TOPIC 6: THE ROLE OF MINERALS IN ECONOMIC DEVELOPMENT

INTRODUCTION

- Typically, in pursuing economic development objectives, DCs are confronted with the choice among these basic policy options (Lipsey and Steiner):

- Agriculture development
- Exploitation of natural resources
- Development of import substitution industries, and
- Development of an industrial capacity that will create new export industries

- Many development economists have emphasized one or the other as basis for achieving economic depending on the comparative advantages that an individual country may have.
- However, risks of overspecialization are too well known for mineral economies in times of depressed prices

"When a a country is overspecialized, prudent planning suggests that special efforts should be taken to diversify into different areas (particularly areas where the price swings are independent of, or those in the current area of specialization)". Samuelson and Nordhaus.

- See countries such as Zambia (copper), Angola (oil) and Botswana (diamonds) seeking diversification into exploitation of other minerals and indeed develop other sectors of the economy in order to minimize vulnerability from single product dependence.

What are the preconditions for minerals to induce economic development?

- Existence of a mineral resource endowment of quantity, quality and other geo-mining conditions to give a country a comparative advantage in international trade.
- The resulting mineral development activity must have the capacity to induce industrial diversification and sustained economic growth.
- Mineral development to induce industrialization depends on the character of its factor inputs, the mineral production process itself and the nature of the mineral itself.
- For instance, iron, copper and aluminum are extensively used in the production of capital goods that are at the foundation of the industrialization process itself, while gemstones are largely used in jewelry

Ability of mineral production process to induce diversification from mining related activities depends on its capacity to form linkages with other sectors of the economy.

Three types of linkage are identified (Mackenzie and Bilodeau):

- **Backward linkages** which are associated with domestic production of inputs for the mineral sector such as mining machinery, explosives and transportation facilities;
- **Forward linkages** which are associated with further domestic processing of the mineral product such as iron ore into steel products and
- **Final demand linkages** which are associated with the production of consumer goods and services for those deriving income from the mineral sector.

Clearly, actively promoting backward and forward linkages in the production process is key in maximizing the contribution of mining to economic development.

Note DCs have:

- More than 50% of industrial diamonds, copper tungsten and manganese
- More than 60% cobalt, gold and barytes
- More than 70% bauxite, phosphate and rare-earths
- More than 80% of antimony, tin, chromium and platinum

QUESTION

Why so such underdevelopment in DCs despite its rich endowment?

Life cycles of minerals as a result of economic development

There are three observed stages:

- **Old minerals such** as copper, iron ore, lead, tin and zinc which are extensively used in the early part of industrialization
- **Young minerals** such as aluminum, chromium, manganese, molybdenum, nickel and vanadium which are employed when industrial diversification occurs
- **New minerals** such as cobalt, germanium, platinum, rare-earths and titanium that are used primarily by developed economies with high GNPs and high technological development.

The fundamental concept behind the MIU theory is that the particular stage of minerals demand (consumption) depends on the type of mineral as well as the stage of a country's economic development

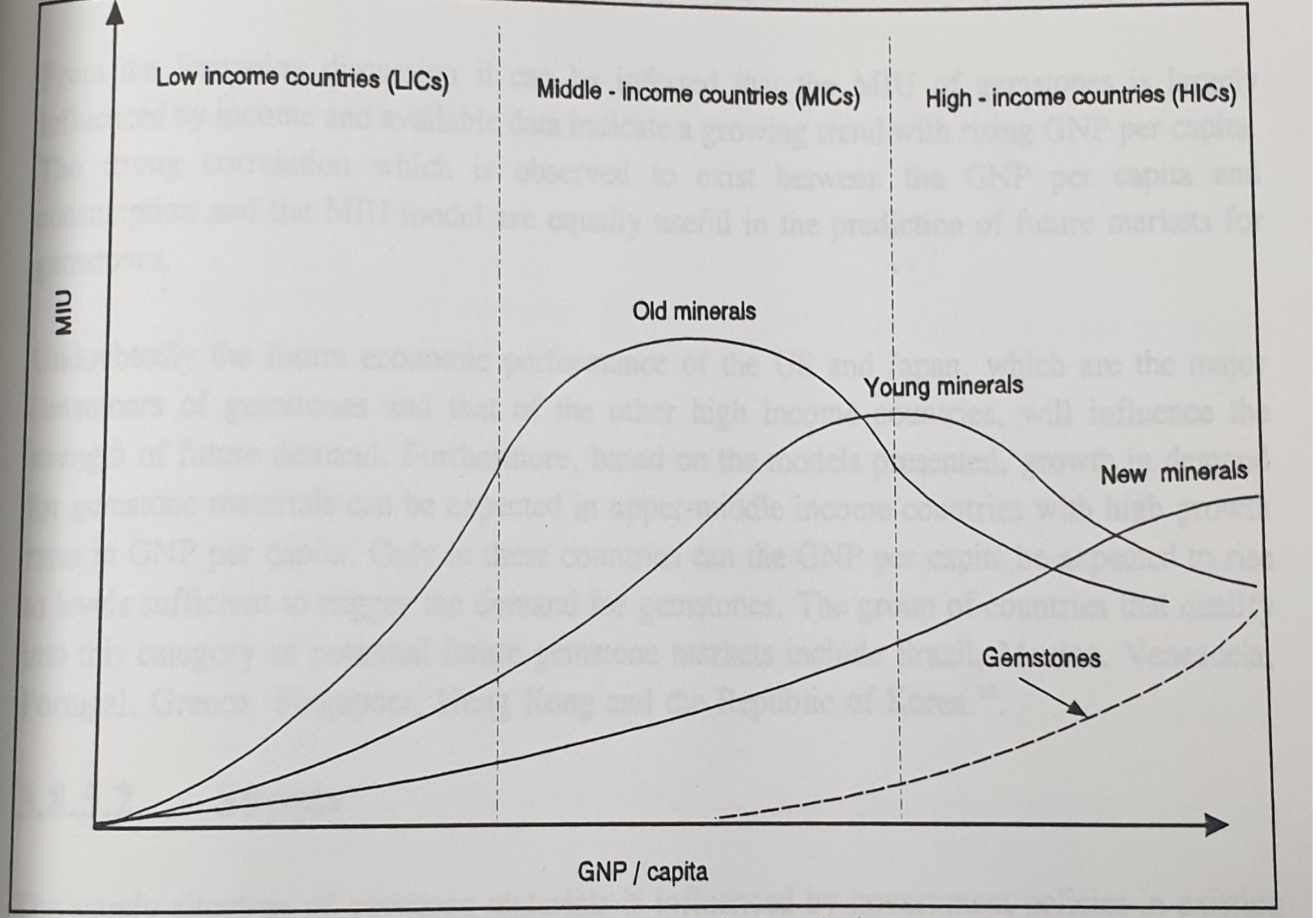

Fig.3.23 The theoretical life cycle curves of minerals for economic groups.

Positive socio-economic Impacts include:

- The mining industry provides communities with jobs (e.g., SSM provides more than 40 million jobs globally) and improvements in people's lives.
- Helps in regional development objectives (new towns developed e.g. Solwezi, Lumwana, Maamba: schools, roads, hospitals, etc).
- Generate export earnings (e.g., most SADC members are mineral economies).
- Known to Develop skills required beyond mining borders
- Can be a spring board to spur sustainable economic development, etc

QUESTION: What role can mining play in the economic development of a country?

- Mining is seen to have the potential to contribute to development in all countries where mineral resources exist. This is probably one of the greatest challenges being faced by countries with mineral resources not mentioning the issue of mineral curse (Durch disease).

- Mining if managed well has the potential to bring extensive economic benefits and is particularly important for poor countries and regions that lack alternative sources of development and are otherwise unattractive to foreign investors.

QUESTION: What are the pre-conditions that can facilitate the development of a thriving mineral resources sector?

- Political stability

- A sound and supportive mineral resource development policy framework that should address issues such as well-defined property rights, environment, health and safety standards as well as a robust institutional framework support.

- Being a major source of employment in rural areas where formal jobs are scarce, recognition of the role Small-scale mining can play, is important.

QUESTION: What benefits can mining generate?

- Employment generation both direct and indirect (within and outside the sector).
- Generation of government revenues
- Can contribute significantly to foreign exchange earnings
- Creation of skills that are required by other sectors of the economy
- Creation of other sectors of the through backward linkages to industries that supply goods and services and forward linkages to industries that process mineral outputs in the economy
- Opening up of new infrastructures (new towns, hospitals, schools, roads, railways, power, etc).

QUESTION: Why is it that some countries have benefited greatly from mining while others have failed to capitalize on the opportunities brought by mining?

- Many of the world's richest countries have benefited greatly from minerals extraction. Australia, Canada, Finland, Sweden, and the United States, for example, have all had extensive minerals industries and used them as a platform for broad-based industrial development.

- By any standards, these are now some of the world's most successful economies: in 2001 all five were among the top 10 countries in the Human Development Index prepared by the United Nations Development Programme (UNDP).
- Moreover, in these countries minerals development seems by at least some measures to have brought benefits specifically to regions with mines.
- In Africa, Botswana major producer of gem diamonds that has also had one of the world's highest economic growth rates – averaging 9% annually in 1996–99. But some other countries with mineral development seem to have been considerably less successful.

QUESTION: What are "mineral economies"?

There are many definitions. Some are:

- Minerals output can be set against gross domestic product (GDP) – ***mineral output as a percentage of GDP***
- Dependence of foreign-exchange earnings on mineral exports can be considered – ***mineral exports as a percentage of foreign exchange earnings.***

Whatever measure is used, a review of economies with significant mineral development finds countries at both the top and the bottom of UNDP's Human Development Index.

Mineral wealth is clearly not a sufficient condition for successful economic development. Nor is it even a necessary one: many of the world's most successful countries in recent decades, including the newly industrializing countries of East and South-east Asia, have had few mineral deposits.

However, if managed effectively, the minerals sector has the potential to play an important role in national and local economic development.

These and other potential benefits are by no means automatic. Any country that wishes to translate mineral wealth in the ground into human development for its people faces stiff challenges. These include:

- Must demonstrate minerals potential and attract exploration and development investment;
- Establish an attractive investment climate and progressive minerals policies;
- Develop a domestic mineral-sector infrastructure;
- Create and sustain mineral wealth while protecting environmental quality and other social and cultural values;
- Share the surpluses or economic rents from mineral production equitably among different levels of government, local communities, and mining companies;

- **Convert non-renewable resources (mineral wealth) into renewable ones by investing in physical and human capital, and doing so in a way that also helps protect the interests of future generations (sustainability issues);**

- Maintain a stable economic environment while coping with the exchange-rate impact of mineral exports, fluctuating international commodity prices, and the demands for structural adjustment; and

- Deal with the potential impact of the mining sector on crucial issues of governance, in particular corruption, regional tensions over how revenue is shared, human rights, and conflict.

QUESTION: Why do many countries seem to have fallen short of realizing the economic development potential of minerals production?

There are three main schools of thought:

- The first blames external market forces – and more specifically, volatile or low commodity prices.

- The second emphasizes internal economic stresses, arguing that a large natural resource base can cause the economy to veer off in one direction and destabilize or damage other sectors.

- The third argues that windfall mineral revenues tend to distort processes of economic decision-making and may foster the kind of corruption that undermines political and social institutions.

External Market Forces

- Mining companies Sell fungible products on commodity exchanges with limited space to compete by offering better or innovative products. Companies have little choice but to focus on being low-cost producers – by seeking operational improvements at existing operations, undertaking grassroots exploration in search of high-quality deposits, acquiring developed properties during the bottom of the mineral-price cycle, and carrying out R&D to improve production processes.

- As new low-cost producers come on the market, or as older mines retool to lower costs, economic analysis would predict an exodus of mines at the other end of the curve – the high-cost, marginal producers. While this certainly does occur to some extent, the exit of high-cost or unprofitable producers tends to be slowed, perhaps for these reasons.

1) Countries where mining is an important employer and there are few alternatives, governments do not want to deal with the social and political fallout from closing mines, and therefore find ways to subsidize them. Zambia, Bolivia, Ukraine, Serbia, and the United Kingdom are a few countries where miners threatened with layoffs have had a destabilizing effect on politics. In such circumstances, governments use subsidies to deflect the problems, and many of the subsidies continue years after they became established.

2) For multinational companies with reputations to protect – or a desire not to alienate host-country governments – it may no longer be possible simply to 'pull out' of communities without making some provision for the work force and the social, economic, and environmental dislocations associated with closure. Particularly where there has been little attention to rehabilitation or stabilization of the mine site during operations, the environmental costs of closure alone may tempt companies to stay in operation much longer than an analysis of current revenues versus current costs might dictate. There is also always a reluctance to close because it may be hard to reopen if prices improve tomorrow. Companies therefore may internally subsidize unprofitable mines.

3) Banks may be unwilling to force closure as long as they can envisage at least partial servicing of their loans.

4) Where miners have no alternative employment, they keep mining even when mines close – formally, as in the cooperatives of Bolivia, or informally, even for minimum returns. They are therefore subsidizing production with their unpaid or only partly paid labour.

Internal Economic Stresses

- Another difficulty for mineral economies is that a booming natural resource export sector can squeeze out other industries. In the Netherlands, for example, in the 1960s and 1970s a sudden increase in natural gas exports seemed to damage traditional export sectors, notably manufacturing and agriculture. What came to be known as the 'Dutch disease' also appears subsequently to have affected other primary commodity producers in the 1970s and 1980s.

The damage can be done in two main ways:

- First, buoyant resource industries can bid up the prices for labour and other inputs. This harms traditional export industries – their costs increase but they are unable to recoup these by raising prices, since the latter are set by world markets.

- Second, natural resource exports can also damage traditional exports through the exchange rate: if booming exports cause the currency to appreciate, this too renders other exports less competitive.

Capturing Mineral Wealth

Clearly the existence of mineral deposits is no guarantee of economic development. Whether deposits turn out to be a blessing or a curse will largely depend on ***governments – on the quality of their institutions, on their capacity to manage these resources well and use them to catalyse development, and on their interactions with companies, civil society, and other actors.***

How much should government attempt to control mineral extraction?

People in many DCs view a mineral endowment as a finite and exhaustible 'national patrimony' and regard it as their duty to capture as much direct benefit or 'economic rent' as possible before reserves run out. *In the 1960s and 1970s, some governments tried to maximize their incomes through higher taxes and royalties and by limiting the repatriation of profits.*

They also imposed *various controls on what the corporations could import or export*, and required that companies *employ a certain proportion of national staff*. When this did not yield the desired results, there were *mandatory joint ventures with national companies*, *caps on the percentage of foreign ownership, and ultimately either 'creeping nationalization' through imposition of ever more burdensome requirements or even outright state seizure, sometimes followed by attempts at compensation.*

By the 1980s, however, it was clear that some of these measures were not bringing the desired results. Some state mining companies, rather than contributing to the national budget, became a drain, as subsidies were required to keep them afloat. Many governments acknowledged that state ownership and public-sector management were failing to deliver anticipated social and economic benefits, and that over-regulation was discouraging investment.

The 1980s also saw the onset of economic liberalization generally and a greater belief that the best option was to allow the private sector to take the lead in spearheading development. Encouraged by the World Bank and other institutions, many countries started to reform minerals sector policies. (See Table below)

In their desire to attract investors, some governments have exempted mining companies from future environmental regulation or have guaranteed fixed taxes.

The Argentine National Mining Agreement (Zambia – Development Agreement), for instance, binds both the national government and the provinces not to raise most taxes on the industry for up to 30 years. In some cases governments have formalized these incentives through ‘stabilization agreements’ – committing themselves not to impose any new tax, royalty, environmental law, or any other regulatory burden that did not exist at the time of the investment

Mining Sector Reforms Advocated by the World Bank

From	To
Legal Reform Access to Mineral Resources: Restrictive and hostile regimes to foreign and private investment … Limited access to mineral resources due to extensive state holdings … Security of Mining Title: Uncertain transition between exploration and mining licenses … A restrictive right to transfer exploration and mining licenses … Environmental Responsibilities: Lack of concern about environmental and social impacts … Marketing and Foreign Exchange: High barriers to imports and exports of mineral products and profit repatriation …	… an open sector with the same rules for all, grounded in the Constitution and defined by statute. … free access to land for mineral resources development based on first come, first served principle. … a guaranteed right for the mineral resource finder to obtain mining license. … free transferability without prior approval from the government. … clear, consistent, and realistic environmental protection and social mitigation policies reflected in modern legislation and standards. … marketing and foreign exchange freedoms.

From	To
Institutional Reform Ministry/Department of Mines: A role of the state as owner and producer of mineral products … Mining Cadastre Office: A discretionary and opaque mining title registry largely serving the needs of state-owned companies… Geological Survey Institution: A focus on detailed mineral exploration … Mining Environmental Office: Lack of institutional attention to the environment … State-Owned Enterprise: Creating losses stemming from economic and technical inefficiencies and uncontrolled pollution of the environment … Institutional Capacity: Demoralized, underpaid, and under-trained staff, unsupported by logistical resources …	… a role as administrator/ regulator coordinating with other government agencies to assure policy consistency. ...a transparent and efficient computerized licensing function with public registry and realistic budgets. …a focus on regional scientific and technical information with an open access policy to disseminate the information widely at nominal cost. …the development of base-line environmental information, sector-specific technical norms and guidelines. …the restructuring and privatization of viable operations, the orderly closure of uneconomic ones, and the application of environmental regulations equally to all. …invigorated staff, trained in sector specifics, with better logistical support (even though still often underpaid).

From	To
Fiscal Reform An input- and output-based taxation regime … A taxation regime providing exemptions and holidays … A mining taxation regime written into project-specific agreements An investment environment without a clear growth strategy and disconnected from international business practice … An exclusive fiscal relation between mining company and central government...	…a regime based on profitability. …a regime providing accounting rules adapted to the characteristics of the industry. …a mining taxation regime written into a tax and/or a mining code. …an investment climate that protects the interests of the country while addressing investors' and financiers' concerns. …an acknowledgment of interests and needs of local communities to share in project benefits.