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Managing Natural Resources for Human Development in Low-Income Countries

The findings, interpretations and conclusions in this paper do not necessarily represent the views of UNDP or United Nations Member States.

Abstract: This paper presents some of the evidence that underlies the recent change in perceptions on African development and we discuss some of the key challenges facing the continent going forward. It intends to generate a debate among UNDP senior managers in Sub-Saharan Africa and make the paper a common point of reference for the Organization's analysis of the challenges and opportunities facing the continent.

Keywords: Sub-Saharan Africa, Economic Development, Natural Resources, Dutch Disease

JEL Classification: O10, Q32, R11

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1. Introduction

Managing natural resources is challenging. Many countries with large endowments of valuable natural resources do no better, and often do worse, than less endowed countries. This recurrent fact has been called the “natural resource curse” or the “paradox of plenty”. Yet, the natural resource curse is not inevitable. Some countries have been able to effectively manage natural resources to advance their development. There is now a broad understanding of some of the measures especially in terms of the macro-economic policies that are needed to avoid the adverse effects that can emanate from natural resource endowment. But merely managing the short-term impacts is not enough to advance human development. As discussed in this paper investing the proceeds from natural resources into the long-term accumulation of all forms of capital (human, physical, social and “institutional”), as opposed to financing current consumption, is necessary.

Natural resources account for a large share of the wealth¹ of countries with low human development outcomes where few other sources of wealth exist (World Bank, 2006) (Figure 1). The management of natural resources is therefore particularly relevant to Africa where many countries experience low human development outcomes and given the high degree of dependence of many African economies on commodity exports and fiscal revenues. While this dependence has been declining, it is still by far the highest in the world (Figure 3). Natural resource wealth has also been linked to the onset, intensity and duration of violent conflict, which is a particular problem for countries in Africa (Collier and Hoeffler, 2002). In turn, conflict has negative impact on human development through the destruction of lives, assets and opportunities.

In an environment of restricted external financing for development, and where there is pressure on national governments to expand fiscal space, increasing domestic revenue from extraction of natural resources is of particular importance. Well-managed extraction of natural resources represents an enormous opportunity for many of the poorest countries in the world to finance the investments needed to advance human development and accelerate progress towards the MDGs.

Thus, while much can be learned from the experiences of richer countries, managing natural resources in developing countries needs to consider both the requirements for long-term investment in a context of less abundant capital, as well as the acute immediate needs for poverty reduction and expansion of education, health and other human development outcomes.

At a minimum, it is important to capture the rents and to manage the macro-economic impacts of the large and volatile inflows of foreign exchange that emanate from the sales of the extracted resources. There are several suggestions on how to do this in practice, including

¹ Wealth refers to the control of assets that can generate income.

through the design of exploration and extraction contracts that maximize the benefit for the government, managing volatility through stabilisation funds, and increasing transparency in the management of the funds, e.g. through the establishment of natural resource funds and/or fiscal rules (Humphreys, Sachs & Stiglitz, 2007). Once mechanisms have been put in place to capture the rents and manage the short-term adverse macro-economic impacts, policymakers need to make a decision on where to invest the proceeds from natural resources, as many confront the decision of what to do with, say, oil revenues—should they save it, build highways or spend it on social policy?

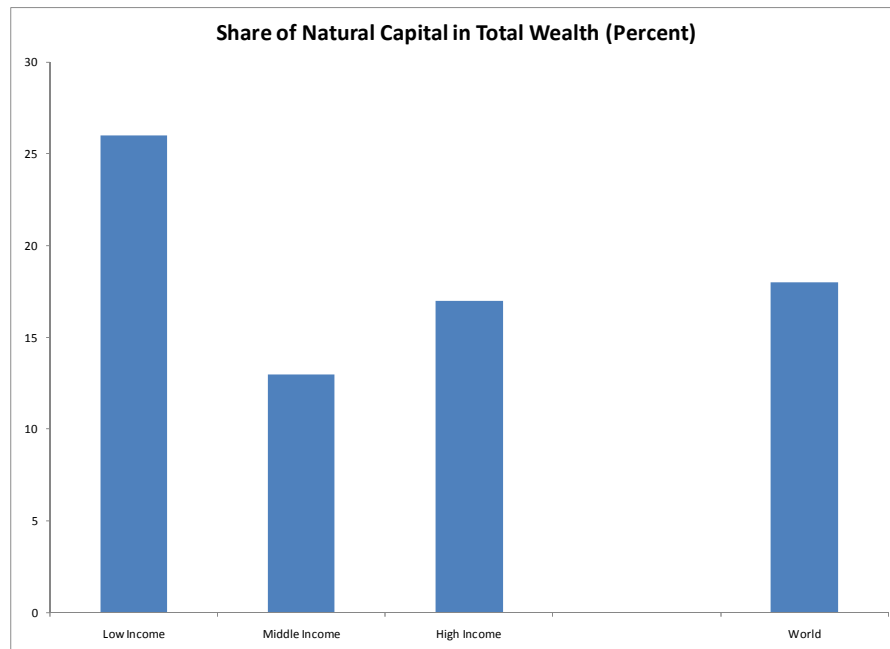


Figure 1- The share of natural capital in total wealth is highest in low income countries
Source: World Bank (2006).

Ultimately, the priorities will be set by policymakers responding to the developmental aspirations of their people. But it is helpful to frame these choices in terms of broad parameters such as the relative social rates of return to each type of capital—that is, identify projects in different sectors of the economy and society that will provide stronger impetus for the development process—and ensure their timely implementation consistent with each country's absorption capacity. In essence, countries with lower human development would gain relatively more by investing in physical and human capital to foster rapid progress of human development, as health and education improvements are important determinants of progress in human development. On the other hand, more developed countries with already high endowments of physical and human capital would gain relatively more by investing in assets that preserve income flows for future generations.

There are no silver bullets that enable countries to avoid the resource curse and make the best possible use of natural resources for development. Still, it is possible to outline general

principles that indicate how countries can avoid, or mitigate, the resource curse. The next section reviews some of these principles that have emerged from empirical studies. One particularly important aspect is how higher levels of institutional capital (governance) and human capital make it less likely for a country that it will suffer from the resource curse. Moreover, abundant natural resources in themselves influence governance structures and the likelihood of the outbreak of conflict. While these issues related to governance are fundamental determinants of the intensity of the resource curse (see Ploeg, 2008 for a comprehensive review), they are very broad and influence a wide range of economic development outcomes. Conversely, it is not possible to fully “insulate” the natural resource sector from broader weaknesses in governance and institutions. Thus, this paper considers a narrower set of challenges to pin down more practical and concrete recommendations, namely how to deal with the macro-economic impacts and with the highly volatile nature of commodity prices.

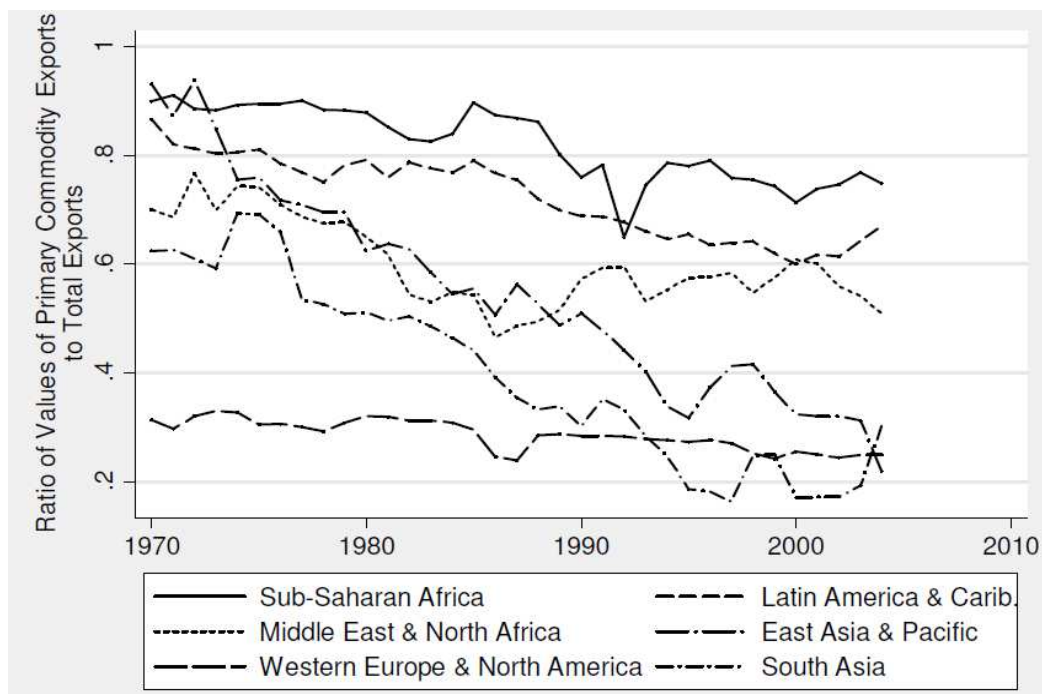


Figure 2- Natural resource dependence: Declining, but still very high in Africa

Source: Ploeg (2008).

The third section takes on the issue of how to make the best possible use of natural resource revenues to advance human development. It suggests a framework to help make choices on how to allocate resources under the general principle that the choices to be made should be consistent with expanding national wealth. Section four presents concrete “good practices” meant to illustrate some of the actions taken countries to manage the risks that come with natural resource extraction and advance development as well as the role of UNDP in strengthening the ability of countries to manage their resources. Section five concludes the paper.

1. The natural resource curse: How to avoid it?

Several countries with large quantities of oil, natural gas, gold, diamonds and other mineral deposits have not experienced sustained economic progress. For example, reviewing the determinants of economic growth in Africa, Beny and Cook (2009) find that the share of exports of petroleum and related products is negatively correlated with economic growth. On the other hand, countries with few natural resources have experienced dramatic transformations in their economic structure that led to massive increases in the standard of living of their population—the South East Asian tigers (Singapore, Taiwan and South Korea) fit this description and so do many European countries. In fact, Beny and Cook (2009) show that in Africa, when a high share of petroleum exports goes along with a high share of exports of other goods and services (suggesting some economic diversification away from natural resources), the impact on economic growth is positive. This is consistent with findings from other studies of the determinants of economic growth in Africa (e.g., Ndulu and O’Connell, 2007) and elsewhere (Sachs and Warner, 1995, 2001).

Given that there are cases where natural resources have fostered development, endowments of natural resources are not *per se* a curse but more of a “double-edged sword” (Frenkel, 2010). A study prepared as a background paper for the 2010 Human Development Report explores the relationship between natural resource abundance and human development (Pineda and Rodriguez, 2010). It shows that, in contrast with much of the literature on the resource curse, exports of natural resources are positively correlated both with economic growth (although not very strongly) and with changes in the Human Development Index (Figure 3).

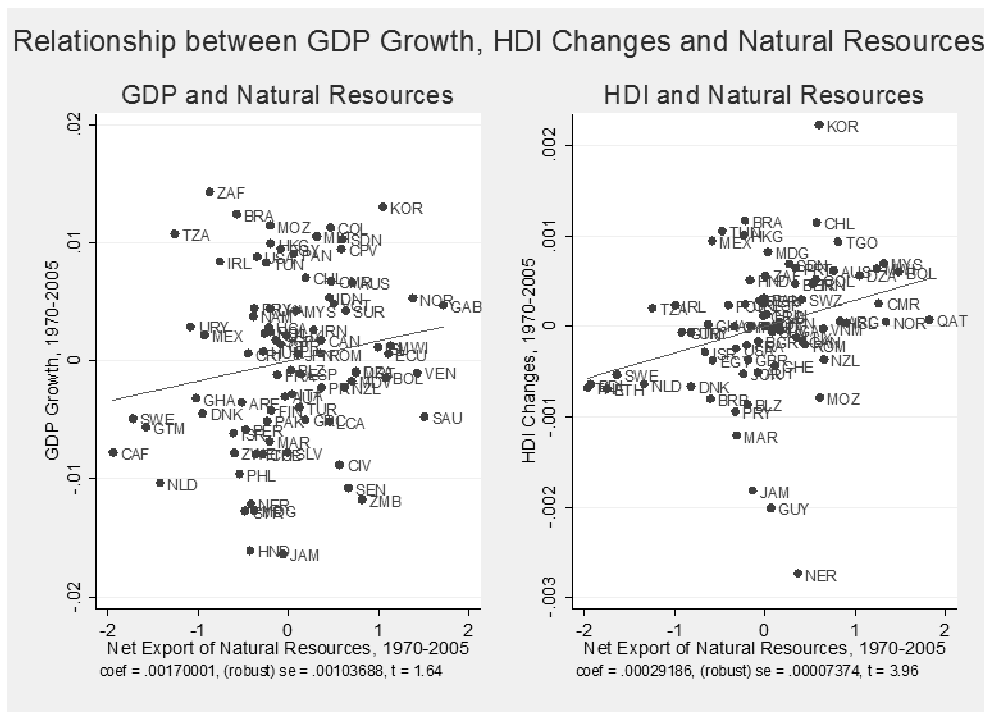


Figure 3- Exports of natural resources, economic growth and HDI changes
Source: (Pineda and Rodriguez, 2010)

The Pineda and Rodriguez study, as well as several others, report the “average effect” given a multitude of different experiences.² This “average effect” masks the fact that, as mentioned above, there are several countries where the exploitation of natural resources did more harm than good. Moreover, what makes the “natural resource curse” unusual is that minerals and other commodities constitute wealth in itself. When the natural resource curse strikes, vast wealth is transformed into long-term economic and social problems.

There are several channels through which extraction of natural resources negatively alter the development path of a country. Two of the most commonly highlighted are the Dutch disease—named after the discovery of natural gas in the Netherlands in the 1960s—and the volatility of commodity prices, which often induces pro-cyclicality of savings, public spending and capital flows. There are, however, two preconditions to effectively manage natural resource wealth: avoid conflict and enhance the ability of national institutions. Below, a brief description of each of these elements is provided.

Improving governance and the institutional framework

The effectiveness of all policies to manage risk associated with natural resources requires a strong institutional framework—in fact, a large share of the literature on the natural resource curse points to institutional weakness (corruption, lack of rule of law, weak governance) as a

² The techniques used are typically cross-country and panel analysis, with countries as units of analysis.

major determinant of the curse. The development of independent, accountable and transparent institutions that can help the government manage the proceeds from natural resources is important. In fact, one could argue that establishing strong institutions *prior* to the exploitation of the resource is the safest way to avoid the curse. Acemoglu, Johnson & Robinson (2006), for example, found that the relative healthy institutions in Botswana allowed the country to properly manage the mining of diamonds—a particularly successful initiative expropriated mining rights away from tribes and towards the state, cementing the common interest and fending off potential tribal problems. The initial quality of Botswana's institutions created a positive and reinforcing dynamic, whereby the revenue from diamonds mining were used to further strengthen national institutions. The origin of these institutions are found in: (i) the inclusive pre-colonial institutions (notably the *kgotla* or community forum) for airing public dissent and reaching consensus; (ii) a rather light impact of British colonialism on these institutions, and; (iii) the interests of the elite in maintaining the status quo after independence and especially after the discovery of diamonds. This in turn led to the development of well-protected property rights of actual and potential investors, and constraints placed on the political elites by the political system and the participation of a broad cross-section of the society. Leith (2005: page 120) argues along similar lines: "*Botswana's exceptional growth record...is not explained by a single silver (or diamond) bullet; rather, it is explained by a whole range of policies that worked together and were supported by effective institutions.*"

There is not a simple response to the quest for well-developed institutions and recommending that countries should enhance their governance to avoid the resource curse is somewhat glib. The examples of countries with relatively low institutional capacity that have managed to find the right conditions to exploit their natural resources—breaking the negative cycle—are probably more instructive for policymakers in developing countries. Chile, Indonesia and Malaysia are good examples in this regard. Gleb and Grassman highlight how these countries shared the goals of preserving social stability, accelerating economic growth and creating credible and stable groups of "technocrats" willing to engage and influence political leaders. Very importantly, strong constituencies outside of the natural resource sector were considered and listened to in the management of natural resource proceeds.

Avoiding the Dutch disease

The Dutch disease occurs, to simplify, when the sudden increase of foreign-currency denominated export revenue (from mineral and other natural resources) generates an appreciation of the real exchange rate. This, in turn, affects the competitiveness of the non-natural resource exporting sectors. It increases the relative price of non-traded goods (such as housing) and tends to shift labour and capital towards non-traded goods and the natural resource exporting sector. The detrimental effect on other exporting sectors can be particularly relevant in the case of Africa. It can harm agricultural production, given that some produce may become much cheaper to import, and harm agricultural exports. And it may slow down or even reverse the development of manufacturing.

Avoiding the appreciation in the *nominal* exchange rate through monetary mechanisms—mostly through intervention by the central bank to soak up the incoming foreign currency—is an option. The problem with this approach is that central bank intervention is likely to be inflationary—which in turn impacts the *real* exchange rate—unless the interventions are sterilized, which has its own fiscal costs. Another option suggested by Frankel (2010) is a monetary regime for commodity producers called Peg the Export Price. The idea is to keep the price of the main exporting commodity stable in *local currency terms*: if the price of oil in dollars increases by 10 per cent, then the price of the local currency in dollars should increase by 10 per cent. Frankel himself admits that it is a “rather extreme proposal” and argues that the “important point is to include export commodities in the index and exclude import commodities” in a price index used in inflation targeting (Frankel, 2010: page 30).

Sachs (2007) argues that fears of the Dutch disease are overblown and that the real concern should be whether the appreciation of the real exchange rate squeezes out the non-natural resources tradable sectors. He explains that this can be avoided if the proceeds from natural resources are invested in projects that increase the productivity of the whole economy. The difficult decision for policymakers refers to the timing of investments since the actual deployment of productive projects will take time and will generate adjustment costs. Sachs argues that the optimum response is to spread the investment over time, and to maximize the benefits of the investments net of the adjustment cost themselves.

Minimizing the effects of commodity price volatility and pro-cyclicality

The prices of oil, natural gas, gold and other commodities are notoriously volatile. Take, for instance, the peaks and troughs in the price of oil in 2008. In the summer of 2008, the price of a barrel of oil reached \$127, while in December of that year it had fallen to \$36 (US Energy Information Administration). Such volatility has the potential to create problems for countries relying on natural resources, exacerbating boom and bust cycles, as public spending and capital flows increase when the price of the natural resource is high and decrease when it is low.

Price volatility is harmful because the effects during booms do not compensate for the losses during price busts, and behaviour during booms may sow the seeds for trouble during busts (for example, by over-borrowing). Collier and Venables (2008) find that in Africa, a favourable terms of trade improvement has no effect (on average) on next year’s growth, but that a terms of trade loss of 10 per cent reduces next year’s growth by 3.6 percentage points.

Smoothing consumption and investment linked to natural resource revenue is very important to avoid the curse. Different policies have been implemented to achieve this, including hedging volatility in sale prices, creating stabilization funds, reserve accumulation by central banks and reducing capital inflows during booms. Other proposals include indexing sovereign debt to the price of export commodities, so that debt service is more costly during price booms and cheaper during price slumps.

The effectiveness of these policies hinges on sticking to the rules during both good and bad times. While this can be politically difficult, it has been done successfully. For example, in early 2008, the Mexican Government bought a put option that allowed them to sell the totality of its 2009 oil production at \$70 per barrel (the price of oil when the contract was written was higher than \$100 per barrel). When the price of oil collapsed, the Mexican Government exercised its option and avoided a drastic drop in public revenue. Another alternative is to institutionalize stabilization funds. In Chile, the Government sets aside a large proportion of their copper export revenues into the Economic and Social Stabilization Fund (ESSF) which replaced the Copper Stabilization Fund that had been implemented in 1985. The ESSF is designed in such a way that it increases when the Government runs a fiscal surplus and is drawn down when there is a deficit. During 2009, when the price of world commodities (including copper) fell abruptly, the Chilean Government increased its public spending funded by the ESSF, minimizing the effects of the fall in copper prices and the global financial crisis on the Chilean economy.

2. Investing for human development

Avoiding the pitfalls related to the managing the macro-economic impacts of natural resources is crucial. But equally important is enhancing the social impact of the income generated by the extraction of natural resources. Some of the elements needed to avoid the natural resource curse are also the cornerstone for expanding people's choices and freedoms—that is, to advance human development—in resource-rich countries.

A strategy that could strongly promote human development would invest the proceeds from natural resources and would not be used to finance consumption. There is a very simple accounting reason for this: for those natural resources that are non-renewable, exploration is limited in time. Sound wealth management suggests that assets should not be used to finance non-productive projects—in other words, natural assets should only be transformed into other types of productive assets. To increase the assets of a given society—and also to diversify its productive capacity—a large bulk of natural resource proceeds could be used to expand education, health, water, sanitation, power, roads, other infrastructure and other long-term investment projects. Using the proceeds to finance investment in different types of capital instead of public or private consumption is desirable for two reasons. First, it limits the impact of the Dutch disease, because when it comes to infrastructure, in particular, it will increase the demand for imports. Second, it allows for increases in the productivity of the economy and the country as a whole.³

The academic literature has focused on conceptual issues related to inter-temporal aspects of natural resource management (Solow, 1974; Hartwick, 1977) that is, how to determine the timeline to extract resources that is fair to both current and future generations. Recent advances in measurement enable the operationalization of some of these concepts. There are now estimates of capital accumulation that take natural resource depletion into account. Take, for instance, the World Bank's Adjusted Net Savings and Total Wealth estimates. Using these

³ These two points are interrelated.

measures, the analysis of natural resource management can be linked to the concept of weak sustainability. The idea behind weak sustainability is simple: a country is on a sustainable path if its wealth is non-decreasing over time. This implies that a country that makes use of its natural resource endowment will be sustainable if it invests the money obtained from the sale of minerals and other commodities (non-renewable) into other types of capital: human, physical or “institutional”. This idea has been called the “Hartwick Rule” or “invest resource rents”. The rule however, does not provide any guidance in which type of capital to invest the resource rents.

Part of the challenge in terms of practical implementation of policies to pursue sustainable wealth management is in the indicators used. GDP is notoriously flawed to capture depreciation of natural and environmental resources. Partly because of this, the World Bank has for several years been calculating the Genuine Savings (or Adjusted Net Savings) and Total Wealth indicators mentioned above. These data capture a broader range of capital, hence the name Total Wealth. The advantage of this type of indicator is that it captures the depletion of the stock of natural resources and the negative effects on the environment. The empirical evidence is not encouraging: studies using genuine savings data show that “it is the most resource-abundant countries of the world that have also been the poorest genuine savers over the last thirty years, with many of them having persistently negative GS rates.” (Dietz, Newmayer and Soysa, 2007: page 49). This result could be interpreted as a manifestation of the natural resource curse.

Policymakers could consider that as a criterion for the effective use of natural resources their Genuine Savings and Total Wealth show a sustainable path (in the case of GS, they should be positive; in the case of Total Wealth, it should be non-decreasing). Genuine Savings contains information on the net increase in produced capital, a proxy for human capital accumulation and an estimate of the net depreciation of natural capital. It is easy to imagine a rule where resource abundant countries with sizable revenues from oil, mining and other natural resources should invest in either physical or human capital; moreover, this investment should be reflected in the Genuine Savings indicator. It is worth repeating that pacing these investments to minimize the adjustment cost is important.

An alternative way to increase standards of living is to transfer the rents directly to the population on a per capita basis. Several authors have suggested this approach (Sala-i-Martin and Subramanian, 2003; Collier, 2006; Birdsall and Subramanian, 2004). While there is an equity-enhancing element to this proposal, it may limit the impact on improving health, education and the public investment in public goods. There may also be other unintended consequences such as rent-seeking and destabilising behaviour at the local level.

One possibility is to condition the transfers, for example, only families—or mothers—showing evidence that children attend school and regularly visit their health clinic. Evidence from different conditional cash transfer schemes around the world shows that these programmes have a positive effect on the education and health of the poorest people (Fizbein and Schady, 2009). Another suggestion is to target the transfers, for example, only to mothers or to girls in

school—which could, in turn, promote a vast array of social benefits. Conditioning the transfers has the advantage that people will not consume the newly acquired money but are required to invest it into their children. Under any circumstance, cash transfers require a well-functioning bureaucracy—either to collect taxes or to set up and run the CCT programme.

Spending part of the proceeds on a social protection programme can also be efficient, particularly in countries with low human development. There is strong evidence that poor households embark in practices that are not efficient when they face risk—they, for instance, reduce their food intake or take children out of school which has long-term implications on their productivity (as well as impact on their levels of human development) (Dercon, 2006). Social protection is very important in these cases, as it could provide an efficiency boost to local economies, allowing poor households to improve their decision-making. Using natural resource revenues for social protection would then have a positive feedback effect and long-term benefits in terms of risk management for poor households; for this to be correctly implemented, however, governments will need to map out the inefficient practices that poor households use to cope with risk and shocks. Ultimately, even if cash transfers have a role to play in terms of allocating the *some* of the proceeds from the revenues especially in low income countries, the government needs to play a central role in terms of ensuring that the *largest part* of the rents from the natural resources are accumulated in other forms of capital.

However, total wealth accumulation is not necessarily the end goal for policymakers. If society is concerned about human development, this wealth should be used to expand people's choices. If this is the case, there is a stronger case to invest in health and education, which are an important element of people's ability to generate income but are also important intrinsically. By using a broader notion of capital to include other forms such as human, institutional and social capital objectives of capital accumulation and human development are not necessarily in conflict. Although, and as will be discussed further below, in practice they can be difficult to manage.

We therefore suggest a basic typology to enhance human development with the proceeds from natural resources. The basic idea is that the resource rents would be transformed into alternative types of productive capital. Success in achieving this goal could be assessed by monitoring Genuine Savings. In general terms, resources could be used in three ways: i) in capital-enhancing activities (infrastructure, basic services and institutions, for instance); ii) in social protection transfers iii) in a "future generations" fund. The balance between each of these would depend on the level of development of the country.

Countries that have covered their infrastructure needs with extensive health and education coverage and a well-developed social protection policy would be well-placed to open up a "future generations" fund. Countries in early stages of development would require investment in projects with high social returns. Finally, countries in the middle stages of development could diversify their investment into infrastructure to improve their economic productivity, enhancement to the social protection schemes and a relatively small share for a "future generations" fund.

The details of this proposal following Sachs (2007) are the following:

1. The poorest countries would use their natural resource rents to meet basic needs (water, food and basic education and health services), basic infrastructure (roads, power, communication networks) and social protection. In the Genuine Savings indicator, the transformation of natural resource rents should be reflected in human and physical capital. Countries in Africa could benefit from investment in the agricultural sector (irrigation and use of fertilizer, for instance). These investments would likely have a multiple dividends as they would increase long-term agricultural productivity and would have an impact on poverty. In addition, if well-implemented, they could counteract the negative impact of the appreciation in the real exchange rate and thus avoid part of the Dutch disease.
2. Middle income countries would use the proceeds to finance the transition to an economy less reliant on natural resources. This could include investments in higher education and research and development as well as institutional development aimed at enhancing social protection.
3. High income countries could invest the proceeds in other financial assets (as Norway, for instance, has done with the Sovereign Wealth Fund) to transfer savings into welfare enhancements for future generations. The genuine savings indicator will see the net savings component increase when this occurs.

4. Practical steps: Learning from other countries

According to the IMF, 51 countries are endowed with considerable amounts of mineral and other types of natural wealth (IMF, 2007). Some examples below of good practices among the members of this group illustrate the potential of using natural resources to enhance development.

a. Capturing the rents and investing in institutional capacity

Institutions with the ability to limit personal and group interest are paramount in order to make the best of natural resources. International organizations thus have a clear possibility to promote the expansion of human development in resource-rich countries by enhancing the capacity of national institutions. One case in point is negotiations with transnational companies that will extract the resource. This aspect is essential for the ability of governments to capture the rents from natural resource extraction. The balance of power between low human development countries and multinational corporations is not always symmetric. Enhancing the technical knowledge of government officials would improve the ability of countries with limited negotiating capacity. Some argue that stronger transparency in the negotiation process could also reduce corruption.

A UNDP project in sub-Saharan Africa, the Regional Project for Capacity Development for Negotiating and Regulating Investment Contracts, follows similar objectives, while aiming to maximize Africa's investments in, and exploitation of, its natural resources by developing and building national capacities to help: a) accelerate poverty reduction, and attainment of the MDGs; b) manage the environment and promote sustainable development while ensuring adequate protection of the poor; and c) in post-conflict countries, facilitate training of national stakeholders to promote recovery and the restoration of administrative and service delivery capacity necessary for proper government function and oversight (UNDP, 2010). The project is designed to build capacity in countries with natural resource wealth on three different levels: in the short-term through training workshops for a selected group of government officials involved in negotiations; in the medium-term through technical assistance for the development and amendment of policy, legislation and regulation; and in the long-term, through the creation of a knowledge management plan and design of courses in institutes of education that contribute to the development of experts in managing natural resources for development.

b. Reinvesting the proceeds of natural resources

Botswana is one of the clearest examples of how natural resources can be used to enhance development. Botswana is a prime exporter of diamonds which account for 98 per cent of mineral value in the country.⁴ From 1990 to 2007, the production of diamonds almost doubled, from 17.3 to 33.6 million carats. Over the same period, GDP growth rates averaged 5.4 per cent and while the HDI of Botswana has not reflected large improvements, it is mostly due to the impact on life expectancy caused by the HIV/AIDS epidemic.

Lange and Wright (2004) explored this case in detail. They find that total wealth (the sum of their physical, natural, human and other intangible assets) in Botswana has increased steadily over the past three decades, and while the absolute value of mineral wealth has increased, the share in the economy has been constantly decreasing, which implies a reinvestment of mineral wealth into other types of productive capital.

An important element of Botswana's success is the use by the Government of a Sustainable Budget Index (SBI). Lange and Wright mention that "without a formal investment rule, the emphasis (in Botswana) has been to reserve *all* mineral revenues for investment expenditure. From the mid-1990s, a formal rule to this effect was introduced which is now routinely included in the various assessment of economic performance produced by the government. The SBI reflects whether government is spending the mineral wealth instead of investing it. If the SBI is higher than 1 (which means that non-investment spending is larger than recurrent revenues), then the country is depleting its natural wealth without creating alternative assets. In recent years, there has been growing concern that the SBI has risen above one, especially once unproductive capital expenditure such as defence and social welfare programmes are removed. Moreover, there is concern with the falling productivity of public investments, which is thought

⁴ Department of Mines 2007 Annual Report.

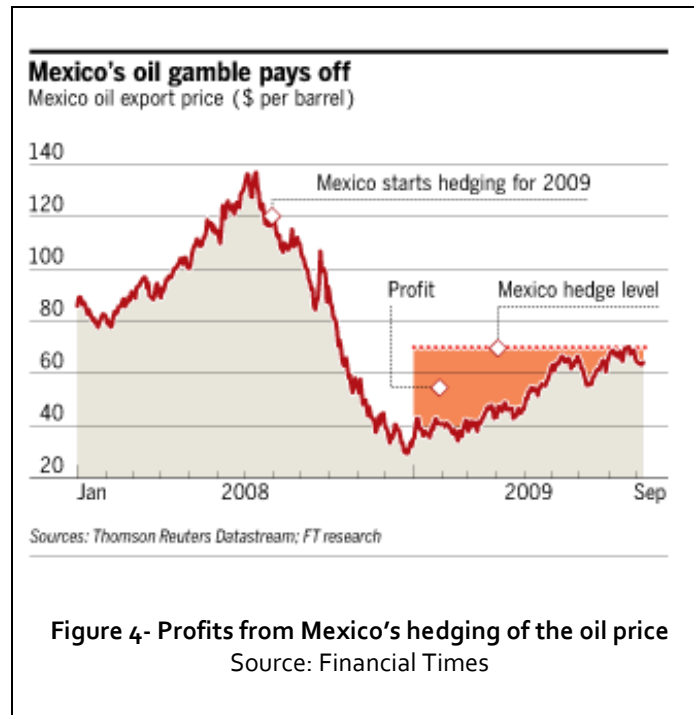
to be a major contributor to falling Total Factor Productivity in recent years (Levine, 2009). Botswana thus illustrates the complexity that countries are faced with in terms of optimal resource extraction, capital accumulation and economic diversification.

Indonesia offers an example of a country that used oil revenues in the 1970s and 1980s to support improvements in agricultural productivity and diversification into other sectors. Oil income was used to invest in natural gas, which was exported and used as input to fertilizer production. Oil and gas revenue, in turn, enable the diffusion of fertilizers at a highly subsidized price, resulting in rapid gains in agricultural yields. Prudent management of the exchange rate also enabled the economy to diversify into manufacturing.

c. Avoiding pro-cyclicality

Policies to smooth the swings associated with natural resource revenues are probably the most widely used around the world. A common tool is the use of “stabilization funds”. Chile is the most commonly cited example. As mentioned above, the Chile fund was transformed from the Copper Fund into a broader Economic and Social Stabilization Fund. The Chilean experience shows the importance of credible commitments to rules by the government. Chile’s fiscal policy is governed by rules—the budget deficit (or surplus) is determined by the economic production of the country in a given year and the price of copper in the world markets.

Other countries have used derivatives to minimize the volatility of commodities prices. As mentioned above, Mexico successfully hedged its 2009 oil production. The bet provided the Mexican Government with a windfall of \$8 billion (Figure 4). However, hedging has large political risks—had the price of oil remained high, the Mexican Government would have paid for the right to sell without any benefit. In fact, when Ecuador tried the same and lost money, the head of the central bank was accused of corruption.



Hedging against price changes can be useful to minimize volatility—that is their primary goal; they are not designed to generate revenue. Yet the political risks of hedging are still perceived as too high in many places.

d. Commodity or Sovereign Wealth Funds

As noted above, some countries put special emphasis on channelling natural resources through savings to enhance future welfare by establishing commodity funds. Countries such as Norway, Kuwait and the United Arab Emirates make use of “Sovereign Wealth Funds” to invest the proceeds of natural resource extraction into financial assets. Successful funds are transparently managed and run by professionals who are independent of political needs. The Norway Pension Fund (formerly known as Norway’s Oil Fund) is often referred to as the best practice, but the realities of Norway are very different to other countries with natural resource wealth: for instance, the goal of Norway’s fund is to ensure the savings needed to guarantee the public pension expenditures in the coming years (which is particularly relevant given the country’s demographic structure).

Since 1996 a unique feature of the foreign exchange reserve management in Botswana has been the separation of the reserves into two sub-portfolios: 20 per cent of reserves are in the short term Liquidity Portfolio and 80 percent in the long-term Pula Fund (Levine, 2009). Forty per cent of this Fund’s assets are invested in equities and 60 per cent in long-term fixed income assets such as bonds. This way, the Pula Fund becomes a type of Sovereign Wealth Fund, although still part of the balance sheet of the Bank of Botswana, and has allowed for the mineral revenues to be invested in line with the philosophy of sustainable utilization of the natural resource. One of the objectives of establishing the Pula Fund was to take advantage of

the high level of reserves and invest part of them in assets such as long-term bonds and equities, with the expectation of earning a higher return than could be achieved on conventionally managed foreign exchange reserves. In this way, an alternative long-term earner of foreign exchange for the country was developed. In recent years, income from external reserves has been the third most important constituent of budgetary revenues.

As noted above, while some of the revenues may be channelled in this way in developing countries, in the poorest countries with dire human and physical investment needs, it is likely that the returns are higher to investing domestically in building up physical and human capital—in a way that is consistent with the countries capacity to manage those investments.

5. Conclusion

Managing natural wealth and turning it into prosperity is challenging. Countries endowed with natural riches can either find the path to increased human development or fall prey to the natural resource curse. This paper argues that an overall strategy to manage natural resources for human development consists of two broad elements: a) avoiding the resource curse through timely macroeconomic management and b) expanding people's choices with the revenues obtained from the natural resources through investment in human, physical and financial capital and the expansion of efficiency-enhancing social protection.

Gelb and Grasman (2010) distil some of the common features of countries that have been able to avoid the resource curse and use natural resources to enhance their development. These countries have been able to avoid boom-and-bust cycles and to spend resources effectively. While institutions seem to have determined these outcomes in some countries—e.g. in Botswana and Norway—success has even been achieved under challenging political and governance conditions—e.g., in Indonesia and Chile. What they seem to share is:

- a) Widely shared goals of preserving social stability and accelerating economic growth;
- b) A credible and stable cadre of “technocrats” that interact and influence political leaders;
- c) Strong constituencies outside of the natural resource sector (e.g., fisheries in Norway, agriculture in Indonesia, traditional chiefs and cattle owners in Botswana) that argue for prudent spending during booms and for effective spending otherwise;
- d) Link savings and investments to explicit objectives of economic and social progress, helping citizens understand the allocation decisions.

There is no reason why, even if all of these conditions are not wholly met, to greatly enhance the management of natural resources for development. Another finding of Gelb and Grasman (2010), also highlighted in other literature, is that the successful management of natural resources has relied on home-grown strategies that take into account the given opportunities and address the challenges specific to each country.

This has strong implications for the policy advice and support that could be helpful in helping African countries better manage their natural resources. Specific recommendations have to be

rooted in a thorough analysis of the economic conditions and political economy in each country. Financial conditionality is likely to have little or no leverage in resource-rich countries. What UNDP along with other development partners can do is:

- a) Strengthen capacity to manage the technical aspects of natural resource management (a small cadre of technocracy able to deal with the challenges of managing natural resources at each level from the exploration to the exploitation stages) as well as to enhance the ability of countries to be able to plan and implement effective spending plans (on health, education, social protection);
- b) Share experiences across countries of both successful and less successful paths in natural resource management, imbue in the debate a longer-term development perspective linked to social and developmental goals, such as the Millennium Development Goals;
- c) Help to diffuse and develop capacity in countries to adopt good practices such as those of the Extractive Industries Transparency Initiative;
- d) Enhance the voice and information of constituencies outside of the natural resource sector, especially in agriculture in Africa, to help mobilize support for more prudent and effective management of natural resource revenues.

Beyond these more general findings, the paper also discussed a set of guiding principles that have been presented in the literature and which may be helpful for making decisions on resource allocation. Different levels of human development grant different policies for managing natural resource wealth. The basic typology discussed in this paper can help policymakers identify priorities and design development programmes. This typology suggests that the poorest countries use their natural resource rents to meet basic needs (water, food and basic education and health services) and basic infrastructure (roads, power, communication networks). Countries in the middle of the development ladder could utilize the revenue to transition the economy and achieve a knowledge and service based economic structure through Research and Development and investment in higher education.

Finally, more developed countries could invest their natural resource wealth in other financial assets to ensure inter-generational equity and long-term fiscal probity. This paper also suggests using an appropriate indicator, such as Genuine Savings or Total Wealth instead of GDP, to monitor the investment of natural resource rents into other forms of capital. In turn these broader concepts of savings and wealth could be broadened even further to take on board other types of capital such as industrial and social capital. Industrial capital can be critical for the longer-term effects on the productive capacity of the economy, which is important to counter the adverse competitive effects of currency appreciation, but also more fundamentally key to the diversification of and structural transformation of the economy. This transformation is what is needed if the economy is to continue to grow, and human development is to continue to expand, beyond the time of the resource extraction. Or “the day after” as they say Botswana with reference to the imminent depletion of their diamonds. Social capital is critical for human development although often not captured even in broader measures of welfare. But if social capital is low, e.g. through wide-spread exclusion of women or political oppression, human

development cannot take place. As the the uprisings that erupted in North Africa and the Middle-East in 2011 have showed, advances in agate economic social outcomes, that are not accompanied by public participation and protection of human rights, are not sustainable.

The demands and expectations on UNDP to assist countries in realizing this potential are high and growing. In the 2010 "Freetown Declaration" issued by the African Governors of the World Bank and IMF, UNDP was specifically urged to deepen its support the establishment of good governance institutions for the management of natural resource revenues and to assist countries to negotiate extraction agreements that are both fair and consistent with the countries' development agendas. This paper has highlighted some of the key areas that UNDP will be working with countries in the years to come in order to manage the risks associated with natural resources and turn these into opportunities for advancing human development.

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