

The World Bank

Study on Growth and
Environment Links for
Preparation of Country
Economic Memorandum (CEM)

Part 1: A Review of Relevant Literature
and the CEM Concept Note

Final report

May 2005

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1. Introduction

A study was conducted to analyze the linkages between environment and growth in Tanzania with the objective to feed into the on-going preparation of the Country Economic Memorandum (CEM). The specific objective of the study was to bring together data to clarify the contribution environmental and natural resources (ENR) have to GDP and to identify the potential for increased growth from the sustainable use of ENR, and constraints to the achievement of growth.

The Terms of References of this assignment (attached in Annex 1) comprised the following specific tasks:

- (a) To undertake a critical review of the CEM concept note to identify where issues of growth and environment linkage are required.
- (b) To review documentation on links between growth and poverty, and the environment provided by the World Bank and other Development Partners. This should include the study on poverty and environment links commissioned by the World Bank, the PER of environment, and the MKUKUTA.
- (c) To collate and review additional documentation and data on links between growth and poverty and the environment.
- (d) To prepare written comments on drafts of the CEM.
- (e) To prepare brief inserts and edits for the CEM relating to growth-environment linkages, this should include relevant data and tables where this data exists.

The results of the study are presented in three parts: Part 1 summarizes a review of relevant literature on environment and growth as well as comments on the CEM concept note. The findings of the data collection exercise are presented in two separate documents as Part 2 and Part 3 of the study.

Part 2 focuses on Forestry, Wildlife and Marine Fisheries, which seem to have been forgotten in the discussion on economic growth in the context of the CEM. The title of the report is hence accordingly "Forgotten Growth potential - Forestry and Wildlife".

Part 3 presents background data on the Mining, Freshwater Fisheries and Tourism sector with a view to illustrate the externalities of the 'success stories' of growth in the CEM. Thus, the presentation of results has been aligned with two

main comments on the CEM: Firstly, the omission of the discussion of forestry and wildlife as potential growth sectors. Secondly, the omission of consideration of environmental and social externalities created by the high growth in Fisheries, Mining and Tourism.

The reason why the Fisheries Sector is sub-divided into Freshwater and Marine Fisheries, is that their 'stories' in the context of economic growth are very different. While high growth rates in the Freshwater Fisheries are due to over-exploitation of the resource, in particular Lake Victoria, most likely exceeding sustainable limits; Marine Fisheries still provide a large un-captured potential for economic growth. Furthermore, the governance regimes for the two Fisheries sub-sectors are quite different in the sense the Marine Resources are regulated by international conventions in addition to national legislation.

The study relies entirely on the review of secondary data and existing literature. Consulted sources of information include official Government statistics and reports (respective sector ministries, Bank of Tanzania and National Bureau of Statistics, Tanzania Investment Centre), sector studies commissioned by research agencies and donors, economic analyses from independent agencies, case studies, as well as a few current news stories from the media. The examined literature is listed in the Annex of each of the three reports.

The desk study was conducted by COWI Tanzania in March/April 2005 through Ms. Kerstin Pfliegner with contributions from Dr. Kassim Kulindwa and Mr. Thomas Hansen.

This report presents Part 1 of the study and focuses on a general literature review on "Growth and Environment" in Chapter 2 and comments on the draft concept note of the CEM (Version September 13, 2004) in Chapter 3. A revised outline of the CEM, encompassing ENR, as well as inserts and edits are also proposed.

2. Review of Relevant Literature

There is a wide body of literature on the complex links between growth, poverty, natural resources and the environment, which can be divided into three main debates:

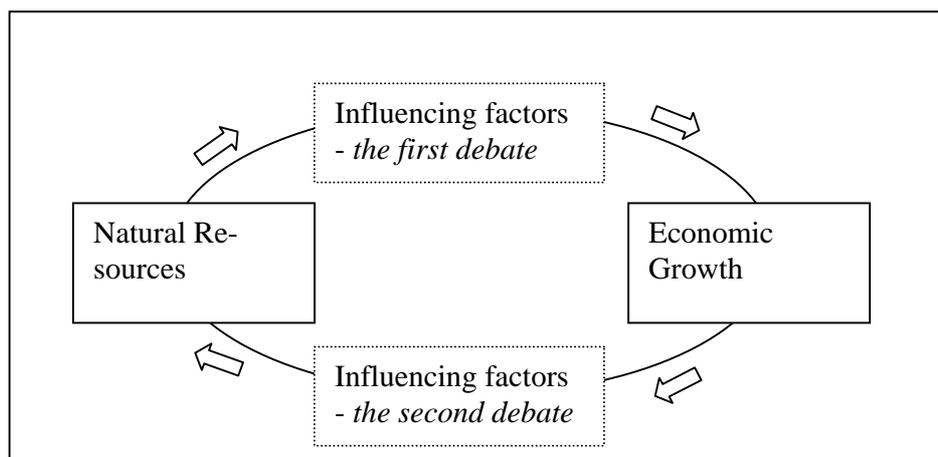
The first debate, examines the macro-level implications of natural resources for economic growth. The point of departure for the debate is the so-called resource curse hypothesis, arguing that countries with abundance of natural resources are, *ceteris paribus*, determined to have lower growth rates as the more productive manufacturing sector is crowded out.

The second debate focuses on the inverse causal relationship, i.e. the macro-level implications of growth for natural resources and the environment. The *Kuznet's environmental curve hypothesis* is at the centre of the debate. It argues that pollution and environmental degradation will increase with GDP growth until a certain point after which sophisticated technologies and demands for better environmental regulation will help reduce emissions and environmental damage. This curve-like relationship is however widely contested.

Finally, *the third debate*, examines the implications of natural resources for poverty and vice-versa. One of the prevailing hypotheses is the poverty/environment nexus, which argues that a degrading environment will cause poverty, which in turn damages the environment further, thus creating a vicious circle.

The three debates are closely related. First of all, a general association is assumed to exist between growth and poverty reduction, and so the main difference between the first and second debate on the one hand, and the third debate on the other hand is the level of focus. Whereas the two first debates are mainly focused at macro-level, the third debate takes a closer look at the micro-level effects and implications for the poor.

The model below presents the links to be examined at the macro level (the first and second debate). The model introduces the two main variables, natural resources (NR) and economic growth, and the expected logic of causality between them. The model also introduces influencing factors (also referred to as 'channels'), which may impact, positively or negatively, on the relationship between the two main variables. Whereas many scholars agree about the overall association between the key variables, there is substantial debate about the nature of these influencing factors.



All of the debates are relevant to understanding the challenges faced by Tanzania. The first debate may, for example, help illustrate how the observed high growth in the mineral sector may impact on the overall GDP growth rate. The second debate illustrates the environmental challenges that Tanzania will face in the coming decades if current growth rates are maintained.

Finally, building on the National Strategy for Growth and Reduction of Poverty (NSGRP), the third debate may help illustrate the potential of NR for those still trapped in poverty throughout rural Tanzania.

This chapter provides a brief review of this literature with a view to identify the main theoretical trends relevant to the case of Tanzania.

The review will mainly focus on recent (1995 and after) academic literature (journals, books and working papers) and a few publications from leading development institutions. The review will provide a general overview of the prevailing ideas, but is not meant to be exhaustive.

This Chapter is divided into four main sections. Section 2.1. reviews literature analysing natural resources as independent variable, and economic growth as dependent variable (The First Debate). Section 2.2. looks at literature taking growth as point of departure with a view to examine implications for natural resources and the environment (The Second Debate). The Poverty/Environment nexus will be discussed in Section 2.3. Finally, Section 2.4. will summarise the review. The reviewed literature is listed in Annex 2.

2.1. Natural Resources & Growth: The First Debate

This section will present and discuss the body of literature dealing with natural resources as independent variable. The point of departure for most of this literature is the so-called resource curse hypothesis, which argues that natural resource endowments and economic growth are negatively associated.

Various empirical work supports this hypothesis, but there is a substantial ongoing debate as to the reasons ('channels') behind this association. Some schol-

ars (albeit a minority) suggest that the association is merely spurious and thus representative of underlying factors and/or mal-specifications.

The Resource Curse and Dutch Disease

In their seminal article on “Natural Resource Abundance and Economic Growth”, **Sachs and Warner** (1995) argue that natural resource endowments negatively impact on growth performance. In their cross-country analysis, they define NR endowments as the ratio of primary-products to GDP in 1970 and find that a high NR endowment is negatively correlated with growth in the following 20 years. They find this association to be statistically significant even after controlling for spurious effects and a number of variables commonly associated with variations in cross-country economic growth. To substantiate this negative relationship, they summarise a number of prevailing hypotheses:

- *Social*: Abundance of natural resources is perceived by local producers and authorities as ‘easy riches’ and sloth will therefore easily spread in the economy. This social argument was initially advanced by Bodin (1576 in Sachs and Warner, 1995) but has also been proposed more recently by Holmes (1995 in Cervellati and Fortunato, 2004).
- *Primary exports*: This hypothesis is based on theories originally formulated in the 1950s by Prebisch and Singer arguing that world market prices for primary exports in the long term tend to decline relative to manufacture prices.
- *Rent-seeking*: A political economy explanation advanced by Lane and Tornell (1995). The argument is that abundance of NR will promote rent-seeking behaviour in the economy. Hence, (too many) competing agents are expected to fight for NR rents. This is, from a society point of view, viewed as an inefficient use of resources.
- *Domestic linkages*: A theory originally formulated by Hirschmann (1958 in Sachs and Warner, 1995), Seers (1964 in Sachs and Warner, 1995), and Baldwin (1966 in Sachs and Warner, 1995). They argue that the primary resources sector has relatively few “forward and backward linkages” to the economy compared to the manufacturing sector where a much more advanced division of labour is observed. The argument has been further refined by Sweder van Wijnbergen (1984 in Sachs and Warner, 1995) and Matsuyama (1992 in Sachs and Warner, 1995). Matsuyama, who distinguishes between two sectors, agriculture and manufacturing, argue that learning is higher in the manufacturing sector and learning-induced growth will therefore be relatively lower in an NR-based economy. This is also known as endogenous growth theory.
- The *Dutch disease* hypothesis is a variant of the linkages approach, which sees the economy as divided into three sectors: A tradable NR sector; a tradable non-NR manufacturing sector; and a non-trade sector. There are two parts to the hypothesis:
 - a. Abundance of NR leads to overvaluation of the national currency, which in turn implies deterioration in the real exchange rate with negative implications for the manufacturing sector’s competitiveness.

- b. High NR endowments, it is argued, will attract a high proportion of capital and labour thus squeezing out the manufacturing sector. Hence, the growth observed in the NR sector *per se* will be more than off-set by losses in the manufacturing sector, which, as argued by the endogenous growth theory, is assumed to be associated with higher growth rates than the NR sector.

To substantiate the negative association between NR and growth, Sachs and Warner perform regression analysis and find that NR not only works directly, but also through (lack of) openness of the economy: Hence they argue (as in the Dutch disease hypothesis) that a high NR endowment squeezes the manufacturing sector, which in turn leads policymakers to protect the domestic manufacturing sector from more competitive foreign manufacturers. This in turn is believed to translate into reduced efficiency and overall lower growth.

Gylfason, Herbertson and Zoega also argue in favour of the Dutch disease hypothesis in their 1997 article: *A Mixed Blessing: Natural Resources and Economic Growth*. On the basis of a cross-country analysis of 125 countries for the period 1960-1992, they find, like Sachs and Warner (1995), a negative association between the size of the primary sector and economic growth. With regard to the influencing factors, they point to the importance of the exchange rate appreciation, which has negative implications for the development of what is presumed to be a skill-intensive manufacturing sector. These arguments are further elaborated and applied to transition economies in **Gylfason (2000)**.

Gylfason and Zoega (2001) add further detail by suggesting that the proposed inverse relationship between NR abundance and growth is related to intermediate savings and investment effects: They argue that abundance of NR a) crowds out physical capital and b) slows down the development of a financial system, thus inhibiting growth in the non-NR sectors. They find support for these hypotheses in their cross-country analysis of 85 countries for the period 1965-1998.

Papyrakis & Gerlagh (2004a) like the above set out to explain the nature of the perceived negative association between NR abundance and economic growth. They argue in their cross-country study covering the 1975-96 period that the negative association is established through a so-called savings-investment channel. More precisely they argue on the basis of their empirical work that NR abundant countries tend see investments in the manufacturing sector decline, which in turn has long-term negative effects for overall growth and productivity – as endogenous growth theory would predict.

Papyrakis & Gerlagh (2004b) add further sophistication to their arguments in their article: “Natural Resources, Innovation, and Growth”. Here they suggest that innovation may be another important transmission channel, which helps explain the negative NR-growth association. The arguments are related to their 2004a work, but in 2004b they emphasise that an abundant NR sector tends to crowd out research and development activities - which has negative implications for the wider economy, notably the manufacturing sector.

In summary, it is clear that a significant body of literature exists to support the resource curse hypothesis. They all share the view that abundance of NR has a negative impact on economic growth. They also appear to largely agree that the manufacturing sector, *ceteris paribus*, holds more growth potential for the economy (endogenous growth theory), and the negative growth effect associated with NR is typically explained as a crowding out effect, with the manufacturing being squeezed out. The scholars differ however on the exact nature of this crowding out effect. Some point to the typical Dutch disease effects (currency appreciation and factor reallocation), whereas others point more specifically to investment and innovation channels.

The following section will present a few scholars who disagree more fundamentally with the resource curse thesis.

The Resource Curse Questioned

Stijns (2001) questions two fundamental aspects of the resource curse, notably as interpreted by Sachs & Warner. First of all he questions the validity of their working definition of NR, which, as mentioned, is the proportion of primary sector exports to overall GDP. Stijns argues in this context that the “claim that being a resource export dependent country slows down its expected rate of growth, is a different claim than arguing high mineral reserves or production of those reserves is associated with slower rates of growth” (Stijns, 2001: 9). Accordingly, Stijns does not question the Sachs and Warner (1995) findings *per se*, but he argues that their operationalisation does not capture NR abundance.

In consequence, he chooses to look at NR *reserves* and does so by sub sector, i.e. land, oil & gas, coal, and mineral reserves. The findings are different from Sachs and Warner (1995) in the sense that only land abundance seems to influence GDP growth negatively, whereas the results are somewhat mixed for the other NR-categories. Stijn therefore also questions the broader validity and robustness of the resource curse hypothesis. He limits his own work to concluding that at least fuel and mineral reserves have not been a significant determinant for GDP growth between 1970-89 (2001: 35).

In terms of interpretation of influencing factors, Stijns does not find any hard evidence, but he speculates that land abundance may impact growth negatively by locking countries into an agricultural trade export model, which in turn prevents them from developing their manufacturing sector. Again, this argument is similar to the earlier mentioned crowding-out theories.

For the other NR categories, which as mentioned show mixed results, Stijns concludes that what matters is not endowment of NR, but rather what countries do with their resources. In this context he speculates about the importance of R&D and patent legislation.

Boschini, Petterson and Roine (2003) work along the same lines as Stijns, suggesting that NR must be broken down into sub-areas to properly understand the dynamics behind natural resource abundance, notably their effects on economic growth. To do so they group NR along a continuum measuring ‘techni-

cal appropriability' which in turn captures the level of ease required to quickly realize large economic gains from exploiting the NR. Their hypothesis is that the kinds of NR, which can be translated into quick profits, will be susceptible to moral hazard, such as corrupt behaviour. This would typically be diamonds or precious metals. At the same time, they hypothesise that the probability of moral hazard behaviour would be significantly reduced in countries featuring a proper institutional framework.

In their cross-country analysis (80 countries, not including Tanzania) they find support for these hypotheses and thus conclude that the resource curse only applies under certain conditions: Countries, which feature NR of high technical appropriability are particularly susceptible to corrupt behaviour, especially so if the quality of the institutional framework is low. They point to Sierra Leone as a case in point. Hence, the analyses of Stijns and Boschini, Petterson & Roine both point to the importance of institutions as an intermediate influencing factor. In case of a good institutional framework, the resource curse hypothesis, they argue, breaks down.

Whereas the above scholars focus on institutional-political variables as intermediate influencing factors, **Bravo-Ortega & Gregorio** (2002) introduces human capital as an important factor in the NR-growth relationship. The argument is that countries with high levels of human capital have been better positioned to counter the negative effects, which they otherwise associate with NR abundance. Hence, Bravo-Ortega & Gregorio are therefore more in line with the original resource curse thesis than the other scholars introduced in this section. The scope of their study is limited to a mainly Latin American and Scandinavian context.

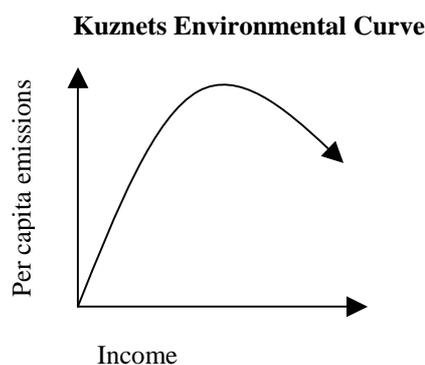
2.2. Growth & Natural Resources: The Second Debate

The literature reviewed in this section turns the above-discussed causality upside down in the sense that it focuses on growth and how it impacts upon natural resources and the environment. Again the debate is mainly limited to the macro level and the key issue is the degree to which (if at all) economic growth impacts upon the NR. NR is in this context understood in a broader sense than in the previous case and includes common goods such as land, water and air.

The relationship between growth and natural resources has been at the forefront of policy discussions since the early 1970s with the publication of the 1972 **Meadows et al.** report on *limits to growth* (Meadows et al. in Martinussen, 1999). This document expressed concern over the wider implications of economic growth with regard to pollution and environmental degradation. The profile of the debate was further raised with the 1987 Brundtland Report and the 1992 UNCED summit in Rio, which introduced the sustainable development discourse into the main policy debate. The policy debate has been informed by a rapidly growing body of scholarly literature trying to assess in detail the possible environmental consequences of economic growth. The main trends of the debate are described below.

The Environmental Kuznet's Curve Hypothesis

The Environmental Kuznet's Curve hypothesis (EKC-hypothesis) builds on a contested theory about the long-term association between economic growth and environmental pollution. Pollution is in this context measured by the level of per capita emissions (typically sulphur and carbon dioxide).



The hypothesis basically argues that as economies start developing, based on increasing scales of economy and a changing composition from agricultural production towards industrial pollution, the level of pollution increases. This relationship is however assumed to break down at a certain point after which rising income will be negatively associated with per capita emissions. The assumption is that rising incomes eventually will give rise to demands for a better environment at the same time as a more advanced economy will make the development of more environmentally friendly technologies possible. See the graph above for a stylised and very basic presentation of the argument.

The EKC-hypothesis has been advanced by several scholars, notably Grossman & Krueger (1991 & 1995). Lately it has also been championed by Lomborg (2001 in Smith, 2004). As noted by **Verbeke and De Clerq** (2002) the theory remains somewhat underspecified. Scholars struggle for example to identify the income point at which the positive association between growth and emissions is expected to break down. Verbeke and De Clerq (2002) submit the hypothesis to an empirical test and find general, albeit only indicative, support for the fact that emissions start decreasing at a certain income point. They hesitate to extrapolate these results and thus refrain from making general observations about the validity of the EKC-hypothesis.

As pointed out by Smith, the notion of environment and natural resources embedded in the definition is very narrow and does not consider many other environmental aspects. The next section will present two scholars who take a more comprehensive look at the environmental aspects of economic growth.

Towards sustainable development

For **Vosti & Reardon** (1997) the focus is specifically on agricultural growth and the key question is how fast growth can occur without degrading the natural resource base? They suggest in this context intensification, i.e. the use of more and better-quality inputs on the same amount of agricultural land. Opportunities for doing so vary between agro-ecological zones, defined according to

their soils, rainfall, ground- and surface water, and sunshine. In environmentally fragile, less favoured agro-ecological zones it is difficult to intensify agriculture. Food grain production will be more costly, suggesting that one should focus on livestock, agroforestry, and other staple production systems. In more favoured zones agricultural intensification is essential to meeting sustainability and poverty alleviation objectives. They suggest that national policies should not only promote zone-specific opportunities but also address the food security and inequity issues that can emerge as a result of these strategies.

Like Vosti & Reardon, **Pearce** (2004) points to the need for balancing growth and environmental concerns. He argues that the goal for poor nations is for them to use resources more efficiently. Hence, the solution is to continue pursuit of growth while having as much regard as possible for conserving what is left of the natural resources and environment. According to Pearce, this requires a proper policymaking and institutional framework, notably clear legislation and enforcement of legislation. He illustrates in this context how advanced countries have managed to decouple environmental impacts from economic growth on the basis of new environmental technologies - as predicted by the KEC-hypothesis.

The Policy Discourse in Tanzania

Tanzania's **National Strategy for Growth and Reduction of Poverty** (NSGRP) builds on the basic principles of the Brundtland Report noting that unsustainable use of NR is widespread in Tanzania (GoT, 2005: 6-7). According to the text, examples include reckless tree-felling and soil erosion as a result of bad farming-methods.

Korongu Ltd. (2003: 20) illustrates another example from Tanzania, the Lake Victoria Basin, where over-exploitation of fisheries resources through the application of allegedly environmentally damaging techniques has led to a serious environmental degradation of the Lake and its catchments.

The question is how a country like Tanzania, which presumably does not have access to the same technologies as many advanced OECD countries, can increase growth while at the same time reduces negative impacts on the environment.

2.3. Poverty/Environment Nexus: The Third Debate

The two above sections have mainly considered economic growth from a macro-perspective. This section will demonstrate that there are several authors arguing that poverty and natural resources should be analysed separately (Dasgupta et al. 2003). They examine for example the direct implications of environmental changes for the poor or whether NR as a source of income holds particular potential for the poorest groups.

In line with these ideas, the **NSGRP** notes that Tanzania's NR-base holds a big potential for raising and sustaining rural incomes (GoT, 2005: 9), while also noting that poor people generally rely heavily on NR and are thus more suscep-

tible than other income groups to external shocks – such as weather extremes, deforestation etc (GoT, 2005: 46).

The recent **Korongu Ltd.** (2003) survey of the links between environment and poverty in Tanzania likewise concludes that it is mainly through profitable and sustainable use of NR, that Tanzania can achieve significant poverty reduction.

The below section will examine in more detail some of the prevailing hypotheses about the relationship between environment/natural resources and poverty.

Sustainability, Growth and Poverty Reduction

Vosti & Reardon, in their seminal book *Sustainability, Growth and Poverty Alleviation – A policy and Agroecological Perspective* (eds., 1997) set the overall framework for the debate: Policy makers are faced with the need to pursue three challenging goals simultaneously: Growth, poverty reduction and environmental sustainability. Poverty alleviation, they argue, is essential as it undermines development, growth and the environment. At the same time, natural resources must be made sustainable as an input into sustained growth. The three goals are complementary: sustaining NR will help growth. Growth will help reduce poverty and improve environmental management. However, in the short-term there will be trade-offs among the three goals. They argue for example that poverty is unavoidable if the NR base is degraded. Still, as they point out, trade-offs are at play: Conservation of NR, in the sake of preservation, may hurt farmers living from the NR. The poverty/environment nexus, to be discussed below, is part of this overall debate as it sheds light on the connection between poverty reduction and environmental sustainability.

Poverty/Environment Nexus

The point of departure for the poverty/environment nexus debate, as already outlined by Vosti and Reardon, is the assumption that the livelihoods of the poor depend crucially on access to NR.

DFID (2002) outlines for example how agriculture is without comparison the major source of income for poor people in the developing world. Thus the study mentions that for many African countries the prospects for growth lies in agriculture, tourism and mining. The main concept behind the debate is the notion that “one problem is a significant determinant of the other”: Hence, to the degree that the nature and scope of farming activities of the poor are environmentally unsustainable, the long-term resource base for their livelihoods will be eroded (2004: 8). The poor are therefore, more than other income groups, assumed to be utterly dependent on a sustainable NR-base, but they may themselves be the prime (direct) reason why the base is depleted. The hypothesis has however proven difficult to test, notably, as pointed out by Dasgupta et al. (2003), because of the lack of valid and reliable data.

Cavendish (1999) uses data from Zimbabwe to show how environmental resources have made a significant contribution to average rural incomes. He also argues that there is significant differentiation in the economic properties of dif-

ferent types of NR. According to Dasgupta et al., 2003 similar studies (with similar findings) have been carried out by Ambler (1999 in Dasgupta et al., 2003), Kepe (1999 in Dasgupta et al., 2003), and Reddy & Chakravarty (1999 in Dasgupta et al., 2003).

Brocklesby and Hinshelwood, (2001 in Dasgupta et al., 2003) have conducted a broader study to show how the poor at least *perceive* the environment and NR in general to be an important determinant for their general welfare and livelihood.

Dasgupta et al. (2003) submit the nexus to an empirical test in relation to the prevalence of five so-called principal environmental problems, viz. deforestation, fragile soils, indoor air, pollution, unsafe water, and sanitation. The study, which is limited to Southeast Asia (Lao and Cambodia), finds mixed evidence: No clear association can be detected in the case of Cambodia whereas the effects is more pronounced in the case of Lao. Thus one of their main conclusions is that the validity of the nexus varies significantly between countries.

In the case of Tanzania, the **NSGRP** observes that under-employment has led to unsustainable use of NR (GoT, 2005: 10). **Korongu Ltd.** (2003: 35) likewise argues that environmental degradation in Tanzania is caused by local poverty and lack of alternative income opportunities. Still they also point to additional factors such as lack of awareness and inadequate tenure etc., and a more rigid analysis would thus be necessary to assess the relevance of the poverty/environment nexus for the case of Tanzania.

2.4. Summary

This brief literature review has touched upon three major debates within the overall context of growth and environment. The three debates differ by their choice of independent variable and/or level of focus - macro or micro.

The **first debate**, taking NR endowment as the independent variable, discusses the extent to which countries rich in NR are cursed. The evidence is mixed, owing partly to different working definitions of NR and growth as well as differences in choice of method and empirical focus. Most of the scholars appear to agree with the notion that NR abundance can, at least under certain conditions, have a negative impact on GDP growth. There are however many different interpretations as to why this negative association exists, with a majority pointing to crowding out effects (of the manufacturing sector).

Further empirical studies would be required to test the validity of this hypothesis to the case of Tanzania, and the effects arguably differ by NR sector. In the case of the large-scale mining sector for example, the crowding out effect is difficult to identify, since a) the sector employs very few workers due to its capital-intensive nature, and b) the massive capital investments have mainly been financed by foreign investors in the course of a few years and therefore have not crowded out any existing domestic capital sources.

The question whether Tanzania is faced with a resource curse may therefore be more relevant in relation to the agricultural sector, which employs the majority of the workforce under a relatively inefficient production mode.

The **second debate**, by contrast looks into the long-term environmental effects of economic growth. A key question is the exact scope and validity of the EKC-hypothesis. Applied to Tanzania, which is essentially an agricultural country, the hypothesis would be that the country in the future would be crawling (slowly) upwards the curve as industrial production expands.

Of more immediate concern are the more general and broader concerns about sustainable development noted by for example Vosti & Reardon and Pearce. Examples of unsustainable development have for example been registered in the Lake Victoria region, and the NSGRP is therefore right to stress the need for a sustainable development path.

There is little systematic evidence available to support the **third debate**, but anecdotal evidence seems to support the notion that the poor are particularly dependent on NR, and therefore also the most vulnerable group in case of environmental degradation.

This also applies to Tanzania, albeit with significant regional differences: Regions in central Tanzania are for example more likely to be hit by external shocks such as lack of rainfall. These regions, at the same time, feature higher than average poverty incidence, which in turn makes them more vulnerable to shocks.

3. Review of CEM Concept Note

The provision of overall comments on the CEM is one of the outputs required under the TOR for this study. Since the CEM was in preparatory stages, at the time of this assignment, the September 13, 2004 draft concept note is the basis of the comments documented here.

This chapter provides first in Section 3.1. comments on the theoretical framework of the CEM as far as the linkage of growth and ENR is concerned. Section 3.2. provides general observations on the concept note. Comments provided by other development partners, in particular the Poverty and Environment Advisor of VPO, are included in this section. This is followed in Section 3.3. with a proposed adjusted structure of the CEM to fully incorporate ENR. Lastly, in Section 3.4., specific edits and inserts for the CEM based on the concept note are provided. These are backed-up with data, where available, in Parts 2 and 3 of this study, presented in separate documents.

3.1. Analysis of Theoretical Framework

Commenting on the CEM concept note by providing edits and inserts will only be cosmetic if one does not look at the underlying theoretical model for economic growth and ENR employed by the CEM.

It is obvious that the CEM concept note does not subscribe to the sustainable development school of thinking, although this would be in line with the NSGRP.

The growth model underlying the CEM concept note is based on neo-classical economic theory, where output growth is understood (in a Cobb-Douglas production function) as 'function' of the product of share and growth of the two input factors labour and capital plus technical progress. Capital is understood in this context as physical capital (infrastructure, investments, savings) only. This growth model does not consider natural capital as an input factor to growth. An indication that the CEM is aligned with this school of thought is that physical and human capital are discussed as drivers of growth acceleration, whereas natural capital is not (p.12 ff).

The thinking that economic growth is constrained by environmental limits, is an idea, which was introduced by classical economists as early as in the 18th century (Malthus 1766-1834, Ricardo 1772-1832, Mill 1806-1873), and later developed further through the schools of environmental and ecological eco-

nomics. However, ENR have not found their way as an endogenous variable into mainstream economic growth theory.

An important difference introduced by environmental economics is the capital theory, which defines sustainable development in terms of the maintenance of the value of the capital stock over time while striving for high growth rates. Capital encompasses natural capital (functions, goods and services provided by the environment) and manufactured, human and institutional capital (ethical, moral capital and cultural capital).

Neoclassical theory assumes perfect substitution between physical and natural capital. Hence any limits to growth through reduced availability of raw materials can be overcome through technical progress as a source of economic growth. In contrast, ecological economics defends well-defined limits of such substitution and advocates that separate stocks of aggregated natural and other capital must be maintained. There is 'critical natural' capital for which no technological substitutes exist. There is no doubt that such 'critical capital' exists in Tanzania, considering for example its catchment forest and their biodiversity, whose destruction is clearly a binding constraint to be addressed (see also Part 2 of this study).

The investigation of the '*Dutch disease effect*' by the CEM in the context of the gold boom (p. 14f) is an indication that the theoretical direction of the CEM is aligned towards the first of the three main broad debates on ENR and Growth, "*the resource curse hypothesis*", which was described in Section 2.1 above. This debate defends the view that there is a negative relationship between NR abundance and growth. The CEM concept note directly refers to one of the main hypotheses underlying this school of thought, namely that abundance of NR may lead to increase in the real exchange rate which implies a deterioration of a country's competitiveness" (p. 14) with negative implications for the manufacturing sector.

As explained in Section 2.1 above, this theory divides the economy in a tradable NR sector; a tradable non-NR manufacturing sector; and a non-trade sector. Sharing this line of thinking, it is hence not surprising that non-tradable or non-monetary aspects of the NR sectors are not being considered in the CEM.

However, as Chapter 2 above showed, the '*resource curse hypothesis*' has been questioned and alternative views exist, such as for example the discussion of sustainable development and growth.

To that extent the CEM is hence not in line with the approach taken by the NSPRG, which reflects the importance of economic efficiency in natural resource use, but also stresses that the benefits of development must be distributed equitably, as this is relevant to poverty reduction.

ENR are discussed in the CEM in the context of the analysis of Gold, Fisheries and Tourism as the main drivers of economic growth. However, within the above theoretical context, the discussion will have serious omissions. These are related in particular to the following aspects:

1. Consideration and efficient control of 'externalities'. These occur when the activities of economic agents have external consequences for other agents other than by affecting prices and these effects are not compensated for. An example in Tanzania for an externality would be the reduced dry season flow of the Great Ruaha River created through abundant irrigation of large commercial rice farms up-stream, which is negatively affecting water users downstream. Three reasons are provided by economic theory for externalities: Incorrect prices, missing markets or imperfect property rights.
2. Measurement of the benefits and costs of environmental programmes, which requires valuation of natural assets and 'true costing' of economic growth.
3. Natural resource economics, which focuses on the sustainable use of renewable resources and the optimal depletion of exhaustible resources to derive policy measures that provide incentives for their management on a sustained-yield basis.

There are data constraints in Tanzania for all of those areas (in particular point 2) and fully applying these principles may seem ambitious. But demand for data also 'creates' data and the World Bank can be an important player in this regard. Part 2 and 3 of this study will investigate these points further.

In conclusion, it is hence recommended that the CEM apply an environmental economics approach to the analysis of growth.

Advocating for the inclusion of ENR by 'environmentalists' and also this study, will have no considerable impact, unless the CEM employs an approach of environmental or even ecological economics to its analysis. This would entail a severe shift in perspective. However, it is the only way in which ENR can become an integral part of the analysis of growth in Tanzania.

3.2 General Comments

The concept note acknowledges that the majority of GDP depends on the natural resource base, which is 66% if tourism, energy, mining, agriculture are included. While acceleration and sustainability of growth are primarily discussed to achieve increased levels of growth, the extent to which Tanzania can achieve a path of sustainable development while increasing growth is not considered. This would imply including environmental factors and equity issues and helping government to determine policy choices on growth and not just to aim for high rates of growth.

As the primary objective of the CEM is to assist the Government of Tanzania to operationalize the NSGRP (p. 2), not addressing these issues would be a serious omission, as the NSGRP seeks to place greater emphasis on the integration of crosscutting issues, among others, the environment (p.2). The sustainable exploitation of these natural resources will be of paramount importance to achieve increased levels of growth in the near and long-term future and to the achievement of sustainable development in Tanzania in general.

Gold and Fisheries

Gold is a non-renewable resource. Hence, in the context of growth, the question arises, how long the current reserves will last, what the overall stock is and if it is exploitable. Similarly, for fisheries, a renewable resource, the question of sustainable yields has not been addressed.

Furthermore, describing the high growth rates of the gold and fisheries boom as 'success stories' (p.5) reveals a priority for short-term economic decision making. There are environmental (i.e. landscape destruction in gold mining, illegal fishing practices) and social (health and gender issues, workplace security issues, food security issues) trade-offs associated with gold mining and fisheries. The local employment effect of the gold boom is also questionable. One would need to take all these factors into consideration to assess whether gold and fisheries are still success stories if sustainability and equity considerations are taken into account.

Agriculture and Land

Under the heading 'unlocking Tanzania's potential in agriculture' (p.24), it is assumed that the country has large underused land areas. This assumption does not take into consideration that not all of the land is fertile. Land degradation and soil fertility were highlighted as main limitations to growth in the agricultural sector in the Tanzanian Participatory Poverty Assessments (2003).

Similarly, the note emphasizes the huge potentials in Tanzania due to untapped natural resource endowments (p.24). It is true that Tanzania is rich in natural resources and potential to exploit these is there, however a key factor to the long-term exploitation of renewable natural resources is their sustainable use. Signs of land degradation are increasingly visible in Tanzania (deforestation around Dar es Salaam, Morogoro, Iringa due to urban demands for charcoal). The CEM needs to give issues of sustainable land and natural resource use higher priority.

In close relation to this, the concept note mentions issues of land in relation to assets (p.28). For the agriculture and natural resource sectors access and ownership of land are very important to the development of economic activities and livelihoods of people. In the development of NSGRP issues of property rights, using land as collateral were important and controversial issues. The discussion in the CEM will need to include tenure regimes and access rights and how these impact on growth.

Furthermore, the note does not identify water as one of the constraints to agricultural productivity and advocates increased irrigation. Water is often the limiting issue and dependence upon rain fed agriculture is reflected in agricultural growth rates. Competition for water for productive (energy, agriculture) and environmental services is increasing. Irrigation will and already is resulting in conflict between water users, such as for example in the Usangu Plains. In relation to growth it is important to keep in mind that water is not seen as a free good, and that costs of maintaining catchments is factored in, and the sustain-

able management of water resources is included. This would imply “true costing” of economic growth.

Forestry and Wildlife

Forestry and Wildlife are not included in the CEM at all. The concept note identifies the need to investigate growth in agriculture and agro-processing, but gives no mention of growth in forestry and wildlife sectors. Although both sectors have not been high performers of growth in the last few years and their contribution to GDP is still low, there is potential for increased future growth in these sectors. At the same time there is a need to avoid the unsustainable exploitation of these resources (see recent evidence from illegal logging in Rufiji).

Energy and Water

There is little discussion about the role of energy and water in supporting increased growth. The concept note mentions that electricity is the second most important constraint identified by business. But apart from a reference on page 30 in paragraph 101, there is no discussion on how the CEM will look at this sector. The provision of water and of reliable and affordable supplies of energy will be essential to growth, and also has major environmental implications. For example last year due to low water levels in the dams GoT took an emergency credit of \$43 million to subsidise TANESCO to buy fuel for its turbines. Similarly, the major energy source for most people in rural and urban areas is biomass (charcoal or firewood).

The main source of electricity in Tanzania is hydropower. Power rationing due to low water levels occur with certain regularity each year. This puts constraints on industrial processes and also on domestic water supply in urban areas.

Thus, to promote growth in agricultural processing, manufacturing, tourism, and other sectors, an effective strategy on sustainable energy and water is needed.

Environmental Externalities of Growth

The analysis of trade offs is limited to trade offs between growth, types of employment creation and poverty (page 17). Issues of trade off between these and the environment are not included. To maintain growth in tourism we need to conserve the natural environment on which the industry depends while at the same time minimizing the impact on other land users who may not be directly benefiting from tourism. Similarly, as mentioned earlier, there are externalities generated through growth in the commercial mining sector affecting growth and peoples' livelihoods in the artisanal mining and fisheries sector.

The possibility of increased levels of pollution as an externality of increased growth, which often impacts poor people more needs to be included in the analysis, as well as mechanisms to control such externalities of growth.

Environmental Risks

Issues of vulnerability are indirectly mentioned in the section on risk as a cause of poverty (p. 27). However, there is not explicit mention of the relationship between growth and environmental risk. Agricultural growth rates are very dependent on extremes of weather, i.e. droughts and floods. The relationship between growth and environmental risk needs to be investigated. A further point to consider is increasing risks and frequencies of drought and flooding (models suggest that this may be the case) and their implications on economic growth.

3.3 Proposed Revised Structure of the CEM

Based on the arguments provided in the sections above, a revised structure for the CEM is proposed. The draft outline of the CEM provided in Annex 1 of the concept note is the basis for the revised structure proposed here.

Part 1: Economic Growth – Recent Developments and Prospects

Add Chapter

G: Natural Resources - The basis of growth in Tanzania

This additional chapter should discuss the current and future potential growth contributions of Forestry and Wildlife to economic growth; as well as trade-offs of the success stories of growth in the Mining and Fisheries sectors. Sustained yield considerations should be brought into the analysis of ‘sustained growth’ as well as the importance of sound environmental management to maintain growth in Tourism and the Tanzanian economy at large.

Part 2: From an Improved Environment for Private Sector Activity to Increased Private Sector Activity

According to page 11 of the concept note focus of this part of the CEM is on the elements of a transition to a sustained growth path. In order to achieve this, it is crucial to discuss policies and production methods that ensure management of resources on a sustained yield basis as well as minimizing environmental externalities.

Add chapter:

E. Environment and natural resource management as a key factor for a transition to a sustained growth path.

This additional chapter should discuss the importance of maintaining a critical stock of natural capital during the process of economic growth. It should emphasize the importance of environmentally responsible investment activities (undertaking EIA, SEA and Auditing etc)

Part 3: Enhanced Participation of the Rural Population in Economic Growth

According to page 11 of the note, part 3 will analyze the opportunities and risks for future growth. Although this is not really reflected in the title and chapters under part 3 listed in Annex 1, it is recommended to include the following in such a chapter:

Risks:

- Limited stocks of exhaustible resources and Maximum Sustainable Yield Considerations of renewable resources;
- Environmental externalities created by economic growth ;
- Data constraints and institutional capacity for environmental planning and monitoring.

Opportunities:

- Growth opportunities in natural resource based sectors, e.g. carbon trade, wildlife

This chapter should also include the discussion of the role of the environmental services such as hydrological services and their impact on agriculture, hydropower generation and domestic use etc. Furthermore, natural resources as a source of rural livelihoods need to be discussed. All these are opportunities for growth and poverty reduction.

Part 4: Poverty and Growth Interactions

Add Chapter:

I: Growth, Environment and Poverty reduction.

The Chapter C on 'risk as cause of poverty' should include environmental risks and vulnerabilities.

Part 5: Towards a Strategy for pro poor growth

Needs to discuss the role of natural resources for pro poor growth and the importance of sound environmental policy and planning to minimize externalities in the growth process, which would affect the poor more severely than the rich due to lack of means to protect themselves.

3.4. Specific Edits and Inserts

The inserts and edits to the CEM concept note are structured according to the headings of the note. For each insert or edit the precise page number and location is provided.

Under point 5, page 2, insert after 'recently observed':

"A more cautious interpretation also needs to focus on the fact that the main drivers of economic growth in Tanzania are natural resource based and will not sustain growth in the long run if utilized beyond maximum sustainable yield capacity."

At the end of point 5 on page 2, add:

..., "as well as exploitation of natural resources based on sound natural resource economics, in particular stock assessments, and sustainable yield calculation and the monitoring of their implementation by industry in the respective sectors."

In Box 1 on page 4 insert paragraphs as follows:

*" **Forest Sectors.** The revision of the Forest Policy (1998) and legislation (Forest Act of 2002 enacted in 2004) shows commitment to principles of sustainable development, privatization and transparency in the management of forest resources. The recent logging scandal in Rufiji was a serious drawback to this progress in recent policy reform, making clear that implementation of transparency is still not being realized. The introduction of an autonomous Executive Forest Agency is envisaged to improve investments in private forest estate development."*

*" **Wildlife Sector.** Introduction of guidelines on Wildlife Management Areas have paved the way for community based wildlife management, being piloted by government in 15 pilot sites in the country. True commitment of government leadership to this decentralized approach is yet to be demonstrated."*

At the end of box 1 after 'closely monitored' include:

"As a prerequisite for Tanzania to achieve a path of sustainable economic growth, the finalization of the long outstanding Environmental Management Act of 2004 has clarified the administrative and institutional arrangements of environmental planning and management of Tanzania. It provides the tools for sound regulation and control of private and public investment and policy decisions at national, local and sector"

After point 13. insert an additional point:

"The three drivers of growth, mining, tourism and fisheries are fully based on natural resources. Sustained future growth in these sectors hence requires the management of these resources on a sustained-yield basis. Presently there is little information on stocks on both fisheries and gold and there is little monitoring, control and surveillance of fisheries resources. The recent growth in fisheries is based on 80% fish exports from Lake Victoria to the EU. There are signs that these growth rates are not sustainable and that stocks of Nile Perch are reducing. While fisheries are a success story in pure economic terms, this is not necessarily the case in terms of poverty reduction. The positive impact on

income poverty through increased local employment in the fisheries industry around the lakes, may well have been set-off through a negative impact on livelihoods of artisanal fisher folk and on nutrition of communities whose livelihoods are based on the lake and where over-fishing is making an impact.

“Another key area for growth in fisheries is the near and off shore coastal fisheries. There are increasing numbers of foreign trawlers in Tanzania's EEZ. While there are improvements to the monitoring and surveillance of these waters, there is probably a high degree of illegal fishing and loss in revenue (and growth) to Tanzania from this activity. In addition, illegal trawling in coastal waters is impacting on artisanal fisher folk and on fish stocks. The challenge is how the country can sustainably exploit its marine and lake resources, for increased sustainable levels of growth - much of this is the focus of the forthcoming Coastal Livelihoods Project supported by the WB.”

Under point 17 on page 8 insert a sentence:

“Similarly in the tourism sector, the availability of trained personnel has been a constraint to realizing the full employment benefits for the local population.”

At the end of point 24 on page 10 include a sentence:

“In addition assets, including land, are critical correlates of poverty. The 2002/03 Tanzania PPAs emphasises that their absence or decline in access can constitute an important impoverishing factor. The forthcoming results of the agricultural survey will allow more exact statistical calculations on the correlation of size of land holdings and poverty levels.”

After point 24 on page 10 include additional paragraph:

“Although the correlation between regional differences in poverty levels and agro-ecological conditions has not been statistically tested, it is assumed that such correlation is high. Rural economies and livelihoods predominantly depend on the utilization of the natural resources base, this is for both on and off farm activities. In order to fully utilize the economic potential of natural resources for the rural poor now and in the years to come, the improvement of rural infrastructure and markets, reduction of taxes and levies, secure tenure policy and management of resources on a sustained-yield basis are of vital importance. Important trade-offs will need to be taken into account in economic decision making where positive economic development may impact negatively on the livelihoods of poorer groups and the larger natural environment. For example, the introduction of large scale paddy rice schemes in Usangu Plains, which was one of the main reasons for reduced dry-season flow of the great Ruaha River, impacted on smaller rice farmers downstream and the Ruaha National Park eco-system, which is also an important tourist site.”

Point 25, Page 10, before the sentence starting with "Human capital..." insert:

"Many of these off farm activities are natural resource based. Beekeeping for example, has become an increasingly important source of income in some areas of Tanzania"

Point 26, Page 11, insert edit:

"... as well as policies that ensure that economic growth is based on sustained yield calculations and creates income earning..."

Point 27, Page 11, include inserts:

In part 1 of the CEM, which deals with analysis of recent growth performance, include a section on the role of natural resources as an input into economic growth.

Part 2 of the CEM on elements of the transition to a sustained growth path, should include after "entrepreneurial activities" *"...and the introduction of policies and production methods that ensure management of resources on a sustained-yield basis as well as minimization of negative externalities of increased economic growth."*

In art 3 of the CEM dealing with opportunities and risks that may have bearing on future growth, insert: *"...opportunities in the natural resources sector and risks the stocks of non-renewable resources and maximum sustainable yields of renewable resources'.*

Point 30, Page 11, insert:

The spatial dimensions of economic growth *and their correlation with agro-ecological conditions*, will also be...

Page 13, after point 34 insert paragraph on natural capital

"Similarly quantity and quality of natural capital are important determinants of economic growth. In the medium and long term, growth in sectors, which are based on renewable natural resources, e.g. fisheries, can only be sustained if production methods and extraction rates follow maximum sustainable yield calculations. Freshwater fisheries in the Lakes of Tanzania, presently follows private profit maximising yields, which do not consider factors internal to the resources, in particular rate of renewal, as well as the external economy, e.g. price, discount rate and the institutional framework.

Non-renewable resources, e.g. gold, have a fixed stock. Therefore the marginal product of the resource or 'growth' component is zero. Increased economic growth can hence only be based on improved productivity in the production process or discovery of new stocks. Based on Hotelling's rule, in the long-run, there can be no gain from shifting extraction period between time periods. Im-

portant factors that feed into consideration about optimal extraction rates are the extraction cost, change in discount rates and increase in demand on the resource.

Page 13, after point 37 insert paragraph:

”Despite recent progress of the institutional and legal reform in the Environment sector through the finalization of the Act on the Environmental Framework Law (2004), environmental planning, management and enforcement of safeguarding policies is still at very initial stages. The CEM will therefore present an account of current environmental management and planning practice in Tanzania and compare with critical elements that would need to be in place to ensure that recent and future economic growth follows a path of sustainable development.”.

Page 14, after Point 41 insert:

”This ambiguity is for a number of reasons. First... [existing text on Dutch disease effect]. Second, The economic growth through the gold boom did not translate into income poverty reduction and is associated with environmental and social trade-offs. The local employment benefits generated through the gold industry are considered to be very limited in scope and timescale, and there may even be an overall negative impact through an increasing income gap between artisanal and large scale mining.”

Page 17, Point 51, first paragraph two text inserts:

First sentence in brackets: ...(land, labour, **natural and physical** capital...)

Fifth sentence ... to make explicit trade-offs between growth, employment creation, **environmental sustainability** and poverty in the

Page 17, Point 51, second paragraph. The section on overcoming constraints to ...growth

”will include analysis of the freshwater fisheries, where private profit maximising strategies and illegal methods have put future growth at risk. A careful analysis will also be given to the coastal fisheries, in particular regarding government institutional capacities as a key input into avoiding risk factors for future growth.”

In addition insert paragraph:

“The analysis of trade-offs between growth, types of employment creation, and poverty will also include issues of trade off between these and environment.”

Page 17, add to point 53:

”However, the ‘success’ stories of fisheries and gold exports rather tell a story where accelerated growth is a sign of government failure to control extraction

for a resource to sustain its use and to direct investment so that the local population gains maximum benefits and equity considerations are applied. Under such conditions accelerated growth will not be sustainable.”

Page 18, point 55 add 'natural capital'

Page 21, add paragraph after point 69:

” Part of the analysis will also investigate how public, parastatal and private sector agents have produced environmental externalities, in particular in urban areas, where increased pollution of air and water sources, lack of proper sewerage facilities and waster management is becoming an increasing problem.”

Page 21, add to point 70:

”It will also review the progress in the institutional and legal framework to ensure sound environmental planning, management and enforcement to accompany future economic growth.”

Page 23, add point c)

”Environmental and vulnerability assessment”

- *The relationship between growth, poverty and the environment, environmentally induced risks and vulnerability”*

Page 24, paragraphs 78-80, add after 79:

“While Tanzania is rich in natural resources and potential to exploit these exists, key to the exploitation of renewable natural resources is their sustainable use. Increase evidence of unsustainable use with increased land degradation is already visible in parts of the country (e.g. deforestation around Morogoro, Dar es Salaam and Iringa for charcoal production). Issues of sustainable use hence need to be given high priority when discussing the country’s potential to unlock agriculture. “

Page 27 section risk as a cause of poverty

Will include environmental risks, in particular droughts and floods.

Page 28, point 93, insert:

“The discussion on asset ownership will include land rights and access and use of natural resources and how this impacts on growth.”

Annexes

Annex 1: Terms of References

Terms of Reference for Study on Growth and Environment Links as Contribution for Country Economic Memorandum, 8. March 2005

Background

The World Bank and the Government of Tanzania are presently preparing a country economic memorandum (CEM) and poverty assessment. A concept note for the CEM has been prepared and a mission was held from 2 – 26 November 2004 to discuss the preliminary work that has been carried out so far, and to seek additional documentation and discuss relevant issues with authorities, private sector organisations, firms, and other stakeholders. During this mission it was identified during consultations with the Research and Analysis Working Group (RAWG) that among other issues the CEM needed to include a better analysis of the linkages between sectoral growth and development initiatives and environmental issues.

From other initiatives, the GOT has clearly stated that growth-environment linkages are of concern. Tanzania's economy and its prospects for growth depend upon the use and exploitation of the country's natural resources. Over two thirds of the country's GDP is dependent upon natural resources. This includes Agriculture, Forestry, Wildlife and Fisheries, but also the sectors with the highest growth rates tourism and mining. In addition another key sector for growth, energy, is dependent upon natural resources as the main source of energy - electricity from hydropower schemes and biomass for the majority of the population.

The new PRS, the National Strategy for Growth and Poverty Reduction, better known by its Kiswahili acronym MKUKUTA has further emphasised the national importance of environment to growth and poverty reduction. Fourteen percent of the MKUKUTA's targets relate to environment and emphasis is placed on strategies: to promote sustainable growth in economic, environment and social terms; to reduce poor communities' vulnerability from environmental risk (e.g. drought); and, to implement the new Environmental Management Act to protect peoples' livelihoods, and the environment and to promote sustainable development.

This study is being commissioned to ensure that growth-environment linkages are integrated into the overall analysis of economic growth in the CEM and to produce a background paper elaborating linkages of relevance, with a focus on sectoral issues dealing with forestry, fisheries and wildlife, provision of water and energy services, and reduction of vulnerability from environmental risk.

Objectives

The purpose of the study is to identify and elaborate on the linkages between sectoral growth and development initiatives as elaborated in the CEM, and environmental issues of concern to the GoT and the World Bank. Specific objectives of the study are:

- (a) To clarify the contribution environmental and natural resources (ENR) have to GDP and to identify the potential for increased growth from the sustainable use of ENR, and constraints to the achievement of this growth. Identify the how the sustainable use of ENR can contribute to growth and reduction in inequalities between rural and urban areas, and between different rural areas.
- (b) To outline the risks to the achievement of growth in key sectors from environmental factors (e.g. drought and floods), and measures to be taken mitigate against these.
- (c) To identify the potential impact of growth in key sectors on the environment, and any trade offs to be made between growth and the environment.

Specific Tasks and Outputs

The study will consist of two phases with distinct tasks and outputs:

Phase 1: (20 days)

Specific **tasks** to be undertaken by the Consultant(s) are

- (f) To undertake a critical review of the CEM concept note to identify where issues of growth and environment linkage are required. (2)
- (g) To review documentation on links between growth and poverty, and the environment provided by the World Bank and other Development Partners. This should include the study on poverty and environment links commissioned by the World Bank, the PER of environment, and the MKUKUTA. (3)
- (h) To collate and review additional documentation and data on links between growth and poverty and the environment. (5)
- (i) To participate in a two-day workshop on growth and poverty reduction organized in the context of preparation of the CEM and review background papers being discussed at the workshop. (2)
- (j) To prepare written comments on drafts of the CEM. (2)
- (k) To prepare brief inserts and edits for the CEM relating to growth-environment linkages, this should include relevant data and tables where this data exists. (4)
- (l) To discuss the findings of the study with relevant stakeholders such as the Development Partner Sub-group on Environment and Natural Resources and members of the Working Group on the Environment (2)

The following **outputs** are expected:

- (a) A brief paper containing two sections: I) overall comments on the CEM and ii) insert and edits to the CEM
- (b) Both of the above delivered in softcopy

- (c) Dissemination materials including power point presentation of the findings.

Phase 2: (26 days)

Specific **tasks** to be undertaken by the Consultant(s) are

- (a) To analyse existing economic and growth data (including economic survey) to determine the contribution of natural resource sectors to growth, and their potential for increased rates of sustainable growth. (6)
- (b) To interview key stakeholders from relevant sectors including agriculture, forestry, fisheries, wildlife, tourism, water and energy and minerals to seek their views on growth and environment links and obtain relevant data on environment contribution to growth, and impact of growth on the environment. (10)
- (c) To prepare a technical paper elaborating linkages of relevance, with a focus on sectoral issues dealing with forestry, fisheries, wildlife, tourism and minerals, the provision of water and energy services, reduction of vulnerability from environmental risk, and actual and potential impacts from growth on the environment. The background paper will also include a brief review of existing initiatives, documents and persons consulted. (6)
- (d) To integrate comments received from the World Bank and the DPG. (2)
- (m) To prepare a power-point presentation and present the results to the Development Partners Group (DPG). (2)

The following **outputs** are expected:

- (a) A technical paper to contribute to the CEM and other macro processes such as the Joint Staff Assessment (JSA) and Joint Assessment Strategy (JAS) and for wider circulation and distribution.

Consultant qualifications and profile

The consultant(s) should have expertise in economic planning, environment and natural resources management, and environmental economics. The consultant(s) must have Tanzanian experience and be familiar with environmental reforms and the MKUKUTA.

Management Arrangements and Time Schedule

The consultant will report to the World Bank task manager for the CEM and the Senior Environmental Specialist based in Dar es Salaam. Phase 1 shall commence on 7. March and a draft of the work should be made available to the World Bank by 23 March 2005 in time for incorporation into the final CEM. Phase 2 shall commence on 18 April and a draft technical paper shall be sub-

mitted to the World Bank on 16 May 2005. It is expected that will involve approximately 46 days of work in total.

Annex 2: List of References

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