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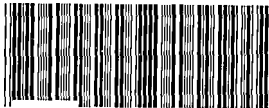
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DILEMMA IN DEVELOPMENT, EDUCATION AND EMPLOYMENT

AN ANALYSIS OF ZIMBABWE, TANZANIA AND KENYA*

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1979 WAS A YEAR of impending change — change that was without form or concept. Speculation was rife while planners anxiously awaited policy direction. At that time we felt the need to point out certain realities in Zimbabwe's education and employment potentiality, and to distinguish facts from the fantasies.

In this paper we have identified four major premises which underlie existing educational and employment strategies. We call these 'conventional wisdoms'; and in them we have tried to pin down the implicit assumptions which too often are taken as 'givens'. These conventional wisdoms can be summarized as follows:

1. Resources to satisfy the demand for education will be available when the war stops and aid flows in.
2. Education will generate the required wealth and development.
3. People are unemployed because they do not have enough education or training.
4. In the fields of education and employment all that we need to solve our development problems is more of the same.

As we demonstrate in this article, the facts argue differently, and those conventional wisdoms are shown to be false. Zimbabwe stands poised for change and the need is for close analysis of opportunities open to the country if development and progress are to be assured.

The post-independence experience of two African countries, Tanzania and Kenya, is well documented. Despite their conflicting political philosophies there are certain similarities in the outcome of their different approaches to development problems. In the light of their experience, how can we in Zimbabwe avoid the onset of apparently inevitable trends in Third World education and employment developments?

This article does not claim to be a blueprint for action although we propose a number of alternatives to conventional ideas about education and

* This article is based on a paper that was presented in the Development Studies Series of public lectures at the University of Rhodesia on 20 June 1979.

employment. If we have made the point that education and employment are two sides of a coin, we have made a start. Real change ripples throughout all levels of the system — let this change be the result, not of *ad hoc* adjustments to points of the system, but of an integrated and holistic approach to the realities of burgeoning Zimbabwe.

CONVENTIONAL WISDOMS

Resources for Development

The first conventional wisdom is the belief that resources to satisfy the demand for education will be available when the war stops and aid flows in. The underlying assumption here is that resources currently wasted on the war, plus resources in foreign aid for education that have been denied to Zimbabwe, would be sufficient to provide universal education. The facts argue differently.

(i) *Demand for Education:* There are approximately 7 million people in this country. Of these 1.5 million are children under school age; 1.5 million are potentially primary school children; 0.75 million are potentially secondary school children; and 3 million are potentially productive adults.¹ Also, assuming an annual population growth rate of 3.6 per cent a year² we estimate that each year a further 50,000 children become potential primary pupils, a further 25,000 become potential secondary pupils, and approximately 100,000 new potential producers or workers move onto the labour market. Currently, of potential primary pupils 60 per cent are actually in schools, or can be when the situation returns to normal, and 8 per cent of potential secondary pupils are in school or can be when the situation returns to normal.

(ii) *Cost per Pupil:* A new primary school place (including teacher training, school buildings and equipment etc.) costs approximately Z\$350 to establish. A further Z\$150 would be required each year to maintain that school place once created. Given the potential number of primary pupils and the costs per pupil, a sum of Z\$435 million would be necessary *now* to create sufficient places with a further Z\$225 million annually to maintain and service them. To keep pace with population increase, an additional Z\$25 million (and rising) would be required for new places and their maintenance each year.

To establish one new secondary school place would currently cost about Z\$3,000 with a further Z\$1,000 per annum to maintain that place.⁴ Given these costs and 0.75 million potential pupils, a one-off payment of Z\$2,850 million *now* plus a further Z\$750 million each year would create and maintain secondary school places. To keep pace with rising population growth, an additional Z\$100 million per annum (and rising) would be needed.

¹ Rhodesia, *Supplement to the Digest of Statistics: January 1977* (Salisbury, Central Statistical Office).

² J. Hanks, 'The population explosion in Rhodesia and the consequences of unlimited growth', *The Rhodesia Science News* (1973), VII, 249.

³ Rhodesia, *Proposals for a Five-Year Programme of Development in the Public Sector* (Salisbury, Ministry of Finance, 1979), 32.

⁴ *Ibid.*

(iii) *Financing Education:* We have then some idea as to the extent of the demand for and cost of education as the system currently exists. But to talk about millions of dollars is usually meaningless to an individual. What is the value of one or one hundred million dollars? If a developing country is given a million dollars in unconditional aid, is that a lot of money, something to be grateful for, or is it trivial in terms of a whole nation? In Zimbabwe, one million dollars would be fourteen cents each. One million dollars would keep all the schools open for about three days, or it would have kept the civil war going for a further sixteen hours. In terms of national needs then, it is obvious that one million dollars is *not* much money. On the other hand, Z\$100 million would mean about Z\$14 each, for every man, woman, child and infant. It is a meaningful sum of money, and will be used as a unit to discuss the possibilities open to this country.

Internal Resources

The following summary shows the country's current (1979) capacity to generate wealth and its expenditure in education and defence.

<i>One year's</i>	<i>Z\$ (millions)</i>
Farm Production	600
Mineral Production	300
Manufacturing Production	1 450
War	500
Education (at current levels)	100

Until we increase our production efforts and capacity, there is a limit to the amount of internally generated resources which could be spent on education. One might imagine that with the end of the war, money previously spent on fighting could be diverted instead to education, making about Z\$600 million available per year. However, the diversion of defence monies into education would not substantially change things. In the development process, money is needed not only for education but also for industrial development, job creation, rural development, infrastructure development etc. In such circumstances, it is likely that Treasury will find something of the order of Z\$200 million per year for education from internal sources.

External Resources

Overall foreign aid to education for the whole world in 1978 was estimated to be approximately Z\$10,000 million. That was for the *whole world*. Of this, the substantial proportion directed to Africa works out at about Z\$10 per head per year. At that rate, Zimbabwe could hope, at best therefore, to receive around Z\$70 million annually for education purposes. So whatever the actual figure, it seems that foreign aid to education will be *less* than the amount that could be raised internally at the cessation of the war. From this analysis, it can be predicted that approximately Z\$270 million a year could be made available for education once a political and military settlement has been achieved.

Thus it is clear that universal primary education could not be achieved

immediately, although it is within reach should we choose to spend the money that way. Universal secondary education on the other hand could not be achieved in its present form.

Therefore the conventional wisdom that resources to satisfy the demand for education would be available when the war stops and aid flows in is not supported by the facts.

Education as Investment in Development

The second conventional wisdom, which states that education will generate the required wealth and development, requires us to review the relationship between education and development.

Bowman and Anderson⁵ used straightforward measures of literacy and of per capita income to seek some correlation between these two variables. They showed that all countries with less than 40 per cent literacy were in the poorest bracket, that is less than Z\$300 per capita per year, and all those with over 90 per cent literacy were in the richest bracket, where per capita income was over Z\$500. But for the countries in between there was very little correlation between the two variables. It thus seemed that there is a 40 per cent threshold; sustained economic growth does not begin until 40 per cent of the population are literate, but increasing literacy beyond this does not have any obvious direct effect on economic growth.

Accordingly, primary education and adult education aimed at raising the literacy rate to above the magic threshold are important. But what of secondary and tertiary education? Studies here have found only a small and ambiguous relationship to economic growth.⁶ There is a small but positive relationship between secondary and primary school enrolments and subsequent income levels, but among the less-developed countries the higher a country ranked in tertiary enrolment levels in 1950, the more it was likely to have sunk in the economic performance rankings by 1965. Dore writes:

The evidence from these studies is confused, but at least not inconsistent with the hypothesis that . . . schooling for the purposes of education may well contribute to economic growth, but schooling in pursuit of certification less probably so; that the world is having more and more of the latter kind of schooling than the former, and that this is particularly the case for the developing countries. Thus one might expect a *declining* positive correlation between these countries' enrolments and growth rates — and even the appearance of negative correlations.

Additional evidence in the form of a study across 53 countries confirms this lack of causal relationship between quality and quantity of school and econo-

⁵ C. R. Wharton Jr, 'Education and agricultural growth: The role of education in early-stage agriculture', in C. Anderson and M. Bowman (eds), *Education and Economic Development* (Chicago, Aldine, 1965), 202.

⁶ R. Dore, *The Diploma Disease* (London, Allen & Unwin, 1976), 86.

mic performance.⁷

Common sense tells us that there must be *some* relationship between education and economic prosperity. But in Zambia as we know, there is often no soap for sale in the shops and milk is often imported from Denmark. In Zambia, money has been poured into secondary education for at least fifteen years. So far, then, there has been in Zambia, an unsatisfactory pay-off from educational investment, in terms of soap and milk, and other crude indicators of economic prosperity. Common sense suggests, therefore, that the relationship between education and economic prosperity must be a very complex one. It is not at all clear how paying vast sums of money for large numbers of pupils to learn about rift valleys, isosceles triangles, the kings of England and Archimedes' principle is going to lead *directly* to increased milk and soap production several years later.

As yet, then, there is no positive proof that education generates wealth and development.

Unemployment

The third conventional wisdom refers to the belief that people are unemployed because they do not have enough education or training.

Of the approximately 3 million adults (excluding the 0.75 million potential secondary school pupils) in Zimbabwe, 1 million are in some kind of cash-economy employment. A further 100,000 job-seekers enter the labour market each year. It is estimated that the creation of a conventional urban-sector job would cost roughly Z\$9,000 to create and a further Z\$1,000 per year per job to service in the form of housing, public transport, police and water supplies.

A summary of these estimates and hence the cost of 'full employment' is shown below:

<i>New Jobs for 2 million People</i>	<i>Z\$(millions)</i>
Two million jobs at Z\$9,000 each	18 000
Running expenses for 3 million people in employment at Z\$1,000 each per year	3 000
Extra jobs needed to pace population growth at Z\$10,000 each per year	1 000
For comparison, Government Budget 1979/80	1 000

Clearly these sums are unobtainable when we cannot find sufficient investment capital to create 100,000 jobs each year and freeze the current absolute number of unemployed. At present rates the existing (inherited) economy has the ability to create only 22,000 new jobs annually,⁸ although 25,000 jobs

⁷ M. Blaug and B. Ahamed, *The Practice of Manpower Forecasting: A Collection of Case Studies* (Amsterdam, Elsevier Scientific, 1973).

⁸ Rhodesia, *Urban Development in the Main Centres* [Annexure to Proposals for a Five-Year Programme of Development in the Public Sector], 5.

were actually lost in 1978 due to the economic decline in Zimbabwe.

It is thus not true to say that people are unemployed because they do not have enough education or training. They are unemployed because they demand urban-sector jobs for the creation of which there is just not enough investment wealth available. Too often the interdependence of the economy and the education system is overlooked. The economy, or Wealth Creating System, produces wealth which can be invested in various ways. It may be re-invested in the creation of *new* jobs or in the provision of education. Either way, one aspect of the system loses to the other. If too much wealth be directed into education, the supply of new employment opportunities is likewise reduced.

More of the Same

The fourth conventional wisdom we have identified is the belief that in education and employment all that we need is more of the same. It is generally believed that the existing academically-based curriculum is a satisfactory basis for all types of employment. It should be obvious by now that this is just not true. In the first place we cannot have more of the same education because we just cannot afford it in its existing form, and secondly we should not have more of the same education because it does not lead directly to economic development.

In employment this 'more of the same' philosophy is ably demonstrated — if not made explicit — in the many manpower studies done elsewhere in Africa: Zambia, Tanzania, Kenya, Botswana.⁹ While the primary aim of Manpower Planning might be localization of available jobs, it assumes continuity of the inherited economic structure and occupational hierarchy. Techniques of conventional manpower planning clearly show this assumption. The first stage is an inventory study of existing skills and occupations; this baseline data permits an identification of skill shortages and thus an estimation of future needs. Finally recommendations are made for future school, university and vocational training output.

On this basis there is no space for re-structuring parts or all of the system. Here, the oft assumed relationship between education and jobs falls away because where there are skill shortages, instead of planning for greater output *x* years ahead, immediate action can be taken: retraining can be effected, jobs re-defined or modularized, expatriate skills can be contracted or, in the extreme, the finished goods themselves imported.

Clearly 'more of the same' takes a static view of what is a dynamic and potentially flexible employment system.

THE POLITICAL PHILOSOPHY

Whatever their particular political philosophy or ideology, Third World

⁹ C. Stoneman, 'Survey of African experience with manpower planning', in *Zimbabwe Manpower Survey* (Dar-es-Salaam, Patriotic Front, 3 vols, 1979), II, 15 - 20.

Governments are faced with rising unemployment and demands for education and jobs. Whether the individual is idealized as a skilled cog in the industrial sector of the community or as a self-supporting individual, politicians are faced with inherent conflicts between what the nation needs in terms of manpower, and what the people want. The four conventional wisdoms identified appear to hold across a variety of economic and political systems. We identify two competing philosophies within which framework the problems of national development are tackled. These two can be identified as capitalism largely oriented towards the needs of the individual, and socialism largely oriented towards the needs of the community and nation. Any developmental planning embodies aspects of both philosophies in varying proportions. The weighting of those proportions and the areas they embrace dictate the character of the particular development scenario.

Common to all such scenarios is the assumption that education has a positive role to play. Not quite as obvious, is the assumption, questioned by Thomson,¹⁰ that schooling has a role to play in development strategy. Thompson argues that in the Third World, since schooling beyond primary level cannot realistically be offered to all and since there is evidence to show that vocational skills are inappropriate at this level, greater attention should be devoted to the field of non-formal adult education when thinking in terms of development. Whether one agrees or disagrees with Thompson's contention, it is indisputable that schooling is an urgent felt need of the masses. Accordingly, and irrespective of their political philosophies, planners are faced with resolving a fundamental conflict between education for all, as a political and social objective, and education for manpower development, as an economic objective.

Before considering the constraints operating in the Zimbabwe context and the character of development that these constraints are likely to produce, we will consider briefly two African scenarios in which the weighting of capitalism and socialism are dramatically different.

Tanzania

Tanzania is a relatively poor country with a G.N.P. of U.S.\$130 per capita for a population of some 13 million, of whom 95 per cent live in rural areas.¹¹ The development policy adopted has been one in which a socialist philosophy predominates.

On the educational front the goal is universal primary education, with a secondary system limited to the requirements of national skilled manpower needs. In 1970, nine years after independence, only 44 per cent of children aged seven years entered primary school. However, by 1977 universal primary education was an attainable objective. The declared policy of relating secondary

¹⁰ A. R. Thompson, 'The quest for relevance in education in Africa: Some considerations', *Zambia: The Education Supplement* (1977), 50.

¹¹ T. Simpkins, *Nonformal Education and Development: Some Critical Issues* (Manchester, Manchester Univ. Press, Monograph 8, 1977), 44.

school expansion to manpower requirements has resulted in a steady decline in the percentage of children entering secondary schools (approximately 12 per cent entered in 1970, 7 per cent in 1974). The intention has been to create for secondary education the image of being a vital component of national development but not a 'consumer product' available to all. In practice, because of the large number of unemployed secondary school graduates already on the market and the proliferation of private schools caused by parental pressures for more secondary education, the annual number of secondary school graduates significantly exceeds the manpower requirement. This has resulted in a curriculum shift towards technological and vocational skills since many school leavers must become self-employed.

In the first and second five-year plans the Government had middle and high-level manpower studies carried out. Arising out of those studies forecasts were made which in effect were goals to be reached. The first manpower forecast (1964) predicted an increase in middle and high-level manpower of 44,117 over the period of the plan. A survey carried out in 1969 showed a near perfect match of 44,102.¹² During the second plan, however, when manpower in the same categories was planned to rise from 44,000 to 80,000, the increase was an enormous 184 per cent to 125,000.¹³ The vast majority in this unplanned increase were primary school leavers with only non-formal post-primary experience — showing clearly that Government planning was not preventing the migration of workers to the urban areas and white-collar employment. (A related figure is that 36 per cent of the Dar es Salaam population live in uncontrolled settlements.¹⁴)

A major criticism of Tanzanian manpower planning is that, although conscientiously implemented and in part achieved, it remains technologically arrested and assumes 'more of the same' in terms of the occupational categories and the inherited pre-independence economic structure. Inevitably the priorities for development as seen by the individual citizen conflict to some degree with Government developmental strategy.

We have shown that the Tanzanian educational strategy has been to provide secondary education only to the extent that it is justified by manpower requirements of the economy. Government has achieved this by trying to maintain strict control over entry to secondary school, further training and university. The fact that only partial success has been achieved is due largely to the continued demand from the masses for secondary education as an exit route from the rural areas. It is then no accident that Nyerere sees as one of the main objectives of the other component of the Tanzanian educational system, the non-formal sector, 'to understand our national policies of socialism

¹² M. A. Biesfeld, 'Planning people', *Development and Change* (1972 - 3), IV, 51 - 77.

¹³ Stoneman, 'Survey of African experience with manpower planning', 18.

¹⁴ P. Van Hoffen, 'Rural Progress as a Means of Dealing with Urbanisation in Zimbabwe-Rhodesia' (Salisbury, Associated Chambers of Commerce of Zimbabwe-Rhodesia, Annual General Meeting, paper presented, 1979).

and self-reliance'.¹⁵ The establishment and rapid growth of the adult non-formal education system has perhaps been the most impressive of Tanzania's attainments — particularly if one agrees with Thompson. Enrolment has expanded from 360,000 in 1970 to 1 million in 1972 and 3.5 million two years later.¹⁶

Adult education has been a vital component of the Ujama-village scheme, providing a means of alleviating the poverty of the rural-based population — a major Government priority. The third five-year plan (due for completion in 1979) envisages the training of 45,000 Ujama chairmen, secretaries, treasurers, storekeepers and managers in three-month crash programmes held throughout the country at the rural training centres. Training is offered in this same period for eleven priority skills, such as masons, pump mechanics and carpenters. Such training is given without certificates in an attempt to prevent the drift to urban areas once an individual is qualified.

Thus, in summary, by means of an authoritarian, socialistic structure, the Government of Tanzania has imposed changes upon the people which have been resisted by the individual and have only been partially successful in slowing down the drift to the towns. The pressure from the masses for more secondary education as a means of escape appears unrelenting and will only be modified by significant success in the achievement of changes in attitude induced through the non-formal adult programmes.

Kenya

Our second example, in which the philosophic weighting favours capitalism, is that of Kenya.

Kenya in the early 1960's provides one of the most relevant comparisons with Zimbabwe in the late 1970's: the population was approaching 10 million (as compared with 7 million) with about quarter of a million non-Africans (although numerically dominated by Asians rather than Europeans).¹⁷

Like Tanzania, Kenya is primarily an agricultural country with 90 per cent of its population living in rural areas. Unlike Tanzania, economic growth has been substantial since independence, averaging 6 - 7 per cent a year.¹⁸ Most of the growth has occurred in the modern sector (industry and tourism), while agricultural development has lagged. One result of this imbalance has been increasing urban unemployment caused by an accelerated drift of would-be workers from the rural to urban areas faster than the expanding economy can absorb them.

¹⁵ J. K. Nyerere, 'Adult Education Year speech, 1971', quoted in B. Hall, *Participation and Education in Tanzania* (Brighton, Univ. of Sussex, Institute of Development Studies, Discussion Paper 86, 1975).

¹⁶ Stoneman, 'Survey of African experience with manpower planning', 19.

¹⁷ *Ibid.*, 15.

¹⁸ Simpkins, *Nonformal Education and Development: Some Critical Issues*, 38.

The 1965 development plan prepared by the Ford Foundation was built on the conventional wisdom of the causal relationship between education and development. It called for a massive expansion of both the formal primary and secondary-school systems. In the period from 1963 to 1973 enrolments in primary schools rose from 900,000 to 1.5 million and in secondary schools from 30,000 to 130,000.¹⁹ During the same period Kenya's manpower planning remained focused on the urban industrial sector. The demand for Category A (university graduates) was met although the distribution across the range of degree subjects was poorly matched with developmental needs. In Category B (senior administrators) the output of the schools fell short of estimated demands by more than 20 per cent, while in Category C (skilled technicians and clerical workers) the shortfall was a massive 84 per cent, and in Category D (skilled manual occupations) only 348 of the 2,732 required were supplied by the school system.²⁰ The urgent need for apprenticeship and formal training schemes was noted but priority continued to be given to the expansion of the formal secondary system. This expansion policy was essentially linear with a high academic content oriented towards examinations controlling progress up the ladder. Wastage in the form of failures and dropouts was consequently high. Dore, quoting Kinyanjui,²¹ points out that from an unemployment ratio of less than 1 per cent for O-level graduates in 1967 there was a jump to 15 per cent in 1968 and by the early 1970s the problem was recognized as acute.

The second five-year plan called for still further growth of the formal secondary system at 7.2 per cent a year until 1974,²² despite recognition of the fact that only children with technical skills were likely to find employment. Still clinging to the 'more of the same' policy, the plan stated that the only hope for increased employment was more rapid economic growth. As already stated the growth was achieved but only in the urban sector, further emphasizing the inequalities between the rural and urban societies. An I.L.O. Employment Strategy Mission to Kenya in 1972²³ revealed the inequality dramatically by pointing out that the bottom 40 per cent of families received 10 per cent of the income as did the top 1 per cent!

Simkins states²⁴ that 'despite the rapid expansion of the secondary system only about 1/3 of primary school leavers find places, another 1/3 repeat the last year of primary school and the remainder (about 54,000 in 1972) leave and enter the labour market'. Having embarked on a policy of acceding to popular pressures for more and more academic schooling (a system in which

¹⁹ Ibid.

²⁰ Stoneman, 'Survey of African experience with manpower planning', 16.

²¹ P. Kinyanjui, 'Education, training and employment of secondary school leavers in Kenya', in *Manpower and Employment Research in Africa* (1977), VI, ii, quoted in Dore, *The Diploma Disease*, 68.

²² Stoneman, 'Survey of African experience with manpower planning', 16.

²³ International Labour Office, *Employment Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya* (Geneva, I.L.O., 1973), 93.

²⁴ Simkins, *Nonformal Education and Development: Some Critical Issues*, 39.

successful individuals are qualified only to move higher up, and unsuccessful failures to minimal prospects of employment), the Government has been forced to support the growth of tertiary and non-formal post-primary education in the shape of village polytechnics. Initially established by a variety of voluntary organizations, the polytechnics have received increasing Government support over the past five years. In 1973 the Government funded 67 polytechnics with a population of 4,000 trainees and the target for 1977/78 was 250 institutions with 22,500 trainees.²⁵ In assuming responsibility for this aspect of education the Government is hoping to shift the emphasis away from the academic 'upwards progression' and towards more immediate and relevant skills — particularly those of value in rural areas.

The Ministry of Co-operatives and Social Services is quite explicit:

A village polytechnic is a low-cost training centre in a rural area. It aims at giving primary school leavers [and presumably unemployed secondary school leavers] from that area skills, understanding and values which will make them able to look for money-making opportunities where they live, and to contribute to rural development by building up the economic strength of their own community.²⁶

The implementation of these aims depends very much on the vision of the individuals founding and developing the polytechnics. Indications are that while many have made significant advances in providing terminal education many more are beginning to yield to pressures for conventional academic courses. Curricula are becoming standardized with a low-key role for agriculture. Examinations and certificates have gained a foothold, while teaching is tending to become authoritarian and classroom-oriented by staff who are employed on the basis of formal qualifications rather than relevant experience. Parents and trainees continue to judge the value of the courses by the degree of access that they offer to urban employment — a judgement which is receiving paradoxical reinforcement from employers who are showing signs of beginning to prefer polytechnics to general secondary qualifications.

Starting therefore from a diametrically opposed philosophical premise in Tanzania and Kenya, we have arrived at similar end-points: more and more people seeking higher and higher academic qualifications with the aim of finding urban employment in an economy which cannot expand rapidly enough to absorb them.

There is one other important consideration which perhaps conceals the hint of a route out of this dilemma. Even if rural education schemes of either the Tanzanian or Kenyan pattern can be made to work, there is a fundamental limit to the capacity of the rural areas for absorbing the products of such schemes productively. A balance must be maintained between a con-

²⁵ *Ibid.*, 40.

²⁶ Kenya, *How to Start a Village Polytechnic* (Nairobi, Minister of Co-operative and Social Services, 1971).

tinued inducement to develop the rural areas and the continued growth of the industrial, manufacturing and tourist sectors. Such a balance suggests a compromise curriculum which contains an academic core providing the basis for national economic growth and an alternative route to modern-sector employment as jobs become available, while retaining a strong rural self-sufficiency bias to provide a working base on which development may occur.

It appears that this balance has not been achieved in either of our scenarios. We cannot stress sufficiently the point that education and employment cannot be tackled as separate issues: that manpower planning can only be effective if integrated with a supporting education system.

ZIMBABWE

In Zimbabwe have seen that there are an anticipated 100,000 coming onto the labour market each year (of whom according to the Five-Year Urban Development Plan ²⁷ only 70,000 will obtain jobs). The cash economy simply cannot cope. Thirty thousand people each year will be frustrated and unemployed. While this is a drain on the economy and a waste of potential energy, unemployment in such proportions has serious political and social implications, which this economy could not contain. We might then usefully use the ten or more years' experience of other African countries which have faced similar challenges. Significant changes of approach to the development process should be kept in mind: agricultural development has moved to the forefront of development strategy; the cry for 'more schools' as the panacea for all ills is heard with greater scepticism; labour intensive technology becomes politically acceptable as does 'intermediate' or 'appropriate' technology. Finally 'unemployment' does not have the same meaning in the peasant-based economy as it does in an urban industrial economy, since the urban employed still retain some rights in the land.

What then do we see as the likely patterns and contingent challenges in Zimbabwe? Firstly, we take as given that there is a large reservoir of workers in the formal sector economy with informally acquired skills and/or long experience in the industrial economy. There will be, in addition, returning Zimbabweans with, as yet, unknown skills and experience gained elsewhere in Africa and overseas. In these regards, Zimbabwe is probably better off than most other African countries at independence. It is the quality and quantity of skilled personnel currently in wage employment inside the country that has been under investigation by a Manpower Study Unit (under the auspices of the Whitsun Foundation and the University of Rhodesia). Despite the scepticism about the relevance of complete manpower studies (especially their forecasting value), there remains considerable value in initiating the data collection/inventory stage. It is from the basis of such data that we are able to direct policy decisions realistically.

²⁷ Rhodesia, *Proposals for a Five-Year Programme of Development in the Public Sector*, 12.

The above analysis of two diametrically opposed development philosophies — socialism in Tanzania and capitalism in Kenya — suggests the inexorable emergence of similar end-points. Mass-felt needs force the expansion of certificating secondary-school systems which result in a trained manpower profile that is distorted out of sympathy with national needs.

We have tried to point out the nature of the crisis in education and in employment and can identify five forces operating in each.

Education

- (i) the student flood, released by a burgeoning of expectations and enlarged by a population explosion;
- (ii) the scarcities of resources, which are insufficient in the face of demands from the student flood for more teachers, buildings, equipment and textbooks; in the face of these demands scarce resources are diverted from economic development and job creation into education, and so threaten to strangle the economy;
- (iii) rising costs, due to the fact that education remains a labour intensive 'handicraft' industry;
- (iv) unsuitability of output, in which it is becoming clear that what we are teaching and what we are turning out are ill-fitted for the times, so that the economies of developing countries cannot absorb the human output of the educational system, and so cause educational unemployment; and
- (v) inertia and inefficiency, by which educational systems have clung to their old methods of administration, syllabus, curriculum and teaching methods, the self-contained classroom, the means of teacher training, and the whole traditional scene.

In the face of this crisis we suggest a number of radical alternatives to the conventional system of education.

(i) *Cost effective teaching with higher productivity.* Coombs writes:

the issue is whether it is necessary, desirable and possible to recast fundamentally the whole of education's technology, combining the best of the old and the modern in ways that will form an essentially new, integrated 'system' of teaching and learning, capable of yielding better results for any given level of effort.²⁸

We can deal with this issue with more *élan* if we realize that the basis for education's technology was not decreed by one man. Today's technology of education is mainly the product of a great historical stream made up of trial and error, occasional outbursts of great individual ingenuity and persuasion, of long practice and imitation, and of sheer habit. Take the pupil - teacher ratio as an example. It is one of the most sacrosanct of education's articles of faith. It has withstood the repeated siege of research results which suggest

²⁸ P. H. Coombs, *The World Education Crisis: A Systems Analysis* (New York, Oxford Univ. Press, 1968), 112.

no fixed relationship between the size of a class and how much is learned. Other variables obviously have more to do with what is learned — variables such as the quality of the teacher and the parents, the supply of teaching materials, the style and tone of the school, the health and nourishment of the pupils. Where, then, did the concept originate that a 25:1 or 30:1 pupil to teacher ratio was the 'ideal' to be aimed at? An enterprising historian finally traced the matter back to a doctrine derived from the Talmud *Baba Bathra* which contains this instruction: 'One teacher is to have twenty-five pupils; if they be fifty, then two teachers must be appointed; if they be forty, the teacher has to have an assistant.'

What is needed is for teaching to move away from its air of traditional handicraft and move into an area of greater productivity and cost effectiveness.

If teachers are given better tools to work with — such as more and better textbooks and other teaching materials, or language laboratories, or a teacher's aide to handle clerical and housekeeping chores, or good quality instructional radio or television programmes — they may be able to teach more pupils, and the pupils may succeed in learning more in a given hour or academic year than under the previous combination of factors. The teacher himself may not 'work' any harder. However, he may enjoy his work a good deal more. With better tools, his professional capabilities are more fully utilized and he accomplishes larger and better results. His 'productivity' increases.²⁹

It is precisely in this way that the productivity of workers and professionals in other fields has been increased over the years, permitting them to enlarge their output and to earn better salaries. Consider how many fewer patients today's doctor could handle if he were denied a car to make his rounds, and how much less he could do for their health if suddenly he were without his modern instruments, laboratory services and prescriptions. The farmer, the factory worker, the engineer, the architect, the business executive have all increased their productivity — and their incomes — in the last two generations by adopting new tools and methods, and by subdividing tasks between themselves and their subordinates or others.

This modernization process has not yet gone far in education. No-one who has objectively observed the educational process at work, or who has actually worked in it, can doubt for a moment that every educational system — including the most 'modern' — has abundant room for improvement of its efficiency and productivity. Improvement, of course, is far easier called for than achieved. As we observed in connection with management, educational systems lack the institutional means and the modern analytical tools for identifying potential improvements of this sort and then taking advantage of them. Moreover, such improvements often involve changing familiar routines and adopting new techniques and new divisions of labour. Such changes,

²⁹ *Ibid.*

affecting many participants in the system, easily inspire resistance among many people who tend to see in a proposed innovation either a device for extracting more work from them for the same pay, or one for making their own jobs obsolete.

This emphasizes the great importance of incentives to change.

In an earlier paper³⁰ we have outlined as an example a possible approach to a system of making the best use of a limited number of highly qualified and highly experienced science teachers. This is a system embracing teachers, assistant teachers, computer marking methods and mass media. We can go further. The replacement of the conventional classroom and teacher with distance-teaching systems can improve the cost effectiveness of education by at least an order of magnitude. Not correspondence education, but genuine integrated use of media in which each medium is used to best advantage to present material best suited to it. The design of such a structure and ways in which it might be implemented have been discussed elsewhere³¹ and there is much experience in the Third World to draw upon. Such a system is the key by which the potential of every child in the country could be unlocked.

(ii) *Change the curriculum.* Around the academic core of the curriculum must be built a solid and irremovable layer of immediately applicable knowledge and skills. Disband the Young Farmers and reform them as the Money-makers Brigade through an entrepreneurial curriculum module which is an intrinsic part of every child's education. Aspects of conservation, natural resources, accounting, information gathering and self-instructional skills fall naturally into this area. The rural module may look like the Young Farmer's Club, the urban module may be concerned with paper-rounds, shoeshining, junk conversion or car washing but the essence of both will be self-employment, self-support, and self-development.

Such a curriculum will still revert to academic stepping stones unless the end point is changed. De-emphasize paper certificates and replace them with real rewards. If the successful pupil has completed a course in carpentry, give him a set of tools. If he has acquired skills in small-livestock rearing, advance him the credit to begin raising them and if he shows real promise in a particular area let him be guaranteed a place in employment.

(iii) *Changing the teachers.* We have shown that attempts to change the direction of education fail if the adults involved, teachers and parents, are unconvinced of the merits of change. Re-education of the teachers, changing their attitudes towards the courses they teach, cannot be accomplished by ministerial edicts alone. Fundamental changes in attitude can only be accomplished by bringing teachers face to face with the problems of development. This suggests regular periods spent in other avenues of employment both

³⁰ A. W. Dock and M. J. Robson, 'National television network: An urgent solution to an urgent problem', *The Zimbabwe Rhodesia Science News* (1979), XIII, 173 - 4.

³¹ A. W. Dock, 'Interim Report on the Application of Distance Teaching Techniques to Educational Development' (Salisbury, Univ. of Rhodesia, Faculty of Education, mimeo, 1979), summarized in *The Zimbabwe Rhodesia Science News* (1979), XIII, 124 - 7.

rural and urban.

(iv) *A greater emphasis on non-formal education.* Nyerere has pointed the way to the benefits which can accrue by diverting funds from the formal secondary to the non-formal sector. Not only can skills and knowledge be generated in people who have been rejected by the narrow constraints of the formal system, but the driving force for radical change can gather fresh impetus from the realization in those people that narrow academic pathways are not the only routes to becoming successful and respected members of a community.

Employment

As in education, we can identify five forces that silhouette the crisis in employment in developing countries:

- (i) the flood of job seekers released by the reduced fertility of the soil, the abandonment of traditional life and enlarged by a population explosion;
- (ii) the scarcity of resources, which are insufficient in the face of demands for jobs in the urban sector;
- (iii) reduced demand for unskilled and semi-skilled workers due to the introduction of 'clever machine' technology;
- (iv) unsuitability of job-seekers, due to the 'diploma disease' in education which sets certification above skill acquisition and produces passive employees instead of active entrepreneurs; and
- (v) inertia in the social system which encourages 'big company' and civil service job creation at the expense of small entrepreneurs.

There are four fronts on which we can tackle the problems of providing 'productive employment' for all.

(i) *Land.* This is the most fundamental issue if we are to confront 'employment' realistically. With overloaded T.T.L.s and unused commercial farms it has been recognized that some form of land resettlement is essential. Space does not permit a lengthy discussion of how land could be allocated, but it is suggested that productive commercial farms, which provide food, employment and foreign exchange, should be retained; and that unused or uneconomically used commercial farms be resettled as individual or co-operative run units (Kenya and Ghana have shown that it is possible to maintain exports on this basis³²). Such re-settlement would only be meaningful if supported by an adequate infrastructure, not only in the physical sense of roads and water, but also in respect of:

- (a) marketing facilities,
- (b) credit facilities (in Mexico small landowners unite to establish credit for shared capital investment),

³² R. C. Riddell, *Alternatives to Poverty* (Gwelo, Mambo Press, Rhodesia to Zimbabwe 1, 1978).

- (c) huge expansion of extension and conservation facilities, as already existing in nucleus form in Devag and Conex, and
- (d) backed up by intensive adult literacy (women in T.T.L.s are the immediate target population though their urban working husbands are to be included to reorient traditional attitudes).

(ii) *Urban-industrial base.* We need to re-orientate our thinking about technical training. At present the Apprenticeship Contracts due for completion are:³³

1979	1980	1981	1982	1983
719	1 017	882	776	523

An average of 800 per annum (without accounting for drop-outs) would account for 1 per cent of the 70,000 jobs proposed in the Five-Year Development Plan. Despite aims to increase this by 50 per cent, alternatives to the five-year apprenticeship training will have to be found. The relevance of the apprenticeship scheme itself is debatable. A good journeyman is not necessarily a good trainer. Would it not be more appropriate for interested 'skilled' persons to undergo further training in teaching skills and man-management for promotion to journeyman status.

Once the current Manpower Inventory Study has identified critical shortages of specific skills, the establishment of 'skills centres' becomes a possibility. Employees would attend modular training courses: short period, intensive training and continue on the job. After a number of modules the employee would be eligible to take a trade test and receive 'skilled' status. Facilities at the existing Government Polytechnics would initially be sufficient thus avoiding heavy investment in new training schools.

For skills that are in short supply, though not critical, a 'Sunday school' training could be offered to employees on site — the only costs here being full-time training staff and running costs at a factory one day per week. This offers structured training in a real-life situation.

A brief reference here must be made to Management Training which must take into account the psychological aspects of the decision-making process in the traditional, group-based African society as opposed to the individualistic competitive nature of the Western-type economy.

(iii) *Reorganization of the occupational structure* requires greater flexibility in that structure such that the distinction between technical and professional is blurred. The trained nurse may continue to train as a doctor. The qualified technician could continue training to become an engineer. Flexibility is the key word whereby individual talents and abilities are given opportunity to develop to the full and to contribute to the national economy, while 'drop-outs' can be slotted into the occupational structure at their own level.

³³ Rhodesia, *Annual Report of the Apprenticeship Training and Skilled Manpower Development Authority 1978* (Salisbury, Government Printer, 1979), 10.

(iv) *Entrepreneurial skills* within the 'informal sector'³⁴ should be encouraged and assisted wherever possible. By the informal sector is meant those self-employed vegetable vendors, basket makers, tin-smiths, cobblers, shoeshine boys and a myriad others who provide basic goods and services to the low-income group. In the past official policy at best has been ambivalent towards those self-employed, such that vendors may be ignored for some months prior to a 'raid' when those without municipal licences are harassed off the street. A reversal of the official attitude, accompanied by legislative changes, such as easing health regulations, would open an area of productive self-employment for entrepreneurship and self-reliance.

SUMMARY AND CONCLUSION

Four conventional wisdoms about education and employment in developing countries have been identified. These premises underlie much development planning as has been demonstrated in the cases of Tanzania and Kenya. An analysis of the facts of Zimbabwe's existing educational and employment patterns reveals firstly the inappropriateness of those conventional wisdoms to Zimbabwe and secondly the inability of the existing structure to achieve them anyway.

Radical shifts in our approach must be made if we are to avoid the conflicts of demand versus inability to supply either school places or jobs. Some alternatives are suggested in this article to point the direction of change. It is clear that crises in education and employment are analogues in many ways. Part of the problem arises because of the lack of a model of the whole system which embraces both education and employment. And we reiterate: education and employment cannot be tackled as separate issues: manpower planning can be effective only if integrated with a supporting education system. Is it not time for those planning for more education and those planning for more employment to unite? We are poised for change — can we lose the opportunity to make it meaningful and productive change?

³⁴ R. Davies, *Informal Sector* (Gwelo, Mambo Press, Rhodesia to Zimbabwe 5, 1978).



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