphery model of development. In the same way that the East London metropolitan region is peripheral to the principal region (Board, *et al*, 1970), Ciskei is peripheral to East London at the regional level. At both levels one can recognize inequalities of economic development.

THE PROPOSED DEVELOPMENT OF MIDDLEDRIFT

In the National Plan Prof. Page (1978) influenced by Rostow's non-spatial model, recognizes four stages of growth that the Ciskei as a developing nation is likely to experience. These are:

"1. Traditional agricultural subsistence economy.
2. Commercialization of agriculture.
3. Diversification into mining and manufacturing.
4. Emergence of a system of central places for decentralized growth and services to the community".

Within the country he states that the Ciskei is in stage one. The main thrust of the Plan is to develop states 2 - 3 of the model — commercial agriculture, industrialization at a growth point and an urban hierarchy.

On the basis of superimposing maps showing slope, land use, population distribution and service centres, five development regions were recognised in the National Plan. Within these regions *"Middledrift stands out clearly as the national growth point due to the cumulative advantages of road, rail, electricity, abundance of water, suitable terrain, mixed tribal affinities and high population density"* (Page, 1978, 29).

The proposed system of central places makes no allowance for further growth in the main areas of Zwelitsha, the present capital of the Ciskei, and Mdantsane, the largest township in the Ciskei (Page, 1978). One reason put forward for discouraging the growth of the two largest towns in the Ciskei is the leakage of income that occurs to the adjoining white areas of King William's Town and East London.

Having outlined the main reasons for the selection of Middledrift, three questions need to be asked.

1. What will the cost be of developing Middledrift?

2. What will the effect of development at Middledrift be on East London and Mdantsane?
3. What are the chances of the Middledrift growth point succeeding?

Cost of Developing Middledrift

As yet there has been no new development at Middledrift. Houses, service facilities and all that is associated with the infrastructure of industrialization and urbanization, will have to be provided. Davies (1978) using the projection that the population in the Alice-Middledrift-Dimbaza area will reach 109 000 by the year 2000, claims that some 30 000 jobs will have to be created in the area over the next 20 years — or 1 500 a year. He estimates the cost of providing housing at R38M and the necessary infrastructure at R12M. Whether these estimates are absolutely accurate or not, the message is clear. The cost of development for a poor country, suffering from a scarcity of capital, will be high. It is therefore unfortunate that alternative strategies of development are not offered by the National Plan. It is also unfortunate that there has been no attempt to relate the cost of developing Middledrift to the cost of alleviating the problem of income leakage to the white areas.

Effect on East London and Mdantsane

The greater use of a spatial model rather than Rostow's non-spatial model, would have emphasized the existing distribution of nodes and networks. Nodes, linked by good communications, already exist within the Ciskei at Alice, the proposed new capital, Dimbaza, Zwelitsha and Mdantsane. If Middledrift is developed it will mean five towns along a hundred-kilometre axis. In the spatial context it is impossible to ignore East London, King William's Town and possibly Berlin, which together form the main core or centre of development in the Border and Ciskei region taken as a whole. There is a real danger that economic development will be inhibited by the dissipation of effort and capital over too many centres, too close together, none of which, because of this dissipation, will develop into a major city. Attention must be given to the towns of the Ciskei with particular reference to their role in the organization of the national space economy.

The Border Region and the Ciskei should be seen in the perspective of the South African Space Economy (Board *et al,* 1970). At the national level the dominance of the Southern Transvaal, is evident. The weakness of the East London region is due largely to its peripheral location in relation to the other major nodes. The marginal nature is further accentuated by the poverty of its hinterland which lacks rich mining areas and which incorporates the less developed regions of Ciskei and Transkei. Away from the mainstream of development it is not surprising that the Border Region is relatively poorly developed. The problem of development is illustrated by East London's attempts to attract industry.

Industry in East London remained a neglected aspect of economic growth until the latter half of the nineteen fifties. One symptom of change in attitude was the decision to build a new township for blacks. Mdantsane was planned especially for industrial employees and the resettlement of the

surplus population from the other locations of East London, particularly Duncan Village. In 1960 the Government's policy relating to industrial development in *"border areas"* was introduced. East London was one of the first border industrial areas to be declared and by 1962 the City Council was doing its best to encourage the establishment of industries in the municipal area. The locational disadvantages suffered by East London were offset to some extent by the inducements offered to industrialists. A second government measure, the *Physical Planning and Utilization of Resources Act of 1967* further assisted the expansion of industry in East London.

Even with the help of legislation East London's growth did not continue at an even pace. If industrial building plans are taken as an index of growth the period is seen to be short and after 1971 there was a marked decline in the value of industrial building plans passed — from R9,1M in 1971 to R2,0M in 1973.

In 1970 the municipal boundary was extended to include the Berlin Flats, some 40 kim from the centre of East London and on the main road to King William's Town. Although this area qualifies for border area concessions and has been supplied with all the basic services, only three industries had been established there by 1973. The slow-down in industrial expansion in the East London region was evident before the oil crisis in 1973. The reasons for the down-turn must therefore be sought in other directions, and it is suggested that the encouragement of industries on an agency basis as well as the marginal position of East London within the South African space economy are important contributory causes of this trend. Further industrial development in the Ciskei will continue to slow down industrial growth in East London and should the plans materialize to build a new harbour to serve the Ciskei at the mouth of the Keiskamma River, at Hamburg, the position of East London could be further weakened. Two questions must therefore be asked: Will the relative decline of the influence of East London weaken the Border Region, as well as the Ciskei? If East London has been unable to maintain the tempo of industrial development in the seventies, does Middledrift have special advantages that will enable it to overcome its locational problems within the S.A. space economy, as well as its inland location within the Ciskei, and therefore its distance from a port, be it East London or Hamburg? Industrial development purely for the local market is not going to achieve the growth results for the Ciskei as envisaged in the National Plan.

The Middledrift Growth Point

The plan to develop Middledrift must also be seen in relation to its possible influence on Mdantsane. Mdantsane, started in 1962 as a dormitory appendage to East London, was soon incorporated as part of the Ciskei. Gordon (1978, 155) has described Mdantsane in the following terms:

> "Political decisions govern who may live in the township, political decisions influence the siting of industries, and a political decision changed Mdantsane from a black dormitory suburb of a white city to a black township in a homeland on its path to independence. The new settlement is a city in size, but 42% of its inhabitants leave it daily to fulfil their needs and offer their services

elsewhere. The number of functions performed by the township is roughly equivalent to that of a South African country town of about one tenth the size, but the variety in the commercial and professional fields barely matches that of a small village... .

Socially the township is in many respects an important place in the Ciskei, but economically it has very little direct significance. This then is Mdantsane: something of a giant in terms of population, but a dwarf in respect of commerce and industry; a political city but an economic suburb: a great improvement on what it replaces but an anomaly as a political area".

According to official records (Benbo, 1975) Mdantsane in 1975 consisted of some 17 000 houses and its population totalled 115 600. In the National Plan a population of 85 000 is projected for Mdantsane for the year 2 000, the 1970 figures being given as 65 000 — a gross underestimate. In 1975 the unofficial population of Mdantsane was given as 200 000 and most independent researchers would support this estimate. As a satellite of East London, Mdantsane, in spite of its population numbers, has failed to play a dominant role in the development of the Ciskei and except for the sending of remittances to the rural areas by some of its people, it has little influence on its hinterland.

Mdantsane also suffers from the problem of unemployment. Mdantsane, because of its proximity to East London, has attracted people from the periphery but the demand for labour has not been able to keep up with the supply of labour. Reference, for example, has already been made to the slower rate of industrialization this decade. In a survey of 300 Mdantsane households in 1975, Black (1977, 5) found "... *170 unemployed persons, which is the equivalent to an unemployment rate of 23 per cent, the corresponding rates for males and females being 16 per cent and 29 per cent respectively. These rates are much higher than most other comparable estimates of Black urban unemployment in South Africa (Univ. of Natal, 1977)*". The problem of unemployment in the black township could get worse because there is evidence (Daniel and Waxmonsky, 1978) that the younger workers have been attracted to it on a permanent basis, e.g. in a survey of black industrial employees it was found that 84% of the workers were under 45 years of age and that 45% were under 30 years of age. An increase in fertility may therefore be expected.

The proposal in the National Plan not to encourage any further growth has not taken cognizance of the following considerations:

1. Official estimates indicate that nearly a quarter of the *de facto* population of the Ciskei resides in Mdantsane. According to unofficial estimates this percentage could be as high as 40. Rather than move people to new points of growth why not increase the level of development at Mdantsane where an urban unemployment problem already exists? The equivalent of the sum to be spent in Middledrift (R50 million), invested in Mdantsane, could be highly beneficial.

2. The infrastructure for development is already in existence in

Mdantsane. Even if additional water has to be piped to Mdantsane this would be considerably less expensive than constructing a completely new town at Middledrift.

3. Mdantsane is close to the port of East London.

4. The role of political decisions on the growth of Mdantsane and on the lives of its inhabitants has been shown. Political decisions could lead to the establishment of industries and retail outlets in Mdantsane. Given suitable facilities the residents are not going to go to East London to make their purchases.

5. The people in Mdantsane have already made the decision to leave the rural areas and there is evidence to show that it is the better-educated who have left the rural areas. In two rural areas which were studied in 1975 it was found that only 7% of the respondents had passed standard 6 while not one had passed standard 9 (Sack, 1978). In contrast the study of industrial employees working in East London but living in Mdantsane, indicated that 55% had passed standard 6 and 9% had passed standard 9. Industrialization in Mdantsane could benefit from the presence of a more sophisticated and better educated group of people.

6. The lessons of Sada and Dimbaza should be learned. It may be claimed that both have achieved some industrial success but according to Cook (1977) "... *these places remain artificial constructs hardly intergrated with the local rural community* ...". Would Middledrift develop any differently?

7. As part of the policy of industrialization, attention needs to be paid to the whole system of urban development in the Ciskei, e.g. the role of the small market town or service centre also requires attention and expansion to support centres of a higher order. Attention should not be focussed exclusively on the larger centres - or on one centre exclusively.

There is much evidence to suggest that the idea of developing Middledrift as the National Growth Centre needs rethinking and there are strong arguments for selecting Mdantsane as the main centre for industrialization within the Ciskei. The need for alternative strategies for the development of the Ciskei is a matter of some urgency and finally it needs to be stressed that the Ciskei must be seen as part of a larger region. No plan for the Ciskei can ignore the existing links with East London and the other towns in the Border Region, but outside the Ciskei.

AGRICULTURE WITH SPECIAL REFERENCE TO THE KEISKAMMAHOEK IRRIGATION SCHEME.

In addressing the 72nd Annual Congress of the South African Association for the Advancement of Science in 1974, Chief L.L. Sebe, Chief Minister

of the Ciskei, stated that the basis of the economy in all the homelands for years to come will be agriculture and the industries related to agriculture. It was refreshing to find this approach being adopted. Too often in developing countries the role of agriculture is overlooked. Nevertheless it is important to strike the right balance between the effort in agriculture and the effort in industry. It is often stated that agriculture is crucial because most people are currently engaged in agriculture, and that agriculture is regarded as the key to full employment and political stability. The present economic recession in South Africa has shown how vulnerable the people in the cities are to unemployment. On the other hand it must be recognized that many school leavers would rather do anything than work on the land. A threefold challenge faces agriculture in the Ciskei.

1. Agriculture should meet the greater part of the demand for food by the urban population without food having to be imported.
2. Agriculture should stimulate industrial development by providing raw materials and foreign exchange for capital investment.
3. Agriculture should provide employment opportunities for the economically active age group. Implicit in this challenge is the need to change the current image of agriculture.

The dominant features of agricultural planning in the Ciskei may be summarized as follows.

1. The concentration of development on the river basins which are regarded as the main planning units.
2. The involvement of the people i.e. planning with the people and not for the people.
3. The establishment of the principle of ' self-help'.
4. The projects most likely to succeed receive a high priority rating. In practice this has meant irrigation schemes. The Keiskammahoek Irrigation Scheme was the first large-scale project in agriculture to be tackled.

The main features of the scheme may be summarized as follows (Godden, 1978):

1. The scheme is situated on Trust Land under the control of the Ciskeian Government. Development is therefore free of any constraints that may have been imposed by local traditions and customs and tribal authorities.
2. The present project is being developed on 900 ha although a resource survey identified an area of 2 000 ha in the upper basin of the Keiskamma River that could be irrigated. Private consultants claim that 8 600 ha could be irrigated in the Keiskamma River Basin. Prior to this survey the official estimate of irrigable land in the Ciskei was 1 200 ha or 0,1% of the total area.

3. Each settler is given 4 ha, three of which are planted to irrigated pastures and the remaining area to cash crops. A house is provided.
4. Milk is the main line of production. Milking parlours have been constructed and milking is done by machine.
5. The net income per settler is expected to be R2 400 p.a. In setting this target consideration has been given to providing an adequate incentive to the more able members of the community.
6. The settlers apply for admission to the scheme. The process of selection is followed by a probationary period and if the selection is confirmed they are granted leasehold tenure.
7. A firm of consultants manages the scheme on a non-profit basis. The scheme has been divided into ten units. A central unit provides a full range of services including cows in milk which are rented by the tenants. The management also attends to all aspects of marketing, provides credit and keeps the accounts. In time it is intended that the settlers will assume full responsibility for running the farms.

The main points to note are, that the scheme must be economically viable; it is capital-intensive; management is highly organized and the settlers are selected. When the 900 ha are developed there will be 175 settler families and it is anticipated that an additional 200 jobs will be created. The project represents a bold approach to agricultural development.

Over a period of time three aspects of the scheme will require careful assessment. These are:

1. The extent of management control, if continued for too long, could reduce the settler's initiative in decision making.
2. The system of leasehold tenure, with its provision for eviction if performance is not satisfactory, as this may not provide the security needed for such a project.
3. The influence that the resettlement of 'squatters' from the Republic will have on development. The families, mainly from the Humansdorp area have been settled on the periphery of the scheme. They have been given a home but no land to cultivate. Consequently they prove a negative influence because they are deprived. Crop losses have already been experienced.

There are two criticisms of the scheme. The spread or diffusion effect of the irrigation scheme will be negligible. It is highly improbable that the scheme will influence or encourage development in the surrounding areas because it is a capital intensive scheme. Moreover, when fully developed the scheme in its first phase will provide work for only 375 people. This figure must be set against the prevailing unemployment in the Ciskei and the large number of Ciskeians entering the age of economic activity every year.

The second criticism concerns the cost. The cost of establishing one settler family on the scheme is R12 600. Should the national aim be more widespread development including the development of dryland farming, rather than the creation of a small, elite band of farmers? Where capital is scarce and skilled manpower limited, is the capital intensive project the best way of modernizing agriculture?

CONCLUSION

From the brief discussion of only two aspects of development I would conclude that the National Plan should include alternative strategies to meet the goals and targets of development which have been set, and that there is a need to monitor and assess projects which have already been commenced, especially if they involve a high capital outlay. In all aspects of development it is to be hoped that the universities and in particular the departments of geography, will be able to help the Ciskei and indeed the other developing nations of Southern Africa.

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AGRICULTURE IN DEVELOPING REGIONS SUCH AS THE HOMELANDS

Elize Moody

INTRODUCTION

An in-depth analysis of the agricultural sector in developing countries and regions lies well beyond the scope of a short paper such as this, and would involve too many aspects of the highly complex development problem to be dealt with adequately in a prescribed time limit. It would perhaps be more meaningful to look at only a few of the controversial issues, whilst none-the-less placing these within a broader framework. As geographers, we are probably more interested in spatial dimensions and processes, but I feel that a realistic assessment of any development problem should take into account the interaction of as many aspects as possible — especially if meaningful decision-making is to follow.

Before dealing with basic agricultural issues, it would probably be useful to touch on the parameters which I think define the broader problem.

Poverty

Few problems are of greater concern today than that of poverty, and the dimension which is most taxing in a development context is the growing gap between the *"haves and the have-nots"*. The development model applied most enthusiastically in the early 'sixties rested largely on investment in industrialization and the development of a fast-growing *"modern"* sector. Put crudely, this model rested on the assumption that a *"trickling down"* of development impulses would result in the development of peripheral rural areas (capitalist paradigm). The rural areas, in turn, were seen as a reservoir of labour and a source of finance for the development of the core (industrial) area through the increase in the production of primary products for the export market.

The results of the application of such a model have forced development planners and politicians alike to reconsider some of the underlying assumptions. Spatially, development has taken place largely in limited areas, namely urban, and little has come of the expected *"trickling down"* into rural areas. Furthermore, the growing gap between the incomes of people in the core areas and those in the peripheries is causing grave concern, if for no other reason than the political instability which such a situation engenders. McNamara's (1973) "*One hundred countries, two billion people - the dimensions of development*" reflects the World Bank's concern over the realities of increasing poverty especially in the developing world. One can hardly talk about *"development"*, in whatever sense of the word, if more than 40% of the population of developing countries (almost 800 million people) remain in abject poverty.

It is fairly commonly held today that rapid development of agriculture in the poorer regions is essential if poverty is to be alleviated (Brown, 1974). Within the South African context one must bear in mind that there are physical limitations to agricultural development. According to Tomlinson (1974. 8) the country's agricultural area can be divided roughly into 85% natural grazing, of which the grater part is arid and semi-arid. *"Only 15 per cent of the area is economically arable, composed of 11 per cent which is poor to average and 4 per cent, measured by world standards, can be classified as high potential arable soil"*. The approximately one million morgen of irrigable soil is included in the 4% high potential soil.

Within the present and former homelands, agriculture is an important economic activity, providing subsistence to 80 or 90% of the population. Most of this agriculture, like that in the rest of Africa, is at a subsistence level, and *per capita* food production is declining. This has an effect not only on income levels in these rural areas as compared to urban centres in homelands, but also as compared to the rest of South Africa. In terms of developing world standards intake levels of calories are low, and deficiency diseases are common (Butler, *et al*, 1977). Any discussion of agricultural development in the homelands would thus have to focus on its role in contributing to the GDP and to exports, and thus to income per capita (of at least part of the population) and also to the provision of food to a fast-growing population. The rate of growth of the population also means that attention will have to be given to the possibilities of increasing production at a greater rate than has been possible to date.

Employment

Employment is the other face of the poverty issue and cannot be discussed rationally without some reference to the two main paradigms within which development thinking takes place today. These two paradigms will be discussed in more detail by Fair[1] in his paper, and a crude generalization will have to suffice here. As mentioned before, the capitalist paradigm visualizes the rural areas as a source of labour and finance for the development of the core regions. An increase in production is usually seen as depending on larger land units with, preferably, individual tenure, and it is assumed that those people who become displaced in rural areas during such a process, will find employment in the urban-industrial core areas. The basic tenet of the marxist paradigm, is a redistribution of income based on a redistribution of the means of production. In rural areas this would thus involve a redistribution of land from large land holders to small holders or the landless. These two paradigms thus contain fundamental differences about the role of the rural areas within the spatial system of a developing country, and about the relationship of rural areas (peripheries) to the core areas.

The realities of the developing world will, however, force development

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1. See second paper of the symposium proceedings.

planners to adapt the strategies of agricultural development within the capitalist paradigm. Even if such an adaptation does not include a redistribution of land, it is no longer possible to plan for large landholdings (*"economic units"*) as the only solution to the problem of increasing production. Given the rate of population growth, the most optimistic growth rates in the urban-industrial sector cannot achieve the creation of sufficient employment opportunities to absorb the increase in the supply of labour because of displacement in rural areas. This model also rests on the assumption that one starts out from a *subsistence* situation. In actual fact the level of poverty in many rural areas, including the homelands, is increasing evidence that one deals with a situation of *sub-subsistence.* One will, therefore, have to find employment not only for those displaced by larger land holdings but for the *landless* at present being supported by relations with land rights. In some homelands those without land rights number up to a thousand or more per chieftaincy.[2] Similar problems exist throughout the developing world. In Africa the average increase in population is about 2,4% per year and the 1970 population will probably have doubled by the end of the century. Employment creation in the modern sector cannot begin to absorb this increase. Rural areas will thus not only have to produce more food, but will also have to absorb more people — whether in agriculture or in alternative employment opportunities.

INCREASING THE FOOD SUPPLY

There are essentially two ways of achieving an increase in the supply of food. The first is to expand the area which is cultivated and the second is to increase the output on the existing cultivated area. Until about 1950, the first strategy was followed wherever possible, but since then an increase has had to be achieved mainly by raising the output of cultivated areas (Brown, 1974). In some developing countries (e.g. India) the discovery of new seed varieties combined with other inputs and economic incentives brought about the so-called *"Green Revolution"*. Other developing countries especially those in Southern Africa, are caught up in a situation of population pressure, scarce resources and a downward spiral of agricultural production, which has often meant that increasing amounts of basic foods have to be imported.

It is not possible to generalize about the reasons for the decrease in production of small-scale agriculture in Southern Africa. Marxist thinking would see in this downward trend the results of a dependency situation which has caused the collapse of a flourishing peasant agriculture. Others see the decline as an inability (for a variety of reasons) to achieve the change-over from a situation where production was sustained by increasing the *area* under production, to one in which the pressure of a fast growing population on limited agricultural land necessitates an increase in *output* from the existing area under cultivation.

2. For a more detailed analysis of the dimensions of the unemployment problem amongst the black population groups see, e.g. Nattrass (1976).

Whatever the reasons for the downward trend in production, the fact remains that in all the developing regions of Southern Africa there is an urgent need for increasing overall production. There are contradicting opinions about output per unit worked in, e.g., the homelands as compared with the white commercial sector (e.g. Bembridge (1978) as against Lipton (1976)) but little doubt that overall production from the less developed regions of Southern Africa can and must be increased.

PRODUCTION UNITS

There has been great emphasis from *"experts"* from the developed world on *"economic units"*, which has often explicitly been interpreted as meaning that cultivators of arable landholdings cannot make a living on the small scattered holdings which they work under the traditional land tenure system. The problem of a lack of alternative employment opportunities for people thus displaced from the land has led to a re-evaluation of small scale production. Contrary to earlier emphasis, evidence from many studies under differing conditions is showing that output per unit of land is often inversely related to farm size (subject to some very small minimum size).[3] Not much evidence is available from arable farming areas of Southern Africa in this regard, but personal observation convinced me that women planting maize around their homes in Transkei had yields up to 14 times higher on these plots than in the larger fields they cultivated. Bromberger (1979) quotes Kanel (1971, 35) as saying

> "In most types of farming there are no decisive economics of scale ... Existing infrastructure and government programmes generally favour the large farms, which tend to have better and earlier access to improved technology, credit and markets. But with the availability of an infrastructure and of co-operative and public service organizations that do not discriminate against them, the advantage often shifts to family farms".

MOTIVATION

It is commonly held that the peasant farmer is lazy or else too bound by tradition if he refuses to accept technical improvement and innovation, and that part of the task of the extension officer (or community development agent) is to *"motivate the farmer"*. Yet evidence has long been available that most peasants aspire to a *"better"* life for themselves and their children, and are willing to work for it. Their decisions about accepting or rejecting innovations are usualy far less related to motivation (in the above sense) than to economic rationale. The effort and risk involved in greater and new activity must be seen to be worthwhile. More work and little or no profit is hardly an inducement to change!

EXTENSION

It is not my intention to discuss the type of extension service which is needed in Southern Africa I would, however. strongly support Bembridge's

3. Bromberger (1979) quotes Dorner with evidence from Brazil, Colombia, Guatemala, Taiwan, the Phillipines.

call for an assessment of the efficiency of the existing extension services. It would seem as if some of the basic points of departure of present extension services need to be analysed in the light of the *realities* of present farming patterns.

Firstly, there is the very real danger of deciding *for* people in an effort to raise production:

> "When poverty is treated by a development agency as nothing but a material problem, relief normally lasts only as long as aid continues, and an attitude of dependency is cultivated, or even engendered, where it did not exist before. Dependency is the psychological antithesis of development .... workers assume the responsibility for thinking, deciding, organizing and providing most of the effort to initiate change, in fulfilment of the expectations of their sponsors" (Devitt, 1977, 22).

Secondly, I would plead strongly for a sound level of technical expertise. The most effective way for any extension officer to achieve acceptance by a community is to prove technical knowledge and ability by the results of a scheme. Coupled with this, there is an urgent need for much more research into micro-ecological factors and local production techniques which would be relevant in a specific situation. Above all, there is the danger of an over-emphasis on the techniques of communication and motivation, without a clear understanding of the *reality* of the situation which is addressed:

> "But how in the world can we achieve development of people and stable, selfreliant communities in an environment of paralyzing scarcity where people are extremely wanting in food, shelter and clothing, all of which happen to be material and tangible. I assume that people who indulge in rhetoric are not doing so on an empty stomach, for 'man does not live on bread alone' can be elequently expressed only by the man who has the bread in the first place", and also "long before anyone dreamed of community development programmes, villagers have been existing on self-help" (Tagumpay-Castillo, 1977, 24).

INPUTS AND SUPPORTING SERVICES

It would seem to me as if the reasons for low levels of output are too often sought in size of holding, tenure, motivation of farmer or level of expertise of extension officers, and far too infrequently in factors such as supporting services.

It is important to remember that modern technology imported into rural areas, can only really flourish within a more modern milieu than is usually found. Agricultural development is inextricably bound to an overall socio-economic development programme which includes the improvement of infra-structure, marketing and services in rural areas. Too often innovations are introduced which simply cannot be implemented because of the complete absence of other essential supporting services. Many peasant farmers today do not own cattle (this is a known fact, e.g., in Lesotho, Botswana and Transkei). What is the point of teaching a farmer the value of fertilizers if he has no means of transporting the fertilizer from the distribution point to his fields? Without adequate roads as well as means of transport, what is the point of teaching farmers to grow a surplus of

vegetables to sell in some nearby village? Selling tractors to farmers when facilities for repairing (and often the spare parts as well) are just not available in the area where they live, seems pointless. Developing a more adequate service is crucial if agricultural development is to get off the ground. Such a system should have three main elements (Weitz & Applebaum, 1973) :

1. the physical infra-structure
2. the institutional set-up responsible for providing the necessary services
3. personnel to operate the services.

Also, the cost of services should obviously be within the financial and physical reach of farmers.

Credit is another input which is often controversial, and it is often maintained that as small units are not economically viable, they also do not qualify for credit. But, have the possibilities for channelling credit through co-operatives or other groups been sufficiently explored? Westcott (1976) has found in her research in Transkei that most farmers were very willing and keen to innovate in order to raise their productivity but that real constraints, especially the lack of money or credit facilities, prevented them from doing so. Murray (1976) finds almost exactly the same constraints in Lesotho.

The belief that a heavy managerial input, cutting across existing vertical traditional social relationships, is a prerequisite for agricultural development, underlies most of the agricultural development schemes at present found in the homelands and neighbouring countries. Certainly, as has been mentioned, one needs technical input and infrastructure as well as some management — especially when one is introducing high-value cash crops. Yet recent research has begun to question the need for always insisting on a very heavy managerial input. Penny & Singarimbun (1972) have recorded the remarkable progress of the Karo Batak people in Sumatra involving mixed crops and animal production and trading and entrepreneurship, *all* through the traditional kinship structure, without changing the communal land tenure system and without a project manager.[4]

LIVESTOCK FARMING

Livestock farming is very important in Southern Africa and 80 to 85% of the homelands, e.g., can potentially be used for grazing. If little is known about peasant agriculture, then this certainly holds true as regards livestock farming. The traditional role of cattle and smallstock in African societies is

4. Good roads had been constructed, local markets existed and the normal extension advice was available.

known, but the effects of such factors have not been clearly established.

> "According to assessments by the Tomlinson Commission, the present and former homelands are today only approximately 25 per cent over-stocked: while there is much evidence of localised overstocking and deterioration, the problem is one of almost complete lack of application of management systems rather than overstocking as such. Again, reasons for low productivity have not been clearly established... Furthermore, there is little empirical information on the "grass roots" production problems and traditional farming system, in order to define necessary improvements to provide family subsistence and a balance between crops and livestock". (Bembridge, 1978, 16 & 19).

CONCLUSION

There are obviously many other aspects of agriculture in developing regions and countries which are relevant, but time prohibits further discussion of these. In essence, this paper is an attempt to focus on a few basic issues, which could be summarized as follows:

1. The urban-industrial core regions cannot create sufficient employment opportunities for fast growing developing world populations. The mass of the people will thus for the foreseeable future have to be accommodated in rural areas - in agriculture, in alternative employment in rural areas or in the informal sector which links these two. This means that it is simply not possible to think of only large farming units which will displace the majority of people in rural areas.
2. As regards the increase in the production of food, there is growing evidence from other parts of the world that small units need not make this aim impossible since output per unit of land is inversely related to farm size. There do not seem to be decisive economies of scale. It is imperative that similar research be done within the Southern African physical and socio-economic context to see if this contention holds here. This would certainly indicate that there need not be a clash of priorities between raising output and accommodating people.
3. The need to search further than motivation for the small farmer's unwillingness to adopt more modern farming practices, was also touched upon, and various other restraints such as extension, inputs and supporting services were discussed.

Above all, there is a need for farming systems research. This point is made very adequately by Flinn (1978) in a paper in which he pleads for applied research effectively directed at the binding constraints on agricultural production.

> "It is necessary to identify and quantify the economic and bio-technical problems faced by farmers in the real world. For this reason, field level studies are necessary to describe and analyse existing farming systems. Through analysis of these systems, the causes, effects and interactions of the major physical, biotic and socio-economic factors and their related constraints faced by farmers are identified" (Flinn, 1978, 26).

He points especially to the problems of introducing inappropriate technologies into rural areas by quoting De Wilde (1967),

> "Agricultural technology which requires non-market 'persuasion' by authorities before farmers will implement it is rarely viable. Hence it is important that new systems of production are designed in a manner which the farmer perceives as contributing to his goals ('meeting his felt needs') which are consistent with his financial and managerial capacity, and which can be met with the limited assets at his disposal".

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THE ROLE OF REMOTE SENSING IN DEVELOPMENT PLANING FOR THE LESS DEVELOPED AREAS

E.M. Makhanya

INTRODUCTION

For the acquisition of knowledge of his environment, man is endowed with five senses. With the exception of the senses of touch and taste man can normally use his senses effectively without the need of having physical contact with his objects. He can, for example, see objects and hear sounds from a distance. In such instances the literal interpretation would be that man is sensing his environment remotely. Yet the term *remote sensing* is new and is applied to a special innovation. The object of sensing in remote sensing is the earth's surface, and the sensors are mechanical devices rather than the human sense organs. The most familiar of these sensors is an ordinary camera. The mechanism of the camera is analogous to that of the eye. Both utilize light that is reflected from the object. In both the light passes through a lens and creates an image onto a light-sensitive surface. Therefore, although the idea of sensing without contact is as old as man himself, the concept remote sensing is new and special. It is applied to a special technology that involves the collection of information about the earth's surface from a distance by some mechanical devices.

Each of the mechanical devices (or sensors) utilizes energy of a particular part of the electromagnetic spectrum, and in this way we can distinguish among the sensors and their capabilities. The camera, for instance, utilizes light energy from the visible part of the electromagnetic spectrum; the scanner utilizes either the ultraviolet or the thermal infrared (IR) energy; radar and the radiometer utilize microwave energy.

The sensors can also be distinguished according to the scale of operation. For instance, the camera is used at lower altitudes and therefore for larger scales, whereas the scanner, radar and radiometer are, in varying degrees, used at much higher altitudes and smaller scales.

From the above explanation of the concept *remote sensing* it should be obvious that the subject for this paper is very wide indeed. For this reason the discussion will have to be limited to certain areas. First of all, since the term *earth's surface* is very wide (including the lithosphere, atmosphere, hydrosphere, and biosphere), the discussion will be centred mainly on the biosphere.

Although for the sake of creating a vivid picture of what remote sensing is about, reference will be made to the different sensors, it is not intended to discuss the technical aspects of the sensors themselves.

The level of remote sensing applications will differ from one country to another according to, *inter alia*, the level of economic development, but since time will not now allow a discussion of a wide range of applications, the discussion will be confined to the less developed areas.

In short, the purpose of this paper is, firstly, to explain, in simple terms, what remote sensing is, and secondly, to demonstrate what is can contribute towards development planning in the less developed areas.

DEVELOPMENT OF REMOTE SENSING.

The first photograph of the earth's surface from a balloon is said to have been taken by a Parisian geographer named Gaspard Félix Tournachnon in 1858 (Haggett, 1975, 521). Thereafter a few other people followed suit; but they merely did this as a pastime. During World War I, with the development of aircraft, aerial photography became useful in military intelligence. After the war there was growing interest in using aerial photography for resource surveys, and there was a general improvement in the level of surveys which had previously been confined to ground triangulation.

Further developments in the art of remote sensing were made with the launching of artificial satellites into orbits around the earth. The first unmanned American satellite (Explorer I) was launched in 1958; and between 1960 and 1963 a series of satellites of the TIROS (Television and Infrared Observation Satellites) family was launched, resulting in the first detailed weather pictures of cloud patterns. Another weather satellite Nimbus was launched in 1964. These weather satellites photographed the entire surface of the earth once every day.

While success was made with weather satellites, a few people were considering how the technology could be used for earth resource studies. This resulted in the establishment, in 1966, of the Earth Resources Observation System (EROS) programme under the United States Geological Survey. In July 1972 the first satellite that was equipped with a sensor package designed to study earth resources was launched. This was the Earth Resources Technology Satellite (ERTS I or Landsat I). In 1975 ERTS II or Landsat II was launched.

USES OF REMOTE SENSING.

As has already been pointed out, the major task of remote sensing is to collect information about the earth's surface - information which is needed by, among other people, administrators and planners for promoting order in the use of the land. Since the earth's surface is a very wide concept, it is clear that remote sensing has very diverse applications; but as this paper will be limited to the biosphere, only those applications carried out within this part of the earth's surface will be discussed.

In the field of agriculture remote sensing is very useful in providing information for development planning. For instance, early detection of plant disease or the presence of insect pests will enable the agriculturalist

or farmer to take remedial measures and thus reduce harvest losses. Similarly sequential monitoring of crop vigour and health, using colour infrared film taken from about two miles above a field, may reveal crop stres long before the farmer can detect it. This early detection of the problem in plants — be it disease, insects, or simply lack of sufficient water — can reduce loss and thus increase the harvest.

One of the major problems of agriculture in the less developed areas is soil erosion. In many areas it has caused the diminution of the area of arable land and the depletion of the fertility of the soils with resultant low crop yields. Soil erosion studies that I carried out in Lesotho showed that airphoto interpretation using sequential imagery has an important place in soil erosion studies (Makhanya, 1978). The extent of the affected areas could be measured and both sheet and gully erosion identified. Such information is invaluable to those responsible for the management of soil resources since it makes possible the identification of those areas that require more immediate attention by conservation planners.

Problems such as overproduction in agriculture can have serious consequences on storage facilities, prices and markets. This was demonstrated in 1974 when there was a world-wide problem of finding a market for wine. While the European Economic Commission (EEC) countries were discussing ways of cutting down wine production in order to stabilize prices, it was noticed by a group of students from the International Institute for Aerial Survey and Earth Sciences (ITC) that there were in the Mérida areas (S.W.Spain) many new vine plantings. In 1975 a team set out to study the position of vine growing in Mérida in order to determine, *inter alia*, the extent to which grape growing had increased (Makhanya, 1975). A preliminary survey was made by using the 1974 black & white panchromatic photographs at the scale 1:10 000. The object of the survey was to identify old vines (planted before 1972), and young vines (planted in and after December, 1972) in order to determine the areal extension of vine plantings. After airphoto-interpretation, a period of about four weeks was spent checking for ground truth. The results of this exercise was rewarding in many ways. Among other things it was possible to measure the extent of the increase in the area under vines and to find relationships between this increase and other factors (mainly socio-economic). Among the factors associated with the increase in the area under vines was the fact that the Ministry of Agriculture in Spain had endorsed the trend by authorising new planting in 1973/74 and again in 1974/75. It is believed that the authorities in the Ministry of Agriculture would not have authorised the new plantings, had they been aware of the information contained in the report (Makhanya, 1975).

In the field of animal husbandary it is necessary, for the maintenance of the quality of the grazing areas, to excercise care in the use of range lands. Here again remote sensing can come in as a useful tool in providing vital information regarding the carrying capacity of the rangelands; information that can enable planners to determine the number and type of animals that can graze in an area as well as the length of time that the area can remain open for grazing.

At the same time that the vine study in the Mérida area was done, another group did a photo-interpretation study on the grazing potential of the area north-west of Mérida (Wamukoya *et al,* 1975). The aim of the study was to make a land evaluation of the various units appearing on a vegetation map produced in 1974 from airphoto-interpretaton by Spiers; the ultimate purpose being to determine grazing potential for cattle, sheep, goats and pigs. Subsequent studies made in 1976 resulted in a detailed report which demonstrated how socio-economic changes threatened the ecosystem of the rangeland — a very useful basis for planning (Spiers, 1978).

Another characteristic rural problem in the less developed areas is the continued diminution of cropland as a result of the increasing rural population that has no alternative means of livelihood. The study I undertook in Lesotho revealed interesting changes in the extent of cropland *vis à vis* settlements and rough grazing land. This study was made possible by the use of sequential airphoto interpretation (Makhanya, 1976).

The competition for land as a result of the relatively rapid growth of population in the less developed areas is a phenomenon that requires close examination. However, due to lack of maps and statistical data such studies are not always feasible. By complementing existing data with airphoto interpretation it was nevertheless possible to compile a detailed dot map of population distribution of the study area, from which a series of population phenomena could be analysed (Makhanya, 1977). The results of the study provided valuable information on the population problem — information that could provide a basis for development and planning.

The use of air photograps for enumerating rural population in the less developed areas has been used effectively by other writers. For instance, Allan & Alemayehu (1975) used the method in Ethiopia, and Dayal & Khairzada (1976) used it to conduct a population study in Afghanistan.

Thus far the usefulness of but one type of remote sensing, namely, conventional photography has been illustrated. This has been done not only because I have myself done most of my work using airphoto interpretation, but also because of the high resolution that aerial photographs have. It is this fidelity of detail reproduction that makes air photographs particularly useful for planning purposes. With increasing sophistication of camera systems and films as well as other technical advances, photography will remain an important facet of remote sensing.

Conventional photography, however, has its limitations. It is costly — and the larger the scale the more costly it is to obtain it. On the other hand users of satellite imagery pay comparatively very little for it. This is so mainly because one space photo covers the same area as thousands of airphotos. Partly because of the high cost of obtaining photography, there is usually a long interval between successive surveys of one area. This imposes a constraint in sequential studies. To complement conventional photography use can be made of Landsat imagery. Not only does this satellite make frequent coverages of the earth (each area repeatedly covered in 18 days), but it also uses a multi-spectral camera so that each

area is reproduced in four images from the green, red, infra-red and near infra-red bands of the spectrum. The end results of using four bands is that each waveband is unique in that it will emphasise certain features, and by comparing all four bands valuable detail can be obtained. Landsat imagery is particularly valuable in pin-pointing trouble spots; for example, it may provide opportunities to watch for indications of plant stress. It is also useful in updating maps (Mott, 1978). Since it also utilizes part of infrared radiation, Landsat imagery is a useful complement in cloudy areas.

Non-photographic remote sensing is concerned mainly with energy-having wavelengths from about 3 μm to about 14 μm. Although sensors operating in the 3 μm to 5 μm bands will be receiving both reflected solar radiation and direct earth infra-red radiation, this type of remote sensing is not concerned with light. It only identifies differences in emitted thermal radiation in the thermal infra-red region of the spectrum. For this reason this type of remote sensing may be used day or night and is unaffected by clouds. It is particularly useful in cloud covered humid tropics and regions of polar night.

Some users of non-photographic remote sensing may become frustrated by the need to exercise restraint in checking the accuracy of the imagery, as well as by low resolution (Smit, 1975). This situation is, of course, likely to improve with the modification of remote sensing techniques. Already the assistance given by computers in the processing of data and mapping is making the task of interpretation of the imagery lighter.

CONCLUSION

As each type of sensor has special advantages and disadvantages, it is the complementary use of imagery from different sensors that can provide most meaningful results. It should, however, be borne in mind that remote sensing does not provide solutions to problems of development. It merely provides basic information necessary for arriving at development-planning solutions.

I would like to conclude this presentation by quoting astronaut Neil Armstrong when, on July 20th 1969, he set foot on the moon: *"That's one small step for man, one giant leap for mankind"* he said. These words are important when we consider that, apart from improvements in sensor systems, advancement in remote sensing came from achievements in space technology.

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EDUCATION FOR A DEVELOPING SOCIETY

M J Louw

The entirety of education can only be understood if we perceive it in terms of the role that it plays in the organised life of people. This role is an element of every culture, whether schools, as we know them, exist or not.

Education is a universal phenomenon. Some cultures maintain formal schools, but in others, such as the so-called primitive cultures, there are no distinctive institutions where the educative process takes place. Perhaps education is only to a small extent an affair of formal institutions set up for the specific purpose of teaching and learning (Brameld,1965,11-12).

The aims of education seem to have remained the same throughout antiquity: to mould the good man and the good citizen, the two being generally held identical (Adler,1958,18). Toffler (1978, 361) avers that in stagnant societies the past crept forwards into the present and repeated itself in the following ages, and that in such a society the most sensible way to prepare a child was to arm him with the skills of the past ... for these were precisely the same skills he would need in the future. Thus father handed down to the son all sorts of practical techniques along with clearly defined and highly traditional sets of values.

Prof. Loram (1935,7-10) said that in some respects indigenous African education was very effective in its day in as much as the instruction flowed directly from the everyday needs of tribal life. Two characteristics of indigenous African education deserve special attention. Firstly, the desire that the young men and women should be as like their fathers and mothers as possible and secondly, that the greatest emphasis was placed upon what we call moral or character education. The well-known etiquette of blacks and their behaviour patterns were quite as important elements as the practical arts of earning a living.

EDUCATION AND CHANGE

The period of African education in which the coming-of-age ceremonies and the rites of passage provided the principal education of the African child came partly to an end with the introduction of the western educational system by European missionaries during the late 19th century (Scanlon,1966,XXVII). This western education developed over many ages, but in reality changed very little during that time, and the curriculum that evolved remained substantially the same. In general it was composed of what Cicero (Roman times) called the *"liberal arts"*, consisting of grammar, logic and rhetoric (which included law). These plus geometry (Geography and History), astronomy, arithmetic and music, which were distinguished as the arts of freedom, formed an activity in which the ruling classes engaged themselves. The liberal arts, preserved through the dark ages,

continued with an underlying religious foundation, to dominate the medieval curriculum.

The Renaissance broke the religious pattern of the Middle Ages but the schools, such as they were, were rooted in the church, and all schooling remained in the care of the churches for a further 300 years (Adler,1958,19-20)

Toffler (1978,362-3) is of the opinion that the industrial revolution brought about mass education, which was the ingenious machine constructed by industrialism in Western Europe to produce the type of adults it needed. It was an inordinately complex problem to pre-adapt children for a new world ... a world of repetitive indoor toil, smoke, noise, machines,crowded living conditions, collective discipline: a world in which time was to be regulated not by the cycle of sun and moon, but by the factory whistle and the clock. The whole idea of assembling masses of pupils (raw material) to be processed by teachers (workers) in a centrally located school (factory) was a stroke of industrial genius. Young people passing through this educational machine merged into an adult society whose structure of jobs,roles and institutions resembles that of the school itself. The school child did not simply learn facts that he could use later on; he lived, as well as learned, a way of life modelled after the one he would lead in the future.

Faced with conditions that had never before existed, men had to devote increasing energy to understand the present. The focus of education thus began to shift, ever so slowly, away from the past and toward the present. This was the education which in part was transmitted to the black people in South Africa, usually by missionaries at religious institutions. The imported educational system had not yet fully adapted itself to the industrial age when it was transplanted to South Africa, a country which itself was still in a pioneering and pre-industrial era.

As industrialisation during the past century grew apace in Southern Africa, the process of education changed drastically. Where knowledge was normally transmitted through the family, religious institutions, and apprenticeships, it now became the work of specialists working in school and college rooms. The mechanical age changed much of this because industrialization required a new kind of worker. It demanded skills that neither family nor church could, by themselves, provide. It also forced an upheaval in the value system, and above all, it required that all people develop a new sense of time.

EDUCATION FOR A DEVELOPING SOCIETY

This brings us to a point in our discourse where we can take a look at a few facets of the education for developing societies in South Africa. Firstly, we would like to attempt a generalised definition of the whole process of education, assuming that all human groups find it necessary to learn how to transmit and stabilize the pattern of habits and practices, traditions and skills, that have accumulated as these organised groups have formed

themselves into cultures. In the first place we may say that education is a process of stabilizing, of transmitting, of guaranteeing continuity of culture, but on the other hand education is a process of correcting, improving, and altering the acquired characteristics of past generations.

The developing societies in South Africa were still in a process of transmitting the accumulated experience from one generation to another and stabilising the continuity of their cultures when the Europeans came to this part of the world and by way of their missionaries started an education of change. They started this process of change by introducing a system of formal education and schooling which has gained in momentum during the last century, so that today about 3,5 million black children are receiving formal schooling in more than 11 400 schools with more than 70 000 teachers (Educamus,1978)

Instead of trying the impossible by attempting to cover the whole vast field of education as it pertains to the blacks in the Republic of South Africa, I will highlight only a few of the (to my mind) important aspects of this educational effort. There seems to have been a prevailing belief that formal schooling or education is an absolute prerequisite for the development of a society, where development means the industrialisation of the country or the raising of the living standard of all the peoples, but this view has been practically disproved during the last two decades.

Shortly after the end of World War Two, a series of profound political and socio-economic changes, popularly known as *"the revolution of rising expectations"* set in motion a world-wide demand for education, because it was also widely believed at the time, that education would provide the key to the solution of some of the most pressing problems of the post-war world, particularly those of inequality and underdevelopment.

In May 1961 a conference of 32 tropical African and three North African states on the development of education in Africa, was held in Adis Ababa. This gave the first great impetus and direction to planning for African education as a whole. A twenty-year program (1960-1980) was approved (Jacobs, 1966, XXIX).

By the late 'sixties the first flushes of success were beginning to give way to doubts. Although school enrolment throughout the world doubled between 1950-1965, the successful expansion of education was creating a new set of socio-economic problems. Stress was laid on quantity, and the African states strove to close the gap between their countries and the industrialised nations. The emphasis was mostly on increasing the number of schools, particularly at the primary level. Little attention was paid to the content or quality of the educational courses and the structural limitations of their countries' economy.

At the educational conference held at Nairobi, seven years later, there were few signs of enthusiasm. There had been a very great increase in the number of schools, but it was clear that the quality of education had suffered. The cost of education was a problem, but the governments dared

not decrease it for fear of political discontent. The conference also doubted whether the content of the subjects taught were appropriate to these areas and the delegates did not know what could be done to the escalating drop-out rate.

A third conference was held at Lagos in 1976. Disillusionment had set in and doubts had set in and doubts had given way to a definite sense of gloom. It was realised that *quality* counts more than *quantity*. Since the *'sixties* many African countries have been spending 20-25% of their national budgets on education and some even more. Yet the problems have remained. Educational experts say that the world educational crisis is still with us and the various educational projects that have been implemented have not only failed to resolve the crisis but have created problems of their own (Emmet, 1978, 37-8).

I am of the opinion that the basic cause of the failure may be found in the fact that education does not engender development in societies and that education is not the panacea for all social and political ills. The position and function of education is clearly shown in the Myrdal model of economic development (Myrdal,1957). Briefly, the model shows that the location of an industry leads

1. to the expansion of local employment,
2. to the increase of trained industrial labour and more jobs,
3. to the attraction of capital and enterprise,
4. to the expansion of service industries and
5. to the expansion of general wealth of the community,
6. to the expansion of local government funds through increased local tax yields, which only then provides
7. a better infrastructure for population and industrial development, and to roads, factory sites, public utilities, health and *education services*, etc.

This model shows clearly that industrialisation precedes educational services. The need for better schooling and better-educated people grew out of the phenomenal development of the technological era. It is wellknown that the massive educational expansion in Europe followed the industrial revolution and that the revolution was not started off by an educational project. The Myrdal model also shows that the products of education form an improved pool of workers that are able to function better in all of the sections in the economic model, and mass education will therefore only help in speeding up the rate of development. It becomes clear that it may be a dangerous procedure to supply schools so as to educate thousands of young people, if there are not enough jobs to accommodate them according to the level of learning that they have attained.

EDUCATION AND WORK OPPORTUNITIES

The greatest error that educators can make is to assume that education is an isolated or cloistered institution which should be interpreted by itself, without regard for the forces of change that are sweeping the world. The problems of the fast-changing world of today should therefore become part and parcel of the educational system.

The most staggering problem facing the developing societies in the present day is their surplus manpower. According to a report of the Human Sciences Research Council (Pincus,1979,2), South Africa will have a 10-million strong labour force in 1981 of which 69% will consist of black people. Because of the exceptionally high growth rate of the population, the creation of job opportunities is and will be one of the major problems of the future. Finding more than 250 000 new jobs a year is the task that confronts South Africa according to Dr. Simon Brand, the economic advisor to the Prime Minister (Pincus,1978,13).

Jobs are the most obvious need of the unemployed ... not only economically but also psychologically and culturally. Work is more than just a source of income. It is also a source of status and self-esteem, a point of identification with the system. Clay Carson (Time,1977,36), a Black historian at Stanford University, says *"that permanency of jobs, and stability in an economic situation is important. Even if some one is only a janitor, his job still means stability. Typically, those who can get established with a job, can pass this stability on to their kids. Those who can't are likely to pass on more than just poverty. They also transmit poor educational opportunities and a sense of hopelessness."*

When tackling the basic problem of job creation the first sound step is to recognise that the government cannot and should not try to do it all. A most crying long-range need is to adapt education to the present needs of the society. Every pupil must be taught the basics of learning, namely the 3 R's (literacy and numeracy). Schools need to concentrate rigorously on the teaching of reading, writing and arithmetic in the lower primary schools. Without these fundamental accomplishments no one can communicate well, or move and work efficiently in this complex modern world. Where the drop-out figure after the first four primary years normally amounts to nearly 60% of all black school entrants (Educamus,1978),the importance of the teaching of these first school years is stressed. Only those teachers that have received the very best training available should be used in the primary schools, so as to produce the greatest number of pupils who have mastered the elementary skills, which are absolutely necessary to help them fit into this complex and changing world of today. If the educational system does not succeed in this basic aim, the inordinate numbers of black youngsters who drop out of school before they are capable of making their own way, will be plunged into a fast and irregularly changing situation and a novelty-laden context, where they cannot make a reasonably correct assessment on which rational behaviour is dependent. They then feel themselves harried, futile, incapable of working out their private futures.

Further, African countries that have measurably increased primary educational training, find that great numbers of primary school leavers are unable to pass through the narrow bottleneck into secondary education. These drop-outs migrate to the cities, fail to find work, engage in juvenile crime, participate in riots and become a political threat (Jacobs,1964, XXXIX).

It is also noticeable in the secondary school and in the institutions of higher learning that a large number of the students, caught in the turbulent flow of change, when called upon to make significant rapid-fire decisions, do not simply feel intellectual bewilderment, but also experience disorientation at the level of personal values. As the pace of change quickens, this confusion also displays self-doubt and anxiety. As the pressures mount, tension shades into irritability, anger, and sometimes little events trigger enormous responses that may even erupt in senseless violence.

The question arises whether this high-pressure education, where fact-finding for the sake of finding facts, does not become a ridiculous game of tail chasing. Thousands of students keep on pursuing university work utterly unsuitable to them, and unsuitable for equipping them to help in a meaningful way with the development of their society. Too many students attend school or university in the belief that a cultural coating obtained from sufficient immersion in classics, sciences, and other learned fluids will somehow insure them against the disgrace of physical work (Brameld,1969, 6).

EDUCATIONAL ENVIRONMENT OF TODAY

We have referred above to a changed world. Let us for a brief moment look at this changing environment in which the schools and institutions for higher learning must operate today. Schools do not only serve individuals, but serve also the totallity of society - society with its values, its purposes,its commitments, its institutions, its enterprises and its governmental processes. When looking at the society and the circumstances in which the youth of this generation are maturing, getting an education (or failing in the attempt), seeking employment, and striving to carve out places for themselves in the changing environment they live in, they see according to The American Association of School Administrators. (1966, 2-4), *inter alia*, a society

1. in which technological advance has created new relationships between people and between education and work, and where technical skills and knowledge, mental alertness, and creative capabilities have taken priority over capacities to endure physical hard labour;
2. where science and mathematics have become increasingly important in almost every facet of the total culture and affecting the lives of people in every family and neighbourhood in a vital way;
3. in which the security of the nation as a whole is dependent upon the expansion of economic enterprise and upon scientific advancement;

4. where more young people are entering the labour force, at a time when job opportunities in the unskilled and simpler occupational fields are decreasing markedly;
5. where the spectre of unemployment is worrying families, frustrating neighbourhoods, and haunting political leaders ... even at a time when there are more people employed than ever before;
6. gripped by consuming ideological conflict where much of the public budget, much public policy, much effort in military defence, and much of the thoughts of people are devoted to meeting this challenge;
7. in which the rapid advance in communication and travel brings peoples from all over into closer touch with one another, and which increases the need for a better understanding of the cultures, institutions, mores, languages and goals of others;
8. where mass migration of people from the rural areas, villages, and towns to large centres of population, result in cultural clashes that shake institutions, disturb long established customs, set values in a new perspective and leave indelible marks on the characters of children;
9. in which different ethnic, racial and cultural groups of people are vigorously struggling for recognition, full rights, fair employment practices, better housing, and higher levels of learning;
10. where pressure tactics, emotional displays, and blatant propaganda are displacing reason and the exercise of sober judgement in approaches to the solution of common problems; and
11. where the demand for education beyond the high school exceeds the capacities of institutions of higher learning, giving rise to ever-increasing standards of admission, and where students have to cope with escalating tuition charges.

Against such a background it is evident that without innovations, new approaches and the correct emphasis in the educational programmes, all the educational institutions will fall short of achieving the high purposes they are expected to achieve. It should, however, also be realised that education is not only a form of wealth or a means of development and that it is not merely an axiomatic response to world-wide need. It should rather be seen as a modern experiment in improving the quality of the human family, and that it is central to the hopes and expectations of people throughout the world.

EDUCATION AND THE SCHOOL

Education must pre-eminently proceed to cultivate an appreciation of all kinds of learning. The schools and their functions must also be stratified according to a system of selection which should be based on the relative

performance ability of each scholar and student as determined by their innate human characteristics and capabilities. If the school is to succeed in this selection, a system must be followed where every child is given the chance to progress as far as his capabilities will allow him. Primary education should last six years, during which time the school must help the youngsters to become literate and to enable them to compete with others who have more or better talents. Prof. Robert Ulich (1958,85) avers that differences in intellectual capacity and innate abilities manifest themselves at about the age of twelve and can be discerned and measured by standard tests. Making use of such a selection after six years of elementary learning, the children should be divided into five groups according to the future type of labour indicated by their natural capacities, namely: humanists, scientists, executives, artisans and common workers, although all five programmes should retain certain common elements of experience on the emotional and social levels of life. The last-mentioned group will end their formal schooling and go to work, but must have the opportunity for improvement by means of in-service training, which must be the responsibility of the employers. Later they may continue their education by attending training-schools for adults.

The high school will have a restructured programme for the four remaining groups. In densely-populated areas there might even be separate schools catering for each of the groups. Prof. Paul Woodring, (1957) suggested that during the next four or five years the youngsters will grade themselves into three grades: average, above average and below average (grades into which they are divided but not frozen). At sixteen or seventeen, they reach the final high school year. Those who have no aptitude for further improvement or learning will leave school for a job. Those with intermediate learning capacity will attend commercial or technical colleges or trade or artisan schools for two years or more and then proceed to employment. The third group will enter a four year liberal arts college, offering no vocational or pre-professional training whatever. Most of the college graduates will go on to two or more years of university or professional training at age twenty.

It is foreseen that such a system with its different stages and hurdles and its processes of sifting and outo-classification may produce qualified graduates, of a higher quality and correspondingly less misfits. Such a system will make it possible to train the children and youngsters according to their natural capacities, and make better use of the well-trained teachers so that better use may be made of the available human resources in the developing society it serves.

In the second phase of this system the young people must learn positive attitudes and essential work habits, since it has been found that failure on the job is usually caused by the lack of suitable personal characteristics, proper attitudes, and work habits essential for job success. The decrease in opportunities for young people to acquire these habits at home or in industry makes it essential for schools to provide for work experiences in the curriculum (Am. Ass. of School Admin, 1966, 24).

Vocational and professional training is essential at high school level

because only about 3 000 of the nearly half a million black secondary school pupils in South Africa proceed to university and the rest have to enter a world for which they have barely been prepared.

A very large proportion of the black population, however, still remains rural, and at present the most difficult of our social and educational problems are centred on the rural child. The problem is twofold. Firstly to provide the rural child with a good education where the three R's are stressed so as to teach him to communicate and to live successfully in a developing society. Secondly, he must be trained for more effective living on the land, especially as producer in the primary industrial sector. Radical improvement must be brought about in the motivation and in the educational equipment of the people on the land so that changes can be produced in their traditional way of life, helping the society to develop along successful lines.

Prof. Carney (1937,304) suggested more than 40 years ago that a system of "*in the field*" training be tried in South Africa, a programme which embodies an extraordinary conception of service. In brief this programme consists of an organisation which sends out so-called *"district farming agents"* and *"home demonstration agents"*, who are placed at strategic points in the developing society. The responsibilities of each agent are to disseminate scientific information on agriculture and home economics, and to get this information carried into accepted practice and a higher standard of living. The demonstration method of teaching, together with the project method are largely employed. The whole programme should be geared to agricultural and economic schools. In the U.S.A. its achievement in having brought scientific research within the reach of 30 million farm-dwelling people scattered over 3 million square miles was something they were very proud of. The question arises whether something like this programme, adapted to South African conditions, should be tried out in practice as an extension and expansion of the existing agricultural information-officer system in the developing societies.

This programme should be seen as a system where the desired education is carried to the people on the land, proving the practicality and profitibility of that education: and it should therefore also form a method by which the stigma attached to school-room based western education can be erased. When the farm-dwelling people become more prosperous and capable of consuming their share of manufactured goods, thereby helping to sustain the great domestic market on which the country's prosperity basically rests, more and more employment opportunities will be created so that, as the whole society develops, these people and their children will share in educational opportunities as good as the best in urban areas.

It is clear that the school-room education has not only failed in teaching the rural population those skills that are relevant to those areas but through the western-oriented education programmes in fact helped to speed up migration from the rural to the urban areas. As someone put it recently:

"These schools have nothing to do with improving rural life. Parents simply view them as a railway station to which they take their children to be transported to the city" (Emmet, 1978, 38).

EDUCATION AND MORALITY

Prof. Fadhil Jamali (Hendon *et al.*, 1970, 14), Professor of Philosophy and Education in the University of Tunis asserts that *"most educational systems of the world today think of man in material terms. That is the lesser part of man. The higher part is the moral and spiritual side. Man is the only creature with the capacity for transcending, for rising above himself to something higher. That is what education in the world today needs bring about. Morality provides the secret of the rise of nations, their strength and survival."*

Sir Richard Livingstone (1960, 197-8) states that modern education has in large renounced the idea that the student must learn to understand himself, his fellow men and the world in which he is to live as bound together in an order which transcends his immediate needs and his present desires. As a result the modern school has become bound to conceive the world as a place where the child, when he grows up, must compete with other individuals in a struggle for existence, and so his education is designed primarily to facilitate his career.

The emancipated countries in Africa have renounced the idea that the purpose of education, introduced by Europeans, is to transmit western culture. Thus there came about a cultural vacuum, and this cultural vacuum was bound to produce, in fact it has produced, progressive disorder. The more men have become separated from the spiritual heritage which binds them together, the more has education become egoistic, careerist, specialist and a-social.

The question may be asked when an action is moral. The answer may be that doing something well is in itself morally neutral, but the action implies values to be realised. Unless the act was taken by the agents as being of value and worth while, no movement in its execution would be made. Such given values govern all predominantly economic and developmental activity and are strictly parallel to the axioms of science (Wilson & Wilson, 1968, 74). Wrong values or no values at all, give rise to a lack of motivation as regards the attainment of knowledge or skills with intrinsic value. Students readily place too high a value on the attainment of a certificate simply because of its status value. They tend to follow courses without regard to the value they will have when the graduates go out to help their society in its development. This naturally leads to a gap being formed between student and society (Potgieter, 1967, 68). In this respect we recall the finding of Dr. Sanchez (1964): *"that when students lack values it follows that lacking restraint, students add to their eagerness ... the political agressiveness which is aimed at destroying whatever exists ... to find a new order which tends to exalt students"*.

It seems that secularisation might be the first reason for neglect of value problems in education. The pendulum still continues to swing further and further away from child-centred, community-centred, or problem-centred learning, and more closely toward tightly organised subject-matter programmes, efficiently taught by methodologies that resemble nothing so much as the technologies they are primarily designed to serve. A curriculum that would deal competently with values requires deeply concerned and informed teachers, who after all, are responsible for dealing with values, if anybody is. The question is whether they are capable of doing it, as they are living in a world of change where insecurity, frustration, new conflicts, new fears and new hatreds abound, since they so often live in a cultural vacuum, where old values have mostly been lost or discarded and new values are not taught by parents or schools, or are transmitted in a distorted form.

The aim of education should not only be to develop new attitudes and skills in the rising generation of black pupils and students but also the cultivation of proven values, which is an absolute prerequisite for living a balanced and fruitfull life. If the schools and educational institutions are to succeed in helping young people develop the right values, that will give them a sense of direction when working in a society which is trying to adjust to a rapid technological change, to social instability and to a catastrophic population explosion. (Dewey,1968, 319-20).

High priority in the instructional programme must be given to the development of moral, spiritual and ethical values. Every child must be led fully to understand that freedom and responsibility go hand in hand. All pupils must acquire a sense of values that will enable them to make intelligent decisions between right and wrong, and therefore the true meaning of fair-play, personal honour; and social justice must be exemplified in every facet of the school operation.

EDUCATION AND GEOGRAPHY

A last aspect of education I would like to touch on, is the place Geography takes in the educational curriculum of today, and this I gladly do, being especially mindful of the inauguration of this new building in which Geography will be taught at this university, and of the Geography Department whose grateful guests we are today.

Should geography be taught in black schools and in institutions for higher learning? This was one of the questions raised by the school children in Soweto a year or two ago, when they aimed at changing or destroying the prevailing current school system. These youngsters were apparently of the opinion that Geography, *inter alia*, should have no place in the educational curriculum as it teaches facts and skills, which no one really needs in later life. Those who queried the suitability of Geography as a school or university subject were at that time surely not yet conversant enough with the necessary scope of present-day education; their experience of Geography was still very elementary, and maybe it was also taught in a

manner which made it appear to them to be a mass of irrelevant facts, so that it is not difficult to understand why they would rather have had other so-called job-procuring subjects taught in its stead. In answer to the question posed, I would like to point out only a few of the advantages and the positive aspects derived from geographical knowledge and of being versed in geographical skills, as part of a good and well-balanced education.

The aim of education in general is not only to teach and train youngsters to be able to do work of one kind or another, but also to communicate well and to know their environment, their society and the world they live in. There is little dispute concerning the important role education must play in the total development of the individual and of a society, and it is in this respect that geographical knowledge plays such an important part.

A mere half a century or so ago the black societies found it adequate to transmit the accumulated experience from one generation to another, but very great changes have been effected by the contact situation among the different societies in South Africa. Rapid changes are still taking place and it is education which must provide for growth beyond the traditional type. Change brought about by development produces new motives and a new direction for life, and therefore no one can afford any longer to limit his world to his own family, tribe, race or nation only. A new and greater perspective is necessary to make life meaningful. Any person who wants to live and not only to exist in this modern, shrinking world where all people are fast becoming neighbours (Malherbe,1937, IV-V), needs to know more about his environment of soils, climate, water, plants and animals and the billions of his fellow men who live and work in hamlets, towns, cities or sprawling metropolises. It is the study of Geography which gives one endless opportunities to learn about the manner of living, the cares and concerns of the people of every nation and country. In the process the learner might also learn to find himself.

No one is so well educated that he does not need a geographical background in order to understand this complex present-day world he lives in. Geography is relevant to the farmer who tills the soil and sells his produce to far-off markets, and to the clerk who answers letters from faraway places, and to the telephonist who is in contact with the whole world by means of electrical impulses. Geography is especially relevant to the politician who has to make decisions concerning people and the places they live in, or about the education of developing societies; and to the ministers of state for economic development for transport, for external affairs, etc. Whosoever they might be, will find geographical knowledge and skills enriching their lives and making them fit better into a changing world, where the well-educated people in the developing societies have such important work to do, and where every one of them must be able to pull his full weight.

I want to believe that the study of Geography helps to form developed men, and this brings me, in conclusion, to the fact that you can easily plan a developed society on paper, but in the execution thereof you will have to build it with developed men.

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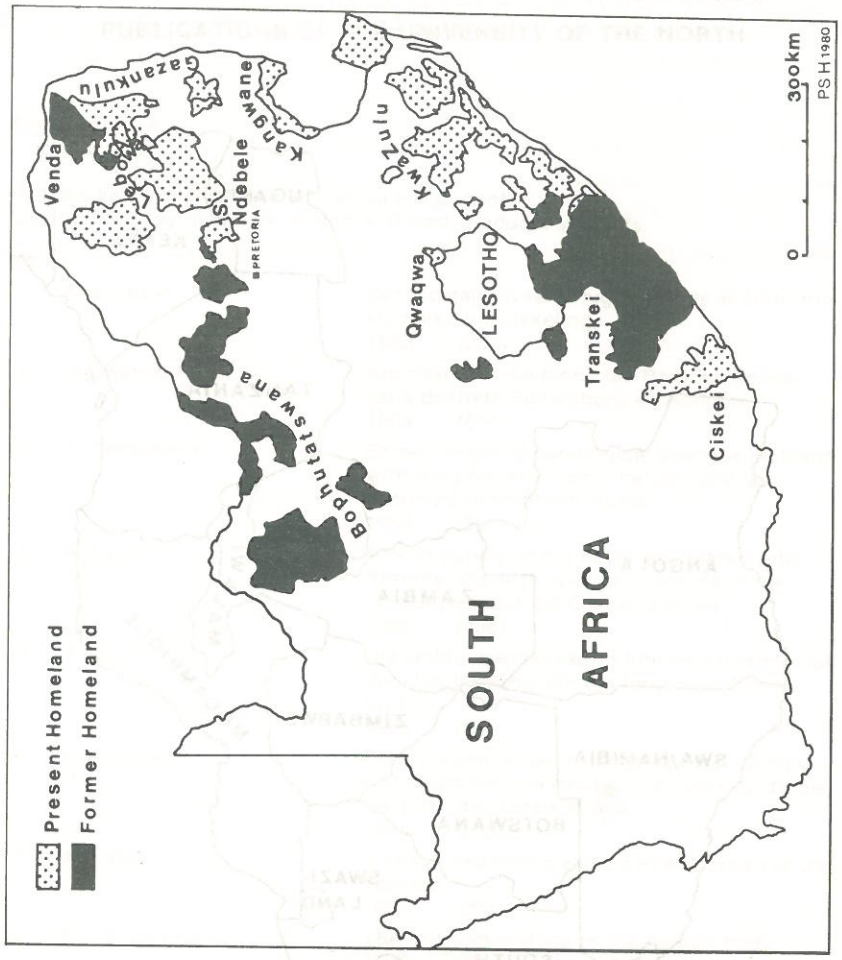

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Southern and East Africa

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