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On maximizing third world benefits from mineral resources

ON MAXIMIZING THIRD WORLD BENEFITS FROM MINERAL RESOURCES

by Ann Seidman

I am grateful for the invitation to participate in this International Symposium on "Strategies for Exploitation of Mineral Resources in Developing Countries." Schools like yours will undoubtedly play a key role in devising new strategies for exploiting mineral resources as a foundation for building self-reliant, integrated development capable of providing productive employment opportunities and raising the living standards of third world peoples. I welcome this opportunity to share information and ideas.

THE UNDERLYING PROBLEM:

At this symposium, I need not dwell on the nature of the historically-shaped problems confronting minerally-based economies today. You are all as aware as I as to the way, for centuries, foreign firms employed local labor at low wages to mine third world countries' rich minerals and ship them for processing to their factories back home (e.g., A. Seidman, 1975). The parent companies based in western industrialized centers not only owned they mines. They also manufactured mining equipment and machinery, and handled the marketing and processing of the mines' output for the final consumers.

The peoples of host countries benefitted little from the multiplier effects promised by mainstream economists. Enclave-like mine development generated few backwards or forwards linkages to other sectors of the national economy. Only a small fraction of the national labor force obtained even low paid jobs on the mines -- and in recent years increasingly capital-intensive mechanization has reduced that fraction. Few workers learned the skills needed to manage the mines, far less increase productivity in other sectors of the national economy. And the companies remitted a major share of the profits to their home countries -- in small countries like Zambia and Namibia as much as 25 to 40 percent of the Gross Domestic Product -- leaving behind little capital to start other productive activities. The host countries spent the little foreign exchange they earned for their mineral exports to import high priced manufactures for those few who could afford to buy them. When the world prices for crude minerals fell, the foreign mine companies simply laid off workers and cut back production -- and crises spread through the national economies.

After World War II, nationalist movements held out the hope that independence would assure a greater share of the benefits from their countries' minerals. But, as we all know too well, their bright dreams dashed on the rocks of the harsh reality. Even when newly independent national governments acquired shares in their countries' mines, seeking to take over the management and capture the investable surpluses generated, the majority of their peoples benefitted little.

By the late 1970s and early '80s, the international crisis, engulfing most third world mining economies, exposed their relative lack of success in contributing to greater national welfare. In the face of relatively inelastic demand, their competition to expand the mines'output, together with the introduction of substitute products, pushed down world mineral prices. They borrowed heavily abroad at high rates of interest to cover the on-going costs of their expanding bureaucracies, social services and other development programs. As Table I shows, debt service payments began to consume an increasing share of their foreign exchange earnings. The International Monetary Fund (IMF), in return for its assistance, imposed an austerity package that typically contributed to growing unemployment, reduced social services, and falling real incomes (A. Seidman, 1986a; Makgetla, forthcoming). At the same time, the IMF pressured their governments to halt even the limited 'interference' through which they had sought to augment their mining sectors' contribution to national welfare.

Table I: EXTERNAL DEBT OF SELECTED MINING ECONOMIES

in millions of U.S. dollars and as percent of GDP

1970 and 1983

Country	External public debt (millions of dollars)		as percent of GDP	
	1970	1983	1970	1983
Bolivia	479	2,969	33.8	77.7
Chile	2,066	6,827	25.8	39.2
Guinea	314	1,216	47.4	69.2
Jamaica	160	1,950	11.8	65.2
Liberia	158	699	49.6	72.1
Papua New Guinea	36	911	5.8	40.4
Peru	856	7,932	12.6	48.1
Zaire	311	4,022	17.6	91.5
Zambia	623	2638	37.0	83.9

Source: World Bank Annual Development Report, 1986 <New York: Oxford University Press, 1986>.

The question is, why? How can developing countries devise effective measures to ensure their mineral wealth contributes more to spreading increasingly productive employment opportunities and rising living standards for their peoples?

AN EXPLANATORY HYPOTHESIS:

I would like to suggest an hypothesis to explain why so often in the past, despite bold declarations at independence, developing countries have failed to attain their proposed goals. To the extent that it is valid, it suggests an agenda for the kind of research needed to design more successful policy measues.

My hypothesis comprises two basic propositions. First, despite their declared determination to exert greater national control over their mining sectors, most post-independence governments largely left intact colonial-shaped institutional structures that delegated primary decision-making power to foreign mining firms. In the context of the post World War II technological revolution that multiplied the capital cost of mining machinery and equipment, transnational corporations asserted even more concentrated control over international sources of mining capital, technology, managerial personnel and markets (Seidman and Makgetla, 1980). Despite nationalist governments' marginal changes in national institutions, these still functioned primarily to replicate inherited patterns of mining investment. They left the host economies dependent on crude low-cost mineral exports directly or indirectly controlled by a handful of transnational mining conglomerates.

If valid, this first proposition focuses attention on the need to investigate alternative ways of exerting more effective national control over mining sector institutions.

The second proposition contends that, even where they succeeded in exerting a degree of national control over mining sector institutions, most governments failed adequately to plan the integration of the mining sector into national development. Too often, the mines continued to expand as enclaves, aggravating the dualistic external dependence of the national economy while underdevelopment persistently impoverished the mass of their populations.

If valid, this second proposition argues for governments to formulate and implement plans to integrate the mining sector into all aspects of their longterm industrial strategies. Only then can they ensure the nation's mineral wealth will contribute more effectively to the people's welfare.

To substantiate this hypothesis, I will summarize the evidence as to why, first, third world governments did not more successfully exert national control over the mining sectors; and, second, they failed to incorporate the mines adequately into their overall development strategies.

1. Government efforts to exert national control:

For this audience, I will not waste time debating time-worn mythologies about whether a government should intervene in the mining sector[1]. We all know no markets can exist "free" of the exercise of government power (Myrdal, 1972) Governments always intervene, either directly or by allocating decisions to private actors (R.B. Seidman, 1978). They shape the framework and define the conditions within which private "market forces" function. The fundamental issue is, not whether the government should intervenw, but how? To what institutions, and under what circumstances, should government -- as politically-organized society's only instrument for social change (Chambliss and Seidman, 1982) -- allocate decisions relating to the mines in order to achieve national development goals?

Newly independent governments devised various measures to enhance national control over their mining sectors (A. Seidman, 1975). Many aimed primarily to increase the government's share of the investable surplus generated by the mines to finance their development plans. Some sought improved worker training,

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1. I will not, here, discuss the critical issue of which interests, in a given society, the state itself represents; self-evidently, however, if it does not represent those groups that stand to gain, it will not pursue policies or reshape institutions in ways likely to achieve more balanced, integrated development.

processing of the crude minerals before export, and the creation of backwards and forwards linkages with the rest of the economy.

To explain why these efforts so frequently failed to achieve governments' declared goals, however, requires analysis of the behavior of those managing the mine companies in the context of the decision-making structures that shaped policies relating to key issues like: Which deposits to mine? How many workers to employ and what to pay them? Whether to use labor or capital-intensive technologies? Whether to encourage local manufacture of machinery, equipment and component parts or to import them, and how much to pay for them (including whether to pay high prices to overseas affiliates to transfer profits, undetected, out of the host country)? How much to produce in any given period? To what companies and at what price to sell the output?

How the responsible personel behave in formulating decisions in response to a new government directive depends on many factors. These include whether they receive and fully comprehend the directive; whether, given objective constraints, they have the capacity to conform; whether they consider it compatible with

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2. Studies concerning what determines the behavior of relevant individuals in response to new laws have systematized these factors under the mneumonic, ROCCIPI: Given a Rule, do they have the Opportunity to obey? has the rule been adequately Communicated to them? do they have the Capacity and do they

their personal interests and their world outlook2.

As in all large private and public institutions, the input, conversion and feedback processes that characterise the mining firms' decision-making structures influence the behavior of the key policy makers. The input processes include the channels that determine the kinds of issues and information the decision makers consider. Historically, in third world mining sectors, transnational corporateengineers, marketing experts and managers decided through which channels to obtain these inputs.

The conversion processes consist of the institution's internal standard operating rules and procedures (c.f. Allison, 1970) which determine which decision-makers -- e.g., boards of directors, managers or technical experts -- make particular decisions and by what criteria. In the past, in the typical third world mining economy, company managers, rather than board members, made the crucial day-to-day decisions in accord with overarching operative critera relating to maximizing the parent firm's global profits.

The feedback processes govern whether or not and through which channels those affected by a particular policy may express their

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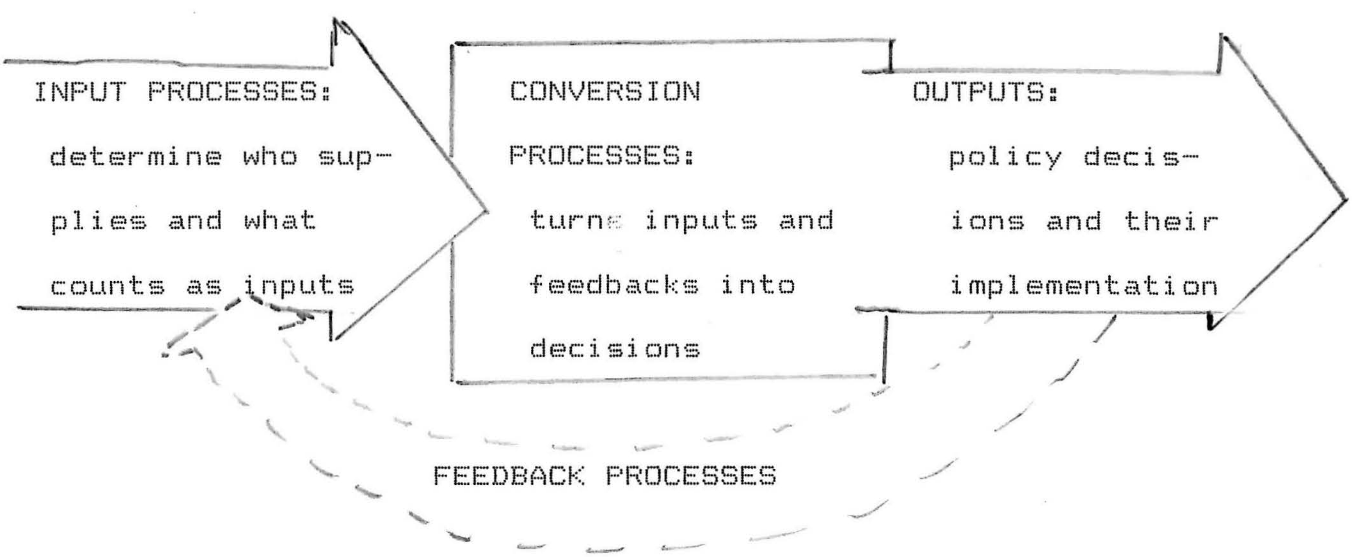
perceive obedience to be in their Interest? Does the decision-making Process foster their obedience? Do their Ideologies, their values and attitudes, support conformance? <See R.B. Seidman, 1978>

reaction to it. Traditionally, in the typical mining sector, these permitted responses primarily from top managerial personnel, financial institutions, and parent corporations, as well as price signals from world markets. Hierarchical managerial structures typically excluded workers' feedback, leaving them little choice but to rely on demostrations and strikes to protest particular policies they opposed. Small national business interests and even host governments had limited access to corporate policy makers.

Diagram I: FACTORS INFLUENCING DECISION-MAKING WITHIN AN INSTITUTION:



Note: Baratz and Bachrach <1970> criticised Dahl's original model <1961> as static. This model attempts to introduce more dynamic features by emphasizing, not particular inputs, feedbacks and outputs, but processes and the range of outputs <see R.B. Seidman, 1978>.

The decision-making model in Diagram I may help to understand the way the decision-making processes in large institutions function to influence policies.

In this brief talk, I will try to show that analysis of the major factors influencing key individuals' behavior within the relevant decision-making institutions helps to explain the newly independent governments' relative lack of success in acheiving their goals despite their efforts to implement several kinds of policy measures. These include attempts to: 1) capture the investable surplus directly; 2) acquire shares of ownership to increase their share of profits and influence mine development; 3) create government mining corporations to implement proposed policies; and 4) establish mineral marketing boards.

In examining each category, I will, first, make explicit the underlying, but frequently unstated premises; and then summarize the evidence as to the policy's impact on the inherited decision-making institutions in relation to the newly-formulated national goals.

a. Direct efforts to capture the investable surpluses:

As its underlying premise, this approach assumes as given the inherited constitutional framework that delegates mine ownership to private (frequently foreign) firms. It accepts, however, that governments may introduce laws to capture a greater share of the profits for the nation through various devices, including taxes, increased minimum wages, the introduction of development bonds, and more effective exchange controls. Several factors hindered the introduction of these kinds of laws. Among these, conventional wisdom, reinforced by international agencies like the World Bank and the International Monetary Fund, argued that such measures not only discouraged additional investment by existing firms, but also frightened away other potential investors (e.g. World Bank, 1981).

Moreover, this approach leaves the existing input, conversion and feedback processes intact in the hands of transnational corporate mining managers, whose careers primarily depend on maxmizing their parent companies' global profits. They often respond to new laws in ways that limit the anticipated benefits to the nation: First, they may manipulate the local mine company's financial arrangements to reduce the apparent profits generated by the mines, thus reducing the national tax base. For example, they may pay higher prices for inputs imported from, or charge lower prices for minerals exported to overseas affiliates, thus transferring a significant share of their profits out of the country. Or they may borrow funds from affiliated financial institutions to finance their mining operations, paying them a major share of their profits in the form of interest. Such payments are typically not taxed or taxed a relatively low rates (Murray, 1981; Brundenius, 1975).

Second, the managers may pursue various production policies that disadvantage the national economy. They may import capital-intensive technologies, rather than encourage domestic manufacture, reducing the numbers of workers employed. They may mine more easily-reached valuable deposits to increase short-term profits after the taxes, leaving untouched marginal mineral reserves that, unless mined along with the richer deposits, will never be viable (Ffrench-Davis, 1975).

Third, transnational corporations may utilize their international marketing networks to reduce output in the country where taxes are high, while expanding it in those providing more favorable conditions. When Manley's government raised taxes on the bauxite mining firms in Jamaica, the transnational aluminium companies shifted their purchases to Australian and New Guinean mines, threatening Jamaican employment and incomes (Payne, 1984a). Where transnationals have been able to expand output in new areas, or have developed substitutes, efforts to create producer associations to coordinate member countries' output and prices to maximize national returns have failed (for the case of copper, see Takeuchi, 1975; Metzger, 1975)[3].

In short, governments' direct measures to capture the mines' investable surplus for national welfare have tended to fail because they left the transnational mining companies in control of the key operational decisions.

b. Government acquisition of shares:

Those advocating government acquisition of a share of the ownership of the national mines tended to assume this would automatically ensure government received an equivilent share of the mining profits. Government ownership of a majority of shares, furthermore, would enable it to direct mining operations along lines more beneficial to the nation.

Advocates of this position sometimes argue that the foreign firm has long drained profits more than equal its original investment, so the government may take over its local assets without paying for them (e.g. Chile under Allende). To avoid the danger of international sanctions, however, host governments more typically pay compensation, often in the form of a percentage of

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3. The most successful producer association, OPEC, now confronts tumbling prices in part because transnationals, with major assistance from their home country governments, have been able to expand output in non-OPEC member countries.

future profits. As Zambia discovered when it purchased a majority of the shares of its mines, however, this may consume a signficant portion of the investable surplus the mine generates (Sharma, 1976).

Unfortunately, acquisition of shares, even a majority of shares, does not ensure the government will receive an equivalent share of profits, far less control mining and marketing operations. Even in developed countries, it has long been recognized that establishment of boards of directors separates share owners from the corporate managers' daily decision-making processes (Berle and Means, 1933). In developing countries, where past company policies have denied nationals essential managerial skills, governments frequently negotiate management contracts with the transnational mining company (e.g. Passara, 1976; Ushewokunze, 1975). Transnational corporate managers thus continue to control the input, conversion and feedback processes that govern the local mining firms' policy decisions. In co-operation with remote head offices, they can easily manipulate price and profit decisions to reduce government's profit share. After Zambia's government acquired 51 percent of the shares of the two mining companies that dominate

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4. The transnational parent of one, the Anglo American Group, constituted the leading mining finance house in South Africa, with close ties to both British and U.S. financial and mining interests. Its investments spread throughout the independent countries of southern Africa. The other, a U.S. firm, American

the national economy[4], for example, the costs of operating the mines unaccountably jumped 20 percent, reducing the government's profit share by an equivalent amount.

Furthermore, overworked government directors typically have neither the knowledge nor the opportunity to influence day-to-day decisions of the mining company's

management.[5] They must rely on the mine managers for the engineering data and financial information that determines their decisions as to which deposits to mine; the technologies to use and the prices paid for them; the numbers and wages of workers employed; whether or not and how much to borrow abraod, and the rates of interest paid; and even the amounts of minerals to market and where and a what prices to sell them. Moreover, the managers control the operative conversion processes relating to many day-to-day decisions that never reach the boards of directors. Typically, they also control the feedback processes. Few government representatives have the opportunity to talk directly to small local businesses that could have provided spare parts or components that managers

Metal Climax (AMAX), also had extensive investments, frequently in close collaboration with the Anglo American Group in Southern Africa, as well as the Americas (Seidman and Makgetla, 1980).

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5. Sometimes one minister or permanent secretary will sit on 15 or more boards of companies in which the government holds shares (R.B.Seidman, 1978).

ordered, instead, from abroad. Nor do they have much occasion to hear personnaly from workers who object to managerment decisions concerning wages and working conditions. Finally, the company managers frequently select and train the nationals who join the management team, and may convince them to adopt company, rather than national, perspectives and methods of operation.

It is small wonder that, in recent years, transnational corporate managers have even come to welcome third world governments' acquisition of shares in their local affiliates (e.g. Silitshena, 1975). The government thus helps to finance the mines' operations, and will more likely favor company needs for foreign exchange or in dealing with mine workers' demands for better wages and working conditions.

c. Government corporations:

To acquire greater control, some governments create state corporations to take over the management of the local mining company. They also, of course, confront the issue of whether and how much compensation to pay. Moreover, this attempt to establish greater state control has often turned out to be illusory. First, unless the government can hire qualified nationals, it may still have to negotiate management contracts that leave transnational corporate managers to determine day-to-day mining policies.

Second, the government often passes legislation that permits the state corporation to operate as much as possible like an autonomous private enterprise (United Nations, 1974)[6]. In third world mining economies, this may produce an anomalous situation in which the state-owned corporation almost constitutes a state-within-a-state. Its management not only makes decisions that affect the lives of thousands of workers and their families. Its policies control a major share of the nation's exports and incomes. It may exert a major influence on government policies. For a time in Indonesia, for example, the military officer heading the government petroleum corporation operated it entirely outside government control, amassing assets exceeding those of the state. The corporation funnelled funds to has supporters in the army. Some observers suggested that he, not the nominal head of state, ruled the country (May, 1978; Crouch, 1978).

d. Government marketing boards:

In an effort to gain greater control over marketing the mining sector's output, several governments have attempted to set up their own marketing agencies. In the mid '70s, Zambia's

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6. In former British colonies, the drafters followed the British tradition based on the assumption that, unlike civil service bureaucratic red tape, private sector initiative in seeking to maximize profit stimulated efficiency (R.B. Seidman, 1978).

government established MEMACO (Metals Marketing Coporation) with a London office to handle its mine exports. MEMACO appointed as its mareting agents several transnational corporations with which it had previously had relationships. These included the South African mining finance house, Anglo American, which still owned minority shares in the Zambian mines; and two Japanese companies, Mitsui and Misubishi, which purchased a major share of the mines' output (MEMACO annual reports).

Zimbabwe's post-independence government -- aware of the high cost and difficulty of asserting national control through direct ownership, especially given the existence of many relatively small mines -- decided at the outset to create a state marketing board to handle mineral exports. Through the board, the Ministry of Mines sought to diversify the mines' export markets, selling minerals to companies and countries other than those linked to the operating transnational affiliatess. In the process, the Ministry hoped to obtain a more accurate assessment of the value of the minerals sold, and thwart the loss of profits through transfer pricing. Over time, the Ministry anticipated the board would help to capture a significant share of the investable surplus generated by the mines, as well as to train personnel to conduct research, manage, process and market minerals.

In a compromise designed to soften mining company opposition to the board, however, the Zimbabwe government appointed as the marketing board's first manager a man, by the wonderful name of Mark Rule, who had played a prominent role in the pre-independence government's efforts to evade United Nation's sanctions. Although, in 1985, the board reported a profit of about a million Zimbabwe dollars7, only further research could assess the extent to which the new board really altered the mining firms' decision-making processes.

In sum, newly independent governments' efforts to enhance the mining sector's contribution to national welfare failed, at least in part, because they did not fundamentally change the factors, particularly the decision-making structures, shaping the responsible managers' policies.

2. The need for a national development strategy:

In my opinion, a more impoortant reason for the difficulties encountered by post-independence efforts to ensure the mining sector contributed more to national welfare lies in the governments' failure adequately to address the fundamental issue of how to incorporate the mining sector in the overall

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7. A tiny fraction (less than 0.2 percent) of the value of the nation's mineral exports (Zimbabwe Statistical Abstract, Oct. 1985)

development process. Most focused only on parts of the problem: How to capture a greater share of the investable surpluses generated by the mines; or how to assert greater government control over the mines or mineral marketing to increase their sales to earn more foreign exchange and revenue. Many spent much of the investable surplus they did capture to finance expanded social services and economic infrastructure, rather than investing in productive activity that, over time, would generate greater income and employment. Implicitly, they adopted the western orthodoxy that investment in the mines and associated infrastructure would initate an automatic multiplier effect, spreading increasingly productive employment activities throughout the rest of the economy. They neglected investments in a whole range of possible productive spin-off activities that could have stimulated more balanced, integrated national development.

To illustrate: In Zambia, the government seemed to view the mining sector as a goose that laid golden eggs. All it had to do was collect them to finance its 'humanist' social welfare programs. In 1969, when the government took over 51 percent of the mining companies, the President explained that it primarily aimed to ensure that they invested to expand the production and

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8. The firms had been remitting up to 90 percent of their after-tax profits abroad.

sale of copper.8/ In its agreement with the companies, the government required neither an affirmative action program to train local managers, nor investment in more advanced stages of processing. Instead, it went so far as to grant the companies permission to remit, tax free, one kwacha for every kwacha invested in expanding copper output. The companies simply borrowed money abroad to invest in the mines (leaving the government, as a majority-share owner, responsible for repaying the debt before receiving any profits), and remitted, taxfree, their share of the profits to their parent companies. Government revenues from the copper mines plummented from K235 million in 1969 to K55 million in 1972 (Sharma, 1975).

Far from contributing to increased national prosperity, the resulting expansion of Zambian copper sales -- along with that of other third world countries pursuing parallel policies -- predictably contributed to an oversupply that pushed world copper prices down in a semi-permanent slump. Simply to maintain its level of import-dependent development, Zambia's government, like those of other mineral-exporting countries, had to borrow heavily abroad. It turned to the IMF for help. By the beginning of the '80s, Zambia had received about a third of the resources the IMF made available in all of southern Africa -- and, with them, the typical IMF austerity package (Seidman, 1985; Makgetla, forthcoming). Under IMF pressure, the government re-opened the economy to South African imports, undermining domestic import-substitution industrial production and employment.[9] The economy stagnated. Unemployment mounted. Rising prices slashed real incomes (Makgetla, 1985; Mudenda, 1985).

The governments of Zambia and other mining economies could have learned from many years of experience that mining projects in third world countries, unlike those established earlier in Europe and the United States, seldom automatically stimulate the spread of development. The introduction of the Tata steel industry in India, for example, had a different impact from that established in the 19th century in the United States. The U.S. steel industry grew in response to the expanding domestic demand created first by the railroads, and later by the auto and construction industries. In contrast, extensive investigation has revealed that for decades the Tata steel industry contributed relatively little to increased productivity and rising living standards in the surrounding Jamshedpur region. Relatively self-sufficent neighboring villages provided no market for steel

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9. After independence, the government had encouraged import-substitution industrialization, acquiring shares in manufacturing firms, and providing incentives for managers to expand domestic production. As in the case of import substitution elsewhere, however, the industries mainly located in already-developed areas along the line-of-rail, produced luxuries and semi-luxuries, and depended on imported capital intensive machinery and equipment that provided relatively little employment. Essentially, in other words, they tended to aggravate the nation's dualistic, external dependence (Turok, 1980).

or steel-based products. Local blacksmiths lacked the capital and skills to set in motion the development process, generating a demand for steel. Moreover, as the steel industry aged, new capital 'modernization' expenditures tended to limit rather than expand employment. Only after World War II, by providing additional employment and creating a steadily expanding demand for component parts as well as consumer goods and services, did government-assisted expansion of steel-using commercial vehicle and machinery manufacture stimulate regional growth (Gupta, 1983).

The complexity and large scale of modern technologies associated with mining today thwart their potential as poles of growth that will automatically foster integrated development throughout third world regions[10]. The Jamshedpur experience underscores the fact that, today, third world efforts to take advantage of mining potentials to spur regional development have become "increasingly dependent on social action, policy and organization." (Gupta, 1983, 66).

This is borne out by the South African case. There, the

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10. For a definition and illustration of the concept of growth poles, see Green and Seidman, 1968. Mabogunje, (1978) reviews of the theory of growth poles in third world economies, and calls for further research concerning their potential role in Africa. Gupta (1983) discusses growth pole theory in relation to the Tata iron and steel industry.

racist regime aggressively exercised state power to spur the multiplication of the transnational corporate manufacturing investments that transformed that country from a predominantly mining economy to an industrialized one, now characterized by the international agencies as "developed" (e.g.United Nations Statistical Yearbook). The apartheid state deliberately coerced the black majority into impoverished reserves to provide cheap labor for the minority-owned mines, commercial farms and factories. But we might ponder the implications of the fact that, over the last 25 years, the regime played a crucial role in directing investments, not only by the domestic mining finance houses, but also by transnational corporations from all the major western nations, to the construction of its modern military-industrial complex. Thus the regime strengthened South Africa's capacity as a regional subcenter, enabling it to marginalize and exploit, not only its own population, but the peoples of the neighboring states (Seidman and Makgetla, 1980). To reduce dependence on black labor after the 1976 Soweto uprising, the regime deliberately fostered the capital-intensive mechanization of mines and agriculture that today has left half the black population without land or jobs, starving in fragmented scraps of the least fertile, least well-watered 13 percent of the nation's land: the "bantustans" (A. Seidman, 1985). After winning liberation, the people of South Africa will need to study these developments, as well as learn from other countries' experiences, to create a democratic state and restructure the institutions controlling the mines and other productive activities, not to further enrich a minority, but to meet their basic needs.

In short, the available evidence underscores the necessity for developing country governments to formulate longterm plans, both for improving the pattern of resource allocation which mining investment may make possible; and for introducing the essential changes in inherited sets of key institutions to implement those plans.

a. Longterm plans for resource development:

Governments should plan their longterm development strategies to incorporate all the potential linkages and spinoffs from the mining sector (Tironi, 1975; A. Seidman, 1975b). These include:

> *The production of building materials and consumer goods, including food for the labor force, during the construction of the mine works and associated infrastructure: Integrated into on-going plans for development of the mining project, these activities should contribute to the spread of permanent employment opportunities in agriculture and small scale rural industries.
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> *The processing of the mine's output, not only to increase its export value, but also to facilitate its use in the form of inputs into other sectors of the national and regional economy: Iron processed into steel may be used for all kinds of building materials and manufactured products; copper may be used for electric wires and appliances, as well as in brass; aluminium made from bauxite provides a durable light construction material for many purposes; etc. Planning

agnecies should make longterm plans, not only for the physical location and technology of these industries, but also to provide adequate manpower and finance to ensure their realization.

*The construction infrastructure associated with the mining projec to serve a double purpose of fulfilling the development needs <including productive activities> of the neighboring communities: Rather than focusing solely on the mine project's needs in selecting and building a particular type of infrastructural projects -- roads, railroads, bridges, water supply, power, and so forth -- planners should also design it to maximize their potential stimulation of agriculture and small scale industries.

*The training and involvement of the workers at every stage and every level to improve their incentives and efficiency in increasing productivity: In particular, nationals should learn engineering, accounting, marketing and the other skills needed to manage every aspect of the operation of the mines and associated infrastructure in relation to national welfare. The semi- and unskilled workers on the mines and associated infrastructural projects, too, should receive regular on-the -job training and special courses. This should enable them, not only to participate more fully in the efficient operation of the mines, but also to contribute to technological and innovation if they later work in other sectors of the national economy.

*Development of local research and teaching in national universities and specialized mining institutes like the Indian School of Mines to ensure the national economy realizes the full growth pole potential of mining projects. Research should not focus only on the most appropriate technologies for the mineral's extraction, processing, and linkages to the rest of the regional and national economy. It should investigate broader issues like the the conditions of the national, regional and world markets and the appropriate incentives and conditions to spur increased worker productivity. Wherever possible, research should encourage participation by the miners and workers in neighboring communities to stimulate the creative improvement of their performance and the quality of the goods they produce.

Today, given the economies of scale characteristic of large mining and associated processing industries, small mining economies could more easily plan these kinds of linkages if they could cooperate with their neighbors. The former colonial rulers carved up entire regions into mini-economies without regard to ethnic, geographical or economic realities, leaving the succeeding indpendent nations too small to provide the markets or resources needed to create large-scale modern industrial

development based on their their mineral resources[11]. Separately, little mining economies like Zambia's or Jamaica's, with low per capita incomes and populations smaller than those of a good sized European city, cannot easily escape dependence on external markets, technologies, and sources of finance dominated by transnational firms. This urges research into the possibilities of incorporating their national mining sectors into regional strategies for industrialization. Several models of regional cooperation exist.[12]

11. This is true throughout many parts of the world (Green and Seidman, 1968; Salgado, 1978; Axline, 1977; Belassa and Stroutjesdijk, 1977; Gupta, 1983; Ballance et al, 1982). Even larger counttries, like Nigeria, Brazil and India, remain constitutionally divided into states whose separate administrators structures tend to hinder formulation and implmentation of national development strategies (Kuklinksy, 1978).

12. In the developed world, these include the European Economic Community (EEC- Demco, 1984; Franzmeyer, 1983; Hoffman, 1984) and the Community for Mutual Economic Assistance (CMEA -Saunders, 1983; Hoffman, 1984) and, among developing countries, Caricom (Harrison, 1967), the Andes Pact (Echeveria et al, 1981), the Association of South East Asian Nations (ASEAN - Castro, 1982; Ghosh, 1984;), the Southern African Development Coordination Conference (SADCC - Thompson, 1985) and the Economic Community for West Africa (ECOWAS - Asante, 1984).

b. Planning for essential institutional changes:

The experience of developing countries the world around emphasizes that, to realize the planned development of mining projects as poles of growth, governments must change the inherited institutions that have shaped their past disarticulated development. Given the constraints on their available manpower and finance, however, they cannot change all of them at once. They need to identify priorities. It only makes sense that they should start with those institutions that control their nations' 'commanding heights', that is, those with the greatest linkages and influence throughout the economy. In particular, this implies asserting control over basic industries; export-import and internal wholesale trade; and financial institutions (Nyerere, 1967; UN 1974).

The large potential gains from integrating mining sectors into regional industrialization strategies suggest, furthermore, the necessity of considering, not only how to alter the institutions to increase control over the national commanding heights, but simultaneously, how to restructure them to facilitate regional cooperation. Evidence shows that formation of common markets that leave investment decisions to private profit maximizing enterprise (domestic or foreign), tends to reinforce and aggravate uneven development and perpetuate external dependence (Green and Seidman, 1968; Echeveria et al, 1981). Moreover, newly liberated peoples typically cherish the national identity they have won through prolonged struggle. Their national governmental institutions may focus on realizing national potentials, implementing policies that may conflict with attainment of regional possibilities[13]. This suggests that, while examining the national economies' commanding heights, researchers should also explore institutional changes to achieve the minimal threshhold of cooperation required to implement an effective regional strategy.

The mines and associated industries, because of their key role in producing a major share of a third world mining economy's exports, incomes and investable surpluses, as well as their potential for stimulating the spread of productivity in all sectors of the economy, constitute one of any mining economy's "commanding heights." The evidence I have given relating to my first proposition, however, indicated that, in many if not most third world countries, the institutions to which post-independence governments delegated the power to manage the mines continued to grind out decisions much like those they made

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13. This has been illustrated the world around (Mazzeo, 1984; Axline, 1977; Ballance et all, 1982; Belassa and Stroutjesdijk, 1978; Castro, 1982)

in the past. Changes in the formal ownership of the mines did not sufficiently alter those decision-making processes to produce different results. Furthermore, the small size of many mining economies may render it difficult, if not impossible, for them, alone, to exert significant control over the international marketing networks dominated by transnational corporations. Unless they can link their mining sector into a regional industrialization strategy, their best option may be to treat it as a money-spinner, capturing and investing a major share of the surplus in a more modest national industrialization program to meet the peoples' needs. Self-evidently, this will work only where the mining venture is sufficiently profitable to attract a foreign partner while providing the government with an adequate share.

Unless a government successfully alters the inherited processes determining the inputs, conversion and feedback in the mining companies, however, the mining sector and associated industries will not likely conform with plans designed to implement either a regionally or a nationally-oriented development strategy. National research and teaching centers like the Indian School of Mines could make a valuable contribution by investigating the kinds of institutional changes that, in particular countries, would help to ensure these industries played a more positive role in national and regional development.

In the typical third world mining economy which relies on imported technologies and, to remain viable, must export at least some of its mineral output, foreign trade constitutes a second "commanding height". Examination of the decision-making structures characteristic of most nations' trading institutions, however, reveals features essentially similar to those of the mining firms. They often delegate control over this sector to private firms, frequently transnational corporate affiliates of the mining transnationals (cf. Cobbe, 1979). These typically decide not only whether, where and at what prices to market the minerals and, if any, the manufactures produced, but also what technologies and other inputs to import for the mines and all other sectors. Many third world governments establish marketing boards for major agricultural exports, but Zimbabwe is one of the few governments that has set up such a board for minerals. Most usually exercise indirect regulation, of exports, more or less in line with perceived national interests, through licensing, foreign exchange and tariffs. In some countries, state trading companies compete with private importing firms, and in a relatively few cases have largely replaced them. In each national and regionala context, researchers should explore the particular constraints and resources as a foundation for designing more approrpriat trading institutions and policies.

Financial institutions, which control the accumulation and reinvestment of a nation's investable surpluses, constitute the third economic "commanding height". Financial institutions help determine how much of the surplus generated by the mines and other sectors is remitted abroad; and whether the share that remains is reinvested primarily to expand the mining sector, or in more balanced, integrated national or regional development. At independence, most developing country governments only intervened directly in the financial arena through the central bank and by taxing corporate incomes. They typically delegated the major decision-making role to private, often foreign, financial institutions: commercial banks, pension and insurance funds, and various kinds of investment banks. Even when governments acquired shares of ownership in some of these institutions, they frequently left key decisions to managers whose ties or predilections shaped decisions favorable to private rather than national interests (A. Seidman, 1986a). Investigation of this third crucial area should help discover the kinds of institutional changes required in any particular country to ensure re-allocation of investable surpluses to more self-reliant, balanced development capable of ensuring increasingly productive employment and rising living standards for all the nation's, or, better yet, all the region's inhabitants.

CONCLUSION:

In this brief talk, I have not attempted to shed new light on the role of the mining industry in third world development. Instead, I have tried to identify some of the lessons of past experience, and outline future research which could contribute to planning and implementing more effective strategies to incorporate mining into overall development. I have suggested that the relative failure of many governments' to enhance their mining sectors' contribution to national welfare lies only in part in the inadequacy of the changes they made in the inherited decision-making structures governing the mines' operation. Equally, if not more important, they seldom integrated the mines as poles of growth into long term plans to contribute to restructuring either their national or the regional economies.

Not that political leaders and government officials have not called for sweeping changes in the dualistic externally dependent allocation of resources, including the mining sectors, that condemned their populations to poverty. Many have also united to call for regional cooperation. But they seldom implemented the necessary step-by-step alterations in the inherited sets of institutions governing their nations' economic 'commanding heights' to carry out the proposed reallocation of resources at either the national or regional level.

If this hypothesis is valid, it poses a challenge for third world teaching and research centers like the Indian School of

Mines. Their faculties and students can pioneer in investigating the practical step-by-step changes, not only in resource allocation, but also in key institutions to ensure that existing or proposed mining operations contribute to all aspects of national, and, insofar as possible, regional development. By participating in this kind of research, furthermore, the students in these centers will acquire the training and perspectives necessary to provide leadership in formulating and implementing plans to ensure that mineral wealth contributes to the spread of increasingly productive employment opportunities and rising living standards for all the inhabitants of their nation, and perhaps even for the region.

BIBLIOGRAPHY:

Allison, 1971: Graham Allison, Essence of Decision: Explaining the Cuban Missile Crisis (Boston: Little Brown, 1971)

Asante, 1984: S.K.B. Asante, "ECOWAS, the EEC and the Lome Convention" in Dominco Mazzeo, ed., African Regional Organizations (Cambridge: Cambridge University Press, 1984)

Axline, 1977: W. Andrew Axline, "Underdevelopment, Dependency and Integration: The Politics of Regionalism in the Third World," in Pradip K. Ghosh, ed., Economic Integration and Third World Development (Westport, CT: Greenwood Press, 1984)

Ballance et al, 1982: Robert H. Ballance, Javed Ansari, and Hans W. Singer, The International Economy and Industrial Development: The Impact of Trade and Investment on the Third World (Totowa, N.J.: Allanheld, Osmun and Co.)

Baratz and Bachrach, 1970: M. Baratz, and P. Bachrach, Power and Poverty (New York: Oxford University Press)

Belassa and Stroutjesdijk, 1978: Bela Belassa and Ardy Stroutjesdijk, "Economic Integration Among Developing Countries," in Pradip K. Ghosh, ed., Economic Integration and Third World Development (Westport, CT: Greenwood Press, 1984)

Brundenius, 1975: Claude Brundenius, "The Ownership Structure of the Peruvian Mining Industry" in A. Seidman, 1975

Castro, 1982: Amado Castro, "ASEAN Economic Cooperation" in Allison Broinowski, ed., Understanding ASEAM (New York: St. Martin's Press)

Chambliss and Seidman, 1982: Law, Order and Power (New York: Addison and Wesley, second edition)

Dahl, 1961: R.A. Dahl, Who Governs? Democracy and Power in an American City (New Haven: Yale University Press)

Demco, 1984: George J. Demco, ed., Regional Development Problems and Polcies in Eastern and Western Europe (New York: St Martin's Press)

Djefflat, 1984: Abdelkader Djefflat, "Les difficultes de l'integration interindustrielle en Algerie et la dependence technologique", paper presented at Meetings on African Regional

Perspectives (Dakar: United Nations University, mimeo)

Echeveria et al, 1981: Luis Echeveria, Aurelio Peccei, and Nicol Davidson, eds., Regionalism and the New International Economic Order (New York: Pergamon Press, 1981)

Franzmeyer, 1983: Fritz Franzmeyer, "Convergencies and Divergencies in Recent Economic trends of EEC Member Countries: A New Understanding of Economic Integration" in Saunders, Christopher, ed., Regional Integration in East and West (New York: St Martin's Press)

Ffrench-Davis, 1975: Ricardo Ffrench-Davis, "The Importance of Copper in the Chilean Economy: Two Decades of Historical Background" and "The Integration of the Large Copper Mines in the Chilean Economy: The Role of Economic Policies" in A. Seidman, 1975

Green and Seidman, 1968: Reginald H. Green and Ann Seidman, Unity or Poverty? The Economics of PanAfricanism (Harmondsworth: Penguin African Library)

Gupta, 1983: L.C. Gupta, Growth Theory and Strategy: New Direction - A unified systems approach to regional and national growth (Delhi: Oxford University Press)

Harrison, 1967: Roger D. Harrison, Central America: Regional Integration and Economic Development, National Planning Studies in Development (Washington, D.C.: Progress, No. 1)

Hoffman, 1984: "Trends in Regional development in Eastern and Western Europe" in Demco, 1984.

Kalyati, 1984: Jacob Kalyati, "The Iron and Steel Industry in Zimbabwe" paper presented to meeting on African Regional Perspectives (Dakar: United Nations University)

Kaplinksy, 1985: "Locational Patterns of Direct Foreign Investment and the New International Division of Labour in Manufacturing", paper presented to Conference on Economic Policies and Planning Under Crisis Conditions in Developing countries (Harare: Economics Department, University of Zimbabwe)

Katanga, 1975: Katanga Mukamadi Yamatumba, "The Investment code and the Mining Industry of Zaire" in A. Seidman, 1975.

Jelenc, 1975: D. Jelenc, "Copper Producers and the World Market: A Case Study," in A. Seidman, 1975

Kirkpatrick et al, 1984: C.H. Kirkpatrick, N. Lee and F.I. Nixson, Industrial Structure and Policy in Less Developed Countries, (London: George Allen & Unwin)

Makgetla, 1986: "Practical and Theoretical Implications of IMF Conditionality in Zambia" in Journal of Modern African Studies, forthcoming.

Malumba, 1975: Malumba Lukoji, "The Structure of Multinational Corporations in Zaire," and "The General Company of Quarries and Mines of Zaire," in A. Seidman, 1975.

Metzger, 1975: "The European Copper Industry and its Implications for the Copper-Exporting Underdeveloped Countries with Special Reference to CIPEC Countries," in Seidman, 1975.

Mihyo, 1984: Paschal B. Mihyo, "The Transfer of Technology to Tanzania's Public Enterprises," (Dar es Salaam: Law Faculty, mimeo, 1984)

Mudenda, 1985: G. Mudenda, "The Management of Import Substituting Industrialization in Zambia", paper presented to Conference on Economic Policies and Planning Under Crisis Conditions in Developing Countries (Harare: Economics Department, Universit;y of Zimbabwe, mimeo)

Mutungwazi, 1982: "Foreign Investment and Economic Development in Zimbabwe" (Harare: Economics Department, University of Zimbabwe, mimeo)

Myrdal, 1972: Gunnar Myrdal, Asian Drama: an inquiry into the poverty of nations (New York: Pantheon Books)

Ndlela, 1984: "The Capital Goods Sector in Zimbabwe" a paper prepared for the project, "National Building or Transnationalization in Africa" in the framework of the Regional Perspective Project of the United Nations University (Harare: Economics Department, University of Zimbabwe)

Nixson,1981: "State Intervention, Economic Planning and Import-Substituting Industrizliation; The Experience of the Less Developed countries" METU Studies in Development, Special Issue, Ankara, Turkey

Passara, 1975: Luis Passara, "The Reforms of copper Mining and Their Enforcement" in A. Seidman, 1975

Payne, 1984: Anthony Payne, "Jamaica: the democratic socialist experiment of Michael Manley", in Payne, Anthony, and Sutton, Paul, Dependency Under Challenge - the political economy of the Commonwealth Caribbean (Manchester: Manchester University Press, 1984)

Salgado, 1978: Germanico Penherrera Salgado, "Viable Integration and the Economic Cooperation Problems of the Developing World" in

Ghosh, 1984.

Seidman, A., 1975: Ann Seidman, ed., National Resources and National Welfare: The Case of Copper (New York: Praeger)

Seidman, A., 1975a: " " , "The Need for a Long-Term Industrial Strategy in Zambia" in A. Seidman, 1975.

Seidman, A., 1986a: " " , Money, Banking and Public Finance in Africa (London: Zed Press)

Seidman, A., 1986b: " " ,"The Need for an Appropriate Industrial Strategy", paper presented at Conference on The Southern African Economy After Apartheid, University of York, Sept., 1986.

Seidman, R.B., 1978: Robert B. Seidman, State, Law and Development (London: Croom-Helm)

Sharma, 1975: Raj Sharma, ""Comparative Financial Policies: Zaire and Zambia" in A. Seidman, 1975

Simwinga, 1975: George Simwinga, "The Multinational Corporations and a Third World Host Government in a Mixed Enterprise: The Quest for Control in the Copper Mining Industry of Zambia", in A. Seidman, 1975

Takeuchi, 1975: "Copper: Market Prsopects for 1980 and 1985" in A. Seidman, 1975

Tironi, 1975: Ernesto Tironi, "Economic Planning in the Nationalized Coppper Sector", in A. Seidman, 1975

Turok, 1981: Ben turok, ed., Development in Zambia: A Reader (London: Zed Press, 1981)

Ushewokunze, 1975: C.M. Ushewokinze, "The Legal Framework of Copper Production in Zambia" in A. Seidman, 1975.

Zorn, 1975: Stephen Zorn, "Mining Policy in Papua New Guinea" in A. Seidman, 1975