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*TRANSNATIONAL CORPORATIONS AND TECHNOLOGY TRANSFER
IN SOUTHERN AFRICA.*

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**TRANSNATIONAL CORPORATIONS AND THE TRANSFER OF TECHNOLOGY
IN SOUTHERN AFRICA: SOME CONCEPTUAL AND POLICY ISSUES**

by

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INTRODUCTION

Transnational corporations (TNCs) are something of a paradox in the political economy of African countries. In the late 1960s TNCs were seen as a grave threat to national sovereignty and today, they are seen more as fellow travellers towards national development. The nationalisations of the 1960s were seen as 'an excellent weapon with which to attack a world economic system perceived to be operated by the rich, for the rich.'¹ Today, Tanzania is imploring Lonrho to come back and run her tea estates, Zambia is privatising her manufacturing industries and Zimbabwe is doing good business with H.J. Heinz.² This strange turnabout is, it is alleged, largely due to necessary technological inputs that the TNCs have. This paper will argue that this position is based on a misunderstanding of the functioning of contemporary imperialism; and that if pursued to its logical conclusion African countries cannot hope to develop. This paper is divided into three main parts. The first part will attempt to clear some conceptual issues relating to the changing face of contemporary capitalism. The second part will outline the major mechanisms through which TNCs commercialise technology in the Southern African region; and the third part will address some policy issues that may help to break the vicious circle of technological dependency and underdevelopment.

Imperialism, Transnational Corporations and Technology

In order to understand fully the 'liberal economic policies involving a weakening of state control, policies that two years ago would have been anathema, are today being embraced with eagerness and hope'³ it is important to go back to the fundamentals. This involves going back to the theory of imperialism. As such, it is important to note that the theory of imperialism was developed to do three things:

1. to provide a theory of international relations within the capitalist world, encompassing not only relations between advanced and underdeveloped countries but also among the advanced countries themselves;
2. to contribute to the clarification of the development of social and political conditions within the various capitalist countries both advanced and underdeveloped; and
3. to provide an important part of the explanation of strictly economic tendencies and trends within the advanced capitalist countries.⁴

According to Lenin, imperialism is capitalism at its highest stage.⁵ Before the 1880s when capitalism attained the monopoly stage, it was the industrialists that constituted the dominant capitalist class. Their interests in underdeveloped countries were twofold: as sources of cheap food and rawmaterials; and as a market for manufactured goods. The first was aimed at boosting the rate of profit while the second was aimed at solving the realisation problem. After the emergence of monopolies, bankers seized the

initiative and became the leading echelon of the imperialist class. Since bankers deal in capital, their primary interest in developing countries was the export of capital at the highest rate of profit. This was the development of imperialism at the time Lenin studied it.

Today, however, one cannot speak of either industrialists or bankers as the leading echelon of the capitalist class. Since the time of Lenin, the process of concentration and centralisation has increased its tempo resulting in the formation of big monopoly corporations. At first, these corporations were formed and controlled by bankers. However, due to the enormous profits they were able to make, they managed to pay off their debts to the banks and ploughed back their earnings until such time that they became financially independent. In effect, most of the large corporations have acquired control over banks and other financial institutions. Thus today, these giant corporations are the basic units of monopoly capitalism. Their owners and functionaries form the echelon of the dominant capitalist class.

The TNCs have been described variously in the literature. However, the distinguishing characteristics of Transnational Corporations could be summarised as follows:

1. they are large in general and in relation to national firms;
2. they are found in concentrated and oligopolistic industries, such as petro-chemicals, cars, etc;
3. they are national in terms of ownerships (except for Shell and Unilever which are both British and Dutch);

4. they are diversified and conglomerate in their operations;
5. they are supported by the growing internationalisation of banks and service companies of all kinds; and
6. since the Second World War, their investment pattern has shifted from raw materials to manufactured goods, and from developing countries to developed countries.

It is not only the sheer size that gives TNCs undue advantage in the market^t place. Magdoff and Sweezy itemised the advantages of the TNCs as being:

1. plenty of capital to invest and almost unlimited access to credit on favourable terms in both domestic and foreign money markets;
2. a pool of managerial talent which can be deployed anywhere in the corporate empire according to need;
3. a large and effective sales apparatus which is similarly available to all units of the corporate empire, and
4. research and development facilities which can be put to work to solve all sorts of technological and marketing problems.⁶

Thus understood, it becomes evident that the edge that the TNCs have over smaller companies has to do with their monopolisation of and control over technology. Odle put it more succinctly:

In this the latest and most modern imperialist phase technology has been made explicit and has become commercially disembodied from capital in order to maximize the profits of the multinational enterprises. This control over technology acts as an effective counter to Third World successes in the last two decades in gaining ownership over the means of production. Generally, the commercialisation of technology in this import substituting period marks a new era of

imperialist penetration. It is itself a culmination of previous modes of the commercialisation process in the manufacturing sector. ... the technology supplying multinationals are now able to enjoy very substantial rewards without the responsibility involved in the commitment of risk capital.⁷

Disembodied technology referred to above includes such things as knowledge, experience and organisational skills accumulated by people and institutions as opposed to embodied technology which refers to equipment, plant and processes: i.e. knowledge and skills already transformed into productive artifacts. As such, disembodied technology is the stuff the TNCs deal in.

In a study conducted in the Andean Group of Countries, Vaitos found out that TNCs used about seven ways to commercialise their technology and they are as follows:

1. direct investment through subsidiary companies operating in these countries;
2. the use of debt as a substitute for equity in joint ventures;
3. payment of royalties on licences, patents and trademarks;
4. capitalisation of know-how in the form of payments for managerial, technical and marketing agreements;
5. capitalisation on machinery and equipment supplies (most of which are already completely depreciated);
6. creation of secure markets for intermediate and capital goods; and
7. control of further technological development by the use of expatriate technical personnel, experts and consultants.

Thus understood, the issue of imperialism, TNCs and technology characterise the evolution of contemporary capitalism. It describes a movement from the quest for cheap raw materials and markets for manufactured goods to the export of capital, through to the export of technology (services). As such, it is no longer true to say developed countries export capital. On the contrary they are importers of capital from the developing countries, variously called: dividends, profits or interest. More importantly, they are aided in this exercise by their home governments and international institutions such as GATT, IMF and IBRD to name only a few.⁹

Transnational Corporations in Southern Africa

Progressive writers on the Southern African have noted that the incorporation of Southern African countries in the capitalist system was largely accomplished via South Africa. With the exception of Tanzania and to a lesser extent Angola, the concern of monopoly capital, at the time, was that of creating a large reserve of cheap labour to valorise investments in the mining, plantation and, later on, industrial and construction sectors. Here it is important to note that the export of capital was concentrated in the mining sector. It is also important to note that this was at a time when the banking fraction of the capitalist class was hegemonic. By keeping this in mind, we shall also be able to appreciate the emergence of South African transnational corporations which extended and continue to maintain a dominant presence in the economies of most countries in

the region. This part of the paper will trace the evaluation of TNCs in the Southern African region and it will pose the question as to whether the TNCs' involvement in the region has led to transfer of technology.

Several books have been written about the involvement TNCs in the economic development of the Southern African region.¹⁰ Another set of literature has highlighted the specific roles of individual TNCs and their subsidiaries in the development of individual countries. This part of the paper will not attempt a synthesis of these works. Rather, we shall merely outline the motifs of that development: tracing its movement, its peculiar features and its tendencies. Firstly, it is important to note that most dominant TNCs in the region are South African, and that their origin is in the mining industry. Secondly, it is also important to note that since the Second World War, these corporations have managed to diversify sectorally and geographically. In other words, they have managed to be conglomerates and transnational.

It has already been said that the mining industry in the Southern African region was the locus of capitalist penetration and the motor of accumulation. The mining houses that emerged were able to mobilise capital on the international markets mostly Britain, United States and Europe. This capital was invested in mining operations in South Africa and other mining enclaves in the region. Owing to the cheap labour that was made available by various state policies, the mining houses were able to make super profits most of which went to buying

off the interests of the foreign financiers and the expansion of mining and other mining related industries in South Africa and the other Southern African countries. By encouraging immigration and other associated policies, these corporations also managed to acquire a technological capacity related to the sectors in which they were operating. It should, however, be noticed that this technological capacity was confined to the settler (white) community.

These corporations turned into conglomerates and transnational especially after the Second World War. The first areas of diversification were in other mining activities such as industrial minerals; mining related industries such as mining equipment and machinery; chemicals; service industries such as banking; insurance; real estate data and information systems; and more recently into consumer goods industries. The Anglo-American Corporation is a typical example of this expansion and diversification.¹¹ However, to sustain this rate of expansion and diversification, Southern African based TNCs have had to go into partnership with European and American based TNCs. Again, this information is well documented elsewhere.¹² These corporations became transnational first by establishing mining and other allied operations in the neighbouring countries. Secondly, by establishing service and input supplying subsidiaries in Southern African countries; and thirdly, by selling technical know-how to companies based in the region. However, companies like Anglo-American Corporation became transnational by establishing subsidiary and associated companies outside the Southern African region.

Today, the Anglo-American Corporation has subsidiary and associate companies operating in all the five continents of the world.

Thus, apart from the South African based TNCs the Southern African region has other foreign TNCs. Some of these TNCs collude with South African based TNCs while others are in competition. However, the fact remains that all of the countries in the region are largely dominated by foreign capital or have something to do with TNCs. On the other hand, at least, the more progressive countries have at one point or the other espoused the notions of self-reliance and economic independence. The argument that is increasingly being proffered regarding this collaboration with TNCs hinges on the fact that TNCs are a necessary evil: that they can be partners in development because they provide technology. Put differently, the argument goes as follows: we need technology for our development efforts and it is the TNCs that have the technology.

The remaining section of this part of the paper will attempt to show how this argument is not a valid one. More importantly, it will be argued that TNCs may have the technology but they are not in the business of transferring it. Secondly, it will be shown that technology is something that a firm, country or region nurtures and accumulates: it does not flow from arms length association with TNCs. To do this we shall use the Zambian experience.

The colonisation of Zambia is closely connected to the expansion of monopoly capital: Zambia was first colonised by the British South Africa (BSA) Company, representing the interests of Cecil Rhodes an established mining baron in South Africa. The BSA Company expropriated all the mineral rights in the country and alienated some land. In addition, the BSA Company instituted an administrative structure which nurtured capitalist relations of production and the reproduction of those relation through the system of labour migration. In 1923, when Zambia became a British protectorate, Zambia had already become a huge reservoir of cheap labour for Zimbabwean and South African mines and plantations. When Zambia developed her own mining industry some of this labour was retained in the country while the surplus continued to be exported to the South. The companies that invested in the Zambian mining industry were largely dominated by South African capital. Similarly the industrial developments that took place before independence were extensions of the mining industry and were largely controlled by South African mining houses. The growing technological demands of the mining industry were met by supplies from Zimbabwe and South Africa and by the recruitment of foreign personnel. The practice of colour bar and job reservation for whites meant that no Africans could work in skilled jobs. Thus at independence, Zambia was industrially underdeveloped and technologically dependent.

After independence, Zambia embarked on an import substituting industrial development strategy; increased educational facilities for the population and, later on, nationalised most of the large foreign owned companies in the country. As far as national development policies go, there is nothing seriously wrong in these moves: they were intended to create a national industrial infrastructure; to give Zambians tools to participate in an industrial and technological culture; and to give government more say in directing national development.

It is no secret that import substituting industrial development has not been successful. This is largely because it was based on external supplies of inputs. The provision of educational facilities had qualified success. Qualified in the sense that the high level manpower produced is either underutilised or unemployed. There is now an oversupply of technicians who cannot find jobs because the economy is contracting; university graduates are unemployed while "their jobs" are filled with donor agency personnel paid by their home governments or institutions. Nationalisation, if judged by the performances of parastatal companies, has also failed miserably because of mismanagement and lack of proper direction. However, it should also be mentioned that a large number of managements in the parastatal sector have remained foreign due to the various management agreements the parastatal companies have entered into with their foreign partners.

To go back to the original question: Do TNCs transfer technology? From the Zambian experience the answer is obviously not. Take the case of the mining industry, standard mining technology is relatively basic. The mining companies have been operating in Zambia for over fifty years and none of this technology has been "localised." Since the nationalisation of the mining companies, over fifteen years ago, Zambians do not yet control the direction and pace of technological development in the mining industry. In effect, there is less local technological capacity in Zambia today, relating to the mining industry, than was the case before nationalisation.¹³ Similarly, these companies that have management agreements with TNCs do not fair well compared to those that do not have such agreements.¹⁴ This points to two things. First, that TNCs do not transfer technology willingly. Secondly, that nationalisation of TNCs does not automatically lead to a greater degree of technology self-reliance and industrial development.

Some Implications for Policy

The preceding part of this paper has argued that TNCs do not readily and willingly transfer technology. In fact, their business is to commercialise technology. It has also been pointed out that the sale of technology is the major mechanism through which monopoly capital appropriates and expropriates surplus from developing countries. This part of the paper will outline an alternative way of acquiring the necessary technology for development without having to depend on

TNCs. This alternative is derived from experiences of countries as well as companies in those countries that have transferred technology without the 'aid' of TNCs which may relocate technology without transferring it. Thus, for the genuine transfer of technology to take place there are a number of preconditions that need to be fulfilled. These are:

- (a) there must be a local technological capacity in the receiving country;
- (b) there should be policies that ensure that those capabilities are nurtured and strengthened;
- (c) scientific and technological activities should be planned and integrated in the national (and regional) development plans; and
- (d) there should be an institutional framework to coordinate all these policies and activities.

A local technological capacity intended to manage an effective transfer of technology must necessarily be based on the skills, knowledge and experience of local personnel organised in institutions which effectively deploy their work, and backed by adequate material resources and support services. The constituents of a local technological capacity are: the educational system, the research and development establishment, specialist workshops and facilities, engineering and consultancy, information systems and mechanisms; and management, planning and financing.¹⁵ More importantly, there should be a dynamic interrelationship among the various constituents of a local technological capacity. In other words, a country wishing to manage the transfer of technology must nurture the development of its

human resources, its scientific and technological infrastructure; and its industrial infrastructure. Human resources development comprises the popularisation of a modern scientific and technical education system; industrial training and management training. The development of scientific and technological infrastructure comprises the development of a community of scientists and engineers, research and development units, engineering and consultancy companies, and information system. The establishment of a dynamic industrial infrastructure involves the nurturing and strengthening of strategic industries. These include: the basic metals industry; the chemical industry; the metal working industry; and the engineering industry.

The development of a local technological capacity requires policy. A policy is an official statement which a specific purpose, a set of objectives, defined goals and outcomes, and a set of criteria for choosing among competing alternatives. In addition, if a policy is to be applied, it requires a policy instrument. A policy instrument comprises a legal device which gives it normative force; an organisational framework which ensures implementation; and an operational mechanism which oversees the day to day implementation of the policy.¹⁶ Furthermore, a policy could either be explicit or implicit. An explicit technology policy aims at inducing a direct effect on the country's technological development and could take the form of a law or a statute directing one or several organs of government to carry out specific tasks that affect the direction and development of technological activities in the country. An implicit technology

policy, on the other hand, is a policy directed at inducing another aspect of the socio-economic system, but whose residual effect has a bearing on the development of technological activities. These include policies directed at the development of manpower, industry, culture, ecology, population, etc.

In order to enhance the transfer of technology, there are a number of areas where technology policies need to be focused. These include policies that stimulate the demand for locally generated technology; policies that enhance the local capacity to generate technology; policies that increase the local capacity to absorb both locally generated and imported technology; as well as policies that establish a framework for monitoring the importation of technology.¹⁷

Such policies, however, if they are to be effective, need to be integrated in the national development plan. In other words, the national development plan ought to contain a technology development plan. The constituent parts of a development plan should include aspects such as: the strengthening of scientific research and experimental design work; the mechanism for introducing achievements of science and technology into the national economy; the enhancement of material and technological aspects of scientific work so as to ensure mechanisation and automation of production, the financing of scientific and technology research including capital investment in the development of science and technology; and the planning for the training of scientific and technical personnel. Such a plan,

if integrated in the national development plan could be a basis for strengthening a local technological capacity and for the implementation of national technology policies.

However, it is not uncommon to find very elaborate national development plans that are not implemented. This is largely due to a lack of institutions to implement such plans. In the case of a technology plan, there are at least four institutions that need to be in place to coordinate technology policies, to ensure the planning of technological development; and to nurture a local technological capacity. These include:

1. a technology planning unit to take charge of the planning function;
2. a technology review agency to monitor technology imports;
3. a technology information centre to disseminate information relating to technology demand and supply situations; and
4. a national academy of sciences to foster the development of a community of scientists and engineers.

Since the development of a local technological capacity is one critical way of combating imperialism, countries in Southern Africa could do well to see beyond the received notion that TNCs transfer technology and begin to mount national and regional programmes that increase their national and regional capability to escape from further imperialist exploitation. It is interesting to note that while the original intentions of the SADCC initiative were aimed at promoting collective economic independence from imperialism, SADCC has not yet

devised a strategy for minimising the influence of TNCs in the region. This is so because the organic linkages between imperialism, TNCs and technology are not well understood. It is also instructive to remember that the last SADCC meeting included a session in which private entrepreneurs were invited to discuss the role and mechanism by which private capital could join in promoting regional development.¹⁸ To say that monopoly capital still has a bright future in the region especially if the technological issue is not resolved might not be a gross exaggeration.

By Way of Conclusion

This paper addressed three interconnected issues: imperialism, transnational cooperations and technology. The paper argued that these issues represent a single process: the contemporary form of capitalist domination and exploitation. The focus of the paper was on how this process has evolved in the Southern African region. However, since the main purpose of the paper was to highlight the technological problem and its use as an explanation for current liberalisation policies in the region, the paper did not touch on the other important issues such as the political, social and economic structures and tendencies that issue from this global process. The paper paid particular attention to policy concerns that might help to extricate Southern African countries from further capitalist exploitation. Such strategies could be started at the national or regional level if there is a political will to do so.

Our concern, in this paper, was a very limited one. It was directed at provoking a debate at the conceptual level and at outlining areas of policy concern.

NOTES

1. Michael Shafer, "Capturing the Mineral Multinationals: Advantage or Disadvantage?" International Organizations, 37, Winter 1983, p. 94.
2. Peter Robbs, "Privatization in Africa: Neither Pox nor Panacea," Development International, Vol. 1 Number 2, March/April 1987, pp. 27-30.
3. Ibid., p. 27.
4. Paul A. Baran and Paul M. Sweezy, "Notes on the Theory of Imperialism," in Readings in U.S. Imperialism, edited by K.T. Fann and D.C. Hodges, Porter Sargent Publisher, 1971, p. 61.
5. V.I. Lenin, Imperialism: The Highest Stage of Capitalism Progress Publishers, 1973; other more recent works are: A.Z. Astapovich, The Strategy of Transnational Corporations, Progress Publishers 1983; Andrei Gromyko, The Overseas Expansion of Capital: Past and Present, Progress Publishers, 1985.
6. Harry Magdoff and Paul M. Sweezy, "Notes on the Multinational Corporation," in Readings on U.S. Imperialism, op.cit., p. 105.
7. Maurice Odle, "Commercialization of Technology and Dependence in Guyana and Trinidad," in Commercialization of Technology and Dependence in the Caribbean, edited by M.A. Odle and O.S. Arthur, Caribbean Policy Studies Project, 1985, p. 11.
8. C.V. Vaitzos, Inter-Country Income Distribution and Transnational Enterprises, Clarendon Press, 1974, Appendix 1. pp. 145-147.
9. D.W. Nabudere, Essays on the Theory and Practice of Imperialism, Onyx Press, 1979.
10. Some of classic works include: Herbert S. Frankel, Capital Investment in Africa: Its Course and Effects, OUP, 1938, Theodore Gregory, Ernest Oppenheimer and the Economic Development of Southern Africa, OUP, 1962; Duncan Innes, Anglo American and the Rise of Modern South Africa, HEB, 1984, and Greg Lanning and Marti Mueller, Africa Undermined, A History of the Mining Companies and the Underdevelopment of Africa, Penguin Books, 1979, Samir Anin and Carl Windstrand, Multinational Firms in Africa, Nordiska Afrika-institutet, 1975.

11. Anglo American Corporation, Annual Report, 1985.
12. Ann and Neva Seidman, U.S. Multinationals in Southern Africa, Tanzania Publishing House, 1977.
13. After nationalisation the International Corporation hived off technology generating units and located them in the U.K. See Gilbert N. Mudenda, The Development of the Mining Industry in Zambia: A Study in the Transfer of Technology - D.Phil. Thesis, University of Sussex, 1984.
14. Gilbert N. Mudenda and Raj Bardouille, Major Mechanisms for Technology Transfer in the Parastatal Sector in Zambia, East African Technology Policy Studies Project, forthcoming.
15. Norman Girvan, Technology Policies for Small Developing Economies: A Study of the Caribbean University of the West Indies, 1983, pp. 124-125.
16. Francisco Sagasti and Alberto Araoz, Science and Technology Policy Implementation in Less-Developed Countries, IDRC, 1976, pp. 16-18.
17. Gilbert N. Mudenda, "Technology Transfer in Zambia: Some Problems and Prospects," paper presented at the Seminar for Chief Executives of Parastals, December, 1987, p. 13.
18. The Liberalisation mood is not only confined to governments but also to regional bodies. SADCC is no exception. The case for coordinating the development of Technology has been made elsewhere. See G.N. Mudenda, The Development of a Local Technological Capacity in the SADCC region, African Region Perspectives Project, Dakar, February, 1986.



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