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**THE UNITED REPUBLIC OF  
TANZANIA  
THE VICE PRESIDENT'S OFFICE**



**The Development of Indicators  
of Poverty-Environment  
Linkages**

**Final Report**

**August 2005**

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## *Acronyms*

|       |   |
|-------|---|
| CBFM  | Community-based forest management                             |
| CBOs  | Community-based organisations                                 |
| CWIQ  | Community welfare indicators questionnaire                    |
| DHS   | Anthropometric / Demographic and Health Survey                |
| DoE   | Division of Environment                                       |
| EMIS  | Education Management Information System                       |
| EIA   | Environmental Impact Assessment                               |
| EMA   | Environmental Management Authority                            |
| ENR   | Environment and Natural Resources                             |
| EPs   | Environmental Profiles  |
| GIS   | Geographic Information System                                 |
| GDP   | Gross Domestic Product  |
| HMIS  | Health Management Information System                          |
| HBS   | Household Budget Survey                                       |
| IMR   | Infant Mortality Rate   |
| IDPs  | Internal Displaced Persons                                    |
| JICA  | Japanese International Cooperation Agency                     |
| IRA   | Institute of Resource Assessment, University of Dar es Salaam |
| JFM   | Joint Forest Management                                       |
| LSMS  | Living Standard Measurement Survey                            |
| LGAs  | Local Government Authorities                                  |
| LGRP  | Local Government Reform Programme                             |
| MTEF  | Medium Term Expenditure Framework                             |
| MAFS  | Ministry of Agriculture and Food Security                     |
| MCH   | Maternal and Child Health Clinic                              |
| MCM   | Ministry of Cooperatives and Marketing                        |
| MEM   | Ministry of Energy and Minerals                               |
| MoF   | Ministry of Finance   |
| MLHS  | Ministry of Lands and Human Settlements Development           |
| MMR   | Maternal mortality rates                                      |
| MNRT  | Ministry of Natural Resources and Tourism                     |
| MWLD  | Ministry of Water and Livestock Development                   |
| M&E   | Monitoring & Evaluation                                       |
| NCAA  | Ngorongoro Conservation Area Authority                        |
| NBS   | National Bureau of Statistics                                 |
| NR    | Natural Resources   |
| NEMC  | National Environmental Management Committee                   |
| NGO's | Non-government Organisations                                  |
| O& OD | Opportunities and Obstacles to Development                    |
| OPM   | Oxford Policy Management Ltd                                  |
| P-E   | poverty-environment   |
| PMS   | Poverty Monitoring System                                     |
| PRS   | Poverty Reduction Strategy                                    |
| PRSP  | Poverty Reduction Strategy Paper                              |
| PO    | President's Office  |
| PMO   | Prime Minister's Office                                       |
| PER   | Public Expenditure Review                                     |

|        |   |
|--------|---|
| PED    | Poverty Eradication Division  |
| PEDP   | Primary Education Development Program                                       |
| PFM    | Participatory Forestry Management   |
| PPA    | Participatory Poverty Assessment  |
| PRA    | Participatory Rural Appraisal   |
| RALG   | Regional Administration & Local Government                                  |
| RDS    | Routine Data System   |
| RRA    | Rapid rural appraisal   |
| RAWG   | Research and Analysis Working Group   |
| SACCOS | Savings and Credit Co-operative Societies                                   |
| SCSRD  | Sokoine University of Agriculture Centre for Sustainable Rural Development) |
| SEA    | Strategic Environmental Assessments   |
| TSM    | Takwimu za Shule za Msingi/Sekondari  |
| TCCIA  | Tanzania Chamber of Commerce and Industry                                   |
| TAFIRI | Tanzania Fisheries Research Institute                                       |
| TMA    | Tanzania Meteorological Agency  |
| TBS    | Tanzania Bureau of Standards  |
| TCM    | Tanzania Chamber of Mines   |
| TRCHS  | Tanzania Reproductive and Child Health Survey                               |
| TSED   | Tanzania Socio Economic Database  |
| UNDP   | United Nations Development Programme  |
| VEO    | Village Executive Officers  |
| VTTP   | Village Transport and Travel Programme                                      |
| VPO    | Vice President's Office   |
| VAM    | Vulnerability Analysis and Mapping  |
| WEO    | Ward Executive Officer  |

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## **Executive Summary**

The Vice Presidents Office (VPO) of the United Republic of Tanzania, is pleased to present this report on the Development of Poverty-Environment Indicators for Tanzania. The report is the final output of a project, carried out from May 2004 to August 2005, to develop poverty-environment indicators, and presents a total of ninety-nine indicators

Thirty-four indicators are proposed for inclusion in Tanzania's poverty monitoring system (PMS), as follows. These indicators are designed and appraised in detail, using a methodology sheet for each (Annex C).

| <b>MKUKUTA Targets</b>   | <b>Proposed PMS Indicator</b>   |
|--|---|
| <b>MKUKUTA Cluster 1: Growth and the Reduction of Income Poverty</b>                           |   |
| <b>Goal 2 Promote Sustainable and Broad-based Growth</b>                                       |   |
| 2.4 Increased agricultural growth from 5% in 2003 to 10% in 2010                               | [See indicators for Targets 4.4, 4.6. and Cluster II / 3.13]  |
| 2.9 Reduced negative impacts on environment and people's livelihoods                           | Proportion of EIAs / SEAs which NEMC judges to have successfully resulted in avoided or mitigated negative impacts  |
|  | Proportion of environmental audits resulting in successfully implemented recommendations  |
|  | Number of districts that have mainstreamed environmental issues in their plans.   |
| 2.10 Reduced land degradation and loss of biodiversity   | [See indicators for Cluster II / Target 3.13]   |
| <b>Goal 4 Reducing Income Poverty of Men and Women in Rural Areas</b>                          |   |
| 4.4 Increased sustainable off-farm income generating activities                                | The percentage of household income in rural areas derived from the sustainable processing and marketing of natural resource products.   |
|  | The percentage of household income in rural areas derived from non-NR based activities.   |
| 4.6 Increased contribution of wildlife, forestry and fisheries to incomes of rural communities | The percentage of rural income derived from activities related to wildlife (conservation, tourism, hunting), forestry (harvesting forestry products for consumption and trade) and fisheries. |
| <b>Goal 5 Reducing income poverty of men and women in urban areas</b>                          |   |
| [NONE PROPOSED]  |   |

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## **MKUKUTA Cluster II: Improvement of Quality of Life and Social Well-being**

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**Goal 3 All men, women and children are able to access clean, affordable and safe water, sanitation, decent shelter and a safe and sustainable environment, and thereby have reduced vulnerability to environmental risk**

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### **Goal 3 A Water**

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3.1 Increased proportion of rural population with access to clean and safe water from 53% in 2003 to 65% in 2009/10 within 30 minutes of collection time

The percentage of rural households able to fetch clean and safe water in under 30 minutes (go, collect, return) from a protected source.

Incidence of Cholera in rural areas.

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3.1. Increased urban population with access to clean and safe water from 73% in 2003 to 90% in 2009/10

The percentage of urban households with access to piped or protected water as their main drinking water source

Incidence of Cholera in urban areas

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### **Goal 3 B Sanitation and Waste Management**

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3.2 Increased access to improved sewerage facilities from 17% in 2003 to 30% in 2010 in respective urban areas.

[See indicators for Targets 3.1 and 3.2]

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3.3 Reduce households living in slums without adequate basic essential utilities

The percentage of households located in unplanned settlements and slums that lack adequate basic essential utilities (water, sanitation, and waste disposal).

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3.4 100% of schools to have adequate sanitary facilities by 2010

Percentage of schools having X number of sanitation facilities (latrines) per 200 students.

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3.5 95% of people with access to basic sanitation by 2010

Percentage of households with access to basic sanitation facilities.

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### **Goal 3 C Pollution**

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3.7 Reduced water-related environmental pollution levels from 20% in 2003 to 10% in 2010

Percentage of clean water bodies – based on the Tanzania temporary water standards of 1974.

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3.8 Reduced harmful industrial and agricultural effluents.

Number of industrial units that have installed technologies that reduce levels of pollutants reaching the environment (cleaner production technologies).

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### **Goal 3 D Planning and Human Settlements**

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[NONE PROPOSED]

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**Goal 3 E Vulnerability and Environmental Conservation**

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|  |  |
|--|--|
| 3.11 Reduced vulnerability to environmental disasters  | Percentage of population living in areas of high risk of environmental disaster (flood, landslides, droughts, food shortages).   |
| 3.12 Soil, forest and aquatic ecosystems that people depend upon for production and reproduction conserved | Number of tree seedlings planted.<br>Area of ecosystems addressed by area-based conservation programmes, disaggregated by ecosystem type (dryland, high forests, mangroves, wetlands). |
|  | [See indicators for Target 3.13]   |
| 3.13 Reduction in land degradation and loss of biodiversity  | Number and area under JFM Programmes at district levels;<br>Reduction in deforestation in areas prone to soil erosion.   |

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**Goal 4 Adequate Social Protection and Rights of the Vulnerable and Needy Groups with Basic Needs and Services**

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**Goal 4 D Access of Rural Population to Modern Energy Services**

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|   |  |
|---|--|
| 4.7 Contribution of solar, wind, biomass and coal for electricity generation increased from the current 0.5% in 2003 to 3% by June 2010 | The percentage of Tanzania's electricity being generated by renewable sources (solar, wind, biomass, and mini hydro sources).<br>The percentage of Tanzania's electricity being generated by non-renewable sources (coal, natural gas).<br>Please refer to indicators for Cluster I goals 5 and 6. where there are other actions on energy |
| 4.8 At least 10% of the population using alternative to wood fuels for cooking by 2010  | Percentage of households in rural and urban areas using alternative sources of energy to wood fuel (including charcoal) for cooking e.g. electricity or gas.   |

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**MKUKUTA Cluster III: Governance and Accountability**

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**Goal 1 Structures and systems of governance as well as the rule of law are democratic, participatory, representative, accountable and inclusive**

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|   |   |
|---|---|
| 1.1 Ensure representative, inclusive (poor and vulnerable groups) and accountable governance institutions operating at all levels | <p>Improved legislation on land and natural resource utilization.</p> <p>Land area used for NR management that is subject to tenure security..</p> <p>Establishment of functioning village and district environment committees.</p>   |
| 2.1 Public resources are allocated, accessible and used in an equitable, accountable and transparent manner                       | <p>Number of Ministries and Districts establishing effective environmental units</p> <p>The poor have equitable status in decision making about use of NR at village and district level.</p>  |
| 3.1 Administrative systems of public institutions are managed transparently and in the best interests of the people they serve    | <p>Number of operational worker's councils at workplaces</p> <p>Mechanisms for participatory decision-making established and functioning at all levels</p>  |
| <b>Goal 4 Rights of the Poor and Vulnerable are Protected and Promoted in the Justice System</b>                                  |   |
| 4.1 Ensure timely and appropriate justice for all especially the poor and vulnerable groups.                                      | <p>Functioning legal mechanisms dealing with poverty-environment issues established at all levels in line with EMA.</p> <p>Number of awareness-raising campaigns that inform poor and vulnerable groups of their rights.</p> <p>Proportion of poor and vulnerable households with legally-enshrined land titles.</p> <p>Functioning mechanisms to empower the poor and the vulnerable, especially women, to understand and exercise their rights over land and other resources established.</p> |

A further ninety-five sectoral indicators are proposed. For all of the MKUKUTA targets, there is a potentially huge number of sectoral indicators. Therefore the sectoral proposals are simply an indication of the range of potential indicators, and are not firm proposals. The purpose of the PMS-level and the sectoral indicators is to strengthen the understanding of poverty-environment linkages, and to monitor efforts to reduce poverty that depend on addressing poverty-environment linkages.

*The context for the development of these indicators is the recent revision of the MKUKUTA, and the ongoing revision of the Poverty Monitoring System (PMS). The PMS will provide the mechanism for monitoring progress towards the MKUKUTA goals and targets. The emergence of the MKUKUTA goals and targets in 2004 provided an opportunity to draw on these goals and targets as the main guiding framework in the identification of poverty-environment indicators. Therefore the proposed indicators are set out in direct relation to MKUKUTA goals and targets.*

*The methodology used to identify poverty-environment indicators, has consisted of a stepwise approach, that has combined consultation with a wide range of stakeholders, analysis of experience from elsewhere, and the identification, design, and selection and review of a range of indicators. The development of the indicators therefore required a significant degree of resolve, judgement, and stakeholder consultation. Following an inception phase and literature review on poverty-environment links, extensive research and consultation was undertaken, resulting in the alignment of available datasets with the emerging MKUKUTA framework. A round of final consultations and detailed appraisal of the proposed indicators has culminated in the set of proposals presented here. The selection of the indicators was made on the basis of the (i) the MKUKUTA framework, (ii) the requirement for a smaller set of 'PMS-level' indicators (that tend to be indicators of impacts and outcomes), distinguished from sectoral indicators (which encompass indicators of sectoral outputs); and (iii) data availability. Criteria for indicator and data selection were used firstly in the initial identification of potential indicators, and secondly in the focused appraisal of each PMS-level indicator.*

*Methodology sheets set out precisely how each indicator is to be calculated, the data sources on which it is to be based, and an appraisal of the indicator and its data sources against a set of criteria. Baseline data is provided for the cases where it is readily available. This is the case for seven indicators.*

*The following steps are proposed, in order to begin to compile and use the indicators. First, a 'core set' of indicators will be selected to be included in the revised PMS, on the basis of the appraisals set out in the methodology sheets. Second, data will be assembled and presented in tables and graphically for this core set of indicators, in cases where data is readily available. Third routine and periodic surveys will be amended to provide the data required for indicators for which data is currently not available. Fourth, each methodology sheet for the core set of indicators will be finalised to provide the final 'official' method for the calculation of the indicator. Fifth, the VPO and its partners will develop a strategy for the dissemination of poverty-environment indicator information. Finally, the VPO will confirm roles and responsibilities for data collection and compilation of the indicators, and will seek support to strengthen the required technical capacity.*

The Vice Presidents Office (VPO) of the United Republic of Tanzania, is pleased to present this report on the *Development of Poverty-Environment Indicators for Tanzania*. The report is the final output of a project to develop poverty-environment indicators, carried out by Environmental Resources Management Ltd (ERM) in collaboration with the Institute of Resource Assessment (University of Dar es Salaam) (IRA) and Oxford Policy Management Ltd (OPM). The project was carried out from May 2004 to August 2005.

The remainder of this introductory section briefly describes the project and its context. Following this:

- *Section Two* outlines the approach and methodology used to develop poverty-environment indicators;
- *Section Three* presents the proposed poverty-environment indicators, and describes the data sources for the proposed indicators;
- *Section Four* sets out the next steps to be taken to finalise the indicators.

In addition, there are a number of annexes:

*Annex A* - Terms of reference

*Annex B* - List of stakeholders consulted

*Annex C* - Methodology sheets

*Annex D* - Review of surveys

*Annex E* - Data sources for sectoral indicators

*Annex F* - Criteria for indicator and data selection

*Annex G* - Uses of indicators

*Annex H* - Tables of existing and new / innovative indicators

*Annex I* - Literature review

*Annex J* - Development of an Environmental Monitoring System.

## 1.1

### AIMS AND OBJECTIVES

The overall aim of the project was to develop a set of indicators of the key poverty and environment linkages ('P-E linkages') in Tanzania that can be used to strengthen the understanding of these linkages in a policy context, and to monitor efforts to reduce poverty that depend on addressing poverty-environment linkages.

In addition, there were a number of subsidiary objectives:

- To assess and determine the different use of poverty-environment indicators from local to national levels;
- To identify existing data collection systems and surveys producing, or with the potential to provide poverty-environment indicators;

- To propose a core set of poverty-environment indicators for use by the revised Poverty Monitoring System and local level planning; and
- To build national capacity on development and use of poverty-environment indicators.

'Poverty-environment linkages' are dimensions of poverty that concern the 'environmental' part of poor people's lives. They are aspects of poverty that relate to people's opportunities for economic advancement (or lack of opportunities), social or political empowerment (or dis-empowerment), and security (or vulnerability). These three categories relate well to the three clusters in the MKUKUTA (Mkakati wa Kukuza Uchumi na Kuondoa Umaskini Tanzania, or National Strategy for Growth and Poverty Reduction in English). Poverty-environment links are not necessarily the same as causal linkages between the environment and poverty (ie how a changing environment increases or decreases poverty, or how changing poverty levels damage or improve the environment). Instead they describe how environmental resources are part and parcel of a poor person's livelihood.

The context for the project is the recent revision of the MKUKUTA, and the ongoing revision of the Poverty Monitoring System (PMS). The PMS will provide the mechanism for monitoring progress towards the MKUKUTA Goals and Targets. During the preparation of the MKUKUTA, a vigorous effort was made to integrate the most important poverty-environment linkages in Tanzania. This was largely successful, resulting in the inclusion of many MKUKUTA targets and implementation strategies that are explicitly focused on the contribution of the environment to poverty reduction and growth (see *Box 1.1*).

Accordingly, the revised PMS will be tailored to these targets and strategies, requiring an equally strong focus on poverty-environment indicators that measure progress towards these targets and the implementation of the strategies.

In 2004, the Government of Tanzania drafted the *Mkakati wa Kukuza Uchumi na Kuondoa Umaskini Tanzania* (MKUKUTA, or 'National Strategy for Growth and Poverty Reduction' in English). The MKUKUTA is a home-grown, second-generation poverty reduction strategy. It moves away from a priority sector approach to an outcome-oriented approach with an emphasis on inter-sector linkages that contribute towards achieving the outcomes. This approach stresses cross-sector collaboration that build on an improved understanding of the characteristics of poverty. As a result, environment is one of these important cross-cutting issues.

Although Tanzania's earlier Poverty Reduction Strategy acknowledged the importance of environmental management for poverty reduction strategies, it did not include a strategy for addressing poverty-environment linkages in promoting growth and poverty reduction. The Government of Tanzania acknowledged this gap and instigated a programme, led by the VPO, to integrate environment into the new MKUKUTA, through better technical analysis, consultation with environmental stakeholders, workshops, and an environmental Public Expenditure Review (PER). The programme has addressed:

- Improved understanding of poverty-environment linkages, to demonstrate clearly why environment is an important and essential element to be addressed to achieve poverty reduction targets;
  - The development of poverty-environment indicators to include in the PMS, and for application in monitoring trends, and in planning and predicting the impacts of policies and strategies on poverty-environment linkages; and
  - Capacity-building at national & local levels to address poverty-environment linkages.
-

The methodology used to identify poverty-environment indicators, has consisted of a stepwise approach, that has combined consultation with a wide range of stakeholders, analysis of experience from elsewhere, and the identification, design, and selection and review of a range of indicators.

The development of poverty-environment indicators is not a straightforward task. Understanding of what is meant by (i) measurable performance indicators are, and (ii) poverty-environment linkages, is not widespread, whether in Tanzania or elsewhere in the world. The development of the indicators therefore required a significant degree of resolve, judgement, and stakeholder consultation. Through this process, understanding has increased markedly, as described in *Box 2.1* concerning capacity-building.

The emergence of the MKUKUTA goals and targets in 2004, provided an opportunity to draw on these goals and targets as the main guiding framework in the identification of poverty-environment indicators.<sup>(1)</sup> This approach was agreed with stakeholders at a workshop in February 2005. Subsequently, at an exhaustive meeting of stakeholders on 7<sup>th</sup> May 2005 held at the VPO, each proposed indicator was discussed in detail. Where it was felt that changes were required, proposed amendments were agreed. The meeting was attended by representatives from the VPO, the Ministry of Environment, and the National Environmental Management Council.

(1) Therefore explaining why the methodology has diverged from the process of Tasks A to G originally envisaged in the terms of reference.

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In the process to develop poverty-environment indicators for Tanzania, the consultants initiated several activities that helped build capacity amongst the stakeholders on the concept of poverty environment and the indicators that could be used to measure it. These included:

*Consultations with various levels of government and NGOs.* The team carried out several rounds of consultations with stakeholders including a field trip to several districts in Tanzania, where they had a chance to raise awareness of the poverty environment study and disseminate information on the process and outcomes of the. The discussions that ensued also led to an increased understanding of the concept of poverty environment linkages and the importance of developing indicators for capturing the linkages;

*Workshops.* The Poverty-Environment Study held two workshops, the first one was held on the 27th of May 2004 and the second on the 25th of March 2005, with a view to disseminating information about the project and gaining feedback on the draft indicators from relevant stakeholders. The meetings were attended by a range of stakeholders who had a chance to comment on the work done so far and also to contribute to developing the indicators based on their sectoral needs. The workshops also offered a platform for cross sectoral communication and discussions; this was especially important considering the multi-sectoral nature of poverty environment linkages and the need for greater cooperation amongst the sectoral ministries in meeting the targets set by the MKUKUTA

*Literature Review.* By carrying out the literature review, the project sought to disseminate international experience of developing poverty-environment to the stakeholders in Tanzania. The literature review identified a number of issues that needed to be taken into account when considering the development of poverty-environment indicators for Tanzania.

*Reports.* In the course of the study, several reports were prepared that presented progress to date. These were disseminated to various stakeholders for discussion and comments. This enabled the process to be iterative as the comments on the reports were then taken into account by the consultants in the next stage of the study.

*The study team.* The study team consisted of Tanzanian consultants from the Institute of Resource Assessment at the University of Dar-es-Salaam, in partnership with international consultants from Environmental Resources Management (ERM). This project played an important role in helping to strengthen capacity at the Institute of Resource Assessment and among key stakeholders. The process of engaging stakeholders and working with a range of different actors to raise their awareness about the indicators, and in turn to take on board their views and comments, has built up understanding of the challenge of developing measurable indicators among the team. This process was also of benefit to the project counterparts in the Government of Tanzania, many of whom were also previously unfamiliar with the issues raised during indicator development.

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## 2.1

### *STEPS TAKEN TO DEVELOP THE INDICATORS*

The steps taken to develop the indicators are listed in *Table 2.1*, describing the outputs delivered at each stage, and their relation to the original process set out in the terms of reference.

**Table 2.1** *Steps taken to develop the indicators set out against the tasks outlined in the ToRs.*

| <b>Step:</b>  | <b>Outputs</b>  | <b>Tasks A-G set out in terms of reference:</b>   |
|---|---|---|
| 1. An inception phase, during which discussions were held, including at a kick-off workshop, on the uses of poverty-environment indicators, and criteria for their selection.   | Stakeholder List (Annex B);<br>Criteria for data assessment and indicator selection (Annex F);<br>Conclusions on the uses of indicators (Annex G);<br>Basic initial framework for the indicators. | Task A – Clarification on the use and purpose of poverty-environment indicators at national and local levels  |
| 2. Literature review to gather lessons and experience from elsewhere  | Literature review (Annex I).  | Task B – Review of international and regional research on poverty-environment indicators  |
| 3. Research and consultation to ascertain the availability of existing datasets   | Conclusions and potential datasets and indicators from the consultations (Annex H)  | Task C – Identification of existing environmental indicators and linkages to poverty<br>Task D – Analysis of existing PMS and PRBS/PRSC indicators for relevant poverty-environment indicators, and<br>Task E – Analysis of surveys and assessment for data to monitor poverty-environment indicators |
| 4. Alignment of available datasets with the framework, and alignment of new or novel ideas for indicators with the framework (based on the literature review and the team's ideas)  | Identification of existing or new indicators and datasets, and presentation of how TSED data aligns with the proposed framework (Annex H).  | Task F continued  |
| 5. Design of a methodology sheet based on the criteria for indicator selection  | Methodology Sheet (Annex C).  | Task F continued  |
| 6. Design of a framework for P-E indicators, based on the revision of the MKUKUTA and its specific targets and strategies   | Proposed framework (Section 3 of this report)   | Task F – Development of a core set of indicators  |
| 7. Identification of an initial list of options   | Initial set of options.   | Task F continued  |
| 8. Further consultations, including a stakeholder workshop (held in Morogoro in February 2005), and a stakeholder meeting on 7 <sup>th</sup> May 2005. These meetings were used to refine the framework, and confirm indicator design and data sources. | Revised framework of proposed indicators presented in the first draft of this report.   | Tasks E and F continued   |
| 9. Preparation of this report, including the proposed indicators, relevant data sources and the practical steps to be   | Confirmed framework, and proposed indicators including analysis of data sources (Section 3 of   | Part of Task G – Testing of indicators, establishment of baselines and identification   |

|   |   |                                    |
|---|---|------------------------------------|
| <p>taken to put them into practice, followed by detailed comments from the VPO's poverty-environment programme team and the revisions to the draft, to produce this final report.</p> | <p>this report;<br/>Recommendations on next steps to begin to measure a core set of indicators.</p> | <p>of data gaps<sup>(1)</sup>.</p> |
|---|---|------------------------------------|

(1) As agreed with VPO in February 2005, we have not been able to provide data to establish baselines for a large proportion of the indicators, as they depend on new or amended surveys to be carried out.

### **2.1.1 *Inception phase and literature review (Steps 1-2)***

These initial steps combined the introduction of the stakeholders to the concepts of poverty-environment indicators, their potential uses, and criteria for selecting indicators, with a review of international experience on understanding poverty-environment linkages and the design of poverty-environment indicators. This raised understanding among the VPO, NEMC and the Ministry of Environment on poverty-environment indicators, and the method to be used by the project team to develop them, within the overall context of mainstreaming environment into the development of the MKUKUTA.

### **2.1.2 *Research and consultation (Steps 3-4)***

The project team gathered information from a range of ministries and agencies, nationally and locally, to ascertain whether datasets that could be used in the measurement of poverty-environment indicators were already available. This included interrogation of the Tanzanian Socio-economic Database (TSED), surveys of a wide range of national sources of data including face-to-face interviews, field surveys of a sample of districts to determine the availability and quality of routine data collection at local levels, analysis of the data available from periodic surveys, and assessment of indicators in the existing PMS.

### **2.1.3 *Alignment of available datasets with the emerging framework (Steps 5-7)***

At the outset of the project, the requirement for a 'framework' for the indicators was explained to stakeholders. <sup>(1)</sup> In response, we propose a simple framework to guide our team in the focus of their efforts. Ultimately the MKUKUTA Clusters, Goals and Targets offered the most appropriate framework. The three MKUKUTA Clusters offered a framework to describe the broad links between the Clusters and Poverty-Environment linkages: for example, the Growth Cluster prompts the recognition that a sustainable natural resource base is essential for income generation for the poor, and the requirement for sustainable livelihood development. Further to this, specific targets within each Cluster were selected if poverty-environment linkages were strongly relevant to their attainment. This produced a framework of selected targets with descriptions of the poverty-environment linkages relevant to each.

The second feature of the framework was a distinction between 'PMS-level' indicators, and 'sectoral level' indicators. This is because, firstly, only a small number of indicators can ultimately be included in the PMS. Secondly, PMS indicators should ideally concern changes in the extent, depth or nature of poverty (ie they concern 'impact'). Sectoral level indicators in contrast concern

(1) Noted on page 15 of the Inception Report, the use of a framework is important to focus the efforts of the team, to align the proposals with the PMS, and to offer a way of reducing the large number of potential indicators to a smaller set of proposals.

the sectoral strategies required to deliver this impact, and tend to provide a nearer-term measure of progress.

Using the framework, the team were able to align the availability of datasets, and proposals for new indicators (gathered from literature and consultations) to the MKUKUTA targets. They designed a 'methodology sheet', to allow these potential indicators to be appraised according to the criteria for indicator and data appraisal identified in step 1.

#### **2.1.4 *Final consultations and appraisal of the proposed indicators (Steps 7-8)***

In February 2005, the VPO organised a workshop with key stakeholders, at which the framework of potential indicators was presented. This was a key step in the process because it engaged a wide range of stakeholders in reviewing and improving the framework and assessing relevant data sources. In particular, it confirmed the selection of the MKUKUTA targets, tightened the definition of the relevant poverty-environment linkages, and provided a wealth of feedback on which indicators really were measurable, based on knowledge and experience of the different sectors present.

As a result of this workshop, the team was able to identify a set of proposed PMS-level and sectoral indicators, tailored to the requirements of the MKUKUTA and the revised PMS. A further round of consultation was held to confirm the current availability of data and the feasibility of refining data collection systems. In particular, the meeting held on 7<sup>th</sup> May 2005 examined each indicator and its data source in detail. Following this the VPO provided detailed comments on the team's draft report, allowing the final product, including methodology sheets for each PMS-level indicator to be presented in this final report.

## **2.2 *SELECTION OF THE INDICATORS***

The selection of the indicators was made on the basis of the conceptual and practical factors that constrain the set of indicators, particularly (i) the MKUKUTA framework, (ii) the requirement for a smaller set of 'PMS-level' indicators (that tend to be indicators of impacts and outcomes), distinguished from sectoral indicators (which encompass indicators of sectoral outputs); and (iii) data availability. The literature review and first phase of consultations also provided relevant information on experiences elsewhere and the range of potential poverty-environment indicators already covered within existing routine and periodic data collection systems.

The criteria for indicator and data selection were used in two senses during the work. Firstly, they were used in a general manner, in the initial identification of potential indicators and in the subsequent discussions to refine the framework and indicators. Secondly, the criteria were used in the focused appraisal of each PMS-level indicator. This appraisal is summarised in the methodology sheet for each indicator. The final selection of a core set of indicators to be included in the PMS should be guided by this appraisal.

Therefore the project team did not apply any scientific or quasi-scientific methodology in the selection of the indicators. The design of performance indicators necessarily requires a degree of judgement. Judgement for example is required in getting the balance right between indicators for which there is no existing data source, and those which can be calculated on the basis of existing surveys, or in choosing whether an indicator, or for example in focusing the set on indicators on some, but not all of the MKUKUTA goals and targets.

A total of **one hundred and twenty-nine indicators (34 PMS level indicators, and 95 sectoral indicators)** are presented in *Table 3.1*, arranged in the framework of the MKUKUTA goals and targets.

There are three Clusters in the MKUKUTA: *(i) growth and income poverty reduction, (ii) improvement of quality of life and social well-being, and (iii) governance and accountability*. These correspond well with the typologies used to categorise poverty-environment linkages that have been developed by the international community in recent years: *(i) sustainable livelihoods, (ii) health and (iii) vulnerability*. They also reflect holistic concepts of poverty encompassing *(i) economic opportunity, (ii) health, and (iii) security, and empowerment*. Within these three clusters, the MKUKUTA has eighteen goals, one hundred and eight targets and a large number of strategies for implementation. Poverty-environment linkages are relevant to many, but not all of this wide range of areas.

The framework is structured in order to provide a clear flow from column (i) containing the MKUKUTA target, to column (ii) listing the poverty-environment linkages that are relevant to that target, to columns (iii) and (iv) showing the selected indicators. The indicators consist of proposed PMS-level indicators, which measure the poverty-environment linkage relevant to each MKUKUTA target, and sectoral indicators which measure the contribution that sectors make to the MKUKUTA target and/or the poverty-environment linkage. The final column provides comments to explain the inclusion of these indicators.

### 3.1 PMS-LEVEL INDICATORS

The majority of the proposed PMS-level indicators measure outcomes, and the remainder measure impacts. The methodology sheet for each indicator provides more detail on data sources. Data for Cluster III indicators, at present, are difficult to source due to the nature of the indicators identified.

#### 3.1.1 Methodology sheets

Each proposed PMS-level indicator is appraised in a methodology sheet in *Annex C*. Each methodology sheet sets out precisely how the indicator is to be calculated, the data sources on which it is to be based, and an appraisal of the indicator and its data sources against a set of criteria. This appraisal will allow the VPO to finalise the selection of a small 'core set' of indicators to be included in the PMS.

The design of the methodology sheet is inspired by information sheets developed by the PMS task force, and indicator sheets used by OECD/ DAC. It includes a appraisal of the indicator using the criteria for indicator selection

identified during the inception phase. The relevance of the indicator to other cross-cutting issues is also described, and its relevance to particular sectors (some of the PMS-level indicators are also useful, and already are in use, to measure direct sectoral impact, for example incidence of diarrhoea). Room is given for any additional comments that could help in indicator prioritisation.

### 3.1.2 *Baselines*

Where data is currently readily available without further calculations, the baseline level of the proposed indicator is included in the methodology sheet. Baseline information is included for seven indicators, all of which concern targets in Cluster II.

## 3.2 *SECTORAL INDICATORS*

The project identified a large number of sectoral indicators. For all of the MKUKUTA targets, there is a potentially huge number of sectoral indicators. Therefore the lists provided in *Table 3.1* are simply an indication of the range of potential indicators, and are not firm proposals. They are not intended to be included in the PMS, but they would assist in monitoring implementation of sector strategies that contribute towards the sector outcomes included in the MKUKUTA. Owing to the large number of sectoral indicators, it has not been possible to prepare methodology sheets at this stage.

*Annex E* describes the potential data sources for each sectoral indicator in Cluster I and Cluster II. The data for Cluster III indicators are difficult to source due to the nature of these indicators: instead, the institutions that would be responsible for gathering this data are described.

## 3.3 *RELATION TO MDGS*

A minority of the proposed PMS-level indicators are similar to the targets associated with Millennium Development Goal No. 7 (Ensure environmental sustainability). These are listed in *Table 3.2*. All of the indicators are, of course, of relevance to MDG 7, but in addition, positive trends in the indicators may be associated with positive trends in MDGs 1 to 6, though exactly how depends on the construction of the indicator. A good example of this is the proposed indicator *The percentage of household income in rural areas derived from the sustainable processing and marketing of natural resource products*. A positive trend in this indicator is likely to be associated to a lowering of the proportion of people whose income is less than \$1 a day (MDG 1, Target 1).

**Table 3.1** *Proposed indicators*

| MKUKUTA Targets  | Relevant Environment –Poverty Linkages  | PMS Level Indicator – how can target be measured                                     | Sectoral Level Indicators – how can sectoral targets be measured that contribute to PMS target?   | Comment on Proposed Indicators   |
|--|---|--|---|--|
| <i>MKUKUTA Cluster 1: Growth and the Reduction of Income Poverty</i> |   |  |   |  |
| <b>Goal 2 Promote Sustainable and Broad-based Growth</b>             |   |  |   |  |
| 2.4 Increased agricultural growth from 5% in 2003 to 10% in 2010     | Improved income and livelihoods from sustainable agricultural growth – especially for poor rural population | Refer to Cluster I, Goal 4, Targets 4.4 and 4.6. and Cluster II, Goal 3, Target 3.13 | <p>1.Proportion of the agriculture budget spent on educating farmers and livestock keepers in best practices for conserving the environment.</p> <p>2.Number of farmers and livestock keepers trained environmental conservation (including access to appropriate extension packages)</p> | <p>Although it is desirable to include a PMS-level indicator relating poverty-environment links to increased agricultural growth, the best candidates are already included below against the targets referred to. Potential indicators from the agricultural survey, such as crop productivity, or the productivity of individual crops do not directly concern poverty-environment links. Data on another possibility, rates of soil erosion, are not available at low cost.</p> <p>Sector level indicators can also be proposed to capture the level of support for “sustainable agriculture” – although this is difficult to define precisely. We recommend that the Ministry of Agriculture and Food Security (MAFS), the Ministry of Water and Livestock Development (MWLD) and the Ministry of Cooperatives and Marketing (MCM) define best sustainable practices in farming and livestock production.<sup>1</sup> Also see 2.10 and 3.13.</p> |

(1) <sup>1</sup> MAFS equates sustainable agriculture to maintained productivity through maintenance of nutrient levels in the soil, using acceptable fertilizer materials that are not harmful to the environment, good agronomic practices (land preparation, timely planning of seeds, timely weeding, timely harvesting and associated techniques), minimized post-harvest losses.

| MKUKUTA Targets   | Relevant Environment -Poverty Linkages   | PMS Level Indicator - how can target be measured  | Sectoral Level Indicators - how can sectoral targets be measured that contribute to PMS target?   | Comment on Proposed Indicators   |
|---|--|---|---|--|
| 2.9 Reduced negative impacts on environment and people's livelihoods          | Minimising negative impacts will ensure increased livelihoods for poor and vulnerable  | <p>1. Proportion of EIAs / SEAs which NEMC judges to have successfully resulted in avoided or mitigated negative impacts</p> <p>2. Proportion of environmental audits resulting in successfully implemented recommendations</p> <p>3. Number of districts that have mainstreamed environmental issues in their plans.</p> | <p>1. The % of policies/ strategies/ programmes and projects subject to an EIA/SEA.</p> <p>2. The number of property transfers (eg privatisations) subject to environmental audits.</p> <p>3. The number of land use plans prepared and implemented at district level.</p> <p>4. Number of districts that use mainstreaming guidelines.</p> <p>5. Number of environmental management systems established and implemented at sector level (also relevant to Target 3.14).</p> <p>6. Number of companies that adhere to ISO 14000 standards</p> | <p>The MKUKUTA target is broad, but is central to integrating environmental management into growth strategies. We therefore propose, at the PMS level, indicators of the outcomes of three principal policy instruments for reducing negative impacts - EIA, environmental audits, and district level planning. The methodology sheets discuss issues of definition and measurement of these indicators however.</p> <p>At the sectoral level, it is feasible to propose an array of different input indicators derived from current strategies for strengthening environmental policy. These proposals emerge from the priorities expressed in discussions with stakeholders in May 2005.</p> |
| 2.10 Reduced land degradation and loss of biodiversity (Refer to target 3.14) | <p>a) Minimizing land degradation to protect source of livelihoods for poor and vulnerable people</p> <p>b) Well managed ecosystems provide for increased opportunities for livelihoods of the poor.</p> | See Cluster II, Target 3.13   | See Cluster II, Target 3.13   | See Cluster II, Target 3.13  |
| <b>Goal 4 Reducing Income Poverty of Men and Women in Rural Areas</b>         |  |   |   |  |
| 4.4 Increased sustainable off-farm income generating activities               | <p>1.Improved income from sustainable natural resource (NR) based trade for poor</p> <p>2. Improved income from activities not dependent on natural resources</p>  | <p>1. The percentage of household income in rural areas derived from the sustainable processing and marketing of natural resource products.</p> <p>2. The percentage of household income in rural areas derived from non-NR based activities.</p>   | <p>1 Increased number of beekeepers (on- or off-farm)</p> <p>2. Increased number of villages with land title deeds by 2010.</p> <p>2. Number of established new markets for locally produced honey within and outside the country.</p> <p>3 Percentage of rural population</p>  | <p>The proposed PMS level indicators address two distinct P-E issues: (i) the benefits from income derived from sustainable processing and marketing of NR products; (ii) taking pressure off the NR-base by non-NR-based income generation.</p> <p>Please refer to methodology sheets for issues associated with the interpretation of the indicators, the definition of sustainability, and the</p>  |

| MKUKUTA Targets  | Relevant Environment -Poverty Linkages   | PMS Level Indicator – how can target be measured  | Sectoral Level Indicators – how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators  |
|--|--|---|--|---|
|  |  |   | accessing micro-finance for sustainable income generating activities not based on NR products.   | reliance on the Household Budget Survey.<br>There is potential for a wide array of sector (input) indicators if needed and we suggest some examples, on the basis of discussions with stakeholders.   |
| 4.6 Increased contribution of wildlife, forestry and fisheries to incomes of rural communities   | Improved income and livelihoods from sustainable Wildlife/Forestry/Fish management   | 1. The percentage of rural income derived from activities related to wildlife (conservation, tourism, hunting), forestry (harvesting forestry products for consumption and trade) and fisheries.    | 1The proportion of income from relevant sector-based activity that is set aside and realized by rural communities.<br><br>2. Revenue generated from sustainable and participatory utilization of natural resources – eg WMA's, TANAPA community development contributions. | The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly. However it will be difficult to interpret, as discussed in the methodology sheet.<br><br>There is the potential at the sector level to focus on individual schemes or initiatives that demonstrate efforts to increase the contribution. |
| <b>Goal 5 Reducing income poverty of men and women in urban areas – this has some very specific environment interventions on management of catchments and energy.</b>  |  |   |  |   |
|  |  | [NONE PROPOSED]   | [NONE PROPOSED]  | No indicators to be proposed for Goal 5, as agreed among stakeholders in February 2005.   |
| <i>MKUKUTA Cluster II: Improvement of Quality of Life and Social Well-being</i>  |  |   |  |   |
| <b>Goal 3 All men, women and children are able to access clean, affordable and safe water, sanitation, decent shelter and a safe and sustainable environment, and thereby have reduced vulnerability to environmental risk</b>                                   |  |   |  |   |
| <b>Goal 3 A Water</b>  |  |   |  |   |
| 3.1 Increased proportion of rural population with access to clean and safe water from 53% in 2003 to 65% in 2009/10 within 30 minutes of collection time, and increased urban population with access to clean and safe water from 73% in 2003 to 90% in 2009/10. | <b>Rural</b><br>Improved quality of life and well being due to a reduction in incidences of water borne and water washed diseases; Reduction in time spent fetching water (spent on other activities); Well managed catchment areas ensure a | <b>Rural</b><br>1. The percentage of rural households able to fetch clean and safe water in under 30 minutes (go, collect, return) from a protected source.<br><br>2. Incidence of Cholera in rural | <b>Rural</b><br>1. Recurrent expenditure on rural water supply as a percentage of total water expenditures<br>2. The number of rural districts that are below the national average of rural water supply coverage  | <b>Rural</b><br>The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly. An impact level indicator is also proposed<br><br><b>Urban</b>   |

| MKUKUTA Targets  | Relevant Environment -Poverty Linkages  | PMS Level Indicator - how can target be measured   | Sectoral Level Indicators - how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators  |
|--|---|--|--|---|
|  | <p>sustainable source of water supply</p> <p><b>Urban</b></p> <p>Improved quality of life and well being due to a reduction in incidences of water borne and water washed diseases; Reduction in time spent fetching water (spent on other activities); Well managed catchment areas ensure a sustainable source of water supply.</p> | <p>areas.</p> <p><b>Urban</b></p> <p>1. The percentage of urban households with access to piped or protected water as their main drinking water source</p> <p>2. Incidence of Cholera in urban areas</p> | <p>3. The proportion of women participating in decision making bodies (water committees, boards, Regional Consultation Units, MoWLD)</p> <p>4. Average per person, daily provision of water through rural water points</p> <p>5. The Percentage of rural water schemes managed by beneficiary communities</p> <p>6. The number of water basin management plans prepared and implemented</p> <p><b>Urban</b></p> <p>1. Recurrent expenditure on urban water supply as a percentage of total water expenditures</p> <p>2. The number of total household connections in Urban Water Supply Authorities (UWSAs)</p> <p>3. The number of public standpipes in UWSAs</p> <p>4. Average per person, daily provision of water in urban areas</p> <p>5. Number of operating hours of water source</p> | <p>The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly. An impact level indicator is also proposed</p> <p>A sectoral level indicator is also proposed to reflect the importance of small scale water providers in urban and peri-urban areas.</p> |
| <b>Goal 3 B Sanitation and Waste Management</b>  |   |  |  |   |
| 3.2 Increased access to improved sewerage facilities from 17% in 2003 to 30% in 2010 in respective urban areas. (Cross reference to 3.8 and 3.9) | Improved quality of life and well being due to reduction in risk and incidences of waterborne diseases and reduced environmental degradation/pollution as a result of controlled disposal of sewage, wastewater; and industrial effluents.  | 1. Incidence of Cholera in rural/urban areas (see 3.1)   | 1. The percentage of households in urban areas connected to a sewerage facility (septic tanks, etc.)   | The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly.  |
| 3.3 Reduce households living in slums without adequate basic essential utilities   | Improved quality of life and well being due to reduction in risk and incidences of waterborne diseases and reduced environmental  | 1. The percentage of households located in unplanned settlements and slums that lack adequate basic essential utilities (water, sanitation,  | The percentage of households in slum areas/ informal settlements with access to hygienic garbage disposal facilities   | The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly.  |

| MKUKUTA Targets  | Relevant Environment -Poverty Linkages  | PMS Level Indicator - how can target be measured   | Sectoral Level Indicators - how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators  |
|--|---|--|--|---|
|  | degradation   | and waste disposal).   |  |   |
| 3.4 100% of schools to have adequate sanitary facilities by 2010                           | <p>Improved quality of life and well being as a result of reduction in risk and incidences of hygiene and sanitation related illnesses.</p> <p>Having improved sanitation facilities in schools, may lead to an increase in attendance of female school children.</p> | 1. Percentage of schools having X number of sanitation facilities (latrines) per 200 students. | <p>1. Percentage of schools in a district having improved sanitation facilities (as per Ministry of Education standards) disaggregated by gender and type of schools</p> <p>2. Percentage of higher learning institutions having X number of functioning sanitary facilities disaggregated by gender, district and type of institutions.</p>                                       | <p>The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly.</p> <p>Additional sectoral level indicators that are an iteration of the PMS level indicator are also proposed.</p> |
| 3.5 95% of people with access to basic sanitation by 2010 (Cross reference to 3.1 and 3.2) | Improved quality of life and well being as a result of reduction in risk and incidences of hygiene and sanitation related illnesses.  | 1. Percentage of households with access to basic sanitation facilities.                        | <p>1. Number of public sanitation facilities (at markets/bus stands) per capita, per district.</p> <p>2.</p> <p>3. Number of districts implementing programmes to promote hygiene</p> <p>4. Percentage of Schools teaching hygiene education as part of their curriculum</p> <p>5. The percentage of households with hand washing facilities</p>                                   | The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly.  |
| <b>Goal 3 C Pollution</b>  |   |  |  |   |
| 3.6 Reduced water-related environmental pollution levels from 20% in 2003 to 10% in 2010   | Increased well being and income potential as a result of improved quality of water in water bodies (rivers, lakes, sea etc.);   | 1. Percentage of clean water bodies - based on the Tanzania temporary water standards of 1974. | <p>1. Number of pollution permits issued per year by industries and other large scale enterprises</p> <p>2. Number of industries and enterprises adhering to environmental standards</p> <p>3. Number of water samples tested, meeting the Tanzanian Water Quality Standards</p> <p>4. The number of water bodies with turbidity values above the Tanzania temporary standards</p> | There is potential for a large number of sector level input output level - that cover various sources of pollution. We provide some examples.   |

| MKUKUTA Targets  | Relevant Environment -Poverty Linkages  | PMS Level Indicator – how can target be measured  | Sectoral Level Indicators – how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators  |
|--|---|---|--|---|
|  |   |   | 5. The number of water bodies with fluoride levels above the Tanzania temporary standards<br>6. The number of water bodies with bacterial contamination levels above the Tanzania temporary standards  |   |
| 3.7 Reduced harmful industrial and agricultural effluents.   | Increased well-being and income potential as a result of reduced environmental degradation of aquatic ecosystems and increase in quality of water for consumption (domestic or otherwise) | 1. Number of industrial units that have installed technologies that reduce levels of pollutants reaching the environment (cleaner production technologies). | 1. Number of environmental audits undertaken for industries that have not had EIAs done on them<br><br>3. Number of approved agriculture chemicals in use<br><br>4. Quantities of unused industrial and agrochemicals properly disposed off<br><br>5. Number of operational programmes to monitor noise, automobile and indoor pollution<br><br>6. Number of operational programmes to monitor industrial effluents and agricultural chemicals | It is difficult to select a PMS-level indicator as the target encompasses a wide range of different sources of pollution. Judgment is required: the indicator selected here is simple, and has a strong link to Cluster I.<br><br>There is potential for a large number of sector level input output level – that cover various sources of pollution. Here as just some examples. |
| <b>Goal 3 D Planning and Human Settlements</b>               |   |   |  |   |
|  |   | [NONE PROPOSED]   | [NONE PROPOSED]  | No indicators to be proposed for Goal 3D, as agreed among stakeholders in February 2005.  |
| <b>Goal 3 E Vulnerability and Environmental Conservation</b> |   |   |  |   |
| 3.11 Reduced vulnerability to environmental disasters        | Well being from reduced vulnerability to environmental damage/disaster<br><br>Please elaborate and make this clearer  | 1.Percentage of population living in areas of high risk of environmental disaster (flood, landslides, droughts, food shortages).                            | 1. Rainfall reliability and variability leading to incidents of drought, and floods.<br><br>2. Number of functioning environmental management systems established at district levels.<br><br>3. Percentage of land area affected   | At the PMS level, we propose a single indicator focused on the population in areas of high risk of environmental disaster. We suggest that the Prime Minister’s Office (PMO) Disaster Management Unit adopt an approach to measuring this indicator based on the information they collect from the Tanzania Meteorological Agency   |

| MKUKUTA Targets  | Relevant Environment -Poverty Linkages  | PMS Level Indicator - how can target be measured   | Sectoral Level Indicators - how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators   |
|--|---|--|--|--|
|  |   |  | <p>by refugee-related disasters.</p> <p>4. Number of districts adopting flood management systems.</p> <p>5. Number of urban districts with up-to-date urban development plans.</p> <p>6. Number of people adopting drought tolerant crops.</p> <p>7. Number of livestock keepers adopting drought abetting strategies.</p> <p>8. Functioning early warning systems in place (Need to have early warning systems to capture both man-made and natural disasters).</p> | <p>(TMA) and MAFS, principally – encompassing risks associated with extreme weather and with food shortages. Although it may be possible to relate this more closely to vulnerability and coping, by adding the suffix “... who have access to a sustainable coping mechanism”, this would detract from the simplicity of the indicator.</p> <p>There is a range of sector level indicators which would contribute to the overall PMS indicator, many of which will be included in the work coordinated by the PMO. The success of these activities would be reflected in the reduced risk affecting populations in the PMS level indicator.</p> |
| 3.12 Soil, forest and aquatic ecosystems that people depend upon for production and reproduction conserved | Increased livelihoods from protection/sustainable management of resource base | <p>1. Number of tree seedlings planted.</p> <p>2. Area of ecosystems addressed by area-based conservation programmes, disaggregated by ecosystem type (dryland, high forests, mangroves, wetlands).</p> <p>Cross reference to 3.13</p> | <p>1. Proportion of sector budgets spent on soil conservation, forest and aquatic ecosystems conservation.</p> <p>2. Number of operational soil and water conservation programmes</p> <p>3. Number of operational forestry conservation programmes</p> <p>4. Number of marine/aquatic reserves created and properly managed to sustain production</p> <p>5. Number of fishing moratoriums operational.</p>   | <p>Although a range of sectoral indicators are feasible, it is difficult to select one as a PMS level indicator, as they do not directly relate to the link to poverty. The target also encompasses a wide range of different ecosystems potentially subject to conservation efforts, meaning disaggregation would be difficult (please refer to methodology sheet).</p> <p>There is potential for a large number of sector level input output level – within three relevant sectors. Those shown are examples only.</p>   |
| 3.13 Reduction in land degradation   | Increased livelihoods from  | 1. Number and area under JFM   | <b>a) Reduction in Land degradation</b>  | The MKUKUTA target encompasses   |

| MKUKUTA Targets   | Relevant Environment -Poverty Linkages   | PMS Level Indicator - how can target be measured  | Sectoral Level Indicators - how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators   |
|---|--|---|--|--|
| and loss of biodiversity  | <p>protection/sustainable management of resource base</p> <p>a) Minimising land degradation to protect source of livelihoods for poor and vulnerable people</p> <p>b) Well managed ecosystems provide for increased opportunities for livelihoods of the poor.</p> | <p>Programmes at district levels;</p> <p>2. Reduction in deforestation in areas prone to soil erosion.</p>  | <p>1. Reduction is disappearance of certain grass species crucial to grazing land productivity</p> <p>2. Percentage of the land area under soil erosion control</p> <p>3 Number of contingency plans and strategies prepared to deal with drought and floods</p> <p>4. Decreased use of fire in harvesting bee products and an increased use of appropriate technology for harvesting</p> <p><b>b)Reduction of Biodiversity Loss</b></p> <p>1. Reduction in loss of, or disappearance of, particular tree species</p> <p>2. Reduced rate of loss of indicator species (plants, animals, fish)</p> <p>3. Increased area of forest biodiversity under effective management</p> <p>4. Number of indicator animal species in particular habitats</p> <p>5. Distribution of indicator species</p> | <p>two separate issues: land degradation and biodiversity loss. Both issues encompass a broad collection of linked problems, for example land degradation may encompass over-grazing, deforestation, soil erosion, salinisation, desertification.</p> <p>Biodiversity cannot be reduced to one single indicator. Therefore some judgement has been applied in selecting the two indicators proposed here for the PMS-level, on the basis that they are of greatest relevance to poverty, either in contributing to poverty reduction (in the case of JFM programmes) or as an indicator of declining poverty (in the case of reduced land degradation). The methodology sheets provide further discussion.</p> <p>There is scope for a wide array of sector level indicators and the ultimate selection may depend on what can be easily measured.</p> |
| <b>Goal4 Adequate Social Protection and Rights of the Vulnerable and Needy Groups with Basic Needs and Services</b>                     |  |   |  |  |
| <b>Goal 4 D Access of Rural Population to Modern Energy Services</b>  |  |   |  |  |
| 4.7 Contribution of solar, wind, biomass and coal for electricity generation increased from the current 0.5% in 2003 to 3% by June 2010 | Improved health and well-being from increase in electricity generation from sustainable and cleaner sources  | <p>The percentage of Tanzania's electricity being generated by renewable sources (solar, wind, biomass, and mini hydro sources).</p> <p>The percentage of Tanzania's electricity being generated by non-renewable</p> | <p>1. Percentage of urban and rural households connected to electricity</p> <p>2. Rate of adoption of efficient energy saving technologies for different categories of energy users</p>  | <p>The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly.</p> <p>There is scope for sector level indicators which would contribute</p>   |

| MKUKUTA Targets  | Relevant Environment -Poverty Linkages   | PMS Level Indicator - how can target be measured   | Sectoral Level Indicators - how can sectoral targets be measured that contribute to PMS target?   | Comment on Proposed Indicators   |
|--|--|--|---|--|
|  |  | sources (coal, natural gas).<br><br>Please refer to indicators for Cluster I goals 5 and 6. where there are other actions on energy                          | 3. Proportion of population dependent on biomass energy   | to the overall PMS indicator   |
| 4.8 At least 10% of the population using alternative to wood fuels for cooking by 2010   | Reduced pressure on forests and tree cover that provide environmental services to local populations.<br><br>Lowered respiratory disease arising from indoor air pollution from wood fuels. | Percentage of households in rural and urban areas using alternative sources of energy to wood fuel (including charcoal) for cooking e.g. electricity or gas. | 1. Rate of adoption of efficient energy saving technologies for different categories of energy users.<br><br>2. Tonnes of charcoal estimated to reach urban markets.<br><br>3. Numbers of schools piloting biogas.  | The MKUKUTA target is clearly P-E focused. The PMS level indicator should reflect the target directly.   |
| <b>MKUKUTA Cluster III: Governance and Accountability</b>  |  |  |   |  |
| <b>Goal 1 Structures and systems of governance as well as the rule of law are democratic, participatory, representative, accountable and inclusive</b> |  |  |   |  |
| 1.1 Ensure representative, inclusive (poor and vulnerable groups) and accountable governance institutions operating at all levels                      | 1.1.4 / 1.1.5 Secure title to land will increase community investments in improved natural resources management  | 1 Improved legislation on land and natural resource utilization.<br><br>2. Land area used for NR management that is subject to tenure security..             | 1. Number of land titles and licenses issued by Ministry of Lands.<br><br>2. Percentage of land titles issued to the poor and vulnerable.<br><br>3. Percentage of land tiles given to villages.<br><br>4. Percentage of titles provided to women farmers.<br><br>5. Utilisation and recognition of such titles as security for loans and other development initiatives.<br><br>6. Number of environmental bye laws passed by districts. | PMS indicators reflect outcomes of cluster strategies. A checklist of desired legislative changes is required, in order that progress in putting the changes in place can be tracked.<br><br>Sector level indicators focus on measures to achieve cluster strategy with some relation to poverty-environment linkages. |
|  | 1.1.3 Effective village environment committees will lead to better management of NR for improved livelihoods of local communities  | 1. Establishment of functioning village and district environment committees.   | 1. Percentage of women and vulnerable groups represented in district or village environment committees  | Sector level indicator focuses on P-E element of strengthening local governance institutions.  |
| <b>Goal 2: Equitable allocation o public resources with corruption effectively addressed</b>   |  |  |   |  |

| MKUKUTA Targets  | Relevant Environment -Poverty Linkages  | PMS Level Indicator - how can target be measured  | Sectoral Level Indicators - how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators   |
|--|---|---|--|--|
| 2.1Public resources are allocated, accessible and used in an equitable, accountable and transparent manner | 2.1.1 Environment and other cross cutting issues mainstreamed across PERs and Budgets   | 1.Number of Ministries and Districts establishing effective environmental units                     | <p>1. Breakdown of budgets by environment and cross-cutting issues</p> <p>2. Interventions for environment and cross cutting issues included in PERs and budgets (in line with MoF budget codes and systems).</p> <p>3. Number of Ministries that have mainstreamed environment and cross-cutting issues across PER's and Budgets.</p> <p>4. Use of SBAS by MOF for environment expenditure breakdown.</p> | Sector indicators reflect P-E element of cluster strategy  |
|  | 2.1.3/ 2.1.6 Greater awareness of the public on environmental; management/ investment/ EMA, will increase transparency and engagement in sector     | [NONE PROPOSED]   | <p>1. Number of campaigns/ publications/ advertisements/meetings related to EMA per year.</p> <p>2. Proportion of budget used for public awareness on poverty-environment issues at district level.</p>  | Sector indicator reflects P-E element of cluster strategy  |
|  | 2.1.4/2.1.5 Misuse of public financial resources prevents equitable distribution of benefits from NR sectors (forestry; fishing; mining; wildlife). | [NONE PROPOSED]   | <p>1. Number of districts with clean audit certificates</p> <p>2. Number of district councils that publish their income and expenditure reports.</p> <p>3. Rate of public participation in the development planning processes.</p>   | PMS and sector indicators focus on reforms that would bring benefits to use of financial benefits of natural resources.              |
|  | 2.1.7 Equitable access to NR and environment will benefit the poor and vulnerable   | 1. The poor have equitable status in decision making about use of NR at village and district level. | [NONE PROPOSED]  | PMS level indicator reflects clear focus of cluster strategy on P-E issue, although some effort is required to define it in order to |

| MKUKUTA Targets   | Relevant Environment -Poverty Linkages  | PMS Level Indicator – how can target be measured  | Sectoral Level Indicators – how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators  |
|---|---|---|--|---|
|   |   |   |  | allow measurement (please refer to methodology sheet).  |
|   | 2.1.8 Strengthening routine data systems to reflect vulnerability issues  | [NONE PROPOSED]   | 1. Number of monitoring schemes which collect poverty/ environmental data  | Sector indicator reflects P-E element of broad cluster strategy   |
| <b>Goal 3 effective public service framework in place to provide foundation for service delivery improvements and poverty reduction</b> |   |   |  |   |
| 3.1 Administrative systems of public institutions are managed transparently and in the best interests of the people they serve          | 3.1.4 Inclusion of environment in M&E systems will improve knowledge base and awareness on environment and inform policy making and planning for interventions <sup>1</sup>                               | 1.Number of operational worker’s councils at workplaces<br>2. Mechanisms for participatory decision-making established and functioning at all levels  | 1. Percentage of functioning M&E in the MDAs and districts<br><br>2. Percentage % of sectors that have included environment in M&E systems   | PMS indicators reflect broad focus of cluster strategy. Sector indicators reflect P-E element of M&E systems  |
| <b>Goal 4 Rights of the Poor and Vulnerable are Protected and Promoted in the Justice System</b>  |   |   |  |   |
| 4.1 Ensure timely and appropriate justice for all especially the poor and vulnerable groups.  | 4.1.1/4.1.2 Poor and vulnerable groups impacted by environmental pollution or illegal use of their resources need mechanisms to be in place for them to seek redress/recourse through courts              | 1. Functioning legal mechanisms dealing with poverty-environment issues established at all levels in line with EMA.<br><br>2. Number of awareness-raising campaigns that inform poor and vulnerable groups of their rights.                                 | 1. Number of poverty-environment related cases concluded involving the poor and the vulnerable in the court system and in the village reconciliation committees (mabaraza ya usuluhishi vijijini).<br><br>2. Number of awareness raising workshop on EMA for judges and magistrates. | PMS and sector indicators reflect P-E element of overall justice system reform.<br><br>Overall, the ‘functioning legal mechanisms’ indicator could be a very practical indicator, offering the opportunity to transparently compare districts’ and government departments’ level of participatory decision-making. Dependent on a clear definition however (please refer to methodology sheet). |
|   | 4.1.3 Access to land title through review of customary, marriage, inheritance rights will increase investments in land and improve environmental management for the poor and vulnerable, especially women | 1. Proportion of poor and vulnerable households with legally-enshrined land titles.<br>(Cross reference to Target 4.1.1)<br><br>2. Functioning mechanisms to empower the poor and the vulnerable, especially women, to understand and exercise their rights | 1. Number of title deeds allocated to the poor and vulnerable<br>2. Functioning mechanisms to empower the poor and the vulnerable to understand and exercise their rights over land and other resources established  | PMS and sector indicators reflect P-E element of overall laws and gender reform.<br><br>Methodology sheets discuss issues of defining the indicators. For example the ‘functioning mechanisms’ indicator requires that these mechanisms are defined.  |

(2) <sup>1</sup> Applies to other cross cutting sectors as well as environment

| MKUKUTA Targets   | Relevant Environment -Poverty Linkages  | PMS Level Indicator - how can target be measured | Sectoral Level Indicators - how can sectoral targets be measured that contribute to PMS target?  | Comment on Proposed Indicators  |
|---|---|--|--|---|
|   |   | over land and other resources established.       |  |   |
| <b>Goal 5 reduction of political and social exclusion and intolerance</b>   |   |  |  |   |
| 5.1 Develop political and social systems and institutions which allow for full participation of all citizens including the poor and vulnerable groups | 5.1.1 Inclusion of vulnerable group in decision-making enhances their ability to manage natural resources sustainably, and demand improved services related to water or other environmental issues. | [NONE PROPOSED]                                  | 1. Functioning mechanism for inclusion of vulnerable groups established at district level.<br><br>2. Affirmative action programmes for vulnerable groups established at all levels.<br><br>3. Number of awareness raising campaigns on social tolerance conducted per year | Sector level indicator focuses on specific issue within broader cluster strategy. |
| <b>Goal 7 National Cultural Identities enhanced and promoted</b>  |   |  |  |   |
| 7.1 Policies, strategies and legal frameworks for cultural and moral development are in place and operational   | 7.1.2 Poor and vulnerable groups aware and appreciative of links between environmental resources and areas of national cultural heritage  | [NONE PROPOSED]                                  | Cross reference to 5.1.1   | Cross reference to 5.1.1  |

**Table 3.2** *Relation to MDGs*

| <b>MDG Goal / Target</b>   | <b>PMS-level indicators with relation to this goal or target</b>   |
|--|--|
| <b>Goal 1 Eradicate extreme poverty and hunger</b>   |  |
| Target 1: Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day   | The following indicators are related to this target, but concern % of income rather than absolute income: (i) the percentage of household income in rural areas derived from the sustainable processing and marketing of natural resource products, (ii) The percentage of household income in rural areas derived from non-NR-based activities, (iii) The percentage of rural income derived from activities related to wildlife (conservation, tourism, and hunting), forestry (harvesting forestry products for consumption and trade) and fisheries. |
| Target 2: Halve, between 1990 and 2015, the proportion of people who suffer from hunger  | Indirect relation, as the achievement of the proposed poverty-environment indicators will reduce poverty and hunger.   |
| <b>Goal 2 Achieve universal primary education</b>  |  |
| Target 3: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling           | No direct relation.  |
| <b>Goal 3 Promote gender equality and empower women</b>  |  |
| Target 4: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015   | No direct relation.  |
| <b>Goal 4 Reduce child mortality</b>   | Indicators related to water and sanitation are directly related to these goals and targets (listed below under Target 10).   |
| Target 5: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate   |  |
| <b>Goal 5 Improve maternal health</b>  |  |
| Target 6: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio  |  |
| <b>Goal 6 Combat HIV/AIDS, malaria, and other diseases</b>   |  |
| Target 7: Have halted by 2015 and begun to reverse the spread of HIV/AIDS  | None   |
| Target 8: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases   | Indicators related to pollution-levels are linked indirectly to this. The incidence of cholera is also proposed as a PMS-level indicator.  |
| <b>Goal 7 Ensure environmental sustainability</b>  | All of the indicators are relevant to this MDG.  |
| Target 9: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources | All the indicators are relevant to this target, and many specifically concern the reversal of the loss of environmental resources. The following proposed PMS-level indicators are most closely related to the integration of the principles of sustainable development: (i) number of districts that have mainstreamed environmental issues in their plans, (ii) establishment of functioning village and district environment committees,  |

|  |   |
|--|---|
|  | and (iii) number of Ministries and Districts establishing effective environmental units.  |
| Target 10: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation | The following indicators have a direct relation to this target: (i) the percentage of households able to fetch clean and safe water in under 30 minutes from a protected source, (ii) the percentage of urban households with access to piped or protected water as their main drinking water source, (iii) the percentage of households in urban areas connected to a sewerage facility, and (iv) percentage of households with access to basic sanitation facilities. |
| Target 11: Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers              | The percentage of households located in unplanned settlements and slums that lack adequate basic essential utilities (water, sanitation, and waste disposal).   |
| <b>Goal 8 Develop a global partnership for development</b>   | None.   |

A range of steps will now be taken to move the proposed indicators towards their inclusion in the PMS, and their use in monitoring the impact of the MKUKUTA on poverty-environment linkages.

Detailed steps will be required as part of 4.2, 4.3 and 4.4. Although these steps are currently implicit in each methodology sheet, it would be premature to list them here prior to the first step, selection of the core set of indicators.

#### 4.1

##### *SELECTION OF A CORE SET*

*A 'core set' of indicators will be selected to be included in the revised PMS.*

A total of thirty PMS-level indicators are proposed above. This is likely to be too many to include in the PMS.<sup>(1)</sup> Therefore the VPO in consultation with its partners will select a core set for inclusion, on the basis of the appraisals of the proposed 30 indicators set out in the methodology sheets. The core set proposed by the project team on this basis is provided in *Box 4.1*. This core set has been selected by the team based on the appraisals of the indicators detailed in each methodology sheet, as well as the intention to include one, and only one, indicator for each MKUKUTA goal relevant to poverty-environment linkages. The remaining indicators and sectoral indicators would be available for monitoring the Medium Term Expenditure Framework (MTEF) or sector monitoring and evaluation, according to the guidelines set out in the PMS review.

(1) Between 6 and 10 was originally envisaged at the outset of the study.

- 
1. Proportion of EIAs / SEAs which NEMC judges to have successfully resulted in avoided or mitigated negative impacts (Cluster I / Goal 2)
  - \*2. The percentage of household income in rural areas derived from the sustainable processing and marketing of natural resource products (Cluster I / Goal 4)
  - \*3. The percentage of households able to fetch clean and safe water in under 30 minutes (go, collect, return) from a protected source (Cluster II / Goal 3A)
  - \*4. Percentage of households with access to basic sanitation facilities (Cluster II / Goal 3B)
  - \*5. Percentage of clean water bodies – based on the Tanzania temporary water standards of 1974 (Cluster II / Goal 3C)
  - \*6. Percentage of population living in areas of high risk of environmental disaster (flood, landslides, droughts, food shortages) (Cluster II / Goal 3E)
  - \*7. Percentage of households in rural and urban areas using alternative sources of energy to woodfuel, for cooking (Cluster II / Goal 4D)
  - \*8. Land area used for NR management that is subject to tenure security (Cluster III / Goal 1)
  9. Number of Ministries and Districts establishing effective environmental units (Cluster III / Goal 2)
  - \*10. Mechanisms for participatory decision-making established and functioning at all levels (Cluster III / Goal 3)
  - \*11. Proportion of poor and vulnerable households with legally-enshrined land titles (Cluster III / Goal 4)

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\* Potential to be presented on maps.

## 4.2

### *CONSTRUCTING THE CORE SET ON INDICATORS*

*Data will be assembled and presented in tables and graphically.*

Where data is already available for the proposed PMS-level indicators, baseline data is provided in the methodology sheets. However, a far more significant effort is required to compile the data, where available, for the selected core set, and to ‘construct’ each indicator in terms of tables showing district-by-district and national figures, and displaying the data graphically. The process of constructing the indicators in this manner will provide final confirmation or otherwise of the feasibility of the proposed indicator, and will provide the comprehensive baseline for each indicator.

## 4.3

### *FILLING THE DATA GAPS*

*Routine and periodic surveys will be amended to provide the data required for indicators for which data is currently not available.*

Data sources for the PMS level indicators are described in the methodology sheets in *Annex C*. The sheets also highlight potential data gaps that need to be

filled if the indicator is included in the PMS and the baseline is to be determined. The table includes detailed proposals for amendments or new additions to the existing data collections systems in order to strengthen the data capture relevant for monitoring the poverty-environment indicators. In addition, we recognise that the routine data surveys are undergoing a review with the aim of strengthening the collection, storage and accessibility of routinely-collected data.

#### 4.4 *FINALISE THE METHODOLOGY SHEETS*

*Each methodology sheet for the core set of indicators will be finalised to provide the final 'official' method for the calculation of the indicator.*

Repeatable, objective methods for the compilation of each indicator from the raw datasets must be officially agreed.

#### 4.5 *AGREE WHETHER TO DEVELOP A GIS DATABASE TO MAP P-E INDICATOR DATASETS*

*VPO and its partners will agree whether the establishment of a GIS database is required.*

A GIS database would have the potential of presenting the status of P-E indicators using maps. The literature review notes a growing consensus on the value of using geographical information systems (GIS) to map both poverty and environment indicators. This allows data to be presented in an easily assimilated form that highlights the spatial nature of many of the environmental challenges that have to be addressed for sustainable poverty reduction. Tanzania included poverty mapping in the 1999 PRSP, and TSED allows the presentation of data within a mapping framework. The TANRIC (Tanzania Resource Information Centre) database held at the Institute of Resource Assessment has the capacity to present environmental information using a GIS database but is dependent on project funding to compile and present the data.

There are a number of remote sensing data systems operating in Tanzania, and it is probable that the Bureau of Meteorology will receive satellite vegetation mapping from the South African Weather Bureau. The use of these resources as a way of monitoring land use changes, vegetative cover, environmental degradation and the incidence of extreme weather conditions for example may be worth exploring as a means of presenting information clearly.

Indicators of the proposed core set that would be presentable on maps are indicated in *Box 4.1* above. This shows that all the proposed core indicators are amenable to spatial presentation, except two, respectively concerning EIAs / SEAs, and the establishment of environmental units.

#### 4.6 **AGREE A MEANS OF REGULARLY PRESENTING AND ANALYSING THE INDICATORS**

*VPO and its partners in the Dissemination, Sensitisation and Advocacy Working Group of the PMS will agree a strategy for the dissemination of poverty-environment indicator information (eg. via annual reporting, headline indicators, newsletters or bulletins).*

There may not be a requirement any means of dissemination over and above the reports to be produced from the PMS. However, should additional dissemination be required, VPO will agree its form, and regularity, and responsibilities for its production. A consideration within this is whether GIS and mapping are desirable in presenting the information as it emerges (please refer to *Annex J* for proposals concerning an environmental monitoring system).

#### 4.7 **CONFIRM ROLES AND RESPONSIBILITIES AND STRENGTHEN TECHNICAL CAPACITY**

*VPO will confirm roles and responsibilities for data collection and compilation of the indicators, and will seek support to strengthen the required technical capacity.*

Capacity for data collection and understanding of poverty-environment linkages is weak, especially at local levels. In combination with the confirmation of roles and responsibilities in the collection, compilation and dissemination of the indicators, VPO will seek additional support to develop technical capacity through improved equipment, and training.

#### **Box 4.2** *Capacity-building requirements*

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During consultations the project team noted several weaknesses in capacity among the organisations consulted. This included low knowledge on the linkages between poverty and environment, inadequate institutional capacity and manpower for monitoring, and a general absence of monitoring programmes. Growing gap between capacity at district levels and the central level. At central levels, donor supported programmes, tend to include a monitoring component.

A needs assessment is required that would identify gaps in skills, knowledge and manpower capacities at different levels and design programmes that target these gaps, while continuing to strengthen the areas that are already being tackled. There may be an opportunity to link the need for capacity building for poverty-environment monitoring with the capacity building programme for the Environmental Management Act that is currently being developed under by VPO with DANIDA, UNDP and World Bank support, and WWF involvement. Key agencies to support would include (i) PMS Secretariat, (ii) VPO, and (iii) NEMC. A Training of Trainers (ToT) programme would enable NEMC staff to train others ministries and some districts.

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Annex A

## Terms of Reference

## ***Terms of Reference***

### **DEVELOPMENT OF POVERTY ENVIRONMENT INDICATORS IN TANZANIA**

#### **1 - Objective**

The overall aim of this study is to develop a set of indicators linking poverty and environment in Tanzania that can be used to understand poverty - environment interactions and to monitor poverty reduction that results from environmental changes. Specific objectives of the study are:

- A. To assess and determine the different use of poverty -environment indicators from local to national levels.
- B. To identify existing data collection systems and surveys producing, or with the potential to provide poverty-environment indicators.
- C. To propose a core set of poverty -environment indicators for use by the poverty monitoring systems and local level planning.
- D. To build national capacity on development and use of poverty -environment indicators.

#### **2 Specific tasks**

##### **A. Clarification on the use and purpose of poverty -environment indicators at national and local levels**

It will be very important to clearly define the different uses and purposes of poverty-environment indicators. There will be a range of potential uses from strengthening poverty monitoring, ensuring sectoral programmes in natural resource and environment areas are also focused on achieving poverty reduction, for use in planning at local (district and village) levels. The consultants are expected to identify and clarify these potential roles with key stakeholders through interviews, workshops and analytical work.

##### **B. Review of international and regional research on poverty -environment indicators**

A number of other initiatives are developing and researching on poverty -environment indicators (e.g. Poverty Environment Initiative of UNDP. Indicator sets have been developed for other countries (e.g. Uganda). The consultants will be expected to identify these initiatives and examine the experience of countries actually using these indicators for poverty monitoring and implementation of sectoral programmes.

##### **C. Identification of existing environment indicators and linkages to poverty**

Presently data on the environment and natural resources is being collected through routine data collection systems and periodic surveys of different sectors and agencies. This will include but is not restricted to the following sectors/agencies: DOE, NEMC, MNRT (Forests, Fisheries, and Wildlife), MAFS, MoWLD, MEM, PORALG and Bureau of Meteorology. The consultants will be expected to review these systems and report on the environment data being collected, the frequency of this collection, an overall assessment of data quality and reliability, and identification of the links of these indicators to poverty. This review will be undertaken through interviews with stakeholders, workshops of key stakeholders, and review of existing data collection systems and archives, e.g. TANRIC system of the Institute for Resource Assessment (IRA). In several sectors (e.g. agriculture and forestry) there are initiatives in establishing Monitoring and Evaluation systems, as part of these there are on-going consultancies or technical assistance, the consultants for this study are expected to work closely with these and to ensure the outputs of these studies are used in the development of poverty -environment indicators for the poverty monitoring system. In addition, a desktop review should be undertaken of remote sensing collection of environment data undertaken by regional and international agencies available to Tanzania.

##### **D. Analysis of existing PMS and PRBS/PRSC indicator sets for relevant poverty -environment indicators**

The original indicator set for PMS and the revised indicators for monitoring the performance of PRSC/PRBS are to be reviewed. This is to identify existing poverty -environment indicators and assess them against a set of criteria based on the usefulness, practicality and reliability of data, and demonstrated linkages to poverty.

##### **E. Analysis surveys and assessments for data to monitor poverty -environment indicators**

Under the Poverty Monitoring Master Plan a number of surveys and censuses have been planned. Two of these have been completed namely the Household Budget Survey (HBS) in 2001 and the National Census in 2002. An agricultural survey is scheduled for November 2003, an HIV/AIDS survey in December 2003 and DHS for April 2004. For these surveys, particularly the HBS and the Agricultural

Survey, the consultants should analyse the data to determine what poverty environment indicators these already, or are likely to, provide. Further, a participatory poverty assessment (PPA) focusing on vulnerability has been undertaken and the draft report released in October 2003, with thematic papers including one on the environment to follow. The products of the PPA should be analysed to determine any environmental criteria or indicators the poor use in relation poverty and vulnerability.

F. Development of core poverty-environment indicators

The results of the outputs of the above tasks should be used to develop an initial set of core poverty - environment indicators to be used for poverty monitoring in Tanzania. These indicator sets should be developed in close collaboration with key stakeholders (collectors and users), and finalised after a stakeholder workshop.

G. Testing of indicators, establishment of baselines and identification of data gaps

Following the identification of the core set of poverty -environment indicators the consultants should work with VPO and sectoral stakeholders to provide baseline data for the indicators for possible inclusion in the Poverty and Human Development Report (PHDR) for 2004. In undertaking this the consultants should identify data and collection gaps and give recommendations on how to fill the gaps and further refinement of the core set of poverty -environment indicators.

**3 - Expected outputs & Timing**

- A. Inception report on the approach and methodology to be used and detailed work plan (within four weeks of signing of contract).
- B. Report on detailing the options for the purpose and use of poverty -environment indicators in Tanzania at local and national levels. This report would include: the documentation of existing routine and periodic collection of environment and natural resource data in Tanzania, and linkages of this data to poverty; and, a literature review of international and regional experience on the development and use of poverty - environment indicators. (Report should be available within three months of signing of contract).
- C. Report with recommendations on core set of poverty indicators. (Report should be available within six months of signing of contract).
- D. Final report on poverty-environment indicators in Tanzania but this will include the core set of poverty-environment indicators and baseline levels, and identification of gaps and needs for future work. (Report should be available within eight months of signing of contract).

The consultants are expected to complete the study within a eight-month period commencing in March 2003

**4 - Consultant qualifications and profile**

It is expected that a team of consultants will be needed for this study combining international and Tanzanian experts. The team should include expertise covering the following areas: experience in the development and monitoring of environment and natural resource indicators; experience in the collection of environment and natural resource data in Tanzania; experience in poverty analysis with a sound understanding of poverty in Tanzania; knowledge of the poverty monitoring system and implementation of the PRSP; experience of local level planning; and, ideally wide sectoral experience (agriculture and livestock, forestry, fisheries, wildlife, water and sanitation, energy, pollution and waste management).

**5 - Selection of consultants and contracting**

Interested parties are invited to submit technical and financial proposals for the assignment. These will include a presentation of the institution and its experience in the field and in Tanzania/East Africa, include CVs of consultants, comment on these terms of reference, specify the outline of the approach to be taken, the number of person days required, an outline work plan and budget for the provision of these services, including fees, travel costs and per diem costs. Costs of workshops and seminars should not be included, as these will under the overall URT/UNDP programme on integrating environment into the PRS process. The consultants will be selected by VPO and UNDP and will be contracted by UNDP Tanzania through the URT/UNDP programme.

Proposals should be received by 13<sup>th</sup> February 2004 at :

UNDP Resident Representative, P.O. Box 9182, Dar es Salaam, Tanzania  
Tel +255 22 2112799, Fax +255 22 2118073, Email: [registry.tz@undp.org](mailto:registry.tz@undp.org)  
Ref: Poverty – Environment Indicators

A full version of these ToR can be found at UNDP Tanzania's homepages: [www.tz.undp.org](http://www.tz.undp.org)

Annex B

## List of Stakeholders Consulted

*List of stakeholders consulted or who participated in the workshops*

| <b>Name of Contact</b>            | <b>Organisation</b>   |
|-----------------------------------|---|
| Mr. Salum Ramadhani               | Agricultural Sector Development Program   |
| Mr. I. Ugullumu                   | CARE  |
| Dr. Dawn Hartley                  | CARE Tanzania-Eastern ARC   |
| Mr. Vincent Gerald Vyamana Kavura | CARE  |
| Mr. Sosthenes Paul Rwamugira      | Eastern Arc Forest Management Project   |
| Dr. Kassim Kulindwa               | ERB, UDSM   |
| Mr. Tom Bromley                   | Forest and Beekeeping Division, MNRT  |
| Mr. Kellen S. Mngoya              | Habitat Forum Tanzania, Dar es Salaam   |
| Mr. G.M. Mibavu                   | Ministry of Agriculture and Food Security (MAFS)  |
| Mr. Simon S. Mpaki                | Ministry of Agriculture and Food Security (MAFS)  |
| Mr. Sanzeh A. Ntinkwa             | Ministry of Energy and Minerals, Dar es Salaam (MEM)  |
| Mr. Paul Morris Kiwele            | Ministry of Energy and Minerals, Dar es Salaam (MEM)  |
| Mr. Fadhili E. Kileo              | Ministry of Energy and Minerals, Dar es Salaam (MEM)  |
| Ms. Elizabeth Msengi              | Ministry of Industries and Trade, Dar es Salaam   |
| Mr. Paskasi D. Mwiru              | Ministry of Natural Resources and Tourism   |
| Mr. Benson Obdiel Kibonde         | Ministry of Natural Resources and Tourism   |
| Mr. Joseph Mchau                  | Morogoro Regional Secretariat   |
| Dr. Fadhila H. Khatibu            | National Environment Management Council (NEMC)  |
| Mr. Arnold Mapinduzi              | National Environment Management Council (NEMC)  |
| Dr. Magnus A.K. Ngoile            | National Environment Management Council (NEMC)  |
| Mr. Ruzika N. Muheto              | National Environment Management Council (NEMC)  |
| Mr. Cletus P.B. Mkai              | National Bureau of Statistics and member of Technical Working Group on Census and Surveys and the Technical Working Group on Research and Analysis. |
| Ms. Jane Mwangi                   | National Bureau of Statistics and member of Dissemination Sensitisation and Advocacy Technical Working Group  |
| Mr. Omari Juma                    | President's Office Planning and Privatisation (POPP)  |
| Dr. S. Likwelile                  | Poverty Eradication Division  |
| Mr. Paschal Assey                 | Assistant Director, Poverty Eradication Division and member of Dissemination Sensitisation and Advocacy Technical Working Group                     |
| Mr. G.W. Kikwasha                 | Regional Commissioner's Office, Morogoro  |
| Mr. Rogers E. Malimbwi            | Sokoine University of Agriculture   |
| Mr. Zoe Wildig                    | United Nations Development Programme (UNDP), Tanzania   |
| Pim Van Der Male                  | United Nations Development Programme (UNDP)   |
| Olney Daley                       | United Nations Development Programme (UNDP)   |
| Ms. Gemma Aliti                   | United Nations Development Programme (UNDP)   |
| Mr. Lucas Katera,                 | REPOA   |
| Mr. Francisco Roquette            | University of Cambridge, UK   |
| Dr. Aldo Lupala                   | UNCLAS, Dar es Salaam   |
| Mr. Cletus Shengena               | Vice President's Office / DoE   |
| Mrs. Blandina Cheche              | Vice President's Office   |
| Dr. L. Rutasitara                 | Vice President's Office, Poverty Eradication Division (VPO/PED)   |
| Mr. Charles Ehrhart               | Vice President's Office, Poverty Eradication Division (VPO/PED)   |
| Mr. David Howlett                 | Vice President's Office, Poverty Eradication Division (VPO/PED)   |
| Mr Shengena                       | Vice President's Office, Division of Environment  |
| R.S. Muyungi                      | Vice President's Office, Division of Environment  |
| E.K. Mugurusi                     | Vice President's Office, Division of Environment  |
| Anna Mwashia                      | Acting Director, Division of Poverty and Chair Dissemination Sensitisation and Advocacy Technical Working Group                                     |

| <b>Name of Contact</b>                | <b>Organisation</b>                       |
|---------------------------------------|---|
| Mr. Lota Melamari, Mr. Shakim Mhagama | Wildlife Conservation Society of Tanzania |
| Mr. Donasiani O. Shayo                | Wildlife Division                         |

### *List of Ministries/ Agencies and other Organisations Consulted*

| <b>Organisation</b>  |
|--|
| African Wildlife Foundation (AWF)  |
| CARE Tanzania  |
| Dodoma Municipality (Departments visited: Planning, Fire, Valuation, WAMMA Coordinator, Health, Water, Natural Resources)  |
| Forest and Beekeeping Division, MNRT   |
| Frontier Tanzania (NGO)  |
| GTZ Project (Community Wildlife Management)  |
| Habitat Forum Tanzania, Dar es Salaam  |
| Ileje District Council   |
| Iringa Municipality  |
| Kinondoni Municipality   |
| Mbozi District Council   |
| Mikindani Town Council, Mtwara Urban   |
| Ministry of Agriculture and Food Security (MAFS)   |
| Ministry of Communications and Transport (MC&T)  |
| Ministry of Energy and Minerals, Dar es Salaam (MEM)   |
| Ministry of Land and Human Settlements (Land Use Planning Department)  |
| Ministry of Natural Resources and Tourism  |
| Morogoro Municipality  |
| National Environment Management Council (NEMC)   |
| National Bureau of Statistics  |
| NCAA-Ngorongoro  |
| President's Office Planning and Privatisation (POPP)   |
| President's Office, Local Government Reform Programme (PO-RALG)  |
| Sokoine University of Agriculture  |
| United Nations Development Programme (UNDP), Tanzania  |
| REPOA  |
| Singida Rural (Departments visited: Agriculture and Livestock, Planning, Natural Resources, Trade, Resources). Trade, Cooperatives, Education, Health                |
| Singida Urban (Departments visited: Health, Urban Planning and Environment Education, Works, Planning, Agriculture and Livestock Development, Community Development) |
| Sokoine University of Agriculture - Centre for Sustainable Rural Development   |
| Sustainable Cities-Dar es Salaam   |
| Tandahimba District council, Mtwara  |
| Tanzania Fisheries Research Institute (TAFIRI )  |
| UNCLAS, Dar es Salaam  |
| Vice President's Office, Division of Environment   |
| Vice President's Office, Poverty Eradication Division (VPO/PED)  |
| Water Aid  |
| Wildlife Conservation Society of Tanzania  |
| Wildlife Division  |

Annex C

## Methodology sheets

## Proportion of EIAs / SEAs which NEMC judges to have successfully resulted in avoided or mitigated negative impacts

|   |  |
|---|--|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster I; Goal 2; Target 2.9</p>   | <p><b>Definition</b><br/>Proportion of EIAs / SEAs which NEMC judges to have successfully resulted in avoiding or mitigating negative impacts, (ie absolute number of EIAs / SEAs divided by the total number of EIAs / SEAs).</p> <p>Alternative: Proportion of recommendations in EIAs and SEAs received by NEMC that have been implemented within one year of the schedule recommended in the EIA/SEA (as a proportion of the total number of recommendations).</p> |
| <p><b>Relevance to MDGs</b><br/>Not similar to any MDG. However this indicator is relevant to Goal 7 (Ensure Environmental Sustainability) / Target 9 (Integrate principles of sustainable development into country policies and programmes and reverse the loss of environmental resources). Improving levels of the indicator should correlate with improvements in MDGs goals 1-6, as negative impacts of growth will be reduced.</p>  | <p><b>Interpretation</b><br/>Intended to indicate the level of negative impacts of developments on the environment and poor people's livelihoods. However the meaning of the first option above would depend on the exact recommendations made in EIAs and SEAs. The latter option may be simpler to interpret, but depends on a judgement being made on whether the EIA or SEA has successfully resulted in reduced negative impacts.</p>                             |
| <p><b>Target</b><br/>Not set</p>  | <p><b>Baseline</b><br/>Not available</p>   |
| <p><b>Sources</b><br/>No data is yet systematically recorded, but DoE, NEMC and PO-RALG will be responsible for preparing this data, in line with the Environmental Management Act, 2004.</p>   | <p><b>Responsible agency</b><br/>DoE, NEMC, PO-RALG</p>  |
| <p><b>Time lag in reporting</b><br/>-</p>   | <p><b>Frequency of collection</b><br/>-</p>  |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator requires defining carefully in order to avoid subjectivity over judging whether a recommendation has been implemented or not. However, with a clear definition, it could be sufficiently objective.</li> <li>• <i>Simplicity:</i> Not difficult to calculate.</li> <li>• <i>Meaning:</i> Easy to interpret. A low proportion of recommendations implemented or of EIAs/SEAs failing to deliver reduced impacts suggests that adverse impacts on the environment and people's livelihoods are continuing.</li> <li>• <i>Sensitivity:</i> High sensitivity, and can be regularly calculated.</li> <li>• <i>Aggregation:</i> Could also easily be disaggregated by region and district according to the location of the development.</li> <li>• <i>Data:</i> Data not yet available. However, it could be straightforward for NEMC to gather the data.</li> <li>• <i>Practicality:</i> This would be simple and low cost.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>No direct relevance to gender or HIV/AIDS.</p>   |  |

**Additional comments**

An attractive indicator, simple and with low cost. With a clear definition, its meaning could be easily interpreted. However, agreement on exactly how to calculate the indicator is required.

Currently there is not much monitoring and evaluation going on in this area. However, under the new Environment Management Act of 2004 this is supposed to change. Based on consultations with the DoE, NEMC and PO-ARLG, they will be responsible for collecting data on this indicator. The EMA envisages the establishment of District and Regional Environment Officers under PO-RALG.

## Proportion of environmental audits resulting in successfully implemented recommendations

|   |  |
|---|--|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster I; Goal 2; Target 2.9</p>   | <p><b>Definition</b><br/>Absolute number of environmental audits that have made recommendations that NEMC judged to have been successfully implemented, divided by the total number of environmental audits conducted.</p>   |
| <p><b>Relevance to MDGs</b><br/>Not similar to any MDG. However this indicator is relevant to Goal 7 (Ensure Environmental Sustainability) / Target 9 (Integrate principles of sustainable development into country policies and programmes and reverse the loss of environmental resources). Improving levels of the indicator should correlate with improvements in MDGs goals 1-6, as negative impacts of growth will be reduced.</p>  | <p><b>Interpretation</b><br/>Intended to indicate the level of negative impacts of developments on the environment and poor people's livelihoods. This indicator would be simple to interpret, but depends on a judgement being made on whether the recommendations of each environmental audit have been implemented.</p> |
| <p><b>Target</b><br/>Not set</p>  | <p><b>Baseline</b><br/>Not available</p>   |
| <p><b>Sources</b><br/>No data is yet systematically recorded, but DoE, NEMC and PO-RALG will be responsible for preparing this data, in line with the Environmental Management Act, 2004.</p>   | <p><b>Responsible agency</b><br/>DoE, NEMC, PO-RALG</p>  |
| <p><b>Time lag in reporting</b><br/>-</p>   | <p><b>Frequency of collection</b><br/>-</p>  |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator requires defining carefully in order to avoid subjectivity over judging whether a recommendation has been implemented or not. However, with a clear definition, it could be sufficiently objective.</li> <li>• <i>Simplicity:</i> Not difficult to calculate.</li> <li>• <i>Meaning:</i> Easy to interpret. A low proportion suggests that adverse impacts on the environment and people's livelihoods are continuing.</li> <li>• <i>Sensitivity:</i> High sensitivity, and can be regularly calculated.</li> <li>• <i>Aggregation:</i> Could also easily be disaggregated by region and district according to the location of the development.</li> <li>• <i>Data:</i> Data not yet available. However, it could be straightforward for NEMC to gather the data.</li> <li>• <i>Practicality:</i> This would be simple and low cost.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>No direct relevance to gender or HIV/AIDS.</p>   |  |
| <p><b>Additional comments</b><br/>An attractive indicator, simple and with low cost. With a clear definition, its meaning could be easily interpreted. However, agreement on exactly how to calculate the indicator is required.</p> <p>A further risk to the meaning of the indicator is the prevalence of environmental audits. If audits are carried out more so in some regions, or sectors, or industries than others, ie if coverage of audits is patchy, the usefulness of the indicator in measuring this MKUKUTA target would be weak.</p>   |  |

## Number of districts that have mainstreamed environmental issues in their plans

|  |  |
|--|--|
| <b>MKUKUTA related goals</b><br>MKUKUTA Cluster I; Goal 2; Target 2.9  | <b>Definition</b><br>Simply the number of districts that are judged by DoE or NEMC to have mainstreamed environmental issues into their plans.   |
| <b>Relevance to MDGs</b><br>Similar to MDG 7 (Ensure Environmental Sustainability) / Target 9 (Integrate principles of sustainable development into country policies and programmes and reverse the loss of environmental resources).  | <b>Interpretation</b><br>Intended to indicate the level of negative impacts of developments on the environment and poor people's livelihoods. This is a straightforward indicator of activities at district levels towards this. However, its meaning very heavily depends on a judgement about whether environment has been mainstreamed into plans or not. |
| <b>Target</b><br>Not set.  | <b>Baseline</b><br>Not available   |
| <b>Sources</b><br>No data is yet systematically recorded.  | <b>Responsible agency</b><br>DoE, NEMC, PO-RALG  |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>-  |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The requirement for a judgement on whether environment has been mainstreamed or not makes this indicator very subjective.</li> <li>• <i>Simplicity:</i> Not difficult to calculate.</li> <li>• <i>Meaning:</i> Easy to interpret. A low number suggests that districts are failing to mainstream environment, implying that there are continuing threats of adverse impacts on the environment and poor people's livelihoods.</li> <li>• <i>Sensitivity:</i> High sensitivity, and can be regularly calculated.</li> <li>• <i>Aggregation:</i> Could also easily be disaggregated by region.</li> <li>• <i>Data:</i> Data not yet available. However, it could be straightforward for NEMC to prepare the data.</li> <li>• <i>Practicality:</i> This would be simple and low cost.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b><br>No direct relevance to gender or HIV/AIDS.  |  |
| <b>Additional comments</b><br>An attractive indicator, but with the basic flaw in subjectivity. This would invalidate comparison's over time. It also fails to detect the quality of mainstreaming. It would even be difficult to define the minimum standard of mainstreaming above which a plan is judged to have successfully mainstreamed environment.<br><br>The value of the indicator is also lowered since it concerns only 'paper' commitments, rather than tangible results or impacts.  |  |

## The percentage of household income in rural areas derived from the sustainable processing and marketing of natural resource products

|  |  |
|--|--|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster I; Goal 4; Target 4.4</p>  | <p><b>Definition</b><br/>Income from sustainable processing and marketing of non-NR products, divided by total income, averaged across all households surveyed in the Household Budget Survey.</p>   |
| <p><b>Relevance to MDGs</b><br/>Not similar to any MDG. However a positive trend in this indicator would contribute to a positive trend in MDG 1 / Target 1 to halve the proportion of people whose income is less than \$1 a day.</p>   | <p><b>Interpretation</b><br/>A positive trend in this indicator would show that incomes from NR use are rising without compromising sustainability. Interpretation is therefore clear: a positive trend indicates progress in reducing poverty on a sustainable basis.</p> |
| <p><b>Target</b><br/>Not set</p>   | <p><b>Baseline</b><br/>Not available</p>   |
| <p><b>Sources</b><br/>The Household Budget Survey is a potential source, but requires amending if data on incomes from these sources are to be collected (see below).</p>  | <p><b>Responsible agency</b><br/>National Bureau of Statistics</p>   |
| <p><b>Time lag in reporting</b><br/>Not significant</p>  | <p><b>Frequency of collection</b><br/>Every five years</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring and is based on the HBS data</li> <li>• <i>Simplicity:</i> Not difficult to calculate</li> <li>• <i>Meaning:</i> Easy to interpret. A positive trend indicates progress in reducing income poverty on a sustainable basis. It will however, be essential to define objectively what is meant by 'sustainable'.</li> <li>• <i>Sensitivity:</i> Good, although the infrequency of the HBS lowers sensitivity.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, rural and urban levels and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Data not yet available. However, there is potential to adapt the HBS in order to gather the required data every five years. HBS currently collects data on cash and in-kind income from employment, self-employment, rental income, remittances, gifts, and other off-farm or natural resource-based income.</li> <li>• <i>Practicality:</i> A simple amendment to the HBS would allow for practical, low cost collection.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>No direct relevance to HIV/AIDS. Potential of disaggregating data according to female- and male-headed households.</p>  |  |

**Additional comments**

An attractive indicator, owing to the ease of interpreting its meaning, but limited by data availability, and the definition of 'sustainable'. With a clear definition of sustainable, the survey module on income in the HBS could be adapted to capture income from these sources.

The Household Budget Survey collects detailed information on household sources of cash income. At present, this includes data on income from employment and self-employment (non-farm income), including payment in kind. It distinguishes and breaks down income derived from agricultural sources and includes the value of household consumption of home-produced items. It also includes information on transfers received. However, it does not, as yet, allow for data on income from sustainable processing and marketing of natural resource products.

As a first step, the natural resource-based sectors e.g. wildlife, tourism, mining, fisheries and forestry plus others like agro-processing, manufacturing, trading and business need to define sustainable development and sustainable use, as elaborated in the Environment Policy and the Environmental Management Act. Once the definition is clear, the survey module on income could be adapted to capture income from these sources. However, in separating income from these sources, care must be taken so as to avoid double counting income.

The Agricultural Survey currently does not collect data on household income.

## The percentage of household income in rural areas derived from non-NR-based activities

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|---|--|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster I; Goal 4; Target 4.4</p>   | <p><b>Definition</b><br/>Income from non-NR based activities, divided by total income, averaged across all households surveyed in the Household Budget Survey.</p>   |
| <p><b>Relevance to MDGs</b><br/>Not similar to any MDG. However a positive trend in this indicator would contribute to a positive trend in MDG 1 / Target 1 to halve the proportion of people whose income is less than \$1 a day.</p>  | <p><b>Interpretation</b><br/>The indicator reflects the dependency of households on natural resources. A high average proportion of income from non-NR indicates that households are deriving a greater proportion of their income from other sources, suggesting a move out of poverty. A high proportion however does not necessarily indicate lower, or more sustainable exploitation of natural resources.</p> |
| <p><b>Target</b><br/>Not set.</p>   | <p><b>Baseline</b><br/>Available from the Household Budget Survey: 1969, 1976/7, 1991/2, 2001. Some work is required to compile the available data into figures that can be presented as a simple 'baseline'.</p>  |
| <p><b>Sources</b><br/>Household Budget Survey</p>   | <p><b>Responsible agency</b><br/>National Bureau of Statistics</p>   |
| <p><b>Time lag in reporting</b><br/>Not significant</p>   | <p><b>Frequency of collection</b><br/>Every five years</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring and is based on the HBS data</li> <li>• <i>Simplicity:</i> Not difficult to calculate</li> <li>• <i>Meaning:</i> Difficult to interpret. Meaning should be interpreted according to locality. A high proportion of household income from non-NR sources does not necessarily indicate a lowered dependence of the poorest on NR, nor improvements in the sustainability of NR use.</li> <li>• <i>Sensitivity:</i> Good, although the infrequency of the HBS lowers sensitivity.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, rural and urban levels and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Data available every five years, from HBS. HBS collects data on cash and in-kind income from employment, self-employment, rental income, remittances, gifts, and other off-farm or natural resource-based income.</li> <li>• <i>Practicality:</i> Components used to calculate indicator already collected in household surveys, therefore it would be cheap to gather and calculate.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>No direct relevance to HIV/AIDS. Potential of disaggregating data according to female- and male-headed households.</p>   |  |
| <p><b>Additional comments</b><br/>An attractive indicator, owing to its simplicity. However, the difficulty of interpreting its meaning except on a local basis, and the infrequency of data availability from the HBS weakens its potential for informing policy development or tracking MKUKUTA progress.</p> <p>Natural resource based activities include, farming (agriculture and livestock), fishing, harvesting forestry based products, bee keeping, hunting, gathering, etc. The Household Budget Survey collects detailed information on household sources of income in cash, goods and services. This includes data on income (both cash and in kind) from employment, self-employment (business activities), rental income, remittances, gifts, and other non-farm or natural resource related sources.</p>   |  |

**The percentage of rural income derived from activities related to wildlife (conservation, tourism, and hunting), forestry (harvesting forestry products for consumption and trade) and fisheries**

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|--|--|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster I; Goal 4; Target 4.6</p>  | <p><b>Definition</b><br/>The mean proportion of household cash income in rural areas that is derived from harvesting and selling natural resources including wildlife, forest based products such as firewood, wild honey, and timber, and fisheries, as revealed in the Household Budget Survey.</p>  |
| <p><b>Relevance to MDGs</b><br/>Not similar to any MDG. Relevant to MDG 7 / Target 9 concerning integrating the principles of sustainable development.</p>   | <p><b>Interpretation</b><br/>The indicator reflects the dependency of households on off-farm natural resources. A high average proportion would either indicate a high incidence of low incomes from farm produce or employment, thereby forcing the poorest to depend on wild natural resources, or would indicate people's successful exploitation of a high value natural resource.</p> |
| <p><b>Target</b><br/>Not set.</p>  | <p><b>Baseline</b><br/>Available from the Household Budget Survey: 1969, 1976/7, 1991/2, 2001. Some work is required to compile the available data into figures that can be presented as a simple 'baseline'.</p>  |
| <p><b>Sources</b><br/>Household Budget Survey</p>  | <p><b>Responsible agency</b><br/>National Bureau of Statistics</p>   |
| <p><b>Time lag in reporting</b><br/>Not significant</p>  | <p><b>Frequency of collection</b><br/>Every five years</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring and is based on the HBS data. However 'rural areas' must be defined to avoid urban or peri-urban figures skewing the results.</li> <li>• <i>Simplicity:</i> Moderate level of simplicity as data for the indicator will have to be derived from the Household Budget Survey and proportions calculated</li> <li>• <i>Meaning:</i> May not have a straightforward meaning as it is not possible to say on its own whether an increase in the % of income from natural resources may be good or bad. It is bad if at the same time forest resources are dwindling. Interpretation must therefore be made according to each locality.</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Data available every five years, from HBS.</li> <li>• <i>Practicality:</i> Components used to calculate indicator already collected in household surveys, and therefore it is easy to calculate at low cost.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>No direct relevance to HIV/AIDS. Potential of disaggregating data according to female- and male-headed households.</p>  |  |

**Additional comments**

Off-farm natural resources are particularly important in relieving the "hunger periods" in the agricultural cycle, and in smoothing out other seasonal fluctuations. Forestry based products include firewood, bark, tannin, wild honey, medicinal herbs etc.

Overall, this would be an attractive indicator, were it not for the difficulty of interpreting meaning (except on a local basis) and the in-frequency of collection.

The Household Budget Survey collects detailed information on household sources of cash income. At present, this includes data on cash income from activities relating to gathering, hunting, and fishing activities. However, data on income related to wildlife (conservation and tourism receipts) and forestry products (the term "gathering" may capture this income, but it needs to be defined more clearly) is not yet collected by the HBS. In addition, value of own consumption of the products derived from these activities may need to be separated from the "value of consumption of own produce" variable.

These activities are quite region focused. The HBS allows for disaggregation between rural and urban areas and down to the district levels.

To provide more frequent data, routine data surveys could be amended in order that more regular information on income sources is gathered. For example, further data on income from conservation and tourism and forestry related activities that may be collected by the local government may be available via the routine data system, where this is relevant and allowed for. For example, tourism receipts from national parks or game reserves and the amount going back into the community or revenues from forest permits, hunting permits etc that the local government may receive. Sources of such data could be the Wildlife Department (WMA's, TANAPA-SCIP, Hunting fees), Forestry and Beekeeping Division (JFM), Fisheries Division (Eco-Management Units piloted in Lake Victoria under LVEMP). Each sector has plans to collect and keep data for use at PMS level.

At present the national accounts gives the breakdown of the contribution of individual natural resource sectors such as forestry, fishing, wildlife, tourism, crop production, livestock production to national income. However, there is no distinction made between urban and rural. In addition, contribution of these sectors to the national economy is often underestimated. Therefore there may be a need to carry out valuation exercises to unmask the hidden contribution of natural resource sectors to the national economy.

## The percentage of households able to fetch clean and safe water in under 30 minutes (go, collect, return) from a protected source

| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 3A; Target 3.1</p>  | <p><b>Definition</b><br/>As written, the proportion of households able to fetch clean and safe water in under 30 minutes (go, collect, return) from a protected source. Calculated separately for rural and urban households.</p>  |      |      |      |       |     |     |       |     |     |
|--|--|------|------|------|-------|-----|-----|-------|-----|-----|
| <p><b>Relevance to MDGs</b><br/><i>Goal 7:</i> Ensure environmental sustainability<br/><br/><i>Target 10:</i> Halve, by 2015, the proportion of people without sustainable access to safe drinking water.</p>  | <p><b>Interpretation</b><br/>Water supply has strong relationships with poverty in terms of poor health and loss of productive time with gender implications. Increased access to safe water may mean more time spent doing other activities (productive and leisure) and lower incidence of water-borne and water-washed diseases.</p>  |      |      |      |       |     |     |       |     |     |
| <p><b>MKUKUTA Target</b><br/>To increase the proportion of rural population with access to clean and safe water from 53% in 2003 to 65% 2009/10 within 30 minutes of time spent on collection of water. And from 73% to 90% for urban population during the same period.</p>   | <p><b>Baseline</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">1990</th> <th style="text-align: center;">2003</th> </tr> </thead> <tbody> <tr> <td>Urban</td> <td style="text-align: center;">67%</td> <td style="text-align: center;">73%</td> </tr> <tr> <td>Rural</td> <td style="text-align: center;">43%</td> <td style="text-align: center;">53%</td> </tr> </tbody> </table> <p>Note: These are MWLD figures for the proportion of households within 200m of a water source.</p> <p>Based on DHS data, the proportion of households spending less than 30 minutes dropped significantly by 22 % for urban areas (from 88% to 66 %) and 19% for rural areas (from 75% to 64%), between 1992 and 1999.</p> |      | 1990 | 2003 | Urban | 67% | 73% | Rural | 43% | 53% |
|  | 1990   | 2003 |      |      |       |     |     |       |     |     |
| Urban  | 67%  | 73%  |      |      |       |     |     |       |     |     |
| Rural  | 43%  | 53%  |      |      |       |     |     |       |     |     |
| <p><b>Responsible agency</b><br/>Ministry of Water and Livestock Development (MWLD) and the National Bureau of Statistics (NBS)</p>  |  |      |      |      |       |     |     |       |     |     |
| <p><b>Sources</b><br/>Currently on the Demographic Health Survey (DHS) collects data for this indicator. Other potential sources include the Household Budget Survey (HBS) and the Population Census, if the data collection is adapted to meet the needs of this indicator. Data is also collected on a routine basis by the MWLD.</p> <p>The HBS, DHS, the Agricultural Survey and the Population Census, all collect data in one form or another on access to water, in terms of time. However, at present only the DHS collects data on the time to fetch water from the main drinking water source (to go, wait, collect water and return). This needs to be adopted for the other surveys (especially the HBS) to increase coverage and measure progress towards the target. In addition, all the surveys capture the quality aspects of the target (clean and safe or from a protected source) as a separate variable. Therefore, the questions in the surveys need to be standardised to capture the two components of the target.</p> <p>All the surveys can be disaggregated by urban and rural areas</p> <p>The Ministry of Water and Livestock Development's routine data systems collects data on population with access to water from a water scheme in rural or urban areas. The figures for coverage differ according to the type of data used. However, given the differences in measurements, this difference is quite small. The advantage of the RDS data is that it can be generated more frequently. The RDS is being reviewed by PO-ARLG with the aim of strengthening and increasing the quality of the data collection process.</p> |  |      |      |      |       |     |     |       |     |     |
| <p><b>Time lag in reporting</b><br/>HBS, DHS - about one year from the end of data collection; and Census - up to two years from the end of data collection. Time lags for routine data vary.</p>  | <p><b>Frequency of collection</b><br/>Census - 2002, 2012<br/>HBS - 2000/01, 2006, 2011<br/>DHS - 1999, 2004, 2009<br/>Routine data - Annual</p>   |      |      |      |       |     |     |       |     |     |

|  |  |
|--|--|
|  |  |
| <b>Assessment</b>  |  |
| <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring</li> <li>• <i>Simplicity:</i> Moderate level of simplicity as data for the indicator will have to be derived from the Surveys or routine data and proportions calculated</li> <li>• <i>Meaning:</i> Has a straightforward meaning – increases in the percentage indicates progress towards meeting the target. The indicator captures quality and time aspects.</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Periodic (survey based) data is available up to two years after the survey. Routine data availability varies.</li> <li>• <i>Practicality:</i> Components used to calculate indicator are collected in the DHS. Questions used in data collection in the HBS and Census will need to adapted.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b>  |  |
| Health   |  |
| <b>Additional comments</b>   |  |
|  |  |

## Incidence of cholera in rural/urban areas

|  |   |
|--|---|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 3A; Target 3.1, 3.2 and 3.5. Also reflects 3.7 and 3.8.</p>   | <p><b>Definition</b><br/>This indicator measures the number of incidences occurrence of cholera per 1000 people in rural/urban areas. The case definition recommended in the African region (by WHO) for cholera reporting is “any person five years of age or more who develops severe dehydration or dies from acute watery diarrhoea”.</p> |
| <p><b>Relevance to MDGs</b><br/><i>Goal 7:</i> Ensure environmental sustainability<br/><br/><i>Target 10:</i> Halve, by 2015, the proportion of people without sustainable access to safe drinking water.</p>  | <p><b>Interpretation</b><br/>Improved access to water and sanitation can bring about a fall in the prevalence of cholera, as it is commonly associated with contact with contaminated water.</p>  |
| <p><b>MKUKUTA Target</b><br/>Reduce Cholera outbreaks by half by 2010.</p>   | <p><b>Baseline</b><br/>Compilation of data from routine surveys is required to provide a baseline for this indicator.</p>   |
| <p><b>Responsible agency</b><br/>Ministry of Health MIS</p>  |   |
| <p><b>Sources</b><br/>The DHS collects data on the incidence of diarrhoea amongst children. The HBS also collects data by type of injury or illness, including diarrhoea. This for all members of the household.<br/><br/>All the surveys can be disaggregated by urban and rural areas<br/><br/>The Ministry of Health routine data systems (Health Management Information System) collects information on the number of cases of water borne diseases such as cholera or diarrhoea reported at hospitals, health clinics, centres and dispensaries. However, this only captures those incidences that the patient sought treatment for, from a clinic or centre. This may not always be the case and the rate may be under reported.</p>   |   |
| <p><b>Time lag in reporting</b><br/>Often 2 years</p>  | <p><b>Frequency of collection</b><br/>Annual</p>  |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring and is based on the Routine data</li> <li>• <i>Simplicity:</i> It is moderately easy to calculate</li> <li>• <i>Meaning:</i> The meaning is clear, though relevance here is that the cholera is as a result of poor water and sanitation</li> <li>• <i>Sensitivity:</i> Sensitivity is reduced because of potential time lags in data collection.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, rural and urban levels and disaggregated to district level.</li> <li>• <i>Data:</i> Data available on a yearly basis from health record of clinics and hospital (however this is less reliable as not many people would go to a clinic to get treatment)</li> <li>• <i>Practicality:</i> Components used to calculate indicator already collected in household surveys.</li> </ul> |   |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>Improved productivity and less number of days ill as a result of reduced incidence of cholera;</p>  |   |
| <p><b>Additional comments</b><br/>Cholera outbreaks are often localized and disaggregation to district level may not be informative enough. Incidences may be under reported especially if the data is from health clinics. Only those that seek medical attention will be counted.</p>  |   |

## The percentage of urban households with access to piped or protected water as their main drinking water source

|   |  |      |      |     |     |
|---|--|------|------|-----|-----|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 3A; Target 3.1</p>   | <p><b>Definition</b><br/>As written, the proportion of urban households with access to a piped or protected water source as their main drinking source.</p>  |      |      |     |     |
| <p><b>Relevance to MDGs</b><br/><i>Goal 7:</i> Ensure environmental sustainability<br/><br/><i>Target 10:</i> Halve, by 2015, the proportion of people without sustainable access to safe drinking water.</p>   | <p><b>Interpretation</b><br/>An increasing proportion indicates an improving poverty-environment situation. Water supply has strong relationships with poverty in terms of poor health and loss of productive time with gender implications. Increased access to safe water may mean more time spent doing other activities (productive and leisure) and lower incidence of water-borne and water-washed diseases.</p> |      |      |     |     |
| <p><b>MKUKUTA Target</b><br/>Increased urban population with access to clean and safe water from 73% in 2003 to 90% in 2009.</p>  | <p><b>Baseline</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">1990</td> <td style="text-align: center;">2003</td> </tr> <tr> <td style="text-align: center;">67%</td> <td style="text-align: center;">73%</td> </tr> </table>  | 1990 | 2003 | 67% | 73% |
| 1990  | 2003   |      |      |     |     |
| 67%   | 73%  |      |      |     |     |
| <p><b>Responsible agency</b><br/>Ministry of Water and Livestock Development (MWLD) and the National Bureau of Statistics.</p>  |  |      |      |     |     |
| <p><b>Sources</b><br/>Currently on the Demographic Health Survey (DHS) collects data for this indicator. Other potential sources include the Household Budget Survey (HBS) and the Population Census, if the data collection is adapted to meet the needs of this indicator. Data is also collected on a routine basis by the MWLD.<br/><br/>The Ministry of Water and Livestock Development's routine data systems collects data on population with access to water from a water scheme in urban areas. The figures for coverage differ according to the type of data used. However, given the differences in measurements, this difference is quite small. The advantage of the RDS data is that it can be generated more frequently. The RDS is being reviewed by PO-ARLG with the aim of strengthening and increasing the quality of the data collection process.</p>   |  |      |      |     |     |
| <p><b>Time lag in reporting</b><br/>HBS, DHS – about one year from the end of data collection; and Census – up to two years from the end of data collection. Time lags for routine data vary.</p>   | <p><b>Frequency of collection</b><br/>Census – 2002, 2012<br/>HBS – 2000/01, 2006, 2011<br/>DHS – 1999, 2004, 2009<br/>Routine data – Annual</p>   |      |      |     |     |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring</li> <li>• <i>Simplicity:</i> Moderate level of simplicity as data for the indicator will have to be derived from the Surveys or routine data and proportions calculated</li> <li>• <i>Meaning:</i> Has a straightforward meaning – increases in the percentage indicates progress towards meeting the target. The indicator captures quality and time aspects.</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Periodic (survey based) data is available up to two years after the survey. Routine data availability varies.</li> <li>• <i>Practicality:</i> Components used to calculate indicator are collected in the DHS. Questions used in data collection in the HBS and Census will need to adapted.</li> </ul> |  |      |      |     |     |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>Health</p>   |  |      |      |     |     |
| <p><b>Additional comments</b></p>   |  |      |      |     |     |

## The percentage of households in urban areas connected to a sewerage facility

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|--|--|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 3B; Target 3.2 (also some link to 3.7 and 3.8)</p>  | <p><b>Definition</b><br/>The percentage of urban households in household budget survey reporting access to a sewerage facility (mains or septic tank).</p>   |
| <p><b>Relevance to MDGs</b><br/><i>Goal 7:</i> Ensure environmental sustainability<br/><br/><i>Target 11:</i> Halve, by 2015, the proportion of people without access to basic sanitation facilities.</p>  | <p><b>Interpretation</b><br/>An increasing trend indicates an improving poverty-environment situation. Sewage and wastewater contain a high concentration of pathogens: bacteria, viruses, protozoa and helminths that can cause diseases to humans. Therefore, adequate disposal of this is important to control for such diseases. In addition, there is a strong correlation between poor sanitation and the incidence of water diseases like cholera, dysentery and diarrhoea.</p> |
| <p><b>MKUKUTA Target</b><br/>95% of people with access to basic sanitation by 2010 (Cross reference to 3.1 and 3.2)</p>  | <p><b>Baseline</b><br/>Not available</p>   |
| <p><b>Sources</b><br/>The HBS collects data on household facilities. However, currently the percentage of households connected to sewerage facility cannot be derived from HBS. The questionnaire needs to be modified to ask explicitly on the facility.</p>  | <p><b>Responsible agency</b><br/>National Bureau of Statistics</p>   |
| <p><b>Time lag in reporting</b><br/>Not significant</p>  | <p><b>Frequency of collection</b><br/>Five years</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring</li> <li>• <i>Simplicity:</i> It is moderately easy to calculate</li> <li>• <i>Meaning:</i> The meaning is clear, though relevance here is that the in adequate disposal of waste may contaminate water, whose contact with humans may lead to diseases outbreaks.</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Data is currently not available. However, if included in the Surveys, can easily be aggregated to regional and national level, rural and urban levels and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Data is currently not available</li> <li>• <i>Practicality:</i> Data is currently not available</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>Health</p>  |  |
| <p><b>Additional comments</b><br/>This indicator provides a direct measurement of the MKUKUTA target. However, it may be best-placed as a sectoral indicator rather than a PMS-level indicator, especially if the impact resulting from improved sanitation – reduced incidence of water-borne diseases – is captured at the PMS level.</p>  |  |

**The percentage of households located in unplanned settlements and slums that lack adequate basic essential utilities (water, sanitation, and waste disposal)**

|  |   |
|--|---|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 3B; Target 3.3</p>  | <p><b>Definition</b><br/>As written, the proportion of households in unplanned settlements and slums (as defined by Ministry of Land and Human Settlements) that lack essential utilities.</p>  |
| <p><b>Relevance to MDGs</b><br/><i>Goal 7:</i> Ensure environmental sustainability</p> <p><i>Target 10:</i> Halve, by 2015, the proportion of people without access to basic sanitation facilities.</p> <p><i>Target 11:</i> Halve, by 2015, the proportion of people without access to basic sanitation facilities.</p> <p><i>Target 12:</i> Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers.</p>  | <p><b>Interpretation</b><br/>This is an important indicator of quality of life and poverty incidence. Slums and informal settlements are the stage to the most acute scenarios of urban poverty, physical and environmental deprivation. Approximately one-third of the urban population globally live in these conditions. Typical slums in developing countries are unplanned informal settlements where access to services is minimal to non-existent and where overcrowding is the norm. Slum conditions result in placing residents at a higher risk of disease, mortality and misfortune.</p> |
| <p><b>MKUKUTA Target</b><br/>No target defined for the MKUKUTA target to reduce households living in slums without adequate basic essential facilities.</p>  | <p><b>Baseline</b><br/>Not available without compilation from previous surveys, combined with Ministry of Land and Human Settlements.</p>   |
| <p><b>Sources</b><br/>The Population Census, HBS and the DHS, all collect data on household facilities including water, sanitation, and waste disposal facilities. All these data sources can be disaggregated by rural and urban areas and also to lower regional and district levels.</p> <p>However, this needs combining with the identification of unplanned settlements and slums using information is obtained from local governments and/or Ministry of Land.</p>  | <p><b>Responsible agency</b><br/>-</p>  |
| <p><b>Time lag in reporting</b><br/>-</p>  | <p><b>Frequency of collection</b><br/>-</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> Objective as long as a clear definition of essential utilities is feasible;</li> <li>• <i>Simplicity:</i> It is not easy to calculate, owing to the requirement to match survey data with data on unplanned settlements and slums;</li> <li>• <i>Meaning:</i> The meaning is very clear.</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Data is currently not available. However, if included in the surveys, can easily be aggregated to regional and national level, rural and urban levels and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> See above 'sources'.</li> <li>• <i>Practicality:</i> It is not easy to calculate, owing to the requirement to match survey data with data on unplanned settlements and slums.</li> </ul> |   |
| <p><b>Relevance to other cross-cutting issues or sectors</b></p>   |   |
| <p><b>Additional comments</b></p>  |   |

**Percentage of schools having X number of sanitation facilities  
(latrines) per 200 students**

|   |  |
|---|--|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 3B; Target 3.4</p>   | <p><b>Definition</b><br/>The percentage of schools with more than X latrines per 200 pupils (ie 200 X the ratio of latrines to school enrolment).</p>  |
| <p><b>Relevance to MDGs</b><br/><i>Goal 7:</i> Ensure environmental sustainability<br/><br/><i>Target 11:</i> Halve, by 2015, the proportion of people without access to basic sanitation facilities.</p>   | <p><b>Interpretation</b><br/>Increasing proportion indicates improving poverty-environment situation. Poor sanitation may lead to hygiene related diseases. There is a strong correlation between poor sanitation and the incidence of water diseases like cholera, dysentery and diarrhoea.</p> |
| <p><b>MKUKUTA Target</b><br/>3.4 100% of schools to have adequate sanitary facilities by 2010 (Cross reference to 3.1)</p>  | <p><b>Baseline</b><br/>Available for compilation from EMIS.</p>  |
| <p><b>Sources</b><br/>Education Management Information System (EMIS) of the Ministry of Education and Culture keeps the information on pre-primary, primary and secondary schools facilities (building and furniture) collected on a routine basis. This includes information on the types of sanitation facilities. Information on school enrolments at different levels including age and sex is also collected and kept in the EMIS.</p>   | <p><b>Responsible agency</b><br/>The Ministry of Education</p>   |
| <p><b>Time lag in reporting</b><br/>-</p>   | <p><b>Frequency of collection</b><br/>-</p>  |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring and is based on the data collected via the EMIS</li> <li>• <i>Simplicity:</i> It is moderately easy to calculate</li> <li>• <i>Meaning:</i> The meaning is clear, though relevance here is that the poor sanitation may lead to hygiene related diseases; loss of school days; reduction in learning productivity</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, rural and urban levels and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Data available on a yearly basis</li> <li>• <i>Practicality:</i> This would be simple and low cost.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>Health</p>   |  |
| <p><b>Additional comments</b></p>   |  |

## Percentage of households with access to basic sanitation facilities

| <b>MKUKUTA related goals</b><br>MKUKUTA Cluster II; Goal 3B; Target 3.5   | <b>Definition</b><br>This indicator measures the proportion of households that have access to basic sanitation facilities such as pit latrines,   |                             |                            |           |     |              |     |             |      |     |     |       |     |
|---|---|-----------------------------|----------------------------|-----------|-----|--------------|-----|-------------|------|-----|-----|-------|-----|
| <b>Relevance to MDGs</b><br>Goal 7: Ensure environmental sustainability<br><br>Target 11: Halve, by 2015, the proportion of people without access to basic sanitation facilities.   | <b>Interpretation</b><br>Poor sanitation may lead to hygiene related diseases. There is a strong correlation between poor sanitation and the incidence of water diseases like cholera, dysentery and diarrhoea.   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| <b>MKUKUTA Target</b><br>95% of people with access to basic sanitation by 2010 (Cross reference to 3.1 and 3.2)   | <b>Baseline</b><br><br><table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Type of sanitation facility</th> <th style="text-align: right;">Mainland Tanzania (2001) %</th> </tr> </thead> <tbody> <tr> <td>No Toilet</td> <td style="text-align: right;">7.1</td> </tr> <tr> <td>Flush toilet</td> <td style="text-align: right;">2.2</td> </tr> <tr> <td>Pit latrine</td> <td style="text-align: right;">89.7</td> </tr> <tr> <td>VIP</td> <td style="text-align: right;">0.8</td> </tr> <tr> <td>Other</td> <td style="text-align: right;">0.1</td> </tr> </tbody> </table> | Type of sanitation facility | Mainland Tanzania (2001) % | No Toilet | 7.1 | Flush toilet | 2.2 | Pit latrine | 89.7 | VIP | 0.8 | Other | 0.1 |
| Type of sanitation facility   | Mainland Tanzania (2001) %  |                             |                            |           |     |              |     |             |      |     |     |       |     |
| No Toilet   | 7.1   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| Flush toilet  | 2.2   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| Pit latrine   | 89.7  |                             |                            |           |     |              |     |             |      |     |     |       |     |
| VIP   | 0.8   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| Other   | 0.1   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| <b>Responsible agency</b><br>National Bureau of Statistics or the Ministry of Health  |   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| <b>Sources</b><br>The HBS collects data on the household use, whilst the DHS on household having various sanitation facilities (those with no toilet, flush toilet, pit latrine, VIP latrine, or other).<br><br>According to a WaterAid report, many people do not know the meaning of terms such as VIP, resulting in few respondents choosing this option in the survey. This has been reflected by the low numbers of households that have made improvements to their sanitation facilities. Therefore the survey needs to expand on the "latrine" response option to include improvements such as slab, stabilised pit, and vent pipe.<br><br>The survey data can be disaggregated by urban and rural areas.<br><br>The Ministry of Health via its MTUHA Health Information System also collect data on population with access to sanitation facilities from schemes to build public facilities in rural or urban areas. However, the suggestions of improvements to the information being collected also apply to the routine data system. |   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| <b>Time lag in reporting</b><br>Not significant   | <b>Frequency of collection</b><br>Five years  |                             |                            |           |     |              |     |             |      |     |     |       |     |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring and is based on the HBS data</li> <li>• <i>Simplicity:</i> It is moderately easy to calculate</li> <li>• <i>Meaning:</i> The meaning is clear, though relevance here is that the diarrhoea is as a result of poor water and sanitation</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, rural and urban levels and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Data available every five years, from HBS or on a yearly basis</li> <li>• <i>Practicality:</i> Components used to calculate indicator already collected in household surveys.</li> </ul>   |   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| <b>Relevance to other cross-cutting issues or sectors</b><br>Health   |   |                             |                            |           |     |              |     |             |      |     |     |       |     |
| <b>Additional comments</b>  |   |                             |                            |           |     |              |     |             |      |     |     |       |     |

## Percentage of clean water bodies – based on the Tanzania temporary water standards of 1974

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|--|---|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 3C; Target 3.7</p>  | <p><b>Definition</b><br/>This indicator measures the proportion of water bodies, out of the total number of water bodies, that have been certified as “clean” according to the Tanzania Temporary Water Quality Standards of 1974</p>   |
| <p><b>Relevance to MDGs</b><br/><i>Goal 7:</i> Ensure environmental sustainability<br/><br/><i>Target 9:</i> Integrate the principles of sustainable development into country policies and programmes and reverse the losses of environmental resources.</p>   | <p><b>Interpretation</b><br/>An increasing proportion suggests that a higher number of people have access to clean water. The quality of water in water bodies (rivers, lakes, sea etc.) deteriorates naturally and also due to inadequate water quality management and pollution control practices and weak enforcement of regulations. This limits their use for a variety of purposes.</p> |
| <p><b>MKUKUTA Target</b><br/>3.7 Reduced water related environmental pollution levels from 20% in 2003 to 10% in 2010</p>  | <p><b>Baseline</b><br/>20% - 2003.</p>  |
| <p><b>Sources</b><br/>The MWLD assesses the quality of ground and surface water (water bodies) via its 14 zonal laboratories, based on the Tanzanian Temporary Water Quality Standards. New national water standards under preparation. National standards for pollution need to be developed by TBS/VPO.</p>  | <p><b>Responsible agency</b><br/>MWLD</p>   |
| <p><b>Time lag in reporting</b><br/>Not clear</p>  | <p><b>Frequency of collection</b><br/>Not clear</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is highly objective, as it is based on established quality standards</li> <li>• <i>Simplicity:</i> It has a simple meaning, and does not require detailed calculation</li> <li>• <i>Meaning:</i> The meaning is clear.</li> <li>• <i>Sensitivity:</i> Not clear how sensitive the indicator is to the actual pollution problems faced by the poor. Frequency of collection and time lags in reporting may limit sensitivity.</li> <li>• <i>Aggregation:</i> Can be disaggregated according to the location of the water body.</li> <li>• <i>Data:</i> Available from MWLD. There may be some problems with the accuracy of the data: for example water bodies in Tanzania are large and often spread out across a large area. Tests conducted in one area may not be representative of the entire water body.</li> <li>• <i>Practicality:</i> Requires analysis of water quality from each water body, but this is carried out by MWLD already.</li> </ul> |   |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>Health.</p>   |   |
| <p><b>Additional comments</b></p>  |   |

**Number of industrial units that have installed technologies that reduce levels of pollutants reaching the environment (cleaner production technologies).**

|   |  |
|---|--|
| <p><b>MKUKUTA related goals</b><br/>Cluster II, Goal 3 C, Target 3.8</p>  | <p><b>Definition</b><br/>Absolute number of industrial units that have installed technologies that reduce levels of pollutants reaching the environment. Some definition of exactly what these technologies are is required.</p>   |
| <p><b>Relevance to MDGs</b><br/>Relevant to MDG 7 / Target 9 concerning the reversal of environmental degradation.</p>  | <p><b>Interpretation</b><br/>Interpretation may not be very straightforward, since the number of industrial units overall may be on the increase. If a low proportion of these units installed these technologies, then even though the indicator may be increasing, the number of industrial units <i>without</i> cleaner technologies may be increasing.</p> |
| <p><b>MKUKUTA Target</b><br/>Not defined</p>  | <p><b>Baseline</b><br/>Not available</p>   |
| <p><b>Sources</b><br/>No data is yet systematically recorded, but DoE, NEMC and PO-RALG would be responsible for preparing this data.</p>   | <p><b>Responsible agency</b><br/>DoE, NEMC</p>   |
| <p><b>Time lag in reporting</b><br/>-</p>   | <p><b>Frequency of collection</b><br/>-</p>  |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity</i>: Objectivity relies on a clear definition of the technologies referred to, and on whether they are installed.</li> <li>• <i>Simplicity</i>: It is simple to understand.</li> <li>• <i>Meaning</i>: As described above in 'interpretation', its meaning may not necessarily relate strongly to levels of pollution.</li> <li>• <i>Sensitivity</i>: Not possible to appraise its sensitivity, as data is not yet systematically recorded anyway.</li> <li>• <i>Aggregation</i>: Could be easily (dis)aggregated according to district.</li> <li>• <i>Data</i>: Not available at present.</li> <li>• <i>Practicality</i>: Not practical, as it requires new surveys of industry.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>None</p>   |  |
| <p><b>Additional comments</b><br/>A simple, attractive indicator, but not so practical, and care should be taken in interpreting its meaning.</p>   |  |

**Percentage of population living in areas of high risk of environmental disaster (flood, landslides, droughts, food shortages).**

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| <b>MKUKUTA related goals</b><br>Cluster II, Goal 3E, Target 3.11   | <b>Definition</b><br>Number of population from census living in areas defined as high risk, divided by the total population.  |
| <b>Relevance to MDGs</b><br>Relevant in a general sense to MDGs 1-6, ie all aspects of poverty.  | <b>Interpretation</b><br>Simply a higher proportion indicates a higher number of people who are exposed to disastrous shocks such as floods, landslides etc. This may not be related to their ability to recover from these shocks, but nonetheless provides an indication of their exposure, which is highly likely to be correlated with vulnerability. |
| <b>MKUKUTA Target</b><br>Not defined   | <b>Baseline</b><br>Not available  |
| <b>Responsible agency</b><br>Prime Minister's Office (PMO) Disaster Management Unit  |   |
| <b>Sources</b><br><br>Population data is available from census. Some definition of the areas prone to disaster is required however.<br><br>Regional and District Disaster Management Committees monitor the hazards, risks and disaster threats and the conditions of vulnerable populations within the region.<br><br>The Early Warning Unit of the Ministry of Agriculture and Food Security is responsible for collection, analysis, and presentation of early warning and food security information; the development of improved methods for early warning; and food security assessments institutional capacity-building.<br><br>According to the Disaster Vulnerability Analysis carried out by the DMD in 2001 in 57 Districts in Tanzania Mainland, most common hazards liable for disasters in Tanzania were epidemics, pest infestation, drought/famine, floods, fire, major accidents, cyclone/strong winds, refugees, conflicts/Internal Displaced Persons (IDPs), landslides, explosions, earthquakes and technological disasters |   |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>-   |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> If a clear definition of the areas prone to disaster are identified (for example by topography or ecological zone), then this indicator would be highly objective.</li> <li>• <i>Simplicity:</i> It is simple to understand.</li> <li>• <i>Meaning:</i> See interpretation above.</li> <li>• <i>Sensitivity:</i> Depends on frequency of analysis.</li> <li>• <i>Aggregation:</i> Easily aggregable from districts</li> <li>• <i>Data:</i> See sources above.</li> <li>• <i>Practicality:</i> Once the definition of areas prone to disaster is made, the indicator would be highly practical to calculate.</li> </ul>  |   |
| <b>Relevance to other cross-cutting issues or sectors</b><br>None  |   |
| <b>Additional comments</b>   |   |

## Number of tree seedlings planted

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| <b>MKUKUTA related goals</b><br>Cluster II, Goal 3E, Target 3.12   | <b>Definition</b><br>The total number of tree seedlings planted in a year.   |
| <b>Relevance to MDGs</b><br>Relevant to MDG 7 / Target 9 concerning the reversal of environmental degradation.   | <b>Interpretation</b><br>Forests are cleared for wood, agriculture and other uses of land. An increased number of tree seedlings planted (either for reforestation or afforestation) indicates replenishment of existing forest cover or introducing new forest cover. This indicator may be coupled with the rate of deforestation to show whether overall forest cover is reducing or not. |
| <b>MKUKUTA Target</b><br>A specific target is set on a yearly basis.   | <b>Baseline</b><br>In 1999-2000, 100,039,256 seedlings were planted, out of target of 129,329,000 (source: <a href="http://www.tanzania.go.tz/economicsurvey/tables/table45.html">http://www.tanzania.go.tz/economicsurvey/tables/table45.html</a> )   |
| <b>Sources</b><br>Routine data collected at national level is based on data collected from the District Forest Data Bank. This data source provides a minimum data set on routine basis of PFM activities and progress per forest or village, including project-supported activities. District data will be forwarded to the national level on a quarterly basis.  | <b>Responsible agency</b><br>Departments of Forestry and Beekeeping, Environment   |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>Annual   |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring</li> <li>• <i>Simplicity:</i> Easy and quick to determine, if appropriate records are at hand</li> <li>• <i>Meaning:</i> The meaning of this indicator is relatively simple</li> <li>• <i>Sensitivity:</i> Based on a routine data collection and if logged is very sensitive.</li> <li>• <i>Aggregation:</i> Data is available by district and region and can be aggregated</li> <li>• <i>Data:</i> Data available from the forestry department and is collected by the district forestry officer</li> <li>• <i>Practicality:</i> If the seedlings are grown in registered nurseries, it will be on record, however will only be practical if information is readily available.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b>  |  |
| <b>Additional comments</b><br>Information on the success of a/ reforestation effort, with survival rates and eventual impacts, is required to reach towards outcome  |  |

**Area of ecosystems addressed by conservation programmes,  
disaggregated by ecosystem type (dryland, high forests, mangroves,  
wetlands)**

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| <b>MKUKUTA related goals</b><br>Cluster II, Goal 3E, Target 3.12   | <b>Definition</b><br>The total area of different ecosystems (dryland, high forests, mangroves and wetlands) that come under conservation programmes   |
| <b>Relevance to MDGs</b><br>Relevant to MDG 7 / Target 9 concerning the reversal of environmental degradation.   | <b>Interpretation</b><br>An increase in area of various ecosystems under conservation programmes means these ecosystems come under the conservation and protection measures of adopted by such programmes. This may lead to reduced environmental degradation if the measures are implemented and enforced. |
| <b>MKUKUTA Target</b><br>No target set as yet  | <b>Baseline</b><br>Not available  |
| <b>Sources</b><br>Routine coverage data from programmes initiated and managed by the Forestry and Bee Keeping Division and NGOs  | <b>Responsible agency</b><br>MNRT   |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>-   |
| <b>Assessment</b>  |   |
| <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring</li> <li>• <i>Simplicity:</i> Not very easy to determine, as proper records of coverage, per programme will be needed. Programmes may cover more than one ecosystem; therefore disaggregating may by ecosystem may be difficult.</li> <li>• <i>Meaning:</i> The meaning of this indicator is relatively simple</li> <li>• <i>Sensitivity:</i> Based on a routine data collection and if logged is sensitive.</li> <li>• <i>Aggregation:</i> Data cannot be easily aggregated.</li> <li>• <i>Data:</i> Not available as yet</li> <li>• <i>Practicality:</i> Maybe difficult to estimate due to variety of programmes and variety of ecosystems in single areas.</li> </ul> |   |
| <b>Relevance to other cross-cutting issues or sectors</b>  |   |
| <b>Additional comments</b>   |   |

## Number and Area under JFM Programmes at district levels

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| <p><b>MKUKUTA related goals</b><br/>Cluster II, Goal 3E, Target 3.13</p>   | <p><b>Definition</b><br/>The total number of Joint Forest Management Programmes and Community Based Forest Management Programmes at district level and the total area the cover</p>  |
| <p><b>Relevance to MDGs</b><br/>Relevant to MDG 7 / Target 9 concerning the reversal of environmental degradation.</p>   | <p><b>Interpretation</b><br/>This is an indicator of the level of participatory forest management, that enables communities located in the vicinity of the forest to act as forest managers or co-managers of government owned forest and allows</p> |
| <p><b>MKUKUTA Target</b><br/>1 million hectares under PFM in 37 districts and 250 agreements or plans signed</p>   | <p><b>Baseline</b><br/>An estimated 333,000 ha of forests were in the process under either JFM or CBFM, comprising over 1500 forests in at least 43 districts in 2001</p>  |
| <p><b>Sources</b><br/>Routine data collected at national level is based on data collected from the District Forest Data Bank. This data source provides a minimum data set on routine basis of PFM activities and progress per forest or village, including project-supported activities. District data will be forwarded to the national level on a quarterly basis.</p>  | <p><b>Responsible agency</b><br/>Ministry of Natural Resources and Tourism – Forestry and Bee keeping Division; PFM Village Data Books Management Agreements and plans, stored in the District Forest Data Bank</p>                                  |
| <p><b>Time lag in reporting</b><br/>Annual</p>   | <p><b>Frequency of collection</b><br/>-</p>  |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring</li> <li>• <i>Simplicity:</i> Easy and quick to determine, if appropriate records are at hand</li> <li>• <i>Meaning:</i> The meaning of this indicator is relatively simple</li> <li>• <i>Sensitivity:</i> Based on a routine data collection and agreements if logged is very sensitive.</li> <li>• <i>Aggregation:</i> Data can be easily aggregated as data is collected at district levels. Most of the District data are aggregated by forest/village, and stored in the National Forest Data Bank under the respective forests to which they refer.</li> <li>• <i>Data:</i> Data available from the forestry department and is collected by the district forestry officer</li> <li>• <i>Practicality:</i> As the agreement is official, it will be on record, however will only be practical if information is readily available.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b></p>   |  |
| <p><b>Additional comments</b><br/>The indicator does not say anything about the quality of the forest</p>  |  |

## Reduction in deforestation in areas prone to soil erosion

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| <b>MKUKUTA related goals</b><br>Cluster II, Goal 3E, Target 3.13   | <b>Definition</b><br>This indicator measures the rate of reduction of forest cover in areas that are prone to soil erosion.  |
| <b>Relevance to MDGs</b><br>Relevant to MDG 7 / Target 9 concerning the reversal of environmental degradation.   | <b>Interpretation</b><br>Forest cover is important to reduce runoff and soil erosion. Therefore a fall in the rate of deforestation may reduce the extent of level of soil erosion in high risk areas. |
| <b>MKUKUTA Target</b><br>No target set as yet  | <b>Baseline</b><br>Not available   |
| <b>Sources</b><br>Routine data collected at national level is based on data collected from the District Forest Data Bank. This data source provides a minimum data set on routine basis of PFM activities and progress per forest or village, including project-supported activities. District data will be forwarded to the national level on a quarterly basis. However, this data will need to be matched to data on areas prone to soil erosion.   | <b>Responsible agency</b><br>Ministry of Natural Resources and Tourism – Forestry and Bee keeping Division   |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>-  |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring</li> <li>• <i>Simplicity:</i> Easy and quick to determine, if appropriate records are at hand</li> <li>• <i>Meaning:</i> The meaning of this indicator is relatively simple</li> <li>• <i>Sensitivity:</i> Based on a routine data collection and if logged is very sensitive.</li> <li>• <i>Aggregation:</i> Data is available by district and region and can be aggregated</li> <li>• <i>Data:</i> Data available from the forestry department and is collected by the district forestry officer. It will then have to be matched by data on areas prone to soil erosion</li> <li>• <i>Practicality:</i> Will only be practical if information is readily available.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b>  |  |
| <b>Additional comments</b>   |  |

**The percentage of Tanzania's electricity being generated by renewable sources (solar, wind and mini-hydro), biomass, coal, natural gas and mini-hydro sources.**

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| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 4D; Target 4.7.<br/>(Also links to cluster I goals 5 and 6 where there are other actions on energy).</p>   | <p><b>Definition</b><br/>The indicator is defined as the share of total electricity generated in Tanzania produced from renewable sources such as (biomass, solar, wind and mini-hydro).</p>  |
| <p><b>Relevance to MDGs</b><br/><i>Goal 7: Environmental Sustainability</i></p> <p><i>Target 9: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources.</i></p>   | <p><b>Interpretation</b><br/>It is not particularly clear how an increasing share of generation from renewables relates to poverty-environment linkages. However, Tanzania has huge potential for hydro-based renewable energy. Wind and solar energy is another source of energy. Very little attempt has been made to utilize this source of energy which could be a viable alternative source to reduce use of wood and oil for heating purposes. The biomass energy resource, which comprises fuel-wood and charcoal from both natural forest and plantations, accounts for 93 percent of total energy consumption (not electricity).</p> |
| <p><b>MKUKUTA Target</b><br/>4.7 Contribution of solar, wind, biomass and coal for electricity generation increased from the current 0.5% in 2003 to 3% by June 2010</p>  | <p><b>Baseline</b><br/>Available for compilation from MEM.</p>  |
| <p><b>Sources</b><br/>Ministry of Energy and Minerals (MEM) and TANESCO, the state electricity producer and distributor, keep records of the source of electricity generation in Tanzania.</p>  | <p><b>Responsible agency</b><br/>Ministry of Energy and Minerals (MEM)<br/>National Bureau of Statistics (NBS).</p>   |
| <p><b>Time lag in reporting</b><br/>-</p>   | <p><b>Frequency of collection</b><br/>-</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous and can be objectively recorded.</li> <li>• <i>Simplicity:</i> It is moderately easy to calculate.</li> <li>• <i>Meaning:</i> The main problem with the indicator is whether its meaning has any relevance to poverty-environment links.</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Data is collected at generation source and distributed by grid to other areas. Therefore aggregation is not applicable here.</li> <li>• <i>Data:</i> There are many other producers of electricity that may not be captured by MEM data. These may include privately generated electricity or energy from programmes and projects being implemented by TaTEDO or other environmental NGOs, using solar, wind or even mini-hydro. MEM needs to improve data collection to capture these sources, in order to give a better idea of the use sustainable or renewable energy sources.</li> <li>• <i>Practicality:</i> A highly practical indicator, easy to calculate at low cost.</li> </ul> |   |
| <p><b>Relevance to other cross-cutting issues or sectors</b></p>  |   |
| <p><b>Additional comments</b><br/>Overall the value of this indicator is limited by its limited relevance to poverty-environment links, and by the difficulty of collecting data on off-grid electricity generation.</p>  |   |

## Percentage of households in rural and urban areas using alternative sources of energy to woodfuel, for cooking

|  |  |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
|--|--|-------------------------|-------------|-------------|-----|-------|-----|-----------------------------|-----|----------|---|----------|------|----------|------|
| <p><b>MKUKUTA related goals</b><br/>MKUKUTA Cluster II; Goal 4D; Target 4.8</p>  | <p><b>Definition</b><br/>This indicator measures the proportion of households in rural and urban areas that use alternative sources of energy to woodfuel (biomass), as their principle source of energy for cooking. Alternative sources include electricity, gas, and coal. 'Woodfuel' here includes charcoal.</p>   |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| <p><b>Relevance to MDGs</b><br/><i>Goal 7:</i> Environmental Sustainability<br/><br/><i>Target 9:</i> Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources.</p>  | <p><b>Interpretation</b><br/>This is an important indicator of quality of life and poverty incidence. Unsustainable use of fuelwood may cause environmental degradation (clearing bush for charcoal). Fuelwood is also traditionally collected by women and children, who have to carry heavy loads of fuelwood each day causing a large share of their time and calorie intake to be used directly for fuel collection. In addition, use of fuelwood is associated with respiratory ailments occurring as a result of intense indoor air pollution. Fuelwood use is therefore closely related to low income and poor health outcomes.</p>   |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| <p><b>MKUKUTA Target</b><br/>At least 10% of the population using alternative to wood fuels for cooking by 2010</p>  | <p><b>Baseline</b></p> <table border="0" style="width: 100%;"> <tr> <td><b>Fuel for cooking</b></td> <td style="text-align: right;"><b>2001</b></td> </tr> <tr> <td>Electricity</td> <td style="text-align: right;">0.9</td> </tr> <tr> <td>Solar</td> <td style="text-align: right;">0.9</td> </tr> <tr> <td>Gas (industrial and biogas)</td> <td style="text-align: right;">0.4</td> </tr> <tr> <td>Paraffin</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Charcoal</td> <td style="text-align: right;">14.2</td> </tr> <tr> <td>Firewood</td> <td style="text-align: right;">78.5</td> </tr> </table> <p>Source HBS, 2001</p> | <b>Fuel for cooking</b> | <b>2001</b> | Electricity | 0.9 | Solar | 0.9 | Gas (industrial and biogas) | 0.4 | Paraffin | 5 | Charcoal | 14.2 | Firewood | 78.5 |
| <b>Fuel for cooking</b>  | <b>2001</b>  |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| Electricity  | 0.9  |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| Solar  | 0.9  |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| Gas (industrial and biogas)  | 0.4  |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| Paraffin   | 5  |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| Charcoal   | 14.2   |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| Firewood   | 78.5   |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| <p><b>Sources</b><br/>The HBS collects data on the use of a range of energy sources for both lighting (grid electricity, solar electricity, gas, paraffin, candles and firewood or other) and for cooking (grid electricity, solar electricity, gas-industrial, gas-biogas, paraffin, coal, charcoal, firewood and other).</p> | <p><b>Responsible agency</b><br/>Ministry of Energy and Minerals (MEM);<br/>National Bureau of Statistics (NBS)</p>  |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |
| <p><b>Time lag in reporting</b><br/>HBS - about one year from the end of data collection.</p>  | <p><b>Frequency of collection</b><br/>HBS - 2000/01, 2006, 2011</p>  |                         |             |             |     |       |     |                             |     |          |   |          |      |          |      |

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| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is unambiguous about what it is measuring and is based on the HBS data.</li> <li>• <i>Simplicity:</i> It is moderately easy to calculate. A potential complication will be households that use a combination of fuelwood and alternative sources for cooking.</li> <li>• <i>Meaning:</i> The meaning is relatively clear. The relevance here is that a reduction in use of (dependence on) wood fuel may reduce environmental degradation and improve health and well being. However, a high dependence on fuel wood does not signify lack of alternatives as they may be too expensive to use.</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, rural and urban levels and disaggregated to district level, depending on sampling frame.</li> <li>• <i>Data:</i> Data available every five years, from HBS, and data is reliable</li> <li>• <i>Practicality:</i> Components used to calculate indicator already collected in household surveys.</li> </ul> |
| <p><b>Relevance to other cross-cutting issues or sectors</b></p> <p>Link to gender and health.</p>   |
| <p><b>Additional comments</b></p> <p>Will be important to track levels of charcoal use separately, as a sectoral indicator, as well as specific issues, such as the introduction of Biogas in schools.</p>   |

## Improved legislation on land and natural resource utilisation

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| <b>MKUKUTA related goals</b><br>Cluster III; Goal 1; Target 1.1  | <b>Definition</b><br>A checklist of desired legislative changes is required, in order that progress in putting the changes in place can be tracked. |
| <b>Relevance to MDGs</b><br>Not similar to any MDG. Relevant to Goal 7 / Target 9 (Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources).  | <b>Interpretation</b><br>Progress against the checklist would easily indicate progress towards improved legislation.                                |
| <b>Target</b><br>Not set   | <b>Baseline</b><br>Not available  |
| <b>Sources</b><br>DoE, NEMC  | <b>Responsible agency</b><br>DoE, NEMC  |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>-   |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> Highly objective.</li> <li>• <i>Simplicity:</i> Not difficult to compile.</li> <li>• <i>Meaning:</i> Easy to interpret: completion of fewer items on the checklist indicates little progress.</li> <li>• <i>Sensitivity:</i> Highly sensitive.</li> <li>• <i>Aggregation:</i> Not applicable.</li> <li>• <i>Data:</i> It could be straightforward for NEMC to compile the data.</li> <li>• <i>Practicality:</i> This would be simple and low cost.</li> </ul> |   |
| <b>Relevance to other cross-cutting issues or sectors</b><br>Not relevant.   |   |
| <b>Additional comments</b><br>An attractive indicator, simple and with low cost. With a clear checklist of required legislative improvements, progress could be easily gauged. However, agreement on exactly which items to include on the checklist is required.  |   |

## Land area used for NR management that is subject to tenure security

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| <p><b>MKUKUTA related goals</b><br/>Cluster III; Goal 1; Target 1.1</p>  | <p><b>Definition</b><br/>Proportion, by area, of land used for natural resources management which is subject to legally enshrined private or common ownership of tenure.</p>  |
| <p><b>Relevance to MDGs</b><br/>Not similar to any MDG. Relevant to Goal 7 / Target 9 (Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources).</p>  | <p><b>Interpretation</b><br/>With an increasing proportion of land used for natural resources management, including agriculture, under legally enshrined ownership, there are increasing prospects for sustainable management of natural resources.</p> |
| <p><b>Target</b><br/>Not set</p>   | <p><b>Baseline</b><br/>Not immediately available. Compilation of data is required.</p>  |
| <p><b>Sources</b><br/>Ministry of Lands and Human Settlement Development and PO-RALG</p>   | <p><b>Responsible agency</b><br/>Ministry of Lands and Human Settlement Development and PO-RALG</p>   |
| <p><b>Time lag in reporting</b><br/>-</p>  | <p><b>Frequency of collection</b><br/>-</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> This indicator could be highly objective.</li> <li>• <i>Simplicity:</i> Not difficult to calculate.</li> <li>• <i>Meaning:</i> Easy to interpret. A high proportion indicating continuing trends towards sustainable NR management</li> <li>• <i>Sensitivity:</i> Not clear.</li> <li>• <i>Aggregation:</i> Could also easily be disaggregated by region and district.</li> <li>• <i>Data:</i> Data available from the Ministry of Lands and Human Settlement.</li> <li>• <i>Practicality:</i> Could be simple and low cost to calculate.</li> </ul> |   |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>Not relevant to other cross-cutting issues.</p>   |   |
| <p><b>Additional comments</b><br/>An attractive indicator, simple and with low cost, and with clear meaning.</p>   |   |

## Establishment of functioning village and district environment committees.

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|--|---|
| <p><b>MKUKUTA related goals</b><br/>Cluster III, Goal 1, Target 1.1</p>  | <p><b>Definition</b></p> <p>Two alternatives:</p> <ol style="list-style-type: none"> <li>1. Number of village environment committees established and functioning, ie meetings held and minuted for at least four meetings in the previous year.</li> <li>2. Number of district environment committees established and functioning, ie meetings held and minuted for at least four meetings in the previous year.</li> </ol> |
| <p><b>Relevance to MDGs</b><br/>Not similar to any MDG. Relevant to Goal 7 / Target 9 (Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources).</p>  | <p><b>Interpretation</b></p> <p>An increasing number of village or district environmental committees indicates an increasing commitment to address environmental issues. Their usefulness for measuring a change in poverty-environment linkages however is very very indirect.</p>   |
| <p><b>Target</b><br/>Not set</p>   | <p><b>Baseline</b><br/>Not immediately available.</p>   |
| <p><b>Sources</b><br/>PO-RALG</p>  | <p><b>Responsible agency</b><br/>PO-RALG</p>  |
| <p><b>Time lag in reporting</b><br/>-</p>  | <p><b>Frequency of collection</b><br/>-</p>   |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> Highly objective, as long as an objective definition of ‘functioning’ is used, as suggested above.</li> <li>• <i>Simplicity:</i> This is a very simple indicator.</li> <li>• <i>Meaning:</i> It has a very direct meaning.</li> <li>• <i>Sensitivity:</i> The indicator is sensitive to change.</li> <li>• <i>Aggregation:</i> It also lends itself easily to aggregation (eg the number of village committees can be looked at according to district or region, or even by geographical features such as watersheds).</li> <li>• <i>Data:</i> Not available by this definition, though it is likely that basic (but probably unreliable) data on the number of village or district committees is available from PO-RALG.</li> <li>• <i>Practicality:</i> This could be a very practical indicator.</li> </ul> |   |
| <p><b>Relevance to other cross-cutting issues or sectors</b><br/>None.</p>   |   |
| <p><b>Additional comments</b><br/>These (there are actually two) indicators are highly practical and measurable. However, care would be required in interpreting whether an upward trend truly indicates improved environmental governance, rather than a project-driven creation of committees.</p>   |   |

## Number of Ministries and Districts establishing effective environmental units

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| <b>MKUKUTA related goals</b><br>Cluster III, Goal 2, Target 2.1  | <b>Definition</b><br><br>Two alternatives:<br><br>1. Number of ministries establishing effective environmental units.<br><br>2. Number of districts establishing effective environmental units.                                  |
| <b>Relevance to MDGs</b><br>Not similar to any MDG. Relevant to Goal 7 / Target 9 (Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources).  | <b>Interpretation</b><br><br>An increasing number of units indicates an increasing commitment to address environmental issues. Their usefulness for measuring a change in poverty-environment linkages however is very indirect. |
| <b>Target</b><br>None  | <b>Baseline</b><br>None  |
| <b>Sources</b><br>Ministries and districts   | <b>Responsible agency</b><br>NEMC  |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>-  |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> These indicators could be objective only if an objective means of gauging 'effective' can be found.</li> <li>• <i>Simplicity:</i> They are highly simple indicators.</li> <li>• <i>Meaning:</i> An increasing trend means an increasing level of mainstreaming.</li> <li>• <i>Sensitivity:</i> Highly sensitive</li> <li>• <i>Aggregation:</i> -</li> <li>• <i>Data:</i> Easily available from ministries and districts</li> <li>• <i>Practicality:</i> Highly practical</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b><br>None.   |  |
| <b>Additional comments</b><br>These indicators could be relatively simple and practical indicators of environmental mainstreaming (ie of the MKUKUTA target this corresponds to). The main difficulty will be sustaining an increasing trend over time.  |  |

## An elaborate public resource use mechanism established at all levels

|   |  |
|---|--|
| <p><b>MKUKUTA related goals</b><br/>Cluster III; Goal 2; Target 2.1</p>   | <p><b>Definition</b><br/>Not defined.</p> <p>Elaborate means ‘detailed, comprehensive and transparent’.</p> <p>It will be necessary to define a methodology for compiling this indicator, in particular to define a protocol for judging the detail, comprehensiveness and transparency of resource use mechanisms, and at which levels it is to be applied.</p> |
| <p><b>Relevance to MDGs</b><br/>Not similar to any MDG. Relevant to Goal 7 / Target 9 (Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources).</p>   | <p><b>Interpretation</b><br/>Intended to allow tracking of the level of transparency in resource use decisions, reflecting MKUKUTA cluster III, goal 2 concerning equitable allocation of public resources.</p>  |
| <p><b>Target</b></p>  | <p><b>Baseline</b><br/>Not available</p>   |
| <p><b>Sources</b><br/>No information is yet systematically recorded.</p>  | <p><b>Responsible agency</b><br/>PO-RALG<br/>Auditor General</p>   |
| <p><b>Time lag in reporting</b><br/>-</p>   | <p><b>Frequency of collection</b><br/>-</p>  |
| <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> This indicator would be highly subjective unless a clear protocol for judging the elaborateness of mechanisms can be found.</li> <li>• <i>Simplicity:</i> It is doubtful that the protocol would offer a simple method for compiling the indicator.</li> <li>• <i>Meaning:</i> A definition would be required that enables the indicator’s meaning to be easily understood.</li> <li>• <i>Sensitivity:</i> Not clear.</li> <li>• <i>Aggregation:</i> Could be easily be disaggregated by district or region.</li> <li>• <i>Data:</i> Data not available.</li> <li>• <i>Practicality:</i> Probably not a low cost exercise given the sensitivity of this issue, requiring panels of stakeholders to reach judgements.</li> </ul> |  |
| <p><b>Relevance to other cross-cutting issues or sectors</b></p>  |  |
| <p><b>Additional comments</b><br/>This is a worthy indicator, but it’s poor definition limits any ability to practically measure it. It is also rather general, so doesn’t reflect poverty-environment links alone.</p>   |  |

## The poor have equitable status in decision making about use of NR at village and district level

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|--|---|
| <b>MKUKUTA related goals</b><br>Cluster III; Goal 2; Target 2.1  | <b>Definition</b><br>Impossible to define a measurable indicator.   |
| <b>Relevance to MDGs</b><br>Not similar to any MDG. Relevant to Goal 7 / Target 9 (Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources).  | <b>Interpretation</b><br>This 'indicator' directly reflects the Mkukuta goal of equitable allocation of public resources. |
| <b>Target</b><br>Not set   | <b>Baseline</b><br>None   |
| <b>Sources</b><br>-  | <b>Responsible agency</b><br>PO-RALG  |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>-   |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> Highly subjective. A clear definition is required if this indicator is to be operational.</li> <li>• <i>Simplicity:</i> Not applicable, as there is no definition</li> <li>• <i>Meaning:</i> If a definition or methodology for this indicator can be found, its meaning is clear: more equitable decision-making concerning NR would enable the poor to more sustainably manage their natural resources to reduce their poverty.</li> <li>• <i>Sensitivity:</i> Not clear.</li> <li>• <i>Aggregation:</i> Can easily be dis/aggregated to village, district, regional and national levels.</li> <li>• <i>Data:</i> Not available.</li> <li>• <i>Practicality:</i> Not likely to be practical.</li> </ul> |   |
| <b>Relevance to other cross-cutting issues or sectors</b><br>Could be varied to 'women have equitable status in decision-making...'.   |   |
| <b>Additional comments</b><br>Although this proposal seeks to measure an important goal and target of the MKUKUTA, it is impossible to define as a measurable indicator. It is itself a goal rather than an indicator.   |   |

## Number of operational worker's councils at workplaces

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|--|--|
| <b>MKUKUTA related goals</b><br>Cluster III; Goal 3; Target 3.1  | <b>Definition</b><br>Simply the absolute number of operational workers' councils at workplaces.                                    |
| <b>Relevance to MDGs</b><br>No relevant to MDGs.   | <b>Interpretation</b><br>The indicator is intended to reflect the transparent and participatory management of public institutions. |
| <b>Target</b><br>Not set   | <b>Baseline</b><br>-   |
| <b>Sources</b><br>PO-PSM (President's Office – Public Service Management)  | <b>Responsible agency</b><br>PO-PSM (President's Office – Public Service Management)   |
| <b>Time lag in reporting</b><br>Not known, but unlikely to be significant  | <b>Frequency of collection</b><br>Not known  |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> Clearly unambiguous and objective, as long as 'operational' is objectively measurable.</li> <li>• <i>Simplicity:</i> Very simple.</li> <li>• <i>Meaning:</i> The intention of this indicator is to reflect transparent decision-making in public institutions. However it is not clear that the existence of workers' councils directly reflects transparency.</li> <li>• <i>Sensitivity:</i> Sufficiently sensitive.</li> <li>• <i>Aggregation:</i> Can easily be dis/aggregated by organisation or workplace.</li> <li>• <i>Data:</i> Not clear.</li> <li>• <i>Practicality:</i> Highly practical.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b><br>Not relevant.   |  |
| <b>Additional comments</b><br>This is a very basic indicator. However, its usefulness is limited by the assumption that the existence of workers' council either reflects or results in greater transparency.  |  |

## Mechanisms for participatory decision-making established and functioning at all levels

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|--|--|
| <b>MKUKUTA related goals</b><br>Cluster III; Goal 3; Target 3.1  | <b>Definition</b><br>This indicator requires that ‘mechanisms’ and ‘functioning’ are defined clearly.  |
| <b>Relevance to MDGs</b><br>Not directly relevant to MDGs.   | <b>Interpretation</b><br>The indicator directly tracks the establishment and operation of participatory decision-making, and their maintenance through time. |
| <b>Target</b><br>Not set   | <b>Baseline</b><br>None  |
| <b>Sources</b><br>-  | <b>Responsible agency</b><br>PO-PSM (President’s Office – Public Service Management)   |
| <b>Time lag in reporting</b><br>Not known yet, but unlikely to be significant  | <b>Frequency of collection</b><br>-  |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator should be highly objective, but requires a clear definition of the mechanisms to be tracked, at what levels, and how it is to be judged whether they are practically in place or not.</li> <li>• <i>Simplicity:</i> Moderate level of simplicity.</li> <li>• <i>Meaning:</i> Straightforward meaning: the more that participatory mechanisms are in place, the greater is the empowerment of the poor to manage their environment, and demand services.</li> <li>• <i>Sensitivity:</i> Limited sensitivity because of time lags in data collection.</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, and disaggregated to district level. The indicator would lend itself well to judging and comparing the level of participatory decision-making, district by district.</li> <li>• <i>Data:</i> Not yet compiled.</li> <li>• <i>Practicality:</i> Should be easy to compile, at low cost.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b><br>No direct relevance.  |  |
| <b>Additional comments</b><br>Overall, this could be a very practical indicator, offering the opportunity to transparently compare districts’ and government departments’ level of participatory decision-making. Dependent on a clear definition however.   |  |

**Functioning legal mechanisms dealing with poverty-environment issues established at all levels in line with EMA**

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|---|--|
| <b>MKUKUTA related goals</b><br>Cluster III; Goal 4; Target 4.1   | <b>Definition</b><br>Difficult to define. This indicator requires that 'functioning mechanisms' is defined clearly.  |
| <b>Relevance to MDGs</b><br>Not directly relevant.  | <b>Interpretation</b><br>This indicator would show that mechanisms (laws, judicial process) are in place and remain in place through time. If they are not in place or functioning, then it would indicate that poverty-environment issues are not being addressed as stipulated in the EMA. |
| <b>Target</b><br>Not set  | <b>Baseline</b><br>None  |
| <b>Sources</b><br>-   | <b>Responsible agency</b><br>VPO ,<br>Judiciary<br>Human Rights Commission**<br>PO-RALG  |
| <b>Time lag in reporting</b><br>Not known, but unlikely to be significant   | <b>Frequency of collection</b><br>-  |
| <b>Assessment</b>   |  |
| <ul style="list-style-type: none"> <li>• <i>Objectivity</i>: This indicator would be highly subjective, unless a clear definition of 'functioning mechanisms' is identified, and how they can be judged to be 'established';</li> <li>• <i>Simplicity</i>: This is a highly simple indicator.</li> <li>• <i>Meaning</i>: The indicator has direct meaning: if the mechanisms are not in place, environmental resources that poorer people depend on are more at risk.</li> <li>• <i>Sensitivity</i>: Potentially of sufficient sensitivity.</li> <li>• <i>Aggregation</i>: Applies mainly to nationally-established laws and processes. However, district-by-district assessments of their operation would be revealing.</li> <li>• <i>Data</i>: Not compiled yet.</li> <li>• <i>Practicality</i>: Would be easy to calculate at low cost.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b><br>Not directly relevant  |  |
| <b>Additional comments</b><br>A straightforward, simple indicator, but dependent on clear definition of 'functioning mechanisms' if subjectivity is to be avoided.  |  |

## Number of awareness-raising campaigns that inform poor and vulnerable groups of their rights.

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|---|--|
| <b>MKUKUTA related goals</b><br>Cluster III, Goal 4, Target 4.1   | <b>Definition</b><br><br>The absolute number of awareness-raising campaigns conducted within the previous 12 months that have included information, targeted at poor and vulnerable groups, on their rights to redress pollution or misuse of their natural resources, at (i) national level, (ii) for each district, carried out at district level. |
| <b>Relevance to MDGs</b><br>Not directly relevant.  | <b>Interpretation</b><br>An increasing number of campaigns would indicate greater efforts to ensure that the poor and vulnerable are aware of their rights. However, it does not necessarily indicate the resulting level of awareness or their ability to successfully redress infringements of their rights.                                       |
| <b>Target</b><br>None   | <b>Baseline</b><br>None  |
| <b>Sources</b><br>Not clear.  | <b>Responsible agency</b><br>Not clear   |
| <b>Time lag in reporting</b><br>-   | <b>Frequency of collection</b><br>-  |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> There may be some definitional issues in determining whether a campaign does or does not target poor and vulnerable groups, but otherwise it would be fairly objective.</li> <li>• <i>Simplicity:</i> Simple enough.</li> <li>• <i>Meaning:</i> The meaning is clear, but see interpretation above.</li> <li>• <i>Sensitivity:</i> Depends on how regularly the responsible agency would gather the information</li> <li>• <i>Aggregation:</i> Would be possible for districts to keep a record of the awareness campaigns conducted in their district, at district levels. These could be aggregated to higher levels.</li> <li>• <i>Data:</i> Not readily available at present.</li> <li>• <i>Practicality:</i> Depends on a responsible officer keeping a record of each campaign. This may not be impractical, but the issue of adding further work burdens onto local officers should be considered.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b><br>Campaigns that address women separately could be recorded.   |  |
| <b>Additional comments</b><br>A potentially straightforward, direct indicator, but with some problems of interpretation.  |  |

## Proportion of poor and vulnerable households with legally-enshrined land titles

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| <b>MKUKUTA related goals</b><br>Cluster III; Goal 4; Target 4.1  | <b>Definition</b><br>Proportion of poor and vulnerable households with legally-enshrined land titles. This requires definition of 'poor and vulnerable' households, however.   |
| <b>Relevance to MDGs</b><br>Not similar to MDGs. Relevant to reversing the loss of environmental resources however (MDG 7 / Target 9).   | <b>Interpretation</b><br>The indicator simply reflects the access to legal land titles for the poor and vulnerable. Increased proportions would suggest greater empowerment of the poor over their land resources, and therefore more sustainable use. |
| <b>Target</b><br>Not set   | <b>Baseline</b><br>None  |
| <b>Sources</b><br>-  | <b>Responsible agency</b><br>Ministry of Lands and Human Settlement Development  |
| <b>Time lag in reporting</b><br>-  | <b>Frequency of collection</b><br>-  |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> The indicator is highly objective. However, it requires definition of 'the poor and vulnerable', for example using the basic needs poverty line or the food poverty line. available from the household budget survey for a sample of households.</li> <li>• <i>Simplicity:</i> This is a very simple indicator.</li> <li>• <i>Meaning:</i> The meaning of this indicator is straightforward: a greater proportion points to increased empowerment of the poor and vulnerable.</li> <li>• <i>Sensitivity:</i> Limited sensitivity owing to the reliance on periodic surveys (Household Budget Survey).</li> <li>• <i>Aggregation:</i> Can easily be aggregated to regional and national level, and disaggregated to district level.</li> <li>• <i>Data:</i> Data on land titles available from the Ministry of Lands and Human Settlements. Poverty data available every five years, from HBS.</li> <li>• <i>Practicality:</i> Easy to calculate at low cost.</li> </ul> |  |
| <b>Relevance to other cross-cutting issues or sectors</b><br>Highly relevant to gender if the indicator can be disaggregated by gender of household head.  |  |
| <b>Additional comments</b><br>Overall, this is an attractive indicator, if information on land titles can be matched with data on poverty and vulnerability from the HBS.  |  |

**Functioning mechanisms are established to empower the poor and the vulnerable, especially women, to understand and exercise their rights over land and other resources**

|   |   |
|---|---|
| <b>MKUKUTA related goals</b><br>Cluster III; Goal 4; Target 4.1   | <b>Definition</b><br>Difficult to define. This indicator requires that 'functioning mechanisms' is defined clearly.   |
| <b>Relevance to MDGs</b><br>Not similar to any MDGs. Relevant to MDG 7 / Target 9 however.  | <b>Interpretation</b><br>This indicator would show that mechanisms (laws, judicial process, and access for the poor to justice) are in place and remain in place through time. Obviously if they are not in place or functioning, then poorer people are more disempowered. |
| <b>Target</b><br>-  | <b>Baseline</b><br>None   |
| <b>Sources</b><br>-   | <b>Responsible agency</b><br>VPO ,<br>Judiciary<br>Human Rights Commission**<br>PO-RALG   |
| <b>Time lag in reporting</b><br>Not known, but likely that there would not be any significant time lag  | <b>Frequency of collection</b><br>To be determined  |
| <b>Assessment</b> <ul style="list-style-type: none"> <li>• <i>Objectivity:</i> This indicator would be highly subjective, unless a clear definition of 'functioning mechanisms' is identified, and how they can be judged to be 'established';</li> <li>• <i>Simplicity:</i> This is a highly simple indicator.</li> <li>• <i>Meaning:</i> The indicator has direct meaning: if the mechanisms are not in place, poorer people are more disempowered.</li> <li>• <i>Sensitivity:</i> Potentially of sufficient sensitivity.</li> <li>• <i>Aggregation:</i> Applies mainly to nationally-established laws and processes. However, district-by-district assessments of their operation would be revealing.</li> <li>• <i>Data:</i> Not compiled yet.</li> <li>• <i>Practicality:</i> Would be easy to calculate at low cost.</li> </ul> |   |
| <b>Relevance to other cross-cutting issues or sectors</b><br>Relevant to gender if a way could be found of measuring this indicator by disaggregated groups.  |   |
| <b>Additional comments</b><br>Overall, this would be an acceptable indicator if 'functioning mechanisms' and a method for assessing their 'establishment' were clearly defined.   |   |

Annex D

## Review of Surveys

## **D1.1**

### ***REVIEW OF DATA SOURCES RELEVANT FOR POVERTY-ENVIRONMENT INDICATORS IN TANZANIA***

This section outlines and reviews the data collection systems identified during the consultations as currently operating in Tanzania, primarily with the aim of sourcing data for the PMS level indicators.

The Poverty Monitoring System (PMS) was developed in 2001 to provide timely and reliable information for monitoring progress towards poverty reduction and for policy making processes. This information was required to determine whether activities implemented under the first PRSP and now under the MUKUTA, are improving the welfare of the poor in Tanzania. The PMS works via four areas of focus to enable a co-ordinated national-level approach to data and information collection, analysis and communication.

These are:

- Three main systems of data collection currently operating in Tanzania: Surveys and Census (Periodic Data System); Routine Data System; and Research and Analysis (Participatory Poverty Assessments and other qualitative and community based research). In addition to these systems, data is also collected from projects or programmes as part of their own monitoring and evaluation; and
- Dissemination, sensitisation and advocacy.

The focus of this review is on the Surveys and Census and Routine Data System.

#### **D1.1.1**

##### ***Surveys and Census relevant for poverty-environment indicators***

The Surveys and Census group, headed by the National Bureau of Statistics (NBS) is coordinating the production of poverty-relevant data sets through a set of household surveys and the Population Census. These include the:

- National Population Census;
- Household Budget Survey;
- Demographic and Health Survey; and
- Agricultural Survey;

A multi-year survey programme has been planned up to 2012. The surveys and census are reviewed below.

##### ***The National Population Census***

The Census collects complete enumerations (basic demographic data such as number in household and relationships, sex, age and citizenship of household members) of all the people in Tanzania including more detailed information for a sample of about a quarter of all households (data is collected on household conditions and facilities including water and sanitation, education

levels, economic activity by occupation and industry, and ownership of certain types of consumer goods).

The Census uses two sets of questionnaires: a short one, administered to every household and household member of the country; and a long questionnaire administered to a sample of households. As result, the latter is only aggregated down to district level, whereas the information in the short questionnaire allows for disaggregation down to lowest level of administration at the district, division/ward/village/ household levels. The sample size covered for the longer questionnaire is larger than in a typical household survey. Both the questionnaires allow for data to be aggregated by urban and rural area distinction.

Measurement errors are the biggest issue in terms of statistical quality, whereas sampling errors are judged to be fairly small. Therefore, the Population Census allows for reasonably accurate population estimates at a highly disaggregated level. The Census also provides a frame from which future samples could be selected.

From the point of view of the MKUKUTA, the Population Census is probably the single most important source of data. However, the data collection exercise is usually very large, expensive, and complex and carried out at fairly infrequent periods. So far, the Population Census has been carried out in 1967, 1978, 1988 and most recently in 2002. A standard 10 year cycle has been recommended and the next Census is expected in 2012. This means that censuses, and surveys in general are useful for more longer term monitoring purposes as they require large resources (financial and human) to implement on a regular basis.

Data for the Population Census is held with the National Bureau of Statistics.

### *Household Budget Survey*

The Household Budget Surveys (HBS) collect data on key social, demographic and economic features of the households. These include data on variables such as demography, health, education, economic status, breakdown of household income by activity source, breakdown of household expenditure by category, asset ownership, access to water, sanitation, electricity services, and use of energy by type.

The HBS uses a household questionnaire to collect data and asks all the respondents to keep a daily diary of every income and expenditure, earned or incurred, in cash or in kind. Whilst smaller in scale when compared to the Population Census, the HBS nevertheless collects data from approximately 22,000 households (HBS, 2001), covering 20 regions in mainland Tanzania. The data can be disaggregated by area (regions, rural/ urban, etc.), and by demographics (age, gender, etc.). It is anticipated that the next HBS, in 2006, will only collect data disaggregated for rural/urban areas, whilst the one following, in 2011, will again provide regional estimates.

The HBS data is of reasonably good quality data, with no major issues identified that would have a significant bearing on the use of the data. Due to the large size, sampling errors were reasonably small for national, urban and rural estimates, meaning that they are quite reliable at these levels.

The HBS is a key survey as it is used to provide quantitative measures of income poverty as well as the poverty baseline for the Tanzanian PRS and the new MKUKUTA. However, as with other surveys and censuses, the data collection exercise is usually large, expensive, and complex and carried out at fairly infrequent periods. So far the HBS has been carried out in 1969, 1976/77, 1991/92 and most recently in 2001. Whilst the last survey was also the largest one in terms of sample size, its size was reduced due to financial and capacity constraints with some rural clusters left out. This alludes to the nature of financial resources required to implement these data collection exercises. A 5 year cycle has been recommended and the next census is expected in 2006. This means that the HBS is useful for more medium term monitoring as it require large resources (financial and human) to implement on a regular basis. It was also noted that the HBS can make allowances for adding new questions or amending the current ones, to better reflect needs.

Data for the HBS is held with the National Bureau of Statistics. However, it is only available in computer readable format for the last two surveys

### *Demographic and Health Survey (DHS)*

The Demographic and Health Surveys (DHS) collect data on key health issues such as family planning, infant and child mortality, maternal and child health and nutrition and HIV/AIDS in Tanzania (including Zanzibar). The surveys were carried out in 1992, 1994, 1996 and 1999 and are planned for 2004 and 2009.

Sample size is lower than other surveys and sampling is based on Census enumeration areas. The DHS data is of reasonably good quality data, with no major issues identified that would have a significant bearing on the use of the data. The data can be disaggregated by rural and urban areas.

Data for the DHS is held with the National Bureau of Statistics.

### *Agricultural Survey*

The Agricultural Survey is a result of formal collaboration and coordination of agricultural statistical activities between the National Bureau of Statistics and the Ministry of Agriculture and Food Security (MAFS). The Survey collects data on household characteristics, holding characteristics, crops and sales of crops, sources of income, social amenities, storage, crop markets, credit facilities and farm practices.

The last survey was undertaken in mainland Tanzania in 1998/99, when the sample size was increased to provide district estimates. The surveys are intended to be nationally representative and can be disaggregated to district

levels and by rural and urban areas. Agriculture Surveys cover two aspects, small-scale farming and large-scale farming. Their overall costs have been comparatively low because of the methodology used. Enumerators are stationed in respective villages during the whole farming season, and the number of primary sampling units differs from other surveys because of the type of information being collected.

Whilst the Agricultural Surveys have resulted in reasonable quality data, their frequency and coverage has normally been a function of availability of funds. A lack of resources was the main reason behind the existing data gaps. Another constraint is the lack of technical competency of the stakeholders involved in the operations especially in the areas of data processing and management, data analysis and user-friendly presentation of the results.

Future agriculture surveys are planned for 2003/4 and 2008. Data for the Survey is held with the Statistical Unit at MAFS.

### ***D1.1.2 Routine Data Systems***

The Routine Data System (RDS) in Tanzania collects data on an ongoing basis and at regular intervals. The data are a by-product of day to day activities/processes preformed at different levels of Government. The RDS includes, not only the collection of data, but also how data are compiled, stored and how information flows to decision makers at various levels.

The RDS is important for the PMS for at least two reasons:

- It provides data at regular intervals, annually or more frequently, while surveys and the Census can only provide estimates at relatively long intervals; and
- Many existing RDS are national in their coverage and can provide disaggregated information at district and ward levels.

Whilst, the RDS in Tanzania collects a large amount of information, its use is constrained by several major challenges. Two of the most pertinent ones are the difficulty of ensuring the quality and timeliness of data, and making sure that the data is available in an appropriate format and used in decision-making by the Local Government Authority.

There is very little coordination between the different RDS, across sectors and even within sectors, and across regions. The Local Government Reform Programme (LGRP) is addressing this issue by designing a monitoring and evaluation system for Local Government that will use the existing RDS and make information available that is important to local decision makers. It is anticipated that, when operational, this system will provide most of the indicators for poverty monitoring which can be collected through routine data systems.

The Routine Data System (RDS) follows the government structure down from the village level up to PO-RALG. However, data that is collected on a routine

basis in the districts is not always fed directly into the PMS in a timely fashion, if at all.

Most of the districts collect routine data related to specific sectors (e.g. health, education, water) based on data collection templates and forms that have been designed by the respective ministries. For example, special forms are designed to collect uniform data from the education and health sectors and submitted to the respective ministries. Such data is relatively consistent with regard to issues that are being followed up over time. It is not clear if districts are involved in the analysis of such data and if they get feed back from the respective ministries or use some of the data in their plans.

Annex E

## Data Sources for Sectoral Indicators

**Table 1.1** *Data Sources for most of the Sector Level Indicators*

| Mkukuta Targets  | Sectoral Indicators   |   |
|--|---|---|
| 2.4 Increased agricultural growth from 5% in 2003 to 10% in 2010     | <ol style="list-style-type: none"> <li>1. Proportion of the agriculture budget spent on educating farmers and livestock keeping in best practices for conserving the environment</li> <li>2. Number of farmers and livestock keepers trained in best practices for environmental conservation (including access to appropriate extension packages)</li> </ol>   | <ul style="list-style-type: none"> <li>• Data is collected on an annual basis via the routine data collection and periodically via the National Agricultural Survey (last survey was in 2003 with the next one scheduled for 2008) and stored in the Agricultural Statistics section of MAFS.</li> <li>• MAFS, MWLD and MCM need to define sustainable agriculture and best practices in farming and livestock production. more clearly. At present, MAFS equates sustainable agriculture to maintained productivity through maintenance of nutrient levels in the soil, using acceptable fertilizer materials that are not harmful to the environment, good agronomic practices (land preparation, timely planning of seeds, timely weeding, timely harvesting and associated techniques), minimized past harvest loses.</li> <li>• Based on clear definitions of sustainable agriculture and best practices in farming and livestock, MAFS, MWLD and MCM can incorporate measures into the existing data collection mechanisms to collect data on incomes from sustainable agriculture and livestock practices (i.e. best farming and livestock keeping practices for environmental conservation).</li> <li>• MAFS, MWLD, MCM and PORALG, based on the monitoring and evaluation of sector finances, can determine the proportion of budget used to educate farmers on best practices. PORALG can also capture what other players including programmes and projects spend on these activities, to give a fuller account of total expenditures.</li> </ul> |
| 2.9 Reduced negative impacts on environment and people's livelihoods | <ol style="list-style-type: none"> <li>1. The % of policies/ strategies/ programmes and projects subject to an EIA/SEA</li> <li>2. The number of property transfers (eg privatisations) subject to environmental audits</li> <li>3. The number of land use plans prepared and implemented at District level</li> <li>4. Number of District Councils that use mainstreaming guidelines</li> <li>5. Number of environmental management systems established and implemented at sector level (also relevant to Target 3.14 )</li> <li>6. Number of companies that adhere to ISO 1400 standards</li> </ol> | <ul style="list-style-type: none"> <li>• Currently there is not much monitoring and evaluation in this area, often with ad hoc follow up on EIA recommendations. Under the new Environment Management Act of 2004 this is supposed to improve. The DoE, NEMC and PO-RALG will collect data on indicators proposed for Target 2.9.</li> <li>• In addition, to strengthen monitoring system and improve accuracy of data collection on target 2.9, DoE will compile a National State of Environment Report</li> </ul>   |
| 2.10 Reduced land degradation and loss of biodiversity               | See Target 3.14   | <ul style="list-style-type: none"> <li>• See Target 3.14</li> </ul>   |

| Mkukuta Targets  | Sectoral Indicators   |   |
|--|---|---|
| 4.4 Increased sustainable off-farm income generating activities  | <ol style="list-style-type: none"> <li>1. Increased number of beekeepers and villages with land title deeds by 2010.</li> <li>2. Number of established new markets for locally produced honey within and outside the country</li> <li>3. Percentage of rural population accessing micro-finance for sustainable income generating activities not based on NR products.</li> </ol> | <p>As a first step, the natural resource-based sectors e.g. wildlife, tourism, mining, fisheries and forestry plus others like agro-processing, manufacturing, trading and business need to define sustainable development and sustainable use, as elaborated in the Environment Policy and the Environmental Management Act.</p> <ol style="list-style-type: none"> <li>1) Data for this can be sourced from the Ministry of Land and Human Settlement.</li> <li>2) Data for this indicator can be sourced from the Marketing Development Bureau (MDB)</li> <li>3) Data to support this indicator can be collected by the Agricultural Survey</li> </ol> <p>Data can be collected through the routine socio-economic data base and Local Government Management Data Base of PORALG. This system should be made operational at District level</p>   |
| 4.6 Increased contribution of wildlife, forestry and fisheries to incomes of rural communities   | <ol style="list-style-type: none"> <li>1. The proportion of income from relevant sector-based activity that is set aside and realized by rural communities.</li> <li>2. Revenue generated from sustainable and participatory utilization of natural resources - eg WMA's, TANAPA community development contributions</li> </ol>   | <p>Data on income from such sector based activities as those related to conservation and tourism and forestry that is collected by the local government may be available via the routine data system, where this is relevant and allowed for. For example, tourism receipts from national parks or game reserves or revenues from forest permits, hunting permits etc that the local government may receive. Any allocation from these revenues going back (or set aside) into the community will be recorded as such (and if not, we suggest that if there is revenue set aside for community development etc., this needs to be accounted for to generate data for these indicators. Sources of such data could be the Wildlife Department (WMA's, TANAPA-SCIP, Hunting fees), Forestry and Beekeeping Division (JFM), Fisheries Division (Eco-Management Units piloted in Lake Victoria under LVEMP). Each sector has plans to collect and keep data for use at PMS level.</p> |
| 3.1 Increased proportion of rural population with access to clean and safe water from 53% in 2003 to 65% in 2009/10 within 30 minutes of collection time | N/A   | N/A   |
| 3.1. Increased urban population with access to clean and safe water from 73% in 2003 to 90% in 2009/10   |   | <ul style="list-style-type: none"> <li>• Currently this is not collected by any of the surveys or by the routine data systems. Questions for this indicator could be added to the HBS module that collects data on water</li> </ul>   |
| 3.2 Increased access to improved sewerage facilities from 17% in 2003 to 30% in 2010 in respective urban areas   | N/A   | N/A   |
| 3.3 Reduce households living in slums without adequate basic essential utilities   | N/A   | N/A   |

| Mkukuta Targets  | Sectoral Indicators   |   |
|--|---|---|
| 3.4 100% of schools to have adequate sanitary facilities by 2010                         | <ol style="list-style-type: none"> <li>1. Percentage of schools in a district having improved sanitation facilities (as per Ministry of Education standards) disaggregated by gender and type of schools</li> <li>2. Percentage of higher learning institutions in a district having adequate and improved sanitation facilities, disaggregated by gender and type of institutions</li> </ol> | <p>Education Management Information System (EMIS) of the Ministry of Education and Culture keeps the information on pre-primary, primary and secondary schools facilities (building and furniture) collected on a routine basis. This includes information on the types of sanitation facilities. However, data on sanitation facilities for institutions of higher learning is not yet collected. Therefore, data collection needs to be extended to cover these institutions.</p> <p>Information on school enrolments at different levels including age and sex is also collected and kept in the EMIS. This will allow for disaggregation by gender.</p>   |
| 3.5 95% of people with access to basic sanitation by 2010                                | <ol style="list-style-type: none"> <li>1. Estimated percentage of garbage properly cleared away and dumped</li> <li>2. Number of people adhering to proper hygienic behaviour</li> <li>3. The number of private waste management operators involved in the collection and proper management of solid waste in respective District or areas</li> </ol>   | <ol style="list-style-type: none"> <li>1. This indicator may be difficult to measure because of the lack of data and difficulty in determining the amount of garbage produced.</li> <li>2. This data is collected on a routine basis by the Ministry of Health from cities, municipalities, townships and District Councils</li> <li>3. The data for this may be difficult to collect as many private waste management operators are not registered entities and may operate informally. Small surveys could be undertaken to capture these details of these operators.</li> </ol>  |
| 3.7 Reduced water related environmental pollution levels from 20% in 2003 to 10% in 2010 | <ol style="list-style-type: none"> <li>1. Number of incidences of ecosystems degraded by pollution</li> <li>2. Number of pollution permits issued per year by industries other large scale enterprises</li> <li>3. Number of industries and enterprises adhering to environmental standards</li> <li>4. Number of industries and enterprises with operational environmental plans</li> </ol>  | <p>The MWLD assesses the quality of ground and surface water (water bodies) via its 14 zonal laboratories, based on the Tanzanian Temporary Water Quality Standards. New national water standards under preparation</p> <p>VPO (NEMC), in collaboration with the Ministry of Industries and Trade and the Clean Production Centre to collect the data for indicators relevant to target 3.9</p> <p>Currently there is not much monitoring and evaluation going on in this area. However, under the new Environment Management Act of 2004 this is supposed to change. Based on consultations with the DoE, NEMC and PO-ARLG, they will be responsible for collecting data on this indicator. The EMA envisages the establishment of District and Regional Environment Officers under PO-RALG. National standards for pollution need to be developed by TBS/VPO NEMC</p> |

| Mkukuta Targets   | Sectoral Indicators   |   |
|---|---|---|
| 3.8 Reduced harmful industrial and agricultural effluents | <ol style="list-style-type: none"> <li>1. Number of industries that have installed technologies that reduce emissions into the environment (clean production technologies)</li> <li>2. Number of environmental audits undertaken for industries that have not had EIA's done on them</li> <li>3. Number of approved agriculture chemicals in use</li> <li>4. Quantities of unused industrial and agrochemicals properly disposed off</li> <li>5. Number of operational programmes to monitor noise, automobile and indoor pollution</li> <li>6. Number of operational programmes to monitor industrial effluents and agricultural chemicals</li> <li>7. Number of operational programmes to monitor noise, automobile and indoor pollution</li> </ol> | <p>Currently there is not much monitoring and evaluation going on in this area. However, under the new Environment Management Act of 2004 this is supposed to change. Based on consultations with the DoE, NEMC and PO-ARLG, they will be responsible for collecting data on this indicator. The EMA envisages the establishment of District and Regional Environment Officers under PO-RALG. National standards for pollution need to be developed by TBS/VPO NEMC</p> |

| Mkukuta Targets  | Sectoral Indicators   |   |
|--|---|---|
| 3.12 Reduced vulnerability to environmental disasters  | <ol style="list-style-type: none"> <li>1. Rainfall reliability and variability leading to incidents of drought, floods, etc.</li> <li>2. Number of functioning environmental management systems established at District level</li> <li>3. Percentage of land area affected by refugee-related disasters</li> <li>4. Number of districts adopting flood management systems</li> <li>5. Number of people adopting drought tolerant crops</li> <li>6. Number of livestock keepers adopting drought abetting strategies</li> <li>7. Functioning early warning systems in place (Need to have early warning systems to capture both man-made and natural disasters)</li> </ol> | <p>Initiate poverty-environment mapping (Poverty mapping undertaken by RAWG, however, there is need to include poverty-environment mapping)</p> <p>Tanzania Meteorological Agency (TMA) collects data, which can be used to determine rainfall variability and reliability. Disaster management unit under PMO to develop and manage data on drought incidents</p> <ul style="list-style-type: none"> <li>• PO-RALG, VPO, PMO (DMU), TMA</li> <li>• Spot check surveys by TMA</li> <li>• PO-RALG and PMO (DMU)</li> <li>• MAFS and PO-RALG</li> <li>• MWLD and PO-RALG</li> <li>• MAFS, MWLD and PO-RALG</li> <li>• Ministry of Home Affairs may be able to provide the locations of refugee concentrations.</li> </ul> <p>Regional and District Council Disaster Management Committees monitor the hazards, risks and disaster threats and the conditions of vulnerable populations within the region.</p> <p>The Early Warning Unit of the Ministry of Agriculture and Food Security is responsible for collection, analysis, and presentation of early warning and food security information; the development of improved methods for early warning; and food security assessments institutional capacity-building.</p> <p>Disaster management unit under PMO to develop and manage data on drought incidents addressing target 3.12 in collaboration with Ministry of Home Affairs.<br/>DMO in PMO to collect data for this indicator in relation to target 2.1.8</p> |
| 3.13 Soil, forest and aquatic ecosystems that people depend upon for production and reproduction conserved | <ol style="list-style-type: none"> <li>1. Proportion of sector budgets spent on soil conservation, forest and aquatic ecosystems conservation.</li> <li>2. Number of operational soil and water conservation programmes</li> <li>3. Number of operational forestry conservation programmes</li> <li>4. Number of marine/aquatic reserves created and properly managed to sustain production</li> <li>5. Number of fishing moratoriums operational</li> </ol>  | <p>Institutions responsible for data collection include MNRT, MAFS, MWLD, PO-RALG, and TAFIRI.</p> <p>In addition, ASDP has a sub-programme on better land husbandry that includes soil and water conservation.</p>   |

| Mkukuta Targets  | Sectoral Indicators   |   |
|--|---|---|
| 3.14 Reduction in land degradation and loss of biodiversity  | <p>a) Reduction in Land degradation</p> <ol style="list-style-type: none"> <li>1. Reduction in deforestation in areas prone to soil erosion.</li> <li>2. Reduction in disappearance of certain grass species crucial to grazing land productivity</li> <li>3. Percentage of the land area under soil erosion control</li> <li>4. Number of contingency plans and strategies prepared to deal with drought and floods</li> <li>5. Decreased use of fire in harvesting bee products and an increased use of appropriate technology for harvesting</li> </ol> <p>b) Reduction of Biodiversity Loss</p> <ol style="list-style-type: none"> <li>1. Reduction in loss of, or disappearance of, particular tree species</li> <li>2. Reduced rate of loss of indicator species (plants, animals, fish)</li> <li>3. Increased area of forest biodiversity under effective management</li> <li>4. Number of indicator animal species in particular habitats</li> <li>5. Distribution of indicator species</li> <li>6. Number and Area under JFM Programmes at district level</li> </ol> | <p>a) Reduction in Land degradation</p> <ol style="list-style-type: none"> <li>1. Forest Division collects data on deforestation e.g. in catchment forests such as Kilimanjaro, Meru and Eastern Arc Mountains.</li> <li>2. Department responsible for rangeland management, MWLD monitors degradation of rangelands. Baseline data is required for status of rangelands.</li> <li>3. Agricultural Surveys capture data on number of households making investments in soil erosion control.</li> <li>4. Tanzania Meteorological Agency (TMA) collects data, which can be used to determine rainfall variability and reliability. Disaster management unit under PMO to develop and manage data on drought incidents</li> <li>5. Beekeeping Department to collect data on indicator relevant for Target 3.14</li> </ol> <p>b) Reduction of Biodiversity Loss</p> <ul style="list-style-type: none"> <li>• National Forest programme collects baseline data for indicators relevant to Target 3.14.</li> <li>• Monitoring of fish landings, fishing effort and frame surveys undertaken by Fisheries Division. Fisheries Division to continue collecting data relevant to Target 3.14 but to improve on coverage and accuracy of data.</li> <li>• TAWIRI carries out animal census every 2 years in protected areas. Need to complement efforts by TAWIRI to monitor animals outside protected area by the Wild Life Division and PO-RALG</li> </ul> <p>Routine data is often unreliable, not forwarded to the LGAs or standardized. The system of data collection is currently being comprehensively reviewed.</p> <p>The DoE will compile a State of Environment Report</p> |
| 4.7 Contribution of solar, wind and biomass and coal for electricity generation increased from the current 0.5% in 2003 to 3% by June 2010 | <ol style="list-style-type: none"> <li>1. Rate of adoption of efficient energy saving technologies for different categories of energy users</li> <li>2. Proportion of population dependent on biomass energy</li> </ol>   | <ol style="list-style-type: none"> <li>1. Ministry of Energy and Minerals (MEM) and TANESCO, the state electricity producer and distributor to collect such data. Other stakeholders include the private sector, MNRT, environmental NGO's (e.g. TaTEDo, CEEST, etc.)</li> <li>2. The HBS collects data on the use of a range of energy sources for both lighting (grid electricity, solar electricity, gas, paraffin, candles and firewood or other) and for cooking (grid electricity, solar electricity, gas-industrial, gas-biogas, paraffin, coal, charcoal, firewood and other).</li> </ol>   |
| 4.8 At least 10% of the population using alternative to wood fuels for cooking by 2010   | <ol style="list-style-type: none"> <li>1. Rate of adoption of efficient energy saving technologies for different categories of energy users</li> </ol>  | See Target indicator 1 for Target 4.8 above   |

**Table 1.2 Suggestion for Data Sources and Institutions for Cluster III**

| <b>MKUKUTA Targets</b>  | <b>Poverty-Environment Linkages</b>  | <b>PMS Level Indicators</b>  | <b>Sectoral Level Indicators</b>   | <b>Data Sources/ Institutional Responsible</b>   |
|---|--|--|--|--|
| 1.1 Ensure representative, inclusive (poor and vulnerable groups) and accountable governance institutions operating at all levels | 1.1.4 / 1.1.5 Secure title to land will increase community investments in improved natural resources management  | 1. Number of land titles issued by Ministry of Lands<br>2. Percentage of land titles issued to the poor and vulnerable<br>3. Percentage of land tiles given to villages  | 1. Percentage of land titles issued to the poor and vulnerable<br>2. Percentage of land tiles given to villages  | Ministry of Lands and Human Settlement Development and PO-RALG   |
|   | 1.1.3 Effective village environment committees will lead to better management of NR for improved livelihoods of local communities                        | 1. Percentage of women and vulnerable groups represented in District Council or village committees<br>2. Percentage of statutory meetings of village assemblies held   | 1. Percentage of women and vulnerable groups represented in District Council or village committees<br>2. Percentage of statutory meetings of village assemblies held                                       | PORALG collects such data in the socio-economic database   |
| 2.1 Public resources are allocated, accessible and used in an equitable, accountable and transparent manner                       | 2.1.7 Illegal and misuse of public resources and of natural resources prevents equitable distribution of benefits (forestry; fishing; mining; wildlife). | 1. An elaborate public resource use mechanism established at all levels <sup>1</sup><br>2. Number of District Councils with clean audit certificates<br>3. Mechanisms to implement EMA established and implemented | 1. Number of district councils that publish their income and expenditure reports<br>2. Rate of public participation in the in development planning processes<br>3. Number of sector based laws implemented | Target 2.1.7 to be slightly reworded to include public resources in the sense of finance<br>PO-RALG<br>Auditor General<br>VPO (NEMC) |

(1) <sup>1</sup> Elaborate means detailed, comprehensive and transparent mechanisms for public resource allocation and use

|  |   |  |   |  |
|--|---|--|---|--|
|  | 2.1.8<br>Strengthening routine data systems to reflect vulnerability issues   | Number of monitoring schemes which collect poverty/environmental data  | Number of monitoring schemes which collect poverty/ environmental data  | ALL SECTORS<br>PO-RALG (Environmental Officers)<br>VPO (NEMC)<br>PMO (DMU) – to expand their activities to include pre-disaster planning |
|  | 2.1.1<br>Environment and other cross cutting issues mainstreamed across PERs and Budgets  | 1. Interventions for environment and cross cutting issues included in PERs and budgets (in line with MoF budget codes and systems)<br>2. Number of Ministries that have mainstreamed environment and cross-cutting issues across PER's and Budgets | 1. Ministry alignment with MTEF<br>2. Number of Ministries that have mainstreamed environment and cross-cutting issues across PER's and Budgets<br>3. Number of District Councils that have operational PER.<br>4. Percentage of funds set aside for environmental conservation                   | MoF and ALL SECTORS<br>PO-RALG<br>VPO  |
|  | 2.1.6/ 2.1.3<br>Greater awareness of the public on environmental; management/ investment/ EMA, will increase transparency and engagement in sector                          | Number of campaigns/ publications/ advertisements related to environment per year  | 1. Number of Ministries and District Councils establishing effective environmental units<br>2. Number of campaigns/ publications/ advertisements/ meetings related to EMA per year.<br>3. Proportion of budget used for public awareness on poverty- environment issues at district council level | VPO<br>ALL SECTORS<br>PO-RALG  |
| 3.1 Administrative systems of public institutions are managed transparently and in the best interests of the people they serve | 3.1.4 Inclusion of environment in M&E systems will improve knowledge base and awareness on environment and inform policy making and planning for interventions <sup>1</sup> | 1. Percentage % of sectors that have included environment in M&E systems<br>2. Number of operational worker's councils at workplaces<br>3. Mechanisms for participatory decision-making established and functioning at all levels                  | 1. Percentage of functioning M&E in the sectors and districts<br>2. Number of operational worker's councils at workplaces<br>3. Mechanisms for participatory decision-making established and functioning at all levels  | PO-PSM (President's Office – Public Service Management)  |

<sup>1</sup> Applies to other cross cutting sectors as well as environment

|   |   |   |  |   |
|---|---|---|--|---|
| 4.1 Ensure timely and appropriate justice for all especially the poor and vulnerable groups.  | Poor and vulnerable groups impacted by environmental pollution or illegal use of their resources need mechanisms to be in place for them to seek redress/recourse through courts        | Functioning legal mechanisms dealing with poverty-environment issues established at all levels in line with EMA   | 1.Number of poverty-environment related cases concluded involving the poor and the vulnerable in the court system and in the village reconciliation committees (mabaraza ya usuluhishi vijijini).<br>2. Number of awareness raising workshop on EMA for judges and magistrates                           | VPO ,<br>Judiciary<br>Human Rights Commission**<br>PO-RALG  |
|   | 4.1.3 Access to land title through review of customary, marriage, inheritance rights will increase investments in land and improve environmental management for the poor and vulnerable | 1. Degree to which the poor and vulnerable have legal protection of land rights (Cross reference to Target 4.1)<br>2. Functioning mechanisms to empower the poor and the vulnerable to understand and exercise their rights over land and other resources established | 1. Number of title deeds allocated to the poor and vulnerable<br>2. Functioning mechanisms to empower the poor and the vulnerable to understand and exercise their rights over land and other resources established  | Ministry of Lands and Humane Settlement Development<br>PO-RALG<br>Ministry of Justice and Constitutional Affairs<br>CSO<br>MCDGC - Ministry of Community Development, Gender and Children |
| 5.1 Develop political and social systems and institutions which allow for full participation of all citizens including the poor and vulnerable groups | 5.1.1 Inclusion of Hadza (hunter-gather) people as a particularly vulnerable group in decision making   | Functioning mechanism for inclusion of the Hadza and other vulnerable groups established at District level  | 1. Functioning mechanism for inclusion of the Hadza and other vulnerable groups established at District level<br>2. Affirmative action programmes for the Hadza and other vulnerable groups established at all levels<br>3. Number of awareness raising campaigns on social tolerance conducted per year | PO-RALG in collaboration with all sector and Faith-based Organizations and the Community as a whole   |

|   |   |   |   |                          |
|---|---|---|---|--------------------------|
| 7.1 Policies, strategies and legal frameworks for cultural and moral development are in place and operational | 7.1.2 Poor and vulnerable groups aware and proud of links between environmental resources and areas of national cultural heritage                                 | Cross reference to 5.1  | Cross reference to 5.1  | Cross reference to 5.1   |
| Links To Refugees in N.W. Tanzania  | Increased land pressure, insecurity through increased small arms can lead to conflicts over resources, environmental degradation and poor management of resources | Functioning programmes to monitor proliferation of small arms established | Functioning programmes to monitor proliferation of small arms established | Ministry of Home Affairs |

Annex F

## Criteria for Indicator and Data Selection

This section proposes a set of criteria, some of which are used to assess the proposed PMS level indicators.

Criteria for the selection of indicators concern both:

- Relevance to the substantive issues of poverty-environment links in Tanzania; and
- Technical criteria concerning indicator design, and data.

Please note that this section concerns only the second of these (criteria indicator design and data). The substantive issues of poverty-environment links, and related priorities in the MKUKUTA, sectoral priorities and MDGs, are addressed elsewhere.

Methodology Key Sheets for poverty-environment indicators are presented in the *Annex C*. The indicator criteria have been applied using our judgement, by weighing up alternative proposed indicators against them, and the substantive criteria. We have *not* used them as any kind of scoring system.

### F1.1.1

#### *Indicator Selection Criteria*

**Objectivity:** The indicator should have a clear definition, stating how it is to be calculated. It should be unambiguous about what is being measured, and what data it is based on. The calculation of the indicator should be repeatable by different individuals with similar results. It is likely to be based on numerical measurements, and can be expressed in quantitative terms.

**Simplicity:** The definition of the indicator should be as simple as possible, and therefore easy to calculate and present transparently. (For example *the numbers of children attending school* is a simpler indicator than the 'Gini coefficient'). Complex formulae should be avoided. Simple indicators make it easier to convey information to decision-makers and the public in a useful and informative way.

**Meaning:** The indicator, when calculated, should reveal meaningful figures. The level and direction of change of the value of the indicator from year to year and between different geographical areas should have a clear meaning, in terms of 'better' or 'worse'. For example, it is not clear if a change in the % of people using fuelwood from 50% in one year to 70% in the following year is good or bad. In contrast, an increase in the % of people with access to safe water has a clear meaning.

**Sensitivity:** The definition of the indicator ensures that, when calculated from year to year, it can detect change. One workshop participant described this as, "it is telling you what you want to know quickly enough to alter policy". Preferably it should also be sensitive to change at all (high or low) levels of the indicator.

**Can be aggregated:** It should be possible to aggregate the measurements of the indicator from two or more geographical areas, to provide regional or national values.

**Data:** The indicator should be based on good quality data. Criteria for data are described in more detail in *Section 3.2* below. In addition, if the indicator is based on more than one type or source of data, these data sources should be from similar periods in time. (The example of school enrolment % being based on current numbers of children in school, but out-of-date population figures – hence undermining the meaning of the resulting figures – was raised in the workshop).

**Practicality:** The indicator can be calculated on a timely and regular basis at reasonable cost.

### **F1.1.2 Data Assessment Criteria**

**Availability, timeliness:** The data that the indicator is based on are available. They should also be available in a timely (doesn't take too long to access the data) and regularly. Preferably the data will be being collected as part of an existing system. (Workshop participants suggested 'systematic as criteria in data selection).

**Accuracy:** The data should be relatively free of errors, arising from errors in measurement, estimation, selection, sampling, and transcription. The sampling system used should not be biased (to or from particular groups of people or areas). In most circumstances however, some kind of error is likely to be present, and it is a case of weighing up the significance of the errors in relation to the other advantages of the data / indicator.

**Reliability:** The accuracy of the data is unlikely to change from year to year, or over time.

**Objectivity:** Data are collected, compiled, and disseminated objectively. As a result, repeated data collection, whether over time or by using a different sample, would result in comparable and consistent results.

**Practicality:** It is practically feasible to collect the data, and at reasonable cost. Is the data available at a reasonable cost or is it feasible to initiate a monitoring process that will make it available in the future?

**Availability of baseline data:** Preferably, baseline data is already available (now) from previous surveys. This will allow the 'baseline' (2004) for the indicator to be calculated, or even allow the indicator to be calculated for previous years.

Annex G

## Uses of Indicators

## **F1.1**

### ***USE OF INDICATORS***

This section provides suggestions on the use and purpose of the indicators, based on the working group session on uses held during the kick-off workshop. Iterations of these uses would broadly fit into one of the categories of uses as listed.

In developing indicators, it is important to consider the nature of the intended audience and the uses, which are envisaged. For example, indicators can have a range of intended uses, for example as a tool for policy development, to raise awareness, for comparison with a baseline or with other countries, or simply for information on progress. The uses of the indicators contributed to our proposals on the number of indicators to be developed, the general themes to be covered, the balance between indicators of impact and outcomes.

#### **F1.1.1**

##### ***Allocation of resources***

- Primary users of indicators are finance ministries (for sectoral budget allocation) and within sectoral ministries (for programme budget allocation).
- At the district level, indicators could be used for planning the Medium Term Expenditure Framework (MTEF)/Public Expenditure Review (PER), to allocate resources to different parts of the country.
- Donors often use indicators to plan for donor budget allocation and to distribute resources amongst sectors and countries.

#### **F1.1.2**

##### ***Measurement (tracking progress)***

- Indicators included in the PRS are used to track progress towards meeting overall (national) goals and targets in Tanzania.
- Indicators can also assist different sectors to track performance against their targets and objectives, establish trends and therefore direct the development process. If there is a lack of progress towards these targets, as indicated by sectoral indicators, then the sector could assess why this is so? Is it because more resources are needed? Or is it that better performing sectors attract more resources to the detriment of less well performing sectors?
- Indicators could be used to compare inter-sectoral performance towards meeting sector targets.
- They are used to measure national performance against international targets such as the MDGs.
- Indicators can help to set targets that a government or sector wants to achieve within a certain time scale, so that not only can it track progress, but also have a goal to focus efforts on.

#### **F1.1.3**

##### ***Information Dissemination and Use***

- Indicators or the information that they provide, could be used to influence policy-making, contribute to development dialogue and policy revision if need be.

- Information dissemination (e.g. in parliamentary debates) could foster greater accountability, facilitate political debate and provide quantitative information to issues raised in parliament. This may also help in bringing important issues to the political agenda.
- Information provided by indicators could also be used for advocacy purposes.

#### *F1.1.4 Accountability*

- Indicators could be used to provide information on whether a country is making progress towards the goals of the PRS or the MDGs and if not why not and who is accountable for the lack of progress, thereby encouraging accountability.

#### *F1.1.5 Others types of uses*

- Projects versus programmes: some indicators that are used to evaluate projects and programmes might be similar to that used in the PRS, thereby making monitoring and evaluation more comparable at different levels.
- Indicators may provide a link between environmental policies and activities to see if they lead to poverty reduction and if not why not.
- Indicators could be used for early warning systems (for example if the information is used to make communities less vulnerable to droughts floods etc).

### *F1.2 CONCLUSIONS FROM THE NATIONAL LEVEL CONSULTATIONS*

#### *F1.2.1 Introduction*

The conclusions in this section are derived from the preliminary analysis of checklists from consultation undertaken with different ministries and Government agencies, mainly located in Dar es Salaam. The conclusions presented below are based on information collected from the following ministries/agencies:

- Ministry of Lands and Housing Development
- Vice President's Office, Division of Environment
- President's Office, Planning and Privatisation
- The National Bureau of Statistics
- President's Office, Regional Administration and Local Government (PO-RALG)
- Ministry of Water and Livestock Development
- Ministry of Communication and Transport
- Ministry of Natural Resources and Tourism (Forest and Beekeeping Division and Tourism Division)
- National Environment Management Council (NEMC)

*Key findings**Data availability for planning poverty - environment*

- Available data refers mainly to service provision and is sectoral.
- Data on water supply is mainly available at district level, and are collected by the
- Ministry of Water and Livestock Development.
- From the Ministry of Communication and Transport, the data available mainly concerns road conditions, railway infrastructures, traffic movement accident levels, rural road conditions, bus transport, shipping and airports.
- Data from the Division of Tourism in the Ministry of Natural Resources and Tourism largely concerns tourism establishment information, tourism attraction and hotel inventory

*Data availability for monitoring and evaluation of poverty - environment*

Out of the institutions listed above only a few reported the availability of data for monitoring and evaluation of poverty – environment. For example, the Ministry of Communication and Transport reported that available monitoring data concerns the sector growth per five-years, and trends assessment from set targets (five years) e.g. rural accessibility; alternative routes or modes; transport growth; increase in the number of investors to the sector; gender balance in the sector; level of awareness of environmental protection to the transport industry; and rate of accidents. The PORALG also reported carrying out monitoring and evaluation of poverty- environment through review of development plans and progress reports.

*Types of indicator (quantitative and qualitative)*

Different institutions reported different sectoral indicators that are used either directly or indirectly in the monitoring of either poverty or environmental or their interactions. The Ministry of Water and Livestock Development, for example uses indicators such as the number of water supply schemes, physical status of the schemes and water quality and sanitation. The Ministry of Communication uses indicators such as: number of kilometres rehabilitated rural roads; tonnes of agric inputs transported annually; rate of accidents per year for all modes of transport; number of telephone operators and owners; rate of increase of internet operators; Number of radio/TV station operators; and rate of growth in telephone facilities in rural areas. Most of these indicators have a bearing on the poverty levels and may have indirect impacts on the environment.

The Ministry of Natural Resources and Tourism i.e. Forestry and Beekeeping and Tourism have various indicators that they use. The Division of Tourism has indicators such as the number of employers in tourism; contribution of tourism industry to GDP; number of international tourist arrivals; and hotel sewage systems. Other sectors under this ministry, such as Forest and

Beekeeping, have their own indicators. These will be identified through reading of various sectoral reports provided.

PO-RALG reported that to monitor poverty levels the main indicators are education, health, water agriculture and rural roads. Although the team did not get much from the checklist from PORALG it is known that some of the data PORLAG is collecting is in TSED. The team will analyse the TSED data to see what indicators and information it contains with respect to poverty-environment linkages. Indicators from the National Bureau of Statistics are documented in the Poverty Monitoring Master plan (PMM).

#### *Relationship of data to poverty analysis and environment management*

In most of the consulted institutions no direct relationships were established regarding poverty and environment. However it was clear that many of these institutions are involved in either poverty or environmental analysis, directly or indirectly. The missing link was therefore on the interactions between the two. Some of the institutions reported however that they are not involved in data collection related to poverty - environmental issues. However, it was realised from the discussions and the checklist filled in that they do have activities involving poverty and/or environment, though they lack of awareness if what they do is related to poverty-environment. This indicates the need for more awareness on poverty - environment linkages. The latter also need to be mainstreamed in the data collection systems of such institutions. The Ministry of Energy and Mineral, for example, recognises environment as a cross-cutting issue, but has rarely established the linkage between poverty and environment.

Those ministries that expressed the relationship between their data system and poverty/environment include the Ministry of Water and Livestock Development. In this ministry, clean drinking water, for example, is perceived to be vital for human health. A healthy person is more likely to fight against poverty and manage the environment much better than an unhealthy one. Distance to water sources is also used by this ministry to reflect the levels of poverty and indirectly impacts on the environment. The argument is if distance to water sources is reduced it supports poverty reduction as more time will be used in other productive activities. Similarly, where there are many water sources it is less likely that there will be much environmental degradation at water points compared to when only few sources are available.

#### *Data source for the information used*

The checklists shows that most of the institutions collect routine data that is held and stored in various forms, including reports, unprocessed data files and data databases. However, apart from the priority sectors indicated in the PRS I, other institutions do not have standardised data collection systems. Sources of data are diverse. For example the Ministry of Communication and Transport obtains the data it uses from institutions like Tanzania Harbours Authority, Tanzania Central Freight Bureau, TANROADS, Sectoral ministries e.g. PO-RALG, Ministry of Works, Ministry of Finance and Economic Survey

Reports. Other institutions, such as the National Bureau of Statistics also depend on periodic data sources, e.g. from censuses and surveys.

#### *Use of the collected data*

Most of the Ministries and national institutions consulted reported that data collected is used for planning, evaluation of performance (monitoring) of the sector. However, among the problems encountered while monitoring poverty-environmental issues is lack of continuity of manpower which affects the sustainability of statistical reporting and data management. Other problems encountered include inadequate statistical knowledge on reporting poverty-environmental issues and lack of training on poverty/environmental analysis. Generally however, there has been an indication that the data collected by the sectoral ministries and institutions can be used in generating poverty – environment indicators, though not always directly. Further details will emerge when all the data from the checklists and reports has been analyse. The above observation is based on few samples from the data obtained from the national institutions.

### ***F1.3 PRELIMINARY CONCLUSIONS FROM CONSULTATIONS AT THE DISTRICT COUNCIL LEVEL***

A total of 16 district councils were visited for consultations and discussions on the poverty-environment indicators, availability of data and poverty-environment monitoring processes. In these district councils, the Team met with district staff, consulted with officers for specific projects in the district councils (e.g. TACARE in Kigoma, Tanzakesho in Mbozi, Sustainable Iringa Project). The results from the samples present an interest picture of the situation on the ground and should be used a reality check for the understanding of the poverty-environment linkages and the challenges that PMS face in the district councils. The general conclusions from the survey in the district councils are as follows:

#### *Type of data, information used for planning P-E and monitoring*

Most of the district councils collect routine data related to specific sectors (e.g. health, education, water) based on data collection templates and forms that have been designed by the respective ministries. For example, special forms are designed to collect uniform data from the education and health sectors and submitted to the respective ministries. Such data is relatively consistent with regard to issues that are being followed up over time. It is not clear if district councils are involved in the analysis of such data and if they get feed back from the respective ministries or use some of the data in their plans.

The data that the District councils collect on routine basis is used for planning process as well as for informing higher up authorities as required. Some district councils, such as Mbozi and Tandahimba use spatial data or baseline surveys as sources of the data for planning purpose and some district councils have developed specific indicators while others have not. Consequently, some

of the information collected can be related to poverty analysis and environmental management. For example in Mbozi, through the Tanzakesho program, the data that is collected show linkages to poverty because it depicts socio-economic characteristics, quality and availability of social services and opportunities for improving livelihoods (minimize vulnerability).

District councils are involved in the collection of periodic data during the times this data is needed by ministries or programs, e.g., during census or national surveys such as Household Budget Surveys, Demographic Household Surveys or Agricultural surveys. District councils can access information from such surveys after it has been analyzed but district councils make very little use of such information in the planning process.

Most of the district councils do not have monitoring and evaluation (M&E) units and therefore, data processing and storing is weak. However, most district councils have acquired computers for storing the data and in Tandahimba for example, staff is trained in a data processing format that the PORALG is promoting.

#### *Data storage*

The information from the checklists further shows how data is collected from the villages to ward level and then to the district councils. Some of the data is held as hard copy reports while others is held electronically in each respective sector but most of it is kept in the district planning office. This process is uniform in all the district councils but the major difference is in terms of the frequency the data is collected. Although district councils follow the same Local Government regulations, the ability of each district to meet the costs of data collection is different. Data is not regularly collected and the capacity to analyze it is low. Most of the data is kept in raw form or submitted to higher office in raw, with little breakdown or disaggregating.

#### *Types of indicators and use*

Some district councils have some indicators that they use in monitoring. For example, rates of deforestation, trends in bush fires, percentage proportion of farm expansion, maternal mortality rate, infant mortality rate, number of water schemes, trend in sale of charcoal, timber, firewood, poles and incidences of crop failure associated with drought. Some district councils have not developed indicators and even those that have, they do not directly link it with poverty-environment or poverty monitoring within the context of the PMS.

Overall however, knowledge and understanding among district staff on the poverty-environment linkages and the PRS (NSGRP) and what district councils are supposed to do is weak and data that is collected on routine basis in the district councils is not fed directly into the PMS.

A comparison of the two administrative levels i.e. the national institutions and the district councils show that, national institutions are relatively well versed

with poverty, environment or poverty – environment linkages than the district councils. This is partly due to the high level of engagement of the national institutions in the poverty reduction processes than the district councils and poses challenges for capacity building at the district level for effective monitoring in the NSGRP.

Annex H

## Tables of Existing and New/Innovative Indicators

**Table 1.1** Existing indicators and data

| Ministry or Department | Indicator  | Data | Source (which survey)        | Assessment of data quality  |
|------------------------|--|------|------------------------------|---|
| VPO-DoE                | <ul style="list-style-type: none"> <li>Area under afforestation</li> <li>Areas of harvested trees replanted</li> </ul> |      | Local Government Authorities | <ul style="list-style-type: none"> <li>There is no monitoring to check accuracy of data on the ground.</li> <li>To strengthen monitoring system and improve accuracy of data collection on target 2.9</li> <li>DoE to compile State of Environment Report</li> </ul>  |
| VPO-NEMC               |  |      |                              | <ul style="list-style-type: none"> <li>Through EMA, VPO-NEMC is supposed to collect data and monitor compliance to EMA.</li> <li>No clear follow up on monitoring as a whole</li> <li>Follow up on environmental impacts is on ad hoc basis</li> <li>NEMC to collect data on suggested indicators relevant to target 2.9</li> <li>NEMC to collect data relevant for indicators for target 3.8. Baseline data for environmental and health conditions to enable monitoring of effects of pollution on health</li> <li>NEMC, in collaboration with TBS, to develop national standards for pollution</li> <li>VPO (NEMC), in collaboration with the Ministry of Industries and Trade and the Clean Production Centre to collect the data for indicators relevant to target 3.9</li> <li>VPO (NEMC) in collaboration with the Auditor General to collect data for indicators relevant to target 2.1, 2.1.8 (addressing P-E linkages as explained under item 2.1.8)</li> </ul> |

| Ministry or Department  | Indicator   | Data  | Source (which survey)  | Assessment of data quality   |
|---|---|---|--|--|
| VPO- PED  | <ul style="list-style-type: none"> <li>Current PMS Indicators</li> </ul>  | <ul style="list-style-type: none"> <li>Compiles information and analyse information from all sectors</li> </ul>             | <ul style="list-style-type: none"> <li>Varied source including all sectors</li> </ul>  | <ul style="list-style-type: none"> <li>Initiate poverty-environment mapping (Poverty mapping undertaken by RAWG, however, there is need to include poverty-environment mapping)</li> <li>VO-PED to compile data relevant to the indicators related to target 3.12</li> </ul> |
| Ministry of Natural Resources and Tourism (MNRT) - Forestry           | <ul style="list-style-type: none"> <li>Number of Joint Forest Management agreements</li> <li>Number of Community Based Forest Management agreements</li> <li>Total area of forests under JFM or CBFM agreements</li> <li>Number of wildlife management areas</li> <li>Mean distance to firewood</li> <li>Number of bee reserves and apiaries</li> </ul> | <ul style="list-style-type: none"> <li>Forest Management Plans and Agreements</li> <li>Wildlife Management Plans</li> </ul> | <ul style="list-style-type: none"> <li>District Forest Lists</li> <li>Studies by commissioned the MNRT;</li> <li>District Forestry Officer Reports</li> <li>Household Budget Survey (HBS)</li> </ul> | Data is often not reliable, forwarded to the LGAs or standardized  |
| Ministry of Natural Resources and Tourism (MNRT) - Fisheries Division | <ul style="list-style-type: none"> <li>Availability of fish as a source of food</li> <li>Availability of fish as a source of income</li> <li>Value of total fish catch</li> <li>Annual export of fish</li> </ul>  | <ul style="list-style-type: none"> <li>Catch and effort data</li> <li>Data on quantity of fish</li> </ul>                   | <ul style="list-style-type: none"> <li>Frame surveys to measure effort</li> <li>Catch assessment surveys to measure the catch</li> </ul>   | Data is often not reliable, forwarded to the LGAs or standardized  |

| Ministry or Department                                | Indicator  | Data  | Source (which survey)  | Assessment of data quality                               |
|---|--|---|--|--|
| MAFS<br>(Ministry of Agriculture and Food Security)   | <ul style="list-style-type: none"> <li>Average acreage of cultivated land per household</li> <li>Percentage of households with food insecurity</li> <li>Food security at district level</li> </ul>   | <ul style="list-style-type: none"> <li>Agricultural production data</li> <li>Demographic data</li> </ul>  | <ul style="list-style-type: none"> <li>Agriculture Surveys (routine and periodic)</li> <li>HBS</li> <li>National Sample Census and Census (NBS)</li> </ul> | Generally of reasonable quality                          |
| MWLD<br>(Ministry of Water and Livestock Development) | <ul style="list-style-type: none"> <li>Number of villages without water supply at district level</li> <li>Number of water supply schemes</li> <li>Distance and Time to water source</li> <li>Percentage of households having access to and using different types of toilet facilities</li> </ul> | <ul style="list-style-type: none"> <li>Water supply coverage</li> <li>Physical status of schemes.</li> <li>Water quality; Pollution of water sources.</li> <li>Sanitation status</li> </ul> | District Water Engineers, Scheme leadership, data base officer<br>HBS  | Generally of reasonable quality                          |
| MEM<br>(Ministry of Energy and Minerals)              | Percentage of households using <ul style="list-style-type: none"> <li>Firewood</li> <li>Charcoal</li> <li>Kerosene</li> <li>Gas</li> <li>Electricity</li> </ul>  |   | Human Resources Development Survey 1993/94<br>HBS<br>Demographic and Health Survey (DHS)   | Generally of good quality, but data on renewable sketchy |

| Ministry or Department                                     | Indicator   | Data  | Source (which survey)  | Assessment of data quality  |
|--|---|---|--|---|
| Ministry of Lands and Human Settlements Development (MLHS) | <ul style="list-style-type: none"> <li>Number of villages with title deeds</li> <li>Number of low cost houses built and material used</li> </ul>  |   | District Land Offices and Departments/ Agencies<br>Periodic surveys  | Routine data is generally good                                    |
| TAFIRI (Tanzania Fisheries Research Institute)             | <ul style="list-style-type: none"> <li>Catch per unit effort</li> <li>Rate of destruction of coral reefs</li> <li>Rate of destruction of mangroves</li> </ul>   | <ul style="list-style-type: none"> <li>Information on integrated fish farming</li> <li>Catch statistics to estimate fish stock</li> </ul>   | <ul style="list-style-type: none"> <li>Integrated fish farmers</li> <li>Beach Recorders</li> </ul>   | Data collected is limited to only two sites (Kunduchi and Ununio) |
| Ngorongoro Conservation Area authority (NCAA)              | <ul style="list-style-type: none"> <li>Number of livestock owned per household</li> <li>Carrying capacity of the area for domestic animals and human population</li> <li>Ability of a person to obtain basic needs</li> </ul> | NCAA population census<br>Annual and quarterly, and periodic reports from different departments<br>Holding regular and irregular meetings with local communities<br>Tourists entrance data at gates<br>Data of patients attending NCAA dispensary<br>Livestock data<br>Data related to agricultural production<br>Food security situation (shortage of food after harvest)<br>Price of grains | Visitation (data from visiting the area regularly and irregularly)<br>Tourist information at gates<br>Dispensaries<br>Livestock development officers<br>Ward Offices<br>Veterinary offices<br>Religious institutions | Quality is moderately good but needs regular updating.            |

| Ministry or Department                                | Indicator  | Data   | Source (which survey)  | Assessment of data quality   |
|---|--|--|--|--|
| SCSRD (SSUA Centre for Sustainable Rural Development) | <ul style="list-style-type: none"> <li>Types of farming systems</li> <li>Types of crops planted</li> <li>Production per unit area</li> <li>Household income</li> <li>Availability and access to social services, education and markets</li> </ul>  | <p>Information for participatory baseline research using PRA tools, meetings, surveys, etc.</p> <p>Weather data</p> <p>Forest vegetation</p> <p>Endangered tree species</p> <p>Vegetation cover at water sources</p> <p>Land use patterns</p> <p>Water levels</p> <p>Tree nursery management</p> <p>Tree planting at water sources</p> | <p>Case studies, seminars, progress reports</p> <p>Both periodic and routine data sources (SCSRD-JICA project 1999-April 2004)</p> | Not indicated  |
| WAMA – Dodoma Municipality                            | <ul style="list-style-type: none"> <li>Number of Boreholes, depth and yield,</li> <li>Number of shallow wells number of springs</li> <li>Number of morbidity and mortality cases associated with water and sanitation related diseases.</li> <li>Protection of the water sources (e.g. by fencing, planting trees, etc)</li> </ul> | <p>Data on Boreholes, shallow wells and springs</p> <p>Participatory research appraisal technical survey</p> <p>Information on Pump test (report)</p> <p>Village water funds report</p> <p>Operation and maintenance report</p> <p>Performance report of water projects</p> <p>Supervision reports</p>                                 | <p>Water department</p> <p>Health department</p> <p>Education department</p>   | Not indicated (comment: need of having same format for all districts of Tanzania). |

**Table 1.2** *New or innovative indicators: examples from field visits*

| District Council/<br>Municipality | Indicator   | Data  | Source (which survey)                                  | Assessment of data quality   |
|-----------------------------------|---|---|--|--|
| Mtwara Urban                      | Total weight of fish harvested in tonnes/fishing vessel (landing at site) | <u>Resources available</u><br>Available local market                            | Village level (Routine)<br>Ward development Committees | Data quality is Good because they use participatory methods in data collection (after O& OD) |
|                                   | Number of households using clean energy stoves                            | Existing Projects   | Sectoral data (e.g. agriculture, Social services, etc) |  |
|                                   | Number of cases reported on environmental degradation                     | <u>Extension services</u><br>Impact assessment<br>Monitoring extension services |  |  |

| District Council / Municipality | Indicator                                     | Data                                 | Source (which survey)                     | Assessment of data quality |
|---------------------------------|---|--------------------------------------|---|----------------------------|
| Tandahimba                      | <u>Poverty</u>                                | Child mortality                      | Baseline surveys,                         | Good                       |
|                                 | Farmers' incomes                              | Data on farmers income               | Socio-economic surveys                    |                            |
|                                 | Children health                               | Data on child and maternal mortality | Client interactive monitoring (using PRA) |                            |
|                                 | Child mortality                               | Data on child health                 | Health facilities                         |                            |
|                                 | Child and maternal mortality                  | Data on tree cutting (deforestation) | Schools                                   |                            |
|                                 | <u>Environment</u>                            | Data on landslides                   | Village CBOs                              |                            |
|                                 | Increase in tree cutting                      | Data on afforestation                | NGOs (depending on services they provide) |                            |
|                                 | Number of landslides                          | Data on water and water sources      | Extension workers                         |                            |
|                                 | Number of water sources                       | Data on diseases                     | Research Institutes                       |                            |
|                                 | Area planted with trees (e.g. with cash crop) | Data on health                       | Social workers                            |                            |
|                                 |   | Data on immunisation                 | Religious institutions                    |                            |
|                                 |   | Data on agriculture and livestock    | Monitoring team                           |                            |
|                                 |   | Data on malnutrition                 |   |                            |
|                                 |   | Data on education                    |   |                            |
|                                 |   | Data on cooperatives                 |   |                            |

| District Council / Municipality    | Indicator  | Data   | Source (which survey)  | Assessment of data quality  |
|------------------------------------|--|--|--|---|
| Kinondoni (Dar es Salaam)          | Peoples' purchasing power<br>Levels of employment<br>Dependence level<br>Availability of social services (such as piped water, electricity, education, health, etc.)<br>Housing status<br>Number of all-weather roads<br>Sand extraction<br>Number of shallow and deep wells<br>Incidences of dynamite fishing<br>Incidences of mangrove cutting | Sectoral progress reports<br>Data on road conditions<br>Data on Quarrying activities<br>Data on Shallow and deep wells<br>Data on Irrigation farming<br>Data on Dynamite fishing<br>Data on Mangrove cutting<br>Data on education<br>Data on health<br>Data on agriculture<br>Data on tax collection (revenue) | Quarterly and progress reports<br>Schools<br>Dispensaries and health centres<br>Ward offices<br>Sub-location offices (Mtaa)<br>Households<br>Community development offices | Quality of data has improved after introduction of Information Technology Unit at the Municipal |
| Sustainable Cities - Dar es Salaam | Not indicated  | Levels of services provided (data on non-income poverty)<br><br>Sector performance in fulfilling their routine duties<br><br>Sector impact on the environment (especially economic activities)   | Various sectors/activities<br>Responsible departments in urban centres<br>Various programmes/projects<br>Through updating Environmental Profiles (EP's)                    | In most case data is of good quality  |

| <b>District Council / Municipality</b> | <b>Indicator</b>  | <b>Data</b>   | <b>Source (which survey)</b> | <b>Assessment of data quality</b> |
|--|---|---|------------------------------|-----------------------------------|
| Morogoro                               | (Note: monitoring and evaluation tools not well developed)<br><br>Immunisation coverage<br>Nutritional status of children under 5 years<br>Pregnancy monitoring<br>Number of children enrolled in | Ward Development<br>Committee Reports<br>Stakeholder meeting reports<br>Recommendations from regional secretariat<br>Immunisation under 5year<br>Nutritional status for under 5yearass<br>Pregnancy monitoring<br>Primary school enrolment schools (TCM 1 filled at school) | Health centres<br>Schools    | Data of poor quality              |

| District Council / Municipality                   | Indicator   | Data  | Source (which survey)   | Assessment of data quality                         |
|---|---|---|---|--|
| Dodoma Rural<br>(Department of Natural Resources) | Population  | Data on human resources   | Monthly field extension officers' reports (on paper files)<br>Village Natural Resources Committees<br>Ward Development Committees | Data quality is very poor and generally unreliable |
|   | Area deforested                                   | Data on natural resources   |   |  |
|   | Number of trees planted (afforestation)           | Field reports from communities and extension officers                               |   |  |
|   | Number of bee hives constructed                   | Data on wealth and sources of income  |   |  |
|   | Tonnes of fish harvested                          | Data on environmental destruction (e.g. poaching, illegal fishing and tree cutting) |   |  |
|   | Number and size of fishing gears                  | Data on tree planting   |   |  |
|   | Number of fishing vessels                         | Data on fish harvested  |   |  |
|   | Incidence of poaching                             | Data on fishing gears   |   |  |
|   | Wealth status of the people                       | Data on fishing vessels   |   |  |
|   | Number of income sources                          | Data on wealth status of the people   |   |  |
| Dodoma Rural (Water Department)                   | Reduction of water related diseases               | Data on income sources  | PRA/RRA reports   | Not indicated                                      |
|   | Percentage of people getting safe and clean water | Data on water related diseases  |   |  |
|   | Increasing water funds in the bank account        | Data on people getting safe and clean water   |   |  |
|   |   | Data on water funds   |   |  |

| District Council / Municipality                 | Indicator   | Data  | Source (which survey)   | Assessment of data quality   |
|---|---|---|---|--|
| Dodoma Rural (Health Department)                | Magnitude of health problems and possible solutions   | Demographic data<br>Data on environmental sanitation<br>Data on diseases surveillance and management  | Communities<br>Dispensaries<br>Health centres and Hospitals   | Quality of data is Average, but the district coverage is improving |
| Dodoma Rural (Community Development Department) | Number of people participating in development activities<br>Number of economic groups established and managed<br>Number of improved houses<br>Literacy rate | <u>Routine</u><br>Monthly, quarterly and annual reports<br>Levels of production<br>- Subsistence incomes<br>- Technical know how used in production<br>- Housing status<br>- Reports from extension workers<br>Use of action plan to asses what is implemented in the period<br>Enrolment in schools<br><br><u>Periodic</u><br>Economic data<br>Population data<br>Housing status<br>Production data (agriculture, livestock, natural resources, beekeeping, etc) | Village governments<br>Health facilities available<br>Primary and secondary schools<br>Agricultural extensionists and farmers<br>Community development officers and extensionists | Data quality is Good   |

| District Council / Municipality        | Indicator  | Data  | Source (which survey)  | Assessment of data quality  |
|--|--|---|--|---|
| Dodoma Rural (Cooperatives Department) | Number of Cooperative membership<br>Number and value of shares held<br>Amount of members' saving and time deposits<br>Value of loans issued, recovered and balance<br>Amount of revenue earned from loan interest  | Data on Cooperative membership<br>Data on value of shares held<br>Members' saving and time deposits<br>Value of loan issued, recovered and balance<br>Data on revenue earned from loan interest | Books of accounts at primary cooperatives level              | Quality of data from SACCOS more reliable compared to that from Primary Cooperative Societies |
| Dodoma Rural (Trade Department)        | Number of business communities in the district<br>Standard of living (per capita income)<br>Level of education<br>Infrastructure.<br>Number of new enterprises   | Data on business communities in the district<br>Data on capital invested in business<br>Data on new enterprises (Routine)   | Trading centres in the district                              | Data is sufficiently good   |
| Dodoma Rural (Education Department)    | Net enrolment rate<br>Gross enrolment rate<br>Pass rate<br>Attendance rate<br>Completion rate<br>Drop-out rate<br>Number of pupils<br>Number of teachers<br>Number of classrooms<br>Number of teaching and learning materials<br>Number of teachers' houses (quarters) | Monthly report-Primary and secondary school data<br>Quarterly reports--Primary and secondary school data<br><br>Takwimu za Shule za Msingi (TSM 1) & Takwimu za shule za Sekondari (TSM 2)      | Primary School level<br>Secondary School level<br>Ward level | Sufficient  |

| District Council / Municipality                        | Indicator   | Data  | Source (which survey)  | Assessment of data quality                                      |
|--|---|---|--|---|
| Dodoma Municipal (Lands Department (Municipal Valuer)) | Number of real property sales/purchases<br>Number of mortgages<br>Number of completed houses  | Data on real property sales and purchases<br>Data on mortgages<br>Data on houses construction | Ward Executive Officer offices<br>Land Auctioneers<br>Banks<br>Individual clients<br>Land registry<br>District Land Office<br>All Ward and District Management Committee (DMC) | Data quality is relatively poor                                 |
| Dodoma Municipal (Fire Department)                     | Number of Fire event at offices, household and commercial premises, ward and villages   | Data on Fire event at offices, household and commercial premises, ward and villages           | Owners of buildings<br>Owners of business premises<br>Police and other authorities   | Data quality is not all reliable.<br>Often cases reported late. |
| Dodoma Municipal (Planning Department)                 | Income per capita<br>Level of employment<br>Productivity<br>Status of environment and natural resources (ENR)<br>Transition rate<br>Infant mortality rate<br>Maternal mortality rates (MMR)<br>Under five mortality rate<br>Population with access to safe water<br>Number of kilometres of roads rehabilitated | Population census<br>Household Budget Surveys<br>Data on roads rehabilitation                 | Population and housing census<br>Household budget surveys<br>Agricultural surveys<br>HMIS<br>EMIS<br>Traffic Volume Special Surveys<br>Progress report (water)                 | Not indicated   |

| District Council / Municipality                 | Indicator   | Data  | Source (which survey)  | Assessment of data quality   |
|---|---|---|--|------------------------------|
| Dodoma Municipal (Health Department)            | Maternal rate   | Data on infectious diseases   | Dispensaries   | Data quality is satisfactory |
|   | Infant mortality rate   | Data on daily attendance and diagnosis                              | Health centres   |                              |
|   | Number of cases with infectious diseases                              | Outpatient attendance   | Hospitals  |                              |
|   | Number of inpatients attending health facilities                      | Data on MCH services  | Specialised clinics  |                              |
|   | Number of outpatients attending health facilities                     | Data on laboratory diagnosis  |  |                              |
|   | Findings from laboratory diagnosis                                    |   |  |                              |
| Dodoma Municipal (Natural Resources Department) | Rate of deforestation   | Data on tree cutting and deforestation                              | Schools  | Data quality is satisfactory |
|   | Number of tree seedlings raised by individual, groups and departments | Data on tree seedlings raised by individual, groups and departments | Individuals<br>Groups<br>NGOs<br>Departments<br>Institutions |                              |
| Dodoma Municipal (Water Department)             | Number deep wells   | Data on deep wells  | Villages water committees                                    | Data quality is Good         |
|   | Number hallow wells   | Data on hallow wells  | Municipal Water Office                                       |                              |
|   | Number of springs   | Data on springs   | Engineer supervision visits                                  |                              |
|   | Number of ponds   | Data on ponds   | Monthly, Quarterly and Annual reports                        |                              |
|   | Number pumps  | Data on pumps engines   |  |                              |
|   | Number of engines   | Data on water schemes   |  |                              |
|   | Number of water schemes   |   |  |                              |

| District Council / Municipality                      | Indicator  | Data  | Source (which survey)   | Assessment of data quality  |
|--|--|---|---|---|
| Singida Rural (Health Department)                    | Incidences of different types of diseases<br>Maternal mortality rates<br>Infant mortality rates  | Data on Morbidity<br>Data on Maternal mortality<br>Data on Infant mortality<br>Data on Diseases<br>Data on Immunisation<br>Family planning<br>Data on Environmental sanitation<br>Data on Equipment<br>Data on staff                                    | Hospitals,<br>Health centres<br>Dispensaries<br>(Through Health Management Information System - HMIS) | Data quality is Relatively Good   |
| Singida Rural (Agriculture and Livestock Department) | Crop production for both households and individuals<br>Rate of adoption of agricultural technologies (individuals and groups)<br>Improved use of natural resources<br>Number of members in cooperative societies, groups, SACCOS | Data on Crop production for both households and individuals<br>Data on adoption of agricultural technologies (individuals and groups)<br>Data on improvement in use of natural resources<br>Data on membership in cooperative societies, groups, SACCOS | Extension workers' reports<br>Village and ward reports  | Data is of Good quality, but could be improved through building capacity of village and ward extension workers. |

| <b>District Council / Municipality</b> | <b>Indicator</b>   | <b>Data</b> | <b>Source (which survey)</b>   | <b>Assessment of data quality</b> |
|--|--|-------------|--|-----------------------------------|
| Singida Rural (Education Department)   | Achieved targets (e.g. number of classroom, teachers, enrolments, etc) |             | Community participation<br>District Council task force<br>External valuer<br>PEDP Financial auditing<br>Approved reports<br>Schools<br>Village executive officers<br>Ward executive committees | Data quality is Good              |

| District Council / Municipality         | Indicator   | Data  | Source (which survey)   | Assessment of data quality      |
|---|---|---|---|---------------------------------|
| Singida Rural (Cooperatives Department) | Per capita income<br>Size of individual working capital<br>Number of vulnerable people, poor and weak<br>Number of micro financial institutions available<br>Number of weekly produce markets<br>Number of people who are able to buy farm implements and farm inputs<br>Number of people with low income and frequent food insecurity<br>Potential members of cooperative groups<br>Problems solved through cooperative groups<br>Environmental conditions | Data on potential members of cooperative groups<br>Data on members income from the cooperatives<br>Data on individual working capital<br>Data on vulnerable people, poor and weak<br>Data on micro financial institutions available<br>Data on weekly produce markets<br>Data on people who are able to buy farm implements and farm inputs<br>Data on people with low income and frequent food insecurity<br>Data on potential members of cooperative groups<br>Data on problems solved through cooperative groups<br>Data on environmental conditions | Village Executive Officers' (VEO)<br>District Council planning office<br>Cooperative societies and groups | Data quality is Moderately Good |

| <b>District Council / Municipality</b> | <b>Indicator</b>  | <b>Data</b>   | <b>Source (which survey)</b>  | <b>Assessment of data quality</b> |
|--|---|---|---|-----------------------------------|
| Singida Rural (Trade Department)       | Population of a certain place and occupation<br>Type and condition of on infrastructure<br>Number of social services available<br>Number of people who have access to information and business education<br>Sources of income<br>Number of people who have access to electricity<br>Number of businesses - commercial/industrial activities<br>Type of technologies and innovations used in industries<br>Prices of products at different markets | Data on infrastructure<br>Data on patterns of capital flow<br>Data on Communication system<br>Data on Training in business skills<br>Data on population of a certain place and occupation<br>Data on type and condition of on infrastructure<br>Data on social services available<br>Data on people who have access to information and business education<br>Data on sources of income<br>Data on people who have access to electricity<br>Data on businesses - commercial/industrial activities<br>Data on types of technologies and innovations used in industries<br>Data on prices of products at different markets | Village Executive Officers<br>Ward Executive Officers<br>District Council planning officers<br>District Council trade officers<br>Physical counts | Data quality is Moderately Good   |

| District Council / Municipality                           | Indicator   | Data  | Source (which survey)   | Assessment of data quality   |
|---|---|---|---|--|
| Singida Rural (natural Resources Department)              | No indicators mentioned   | Sectoral policies<br>Sectoral data on socio-economic activities<br>Identification of community needs through PRA , PPA and O& OD<br>Monthly progress reports<br>Annual implementation reports | Communities<br>Village governments<br>Extension officers reports (Land, Forest, Fisheries, Wildlife Beekeeping)   | Somewhat poor (flow of data from ward to District Council not smooth enough) |
| Singida Rural (planning Department)                       | Improvements in service provision e.g. water, health, roads<br>Improved environment<br>Achievement against set targets<br>Number of cooperative societies, groups, SACCO's<br>Number of farmers using improved technologies | Village action plans obtained through PRA, PPA and O & OD<br>Data on performance towards goals and targets  | Agriculture Department.<br>Livestock Department.<br>Natural Resources and Lands Department<br>Planning Department<br>Village reports from VEO<br>Ward Reports from WEO<br>Extension staff | Good and useful  |
| Singida Rural (District Council Executive Director - DED) | Improvements in service provision e.g. water, health, roads<br>Improved environment<br>Achievement against set targets  | Village action plans obtained through PRA, PPA and O & OD<br>Data on performance towards goals and targets  | Site inspections<br>Approved reports<br>Audit reports   | Good and useful  |

| District Council / Municipality                      | Indicator  | Data   | Source (which survey)  | Assessment of data quality                                  |
|--|--|--|--|---|
| Singida Urban (Town Engineer - COMWORKS)             | Number of kilometres with a certain quality of road condition<br>Number of vehicles in particular roads (vehicle count)<br>Number of borrow pits backfilled after road construction/rehabilitation   | Road condition data<br>Transport modes available<br>Standard of living in rural areas  | Site visits<br>Town Engineers Office   | Good  |
| Singida Rural (Community Development Department)     | Nation-wide List of 59 Poverty and Welfare Indicators on food security, income, education, health, water and sanitation, nutrition, transport and communication, housing, environment, household and family relations, Energy, empowerment and participation, traditions and norms<br>Number of under-age children employed<br>Number of child who live under difficult conditions | Gender and development issues.<br>Women economic activities.<br>Loan provision and repayment<br>Community self-reliance activities<br>Women in leadership position<br>Child labour<br>Child who live in difficult conditions | UAAP Indicators from data collected from the community, sub-village, village, ward and District Council levels<br>Special periodic surveys | Good and serve the intended purpose                         |
| Singida Rural (Agriculture and Livestock Department) | Annual crop production (food and cash crops)<br>Number of livestock (cattle, sheep, goats etc)<br>Incidence of livestock diseases<br>Sales of livestock (number and values)  | Crop yield estimation<br>Food security assessment<br>Agricultural surveys  | Household surveys<br>Livestock markets<br>Extension workers (through monthly reports)  | Crop data good (satisfactory)<br>Livestock data not as good |

| District Council / Municipality                     | Indicator  | Data  | Source (which survey)   | Assessment of data quality  |
|---|--|---|---|---|
| Singida Urban (Education Department)                | Number of pupils<br>School Infrastructure (e.g. buildings)<br>Number of teachers   | Data on number of pupils<br>Data on number of teachers<br>Data on teacher's houses<br>Data on books, note books, desks, toilets   | Both periodic national census and routine annual censuses<br>Community<br>Village/Subvillage<br>Schools<br>VEO's offices<br>WEO's offices<br>Households                           | Moderately good (routine)<br>National census more comprehensible<br>Quality for periodic data is good |
| Singida Urban (Planning and Environment Department) | Number of plot applicants in the urban area<br>Number of houses developed in unplanned settlements<br>Number of plots earmarked for different uses<br>Number of plots demarcated for different uses<br>Number of plots allocated in a given period of time<br>Number of title deeds produced<br>Compensation costs for landed property | Data on on plot applicants in the urban area<br>Data on houses developed in unplanned settlements<br>Data on plots earmarked for different uses<br>Data on plots demarcated for different uses<br>Data on plots allocated in a given period of time<br>Number of title deeds produced<br>Compensation costs for landed properties | Application registers<br>Regular site visits<br>Urban planning briefing reports<br>Surveying reports<br>Urban plot allocation reports<br>Land Office reports<br>Valuation reports | Good (reliable)   |

| District Council / Municipality             | Indicator   | Data   | Source (which survey)   | Assessment of data quality  |
|---|---|--|---|---|
| Singida Urban (Town Director)               | National standards                                | Economic data  | CWIQ  | Routine data not reliable   |
|   | National sectoral indicators                      | Household data<br>Population data<br>Housing data                                | PPA<br>HBS<br>Annual Reports<br>Semi-Annual Reports<br>Quarterly Reports<br>Monthly Reports |   |
| Singida Urban (Health Department)           | Infant Mortality Rate (IMR)                       | Data on diseases and diagnosis   | Health Management Information Systems (HMIS)  | Good  |
|   | Maternal Mortality Rate (MMR)                     | Data related to sanitation   | O & OD Plans  |   |
|   | Morbidity (Incidences and prevalence of diseases) | Data on immunization   | Community at village level  |   |
|   |   | Data on reproductive health  | Health facilities (dispensaries, health centres and hospitals)<br>District level data       |   |
| Iringa Municipality (Community Development) | Decrease in tree cutting                          | Data on cooperative groups at sub-village level                                  | Health centres<br>Schools   | Relatively good (storage of data could be improved if digitally stored) |
|   | Increase in use of alternative energy sources     | Data on loan repayment   | Extension Officers  |   |
|   | Number of new economic ventures                   | Data on tree cutting   | Wards, Villages and Sub-Villages  |   |
|   | Number of women and youth groups                  | Data on number of people adopting alternative energy sources and improved stoves | Community Development Officers  |   |
|   | Number of credit societies                        | Data on economic ventures  |   |   |
|   | Number of NGO's                                   | Data on credit societies   |   |   |
|   | Number of children living in difficult conditions |  |   |   |
| Rate of HIV infections                      |   |  |   |   |

| District Council / Municipality                                  | Indicator   | Data  | Source (which survey)  | Assessment of data quality                                |
|--|---|---|--|---|
| Iringa Municipality<br>(Sustainable Iringa Project- Coordinator) | Incomes of the households                                       | Data on municipal Profiles                            | House to house visits in collaboration with Community Development Officers<br>Profiles - through consultancy<br>Compiled quarterly reports (from data collected daily)<br>Various departments<br>Working groups under Sustainable Iringa Project | Data quality is not very good (unreliable).               |
|  | Number of meals   | Data on diseases                                      |  |   |
|  | Status of housing environment                                   | Data on incomes of the households                     |  |   |
|  | Type and number of basic facilities (e.g. water, latrines, etc) | Data on nutritional status                            |  |   |
|  | Disease incidences (e.g. dysentery, typhoid and malaria)        | Data on status of housing environment                 |  |   |
|  | Number of households  | Data on basic facilities (e.g. water, latrines, etc)  |  |   |
|  | Type of houses  | Data on number households                             |  |   |
|  | Income from property tax/land rent                              | Data on type of houses                                |  |   |
|  | Income from petty business revenue collection                   | Data on income from property tax/land rent            |  |   |
|  | Rate of fuelwood extraction                                     | Data on income from petty business revenue collection |  |   |
| Iringa Municipality<br>(Sustainable Iringa Project- GIS Unit)    | Number of trees available                                       | Data on vegetation cover                              | Land registration reports<br>Valuation roll<br>Data from sub-villages and residential areas<br>Other municipal departments   | Relatively good (some well accessible; some not reliable) |
|  | Number of built plots and number of surveyed plots              | Data on built plots and surveyed plots                |  |   |
|  | Size of squatter areas  | Data on squatter areas                                |  |   |
|  | Number of people with title deeds                               | Data on land title deeds                              |  |   |
|  | Number of people who demand maps                                | Data on demand for maps                               |  |   |
|  | Numbers and types of infrastructure                             | Data on infrastructure                                |  |   |

| <b>District Council / Municipality</b>                             | <b>Indicator</b>   | <b>Data</b>                                  | <b>Source (which survey)</b>    | <b>Assessment of data quality</b> |
|--|--|--|---------------------------------|-----------------------------------|
| Iringa Municipality<br>(Natural Resources<br>Development - Forest) | Income from sales of tree seedlings                                    | Data on commercial tree nurseries            | Forest Officers in the District | Data collected is of Good quality |
|  | Number of people with tree nurseries                                   |  |                                 |                                   |
|  | Number of people planting trees  | Data on tree planting campaigns              |                                 |                                   |
|  | Number of trees planted in each ward                                   |  |                                 |                                   |
|  | Number of people who practice grafting of trees                        | Data on trees planted in each ward quarterly |                                 |                                   |
|  | Number of community groups involved in conservation of water catchment | Data on tree-grafting practices              |                                 |                                   |
|  | Number of groups with tree nurseries                                   | Data on tree cutting                         |                                 |                                   |

| District Council / Municipality                                | Indicator  | Data   | Source (which survey)   | Assessment of data quality  |
|--|--|--|---|---|
| Iringa Municipality<br>(Agriculture and Livestock Development) | Price of produce in the market<br>Number of people buying food stuff from retail shops (e.g. sembe)<br>Number of milling machines<br>Amount of produce<br>Amount of food loss<br>Number of malnourished children admitted in clinics<br>Acreage of farms<br>Types of inputs used<br>Types of crops sold<br>Quantity of milk and meat produced<br>Quality of milk and meat produced<br>Incidence of crop and livestock diseases<br>Vaccination coverage | Weather forecast records<br>(rainfall trends and plan strategies e.g. crop varieties)<br>Data on crop pest and provision of advice<br>Market information (e.g. for mushroom)<br>- Monitoring crop prices<br>Data on use of agricultural inputs and supplies<br>Data on monitoring food security through surveys by extension workers<br>Data on nutritional status<br>Data on agricultural involvement of households<br>Data on agricultural production (crops/livestock)<br>Data on use of agricultural implements<br>Data on crop and livestock diseases | Household food security surveys<br>Farmers and livestock keepers<br>Ward Extension Officers | Data collected is Moderately good (somewhat correct – needs proper training of the data collectors) |

| District Council / Municipality   | Indicator  | Data  | Source (which survey)   | Assessment of data quality             |
|---|--|---|---|--|
| Mbozi District Council<br>(Planning Department -<br>Focal point for<br>TANZAKESHO<br>Programme) | <u>On Poverty level</u>  | Spatial data  | Survey and discussion with Focus groups (village council, village assembly, ward development committees)<br>Reports written from village level<br>Exchange visit between villages<br>Household budget surveys<br>Health facilities<br>Schools<br>Extension Officers<br>District Council core team<br>Ward core team<br>Village core team<br>Each department, from village to ward level<br>TANZAKESHO core team<br>Agricultural census (crops and livestock)<br>Trained personnel | Data quality is Good (but problematic) |
|   | Quality of social services provided (e.g. safe water, health services, education, etc) | Time related data   |   |  |
|   | Increase in improved houses  | Socio-economic data   |   |  |
|   | Number of water sources  | Data on opportunities and obstacles to development                              |   |  |
|   | Number of trees planted  | Data on social services provided (e.g. safe water, health services, education)  |   |  |
|   | Number of village owned forests  | Data on improved houses   |   |  |
|   | Number of people who have adopted improved storage techniques                          | Data on areas under conservation  |   |  |
|   | Time saved by using improved technologies  | Data on tree planting   |   |  |
|   | Number of women using Village Transport and Travel Programme (VTTP)                    | Data on protected water catchment areas   |   |  |
|   | Accessibility to markets   | Data on people using energy saving technology                                   |   |  |
|   | <u>Environmental</u>   | Data on enacted by-laws on environment  |   |  |
|   | Areas under conservation   | Data on level of use of forest products   |   |  |
|   | Total number of water protected areas  | Information on stages of implementation of micro-projects                       |   |  |
|   | Percentage of people using energy saving technology                                    | Data on behavioural changes on environmental management                         |   |  |
|   | Number of enacted by-laws on environment   | Data on population  |   |  |
|   | Level of use of forest by-products   | Data on agricultural production (crops and livestock) from agricultural census. |   |  |

| District Council / Municipality  | Indicator   | Data   | Source (which survey)                             | Assessment of data quality |
|--|---|--|---|----------------------------|
| Mbozi District Council (Village Transport and Travel Programme (VTTP)) | Level of accessibility<br>Level of accessibility to social services<br>Number of vehicles and other means of transport used<br>School attendance<br>Mothers attendance to clinics e.g. Access to MCH services<br>Increase of improved houses<br>Number of women using intermediate transport<br>Number of households using MTC and improved stoves<br>Area under woodlots<br>Time saved and effort saved that could be saved in other useful activities | Data on agricultural production<br>Data on market infrastructure<br>Data on road infrastructure<br>Data on access to social services (including water)<br>Data on rural energy e.g. fuelwood<br>Data on use of agricultural inputs<br>Data on impacts of VTTP  | Please follow up                                  | Please follow up           |
| Ileje District Council (Community Development Department)              | Number of women and youth economic activities<br>Number and status of economic venture groups (cooperative societies, credit societies)<br>Number of Community Banks at Ward Level (SACCO's)<br>Amount of entrance fee and number of shares bought by members in SACCO's<br>Number of people and number of households<br>Number and status of child care centres<br>Number of children living under difficult conditions                                | Data on women and youth economic activities<br>Data establishment of economic venture groups (cooperative societies)<br>Community Banks at Ward Level (SACCO's)<br>Data on entrance fee and shares bought in SACCO's<br>Data on population<br>Data on child care centres<br>Data on children living under difficult conditions | Physical visits<br>Meetings<br>Residents register | Not very good              |

| <b>District Council / Municipality</b>  | <b>Indicator</b>   | <b>Data</b>  | <b>Source (which survey)</b>  | <b>Assessment of data quality</b> |
|---|--|--|---|-----------------------------------|
| Ileje District Council<br>(Natural Resources<br>Department - Forest<br>Section) | Incidents of bush fires<br>Increase in the number of environmental<br>committees (formal and informal)<br>Forest area encroached (e.g. for growing finger<br>millet) | Data on utilization and<br>conservation of natural<br>resources<br>Data on farms (finger millet<br>farms)<br>Data on tree planting and tree<br>cutting<br>Data on bush fires | Quarterly reports from field staff<br>Various departments (e.g.<br>agriculture, livestock, water and<br>community development)<br>Chairman of the village<br>environmental committees | Not very good                     |

**Table 1.3** *New or innovative indicators: examples from national initiatives*

| <b>Initiative</b>   | <b>Indicator</b>  | <b>Data</b> | <b>Source (which survey)</b>  | <b>In use, proposed, or unclear</b> |
|---|---|-------------|---|-------------------------------------|
| Development of National PFM Monitoring System in Tanzania           | In-kind benefits from forests   |             | HBS Survey and RDS - Village permits file   |                                     |
| Development of National PFM Monitoring System in Tanzania           | % of Household income from forest products  |             | HBS Survey and Agriculture Surveys  | unclear                             |
| National Forest Programme: Development of Monitoring and Evaluation | Number and types of forest based industries, enterprises and production             |             | Tanzania Chamber of Commerce and Industry (TCCIA) Records, Ministry of Trade, TSED, private sector foundation | unclear                             |
| Development of National PFM Monitoring System in Tanzania           | Contribution of the forest sector to GDP  |             | ?   | In use                              |
| Development of National PFM Monitoring System in Tanzania           | Distance walked on firewood collection  |             | HBS survey  | Proposed                            |
| National Forest Programme: Development of Monitoring and Evaluation | Revenue generated from forest products that is invested back into forest management |             | Financial Records and MTEF Reports  | In use                              |

| Initiative  | Indicator   | Data | Source (which survey)                          | In use, proposed, or unclear |
|---|---|------|--|------------------------------|
| Poverty and Welfare Indicators                            | Number of livestock per square km   |      | RDS Ministry of Natural Resources              | Unclear                      |
| Water and Sanitation in Tanzania (WaterAid Report)        | Time taken to fetch water   |      | Census, HBS, DHS, Agricultural plus RDS        | Proposed                     |
| Water and Sanitation in Tanzania (WaterAid Report)        | Use of improved drinking water source (piped water supply, protected source etc.)         |      | Census, HBS, DHS, Agricultural plus RDS        | Proposed                     |
| Water and Sanitation in Tanzania (WaterAid Report)        | Percentage of households which have access to toilet facility                             |      | Census, HBS, DHS, Agricultural plus Health RDS | Proposed                     |
| Water and Sanitation in Tanzania (WaterAid Report)        | Incidence of Diarrhoeal diseases  |      | TRCHS, HBS, and DHS                            |                              |
| Water and Sanitation in Tanzania (WaterAid Report)        | Household expenditure on water as a % of total household expenditure                      |      | Household Budget Survey (HBS)                  | Proposed                     |
| Development of National PFM Monitoring System in Tanzania | Number of women involved in decision making in formulation of forest plans and programmes |      | Forest Manager (Govt and or Projects/NGOs)     |                              |
| Vulnerability Analysis and Mapping (VAM)                  | Regions of Food insecurity in Tanzania  |      | FAO programme                                  | unclear                      |

**Table 1.4 Indicators available on TSED in relation to the framework\***

|  | Poverty Monitoring System / Sector Impacts                                      |
|--|---|
| Environment and<br>GROWTH AND<br>REDUCTION OF<br>POVERTY | <u>Production (from Natural Resources)</u>                                      |
|  | Annual export of fish   |
|  | Average acreage of cultivated land per household                                |
|  | Cash crop production  |
|  | Food crop production  |
|  | Marketed agricultural production  |
|  | Production of export crops  |
|  | Mean area of land owned across rural households                                 |
|  | Mean area of land owned by households that own any land                         |
|  | Percentage of households owning cattle or other large livestock                 |
|  | Percentage of households owning sheep, goats or other medium sized livestock    |
|  | Proportion of households owning any land for farming/pastoralism                |
|  | Proportion of households owning productive assets                               |
|  | Domestic revenue as % of GDP  |
|  | Foreign exchange earned from sale of fish and fish products                     |
|  | GDP annual growth rate of agriculture sector (at constant 1992 prices)          |
|  | GDP annual growth rate of mining and quarrying sector (at constant 1992 prices) |
|  | Value of total fish catch   |
|  | Main energy source for lighting for all households                              |
|  | Mean distance to collect firewood   |
|  | <u>Productivity</u>   |
|  | Availability of fish as a source of food  |
|  | Availability of fish as a source of income                                      |
|  | Value of total fish catch   |
|  | <u>Employment (from NR)</u>   |
|  | Average number of persons employed in the agriculture sector per household      |
|  | Employment by sector (standard definition)                                      |

| <u>Poverty Monitoring System / Sector Impacts</u>                      |   |
|--|---|
|  | Percentage of persons working in the agricultural sector                                  |
|  | Proportion of population by occupation (standard definition)                              |
|  | Proportion of population employed by industry (standard definition)                       |
|  | Proportion of adults whose primary activity is agriculture                                |
|  | <u>Economic dependence (% of population and of income)</u>                                |
|  | Earnings from tourism in million US\$   |
|  | <u>Sustainable NRM</u>  |
|  | None  |
|  | <u>Critical assets (catchments, wetlands)</u>   |
|  | Area under afforestation  |
|  | Areas of harvested trees replanted  |
| Environment and<br>IMPROVEMENT OF<br>QUALITY OF LIFE<br>AND WELL BEING | <u>Changes in health status</u>   |
|  | Main energy source for cooking for all households   |
|  | Distribution of households by means of garbage disposal                                   |
|  | Proportion of households using a toilet of any type                                       |
|  | Proportion of households using a toilet of any type by poverty status                     |
|  | Use of sanitary means of excreta disposal   |
|  | Mean distance to drinking water by poverty status   |
|  | Proportion of households using piped or protected water as their main source for drinking |
|  | Proportion of households within 1 km of drinking water in dry seasons                     |
|  | Proportion of households within 15 mins to a water supply in dry seasons                  |
|  | Source of drinking water for rural population   |
|  | Source of drinking water for total population   |
|  | Source of drinking water for urban population   |
|  | Source of drinking water for urban population   |
|  | Percentage of children under-5 yrs with diarrhoea taken to a health facility/provider     |

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Poverty Monitoring System / Sector Impacts

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Percentage of children under-5 yrs with fever taken to a health facility/provider  
Proportion of children under-5 yrs with ARI taken to a health facility/provider  
Causes of in-patient admission for 5+ yrs  
Causes of in-patient admission for all ages  
Causes of in-patient admission for under-5 yrs  
Out-patient diagnoses for 5+ yrs  
Out-patient diagnoses for all ages  
Out-patient diagnoses for under-5 yrs  
Percentage of individuals sick with diarrhoea 4 weeks before the survey  
Percentage of individuals sick with malaria or fever 4 weeks before the survey  
Prevalence of acute respiratory infection for children under-5 yrs  
Prevalence of diarrhoea in children under-5 yrs  
Prevalence of fever in children under-5 yrs  
In-patient deaths for 5+ yrs by cause  
In-patient deaths for all ages by cause  
In-patient deaths for children under-5 yrs by cause

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*Dependence on (NR) assets*

Mean area of land owned across rural households  
Mean area of land owned by households that own any land  
Percentage of households owning cattle or other large livestock  
Percentage of households owning sheep, goats or other medium sized livestock  
Proportion of households owning any land for farming/pastoralism  
Proportion of households owning productive assets  
Main source of cash income for households  
Mean distance to collect firewood  
Mean distance to drinking water by poverty status  
Proportion of households using piped or protected water as their main source for drinking  
Proportion of households within 1 km of drinking water in dry seasons

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|  |  |
|--|--|
|  | <b>Poverty Monitoring System / Sector Impacts</b>  |
|  | Proportion of households within 15 mins to a water supply in dry seasons<br>Source of drinking water for rural population<br>Source of drinking water for total population |
|  | <b><u>Risk from a degrading environment</u></b><br>Percentage of households with food insecurity<br>Food security at district level  |
|  | <b><u>Location</u></b><br>None   |
| Environment and<br>GOVERNANCE<br>AND<br>ACCOUNTABILITY | <b><u>Existence of rights/ standards</u></b><br>None   |
|  | <b><u>Knowledge of rights/ standards</u></b><br>None   |
|  | <b><u>Access and enforcement</u></b><br>Villages with water committees<br>Villages with water funds  |
|  | <b><u>Responsiveness of Government</u></b><br>None   |

\*Impact level indicators here are combined into one column because the table shows existing availability of indicators, rather than recommendations for which should be included in the PMS, and which included only in sectoral monitoring systems.

Annex I

## Literature Review

Since the early nineties, there have been many initiatives to develop indicators to measure progress towards sustainable development or monitor environmental change.<sup>(1)</sup> In addition, the focus on the Millennium Development Goals (MDGs) and the push by the World Bank, towards the production of Poverty Reduction Strategy Papers (PRSPs), has led to an emphasis on developing systematic frameworks of goals and targets and poverty indicators to monitor progress towards achieving these targets.

Whilst this has been a right step in the direction towards better monitoring and evaluation and integration of data with socio-economic and environmental issues, there has been little activity to implement this approach in the area of poverty and environment linkages. A study carried out by Bojo and Reddy (2002) concluded that most of the PRSPs to date had not sufficiently mainstreamed environmental issues affecting poverty and therefore did not include appropriate indicators that captured these linkages.

The objective of this review is to examine country experiences, where possible, on the development of poverty-environment indicators, with the aim of extracting lessons learnt that could be applied to the Tanzanian context. The review also looks at the linkages between poverty and environment and reports on the issues relevant for developing indicators, as highlighted in the literature.

### 11.1

#### *BACKGROUND TO THE POVERTY MONITORING SYSTEM IN TANZANIA*

In response to the growing demand for data and information for effective monitoring and evaluation of poverty eradication in Tanzania, the Government of Tanzania has led efforts to design and implement a comprehensive Poverty Monitoring System (PMS) to track progress towards the implementation of the Poverty Reduction Strategy (PRS) using key indicators. This system is described in detail in the poverty monitoring master plan (URT, 2001).

An exercise that laid a strong foundation for the development of the PMS was the drafting of a list of poverty and welfare indicators, coordinated by the Vice President's Office (VPO). It has resulted, through a consultative process, in an annotated list of 68 indicators, which are considered to be of key importance for monitoring poverty and welfare in Tanzania (PMS, 2003). However, earlier versions of the PRS, whilst acknowledging the importance of environmental management for poverty reduction strategies, did not include a strategy for

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(1) A few examples include: OECD. 1993. "OECD Core Set of indicators for Environmental Performance Reviews". Environmental Monograph 83, Paris, France. SCOPE. 1995"; Environmental Indicators: A Systematic Approach to Measuring and Reporting on the Environment in the Context of Sustainable Development". In Workshop on Indicators of Sustainable Development for Decision-making, Ghent, 9-11 January, Belgium; UNCSO; World Bank. 1994. "Monitoring Environmental Progress: A Report of Work in Progress". Washington DC.

addressing environment and poverty linkages. As a result, the current set of indicators only contains four poverty–environment indicators and one agriculture indicator (the number of food insecure districts) which has a significant environment aspect. The PRS is currently being reviewed and will attempt to be more inclusive, by recognising all sectors contribution to poverty reduction, including a stronger focus on environment. The new PRS will also seek to get these sectors to recognise the importance of inter-sector linkages in the pursuit of poverty reduction.

It is in this context that the VPO with assistance from UNDP has commissioned a study to develop a set of indicators linking poverty and environment in Tanzania that can be used to understand poverty-environment interactions and to monitor poverty reduction that results from environmental change.

## ***11.2 LAYOUT OF THE REPORT***

This report is structured as follows:

***Section 2*** Outlines the linkages between poverty and environment, discusses the use and characteristics of poverty-environment indicators and gives some generic and country specific examples of such indicators.

***Section 3*** International and regional case studies on the use of Poverty-environment Indicators

***Section 4*** Implications for Tanzania

***Section 5*** Bibliography

This chapter is organised as follows: The first section outlines the ways in which environmental conditions can contribute to poverty. The next section briefly provides a general indicator typology and goes on to discuss the use and characteristics of poverty-environment indicators. Finally, section three gives a few examples of generic and country specific poverty-environment indicators.

### 12.1 POVERTY-ENVIRONMENT LINKAGES

Linkages between poverty and environment run in both directions, with poverty often being both the cause and an effect of environmental degradation. In this context however, the focus is more on how environmental conditions affect poverty.

Poverty as a holistic concept encompasses several dimensions that can be affected by environmental issues. These dimensions include: health, economic opportunity, security and empowerment and are explained further below:

- ***Environment and health:*** Poverty is no longer regarded as a narrow income phenomenon, and the MDGs address health outcomes as an important aspect of poverty. Environment issues affect health through water-borne disease vectors, inadequate sanitation and air pollution, both indoor and outdoor. These affect both urban and rural dwellers and 'green' and 'brown' issues. DFID (2000a) estimates that almost a quarter of all disease in developing countries is directly linked to environmental conditions, in particular inadequate water and sanitation facilities.
- ***Environment and economic opportunity:*** In many countries, including Tanzania, many of the rural poor are directly dependent on natural resources for their livelihoods. This can be through agriculture, fisheries, forestry and forest products and, nowadays, tourism and eco-tourism. The extent of this dependence may not always be revealed through traditional income analysis.
- ***Environment and security:*** Understanding the vulnerability of the poor is now recognised as important in identifying key events, at household, district or national levels that change the dynamics of poverty. The World Bank PRSP Sourcebook (Bucknell *et al.*, 2000) discusses how environmental factors combine with the lack of social protection to increase the vulnerability of the poor to natural disasters, which in turn are often increased in frequency and severity by environmental degradation such as reduced forest cover, and soil degradation.
- ***Environment and empowerment:*** Empowering local communities, to participate in decision-making on environmental resources, can help them sustain their livelihoods and ensure equal access to natural resources.

Poverty-environment linkages in these areas often cannot be modelled in a linear fashion. They are complex and, in some cases, such as natural resource degradation, circular in interaction (Shyamsundar, 2002). This means that great care has to be taken in interpreting indicators. It may be difficult to ascribe causality to changes in indicator values. It also means that it may be difficult to identify useful final indicators, and monitoring may depend on intermediate or process indicators. For example, communal forest management is often proposed as a way of increasing the control of the community over local resources, and reducing the rate of forest degradation. However, the links between changes in management system and reducing poverty are complex and not necessarily robust. Using the number of communal management agreements as an indicator may give information about the extent of local control, but the relationship itself, between that and poverty reduction will have to be monitored regularly to ensure that this interaction is properly understood. An indicator is only as good as the understanding of the underlying relationship.

## **I2.2 POVERTY-ENVIRONMENT INDICATORS**

### **I2.2.1 Indicator typology**

Indicators have been broadly classified into two categories (Prennushi *et al.*, 2001, Shyamsundar, 2002 and Segnestam, 1999):

- Intermediate indicators that measure factors (inputs and outputs) contributing to the process of achieving an outcome. Shyamsundar, 2002, goes on to suggest that these indicators can be cost effective proxies that can provide useful information on what is working and what is not at the project level; and
- Final indicators that assess the changes in the overall well being of individuals. They are often divided into “outcome” and “impact” indicators.

In addition, Henninger and Hammond (2000) have recommended the use of geo-referenced indicators for monitoring poverty-environmental changes over a geographical framework.

In the Tanzanian poverty monitoring system, the main objective is to track progress in poverty outcomes and impacts. However, according to Prennushi *et al.* (2001), both final (outcome and impact) and intermediate indicators (input and output) should be monitored, as changes in final indicators may be the result of factors that are outside the control of policy makers and programme administrators whereas, intermediate indicators may capture changes that are a direct result of actions by the government and other agents. In addition, intermediate indicators change more rapidly, thereby giving an earlier indication of the determinants of well being. Prennushi *et al.* suggests that the most useful intermediate indicators are those that measure the key determinants of outcome or impacts.

*Uses of poverty-environment indicators*

As discussed above, an important first step in determining the most important indicators to use, or which out of the many indicators possible should be prioritised, is to determine how the indicator will be used. As different types of decisions and issues require different types and levels of indicators, the choice of indicators will depend on the purpose of their use. These can be divided into two basic groupings:

- Indicators to provide information on trends and changes in the values of certain basic variables or state of being; and
- Indicators to monitor the progress and impact of interventions, whether at project level or national policy level.

These are not totally separable. Changes in variable values will often be the result of direct or indirect interventions, but the second group is a subgroup of the first.

Mikkelsen (1995) explains this in somewhat different language, and in a somewhat more complex context. He suggests that indicators are used for two main purposes in development: to differentiate central concepts, such as quality of life, livelihood and poverty, in order to classify or rank societies and social groups along the indicators, and to measure progress relating to interventions for social and economic changes at the project or programme level (in Nunan *et al*, 2002). Others have expanded this definition to include aspects such as to provide early warning information, anticipate future conditions and trends (Ribgy *et al.*, 2000, and drawing from Gallopin, 1997 in Nunan *et al.*, 2002). Many analysts perceive indicators as instruments for flagging when and where a policy regulation or other means of intervention is urgent. Another use of indicators is to monitor the impact of existing policies and determine whether they are in line with policy objectives or whether adjustments are needed; for example, improved coordination with other sectors. <sup>(1)</sup>

**Box 2.1** presents a list of functions and uses of indicators developed at a Planning meeting of stakeholders in Dar es Salaam on 27<sup>th</sup> May 2004, for the Tanzanian context. <sup>(2)</sup>

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(1) See [www.cait.org/indicators](http://www.cait.org/indicators) for more information

(2) See Inception report by ERM/IRA/ OPM on poverty-environment indicators, Dar es salaam, 27th May 2004

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- To measure and track the extent to which targets set by the Poverty Reduction Strategy (PRS) are being reached or not,
  - To facilitate dialogue on reasons for observed trends,
  - To inform debate on allocation of resources,
  - To enable sectors to conduct self-evaluation as to how much they are contributing to poverty reduction;
  - To enable the Government to set targets for poverty reduction and sustainable development;
  - To enable donors to allocate resources to assist Government achieve its set targets;
  - To enable accountability and advocacy for certain policies and actions;
  - To track progress on how Government is tackling the six major environmental problems relevant to Tanzania;
  - To enable the Government to prepare the anticipated State of Environment Report,
  - To quantify qualitative statements and assertions.
- 

Most of these uses are directly linked to tracking the impact of government intervention. However, it will also be important to monitor changes in key environmental variables that may be subject to exogenous pressure, to enable the identification of new problems as they arise. Efforts should be made to develop indicators that are relevant to the Tanzanian situation in terms of the functions and acceptability to the main users.

### 12.2.3

#### *Characteristics of indicators*

Poverty-environment linkages as outlined in *Section 2.1* are often complex and indicators, by converting data into relevant information, help simplify the linkage so as to improve communication. For example, Briggs *et al.* (1996) has defined an environmental health indicator as “An expression of the link between environment and health, targeted at an issue of specific policy or management concern and presented in a form which facilitates interpretation for effective decision making”. This definition is based on the concept of a link between a factor of the environment and a poverty outcome, in this case health.

However, to be of any use, indicators should not only capture the linkage between poverty and environment, but also be applicable to the user of the indicator and be based on a range of selection criteria that fit the needs and circumstances of the region. A wide range of criteria has been defined in the literature of indicators (Briggs *et al.*, 1996, Segnestam, 1999, and Prenushi *et al.*, 2001). The applicability of criteria however, depends on the particular indicator, the purpose for which it is used for, the activity it is measuring or monitoring, availability of data, capacity to collect and analyse the data and to use that information to make decisions for change. No single set of criteria will be applicable to all the indicators derived.

*Box 2.2* below gives a selection of commonly used criteria that have been presented in the indicator literature, but specifically selected and refined in the Planning meeting held on the 27<sup>th</sup> of May 2004.

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**Objectivity.** The indicator should have a clear definition, stating how it is to be calculated. It should have to be unambiguous about what is being measured, and what data it is based on. The calculation of the indicator should be repeatable by different individuals with similar results. It is likely to be based on numerical measurements, and can be expressed in quantitative terms.

**Simplicity.** The definition of the indicator should be as simple as possible, and therefore easy to calculate and present transparently. (For example the numbers of children attending school is a simpler indicator than the 'Gini coefficient'). Complex formulae should be avoided. Simple indicators make it easier to convey information to decision-makers and the public in a useful and informative way.

**Meaning.** The indicator, when calculated, should reveal meaningful figures. The level and direction of change of the value of the indicator from year to year and between different geographical areas should have a clear meaning, in terms of 'better' or 'worse'. For example, it is not clear if a change in the % of people using fuelwood from 50% in one year to 70% in the following year is good or bad. In contrast, an increase in the % of people with access to safe water has a clear meaning.

**Sensitivity.** The definition of the indicator ensures that, when calculated from year to year, it can detect change. One workshop participant described this as, "it is telling you what you want to know quickly enough to alter policy". Preferably it should also be sensitive to change at all (high or low) levels of the indicator.

**Can be aggregated.** It should be possible to aggregate the measurements of the indicator from two or more geographical areas, to provide regional or national values.

**Data.** The indicator should be based on good quality data. In addition, if the indicator is based on more than one type or source of data, these data sources should be from similar periods in time. (The example of school enrolment % being based on current numbers of children in school, but out-of-date population figures - hence undermining the meaning of the resulting figures).

**Practicality.** The indicator can be calculated on a timely and regular basis at reasonable cost.

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### 12.3

#### *EXAMPLES OF GENERIC AND COUNTRY SPECIFIC POVERTY-ENVIRONMENT INDICATORS*

Although there is an increasing literature on poverty-environment indicators, much of it focuses on generic indicators, and is normative in nature, rather than describing or analysing specific attempts to develop poverty-environment indicators in the field or in specific country contexts. The World Bank has a number of frequently cited papers on poverty-environment linkages, some of which focus on indicators (Bojo and Chandra, 2003, Bucknall *et al.*, 2000, Shyamsundar, 2002), but there is little documentation of attempts to implement the suggested approaches, or any others, in a specific country context.

One effort to do so is addressed in a study by Nunan *et al.* (2002), financed by DFID, which identifies some of the key elements in good practice in developing poverty-environment indicators. They suggest that:

- Indicators should relate to targets, goals or objectives

- Available data collection and sources should be taken into account
- Poverty-environment indicators should reflect the priorities of the poor and should, ideally, be determined in consultation with the poor.

These principles are applied to case studies in Uganda, Nicaragua and Nepal, and are discussed in more depth in the *Section 3*.

*Table 2.1* below presents some examples of poverty-environment indicators. This list is by no means exhaustive and is meant to be indicative of examples of poverty-environment indicators that have been developed in the literature, both generic and country specific. It gives examples of data sources which are available in a number of countries, such as the Living Standards Measurement Survey (LSMS) surveys and Demographic and Health Surveys (DHS), specific examples of data available in Nicaragua, from the National Institute of Census and Statistics, but also, and very importantly, an example of an indicator that is important from a vulnerability perspective (which is key to poverty-environment interactions in Nicaragua) and for which no data are available at national level, viz. the percentage of the population vulnerable to flooding.



**Table 2.1** *Examples of poverty-environment indicators*

| <b>Indicator</b>  | <b>Type of indicator</b> | <b>Sector</b>             | <b>Data source</b>                                  | <b>Linkage with poverty</b> | <b>Country</b>           | <b>Source</b>              |
|---|--------------------------|---------------------------|---|-----------------------------|--------------------------|----------------------------|
| Quantity of annual household consumption that is derived from forest products and fisheries | Intermediate             | Natural resources         | Household Budget Survey (HBS)                       | Economic opportunity        | Generic                  | Shyamsundar, 2002          |
| Access to non-farm sources of livelihoods for the poor living in ecologically fragile areas | Intermediate             | Agriculture               | National Institute of Statistics and Census         | Economic opportunity        | Nicaragua                | Nunan <i>et al.</i> , 2002 |
| Percentage of poor living on agriculturally unproductive land                               | Intermediate             | Agriculture               | National Institute of Statistics and Census         | Economic opportunity        | Nicaragua                | Nunan <i>et al.</i> , 2002 |
| Hours spent collecting water/ fuelwood  | Intermediate             | Health, Natural Resources | Living Standard Measurement Survey (LSMS)           | Economic opportunity        | Global                   | Nunan <i>et al.</i> , 2002 |
| Percentage of rural children under five years of age who are under weight                   | Intermediate             | Health                    | Anthropometric/ Demographic and Health Survey (DHS) | Food security               | Generic                  | Shyamsundar, 2002          |
| Rural per capita cereal production  | Outcome                  | Agriculture               | World Development Indicators series                 | Food security               | Global                   | Shyamsundar, 2002          |
| Access to safe drinking water/ adequate sanitation (intermediate)                           | Intermediate             | Health, Natural resources | LSMS and Census                                     | Health                      | Global                   | MDGs                       |
| Prevalence of diarrhoea (outcome)   | Outcome                  | Health                    | DHS   | Health, vulnerability       | Global                   | Shyamsundar, 2002          |
| Incidence of respiratory diseases   | Outcome                  | Health, Housing           | DHS, LSMS   | Health                      | Region specific          | Nunan <i>et al.</i> , 2002 |
| Percentage of population living in areas prone to flooding                                  | Intermediate             | Environmental             | Not available at national level                     | Vulnerability               | Nicaragua                | Nunan <i>et al.</i> , 2002 |
| Percentage of farmers with land on slopes/wetlands by income / wealth quintiles             | Intermediate             | Agriculture, Environment  | Agricultural survey                                 | Vulnerability               | Generic/ region specific | Shyamsundar, 2002          |

This section reviews case studies on poverty-environment indicators, at a country level, sector level and those included in PRSPs.

### 13.1 UGANDA

Uganda was one of the countries where the framework developed in Nunan *et al.* (2002) was pilot tested. The following summary is based on the overall paper and on the Uganda country study by Bahiigwa and Muramira (2002).

The Uganda Participatory Poverty Assessment (PPA) project identified a number of environment-related factors that the poor associated with their poverty. These included:

- Lack of adequate access to safe water (which varied by season) and sanitation – issues affecting health.
- Poor access to land and natural resource degradation, in particular soil fertility – issues affecting livelihoods. In some areas, legal changes affecting access to forests and deforestation have also affected livelihoods.

The relevance of the generic indicators under consideration varied by district, as causes of poverty are seen to be location specific, implying that indicators need to be locally generated and tracked.

Data availability at the time of the pilot study was quite limited. There was information on access to water and sanitation from a number of different sources: at the level of the Ministries of Health, of Water and Sanitation, the Ministry of Finance and the Bureau of Statistics. Some aggregate data were available on fishing catches and use of wood fuel from individual studies. However, there was little suitable data on agriculture, most of the information being too aggregated to link to poor households. For many of the key areas, such as households living in environmentally fragile and vulnerable conditions, there was no national level data.

### 13.2 NEPAL AND NICARAGUA

These are the other two pilot country studies included in the Nunan *et al* paper.

In Nepal, most of the generic indicators were found to be relevant to poverty-environment issues in the country. Specific data on agriculture-livelihoods and natural resources was lacking, though there was information on access to land, average acreage and irrigation. Data on access to sanitation, and drinking water were available, as was information on access to and use of fuel wood, and the percentage of forests managed by user groups. There was no systematic information on the number of poor people living in

environmentally vulnerable conditions, though there was information on numbers affected in past disasters.

In Nicaragua, there is considerable awareness generally on environmental vulnerability, particularly in the wake of Hurricane Mitch. However, the pattern of data availability does not seem to reflect this. Again, there is more information available on access to safe water and sanitation, with some data available on use of fuelwood. There is no national level information about agriculture in ecologically vulnerable areas, or populations living in disaster-prone or ecologically fragile areas.

### 13.3

#### NIGERIA

A study was commissioned by the World Bank as part of their work on mainstreaming environment in PRSPs (Osuntogun, 2002). This explored the availability of data to implement the indicator framework proposed by Shyamsudar (2002). Osuntogun concludes that many of the indicators relating to environment health linkages are available in Nigeria, based on data from the Demographic and Health Survey, the Multiple Indicators Cluster Survey and from the World Health Organisation (WHO) Roll Back Malaria Initiative. Data on fuel use are available from the Core Welfare Indicators Questionnaire (CWIQ) and data on deforestation are given in World Development Indicators. Other than these examples there is little information available on the interaction between natural resource management and poverty, except for very aggregate figures on agriculture production and the percentage of the rural population falling below the poverty line.

Osuntogun recommends that priority should be given to generating information on the degree of dependence of livelihoods on natural resources, and on numbers vulnerable to natural disasters, as well as more information on food security, but there are no concrete suggestions as to how this could be integrated into national data collection systems.

### 13.4

#### CAMBODIA AND LAO PDR

Dasgupta *et al.* (2003) carried out a study in two neighbouring countries (Cambodia and Lao PDR) to investigate empirically the 'environment-poverty nexus', and in particular to determine whether a generally applicable approach can be identified. As "environmental problems are inherently geographical", they use mapping techniques to assess whether or not there are significant overlaps between the mapping of environmental and poverty variables, which would indicate the possibility of addressing these issues jointly. The poverty variables explored are numbers of absolute poor in a district, and the environmental variables are deforestation, fragile soils, indoor and outdoor air pollution, and access to clean water and sanitation.

Study results suggest that the nexus is quite different in each country:

- In Cambodia, it seems largely confined to household-level problems associated with indoor air pollution, contaminated water, and lack of

access to adequate sanitation. Neither the two “Green” problems (deforestation and fragile soils) nor outdoor air pollution appeared related to the distribution of the poverty at the district or province levels. It has been concluded therefore that poor households in Cambodia would benefit most strongly from programmes that jointly address poverty and household-level environmental quality. All of Cambodia's citizens, including the poor, would benefit from more effective measures to reduce the rate of deforestation but, in the absence of information on the dependence of the poor on forest products, it is not possible to conclude how much of the overall benefit would accrue to the poor.

- In Lao PDR, the study results suggest a broader poverty-environment nexus, since all five environmental problems exhibit a spatial correlation with poverty. The overlap is particularly strong in the northern and north-eastern regions of the country. It has been concluded therefore that the welfare of the poor in Lao PDR would be significantly enhanced by close integration of poverty-alleviation and environmental strategies in all “Green” and “Brown” dimensions.

It should be emphasised that this does not mean that poverty and environment linkages do not exist in other areas for the poor, but that these are the only areas identifiable through spatial analysis given the level of disaggregation of data available.

### **I3.5**

#### ***FORESTRY SECTOR INDICATORS***

The forestry sector is one of the few non-health areas where case studies have indicated the availability of data in a number of countries. Some of the work done on this sector has specific poverty-environment relevance.

Lindahl (2000) looks at the possibilities for forest sector indicators in Central America, including indicators of ownership and social impact. However, these are categorized as ‘soft’ indicators, and ultimately excluded from a recommended set of regional indicators, on the grounds that they are difficult to derive on the basis of existing data. There is a discussion on the possibility of developing economic value figures for natural assets such as forests, as an aid to policy makers, and a warning that, although it may not be possible to develop soft indicators at a regional or national level, the issues underlying these indicators are important, particularly at sub-national levels.

A recent study of community forest management in India (Banyopadhyay and Shyamsundar, 2004) uses data from the National Sample Survey of India (NSSI) to examine fuelwood consumption and participation. Although this is not, strictly speaking, a study of indicators, it does show how data from the NSSI can be used to assess the numbers participating in communal forest management schemes. In addition, by analysing the survey and determining firstly, that participation increases the amount of fuelwood consumed (which is beneficial to the poor) and secondly, that this is sensitive to overall ownership of assets (so that the better-off are less likely to consume

fuelwood), this shows how this type of analysis can both identify appropriate indicators, and provide necessary information on the link between indicator and poverty outcome.

### **I3.6**      ***MAINSTREAMING ENVIRONMENT INTO POVERTY REDUCTION STRATEGY PAPERS (PRSPs)***

PRSPs have become one of the most important policy frameworks for many developing countries over the past five years, and both the World Bank and DFID have put considerable effort into exploring the possibilities for mainstreaming environment into the PRSP process.

A recent review of PRSPs and their implementation by the World Bank Environment Division, show that there is an inadequate inclusion of environmental targets and indicators (Bojo, J. and Reddy, R., 2002). The following observations have been noted:

- There is more evidence of environmental health indicators being included than natural resource management indicators.
- Baseline data are more likely to be available for water access and sanitation, and therefore, targets are more likely to be set in this area.
- Very few countries have set targets for deforestation and biodiversity.
- Ghana is cited as an example where targets are set for the control of environmental degradation due to agricultural and mining activities, and targets are set to control deforestation.
- Zambia sets targets for control of deforestation and air pollution.
- There is no discussion in the review as to how these targets will be monitored, and what data are available.

### **I3.7**      ***POVERTY-MAPPING AND GEO-REFERENCE INDICATORS***

There is a growing consensus on the value of using geographical information systems (GIS) to map both poverty and environment indicators. The study discussed earlier (Dasgupta et al, 2003) on Cambodia and Lao PDR, used mapping techniques to assess the poverty-environment nexus. Henninger and Hammond (2003) in an assessment of environment indicators relevant to poverty reduction also stress the value of using a geographical framework. It is an easy way to store geographically differentiated information, and makes for easily understood presentation. Most surveys start from a geographical sample frame, which makes translation into GIS straightforward, and provides a basis for linking with ecological, climatic and infrastructure information. The Tanzania PRSP presented poverty rates on a regional basis, as have a number of other countries.

The World Bank study by Henninger and Hammond recommends that priority is given to developing a series of maps for individual countries: population density, land use and land cover, water availability, soil constraints and climatic maps, as well as poverty mapping. A case study of

Ecuador is included, as an example of how an indicator of resource degradation can be integrated with a poverty map. The indicator of land degradation is developed from combining a number of measures of potential land use and actual land use, and the resulting overlay distinguishes those areas where poverty and land degradation coincide from those where land use is adequate, or even where land is underutilized.

Poverty mapping has been carried out for a number of countries in West Africa, and UNDP has carrying out a pilot project in Rwanda, to identify specific poverty-environment relationships to be found in Rwanda, with a view to integrating this into the policy-making process (Comolet, 2003)

### 13.8

#### CONCLUSIONS

There are a number of conclusions that can be drawn from the review of the available literature, which has focused on practical experience of developing poverty-environment indicators.

- Most of the work that has been done in this area is of an exploratory and pilot nature. There are few examples of functional poverty-environment indicators that have been implemented and used for policy processes.
- One of the key problems is data availability. Very little data are collected on natural resource management at a national level. What information there is, is often an outcome of project evaluation and monitoring.
- There appears to be even less information available on vulnerability and populations at risk of ecological degradation or environmental disaster.
- There are more data available on forestry and fuelwood use, access to safe water, sanitation and environmental health. However, Bojo and Reddy (2002), while noting this, feel that the understanding of environmental health issues in PRSPs is not particularly well developed.

There is very little discussion in the literature that links up the frequency with which data are collected with its usefulness in monitoring policy processes or interventions. Much of the data discussed at country level comes from periodic surveys, often carried out at five or ten year intervals. This makes the results more useful for analysing medium-term trends and underlying relationships than monitoring PRSP interventions. It would have been useful if the literature had contained more discussion of the use of routine data collection systems, or CWIQ surveys.

On the basis of the review of the literature above, a number of points emerge that should be taken into account when considering the development of poverty-environment indicators for Tanzania. Some of these arise from the experience of trying to adapt a theoretical set of indicators to the situation in a given country. Others arise from the principles set out, and generally agreed as good practice. These points are as follows:

- ***Need for Targets:*** Indicators are more effective and given more weight if they are linked to specific targets, in particular those set within a PRSP. Setting a target involves an assessment of what the underlying trends in a variable are (i.e. what will happen if there is no intervention), what is feasible to achieve with intervention and what resources are necessary to achieve the target.
- ***Consultation in the process of choosing indicators:*** There are two important factors which should be taken into account in the choice of poverty-environment indicators: what environmental factors do the poor consider most important as constraints on their ability to improve their livelihoods, and what do policy-makers see as feasible interventions over a three-year, five-year or ten-year period. Therefore, the process of determining the most appropriate indicators for any specific country, should involve consultation at different levels, with the poor; those likely to be responsible for tracking the selected indicators; and those responsible for assessing performance against these indicators..
- ***Data availability:*** In most countries where the feasibility of adopting generic indicators of poverty-environment interactions has been explored, the greatest constraint has been the availability of data.

Often environmental health indicators have been available, though not necessarily well linked conceptually to poverty-environment issues. Natural resource management information has not generally been available in a poverty-friendly context. Data on vulnerability has generally been totally lacking. To change this situation, there will need to be considerable awareness-raising with those responsible for data collection, in the agricultural sector in particular, but also to bring any vulnerability assessment processes within the general scope of economic and poverty data collection.

In the particular case of Tanzania, data are scattered in different institutions and sectors and there is little coordination among them in terms of collection systems, processing, storage and final use. This is compounded by the large size of the country, geographical diversity, associated problems and resource limitation. This calls for more coordination in the data collection systems, processing, storage and use.

- **Lack of tested blueprints:** Although there has been work undertaken on the viability of sets of generic indicators, there does not appear to be a well-documented example of a country that has developed a number of poverty-environment indicators for use in regular monitoring and policy development. The experience in Uganda suggests that generic indicators are not of great use in informing policy. Indicators must be more location specific, and therefore must be locally generated, measured and monitored over time to track changes. Indicator choice in Tanzania must examine the possibility that district specificity will be an important element in developing useful poverty-environment indicators.
- **Poverty-environment mapping:** Among the lessons for Tanzania is the need for spatially referenced ecosystem indicators, at a national, regional and district levels, which can be integrated in GIS to produce environment-poverty maps, based on spatial variations in resources and poverty levels in the different ecosystems (ecological zones). This approach can be easy to understand, though care will have to be taken to make it policy relevant. Possible linkages with the data systems being developed under the President's Office, Regional Administration & Local Government (PO-RALG) should be explored.

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Annex J

# Development of an Environmental Management System

We recognise that in the coming months/years, there needs to be an effort to establish an effective Environmental Management System (EMS) under the new EMA. This will require an environmental data monitoring system, and many (some) of the indicators proposed in this report would form an important part of that. However one needs to recognise that these indicators are tailored to very specific MKUKUTA targets and cluster strategies – so they do not necessarily provide a comprehensive basis for an EMS, which need to cover all aspects of the environment that are relevant to Tanzania.

In order to develop an effective Environmental Monitoring System, we suggest some key areas to develop:

- 1) Environmental data collection processes;
- 2) Environmental data analysis;
- 3) Environmental network; and
- 4) EMS Working Group.

To develop each of these areas and the questions they pose, institutional, human resource, technical, and financial issues must be addressed and resolved.

#### ***Developing Environmental Data Collection Processes***

This entails the routine collection, storage and accessibility of core environmental data sets. Coverage of environmental issues needs to be comprehensive and it is important that the environmental data sets are adequately managed and stored to ensure that easy accessibility. As data will be sourced from a variety of sources, this needs to be facilitated through the development of appropriate data standards. This will ensure that environmental data used for environmental decision making are of the highest accuracy and integrity.

*Objective: Identify environmental data needs how they should it be compiled to ensure good quality and routine collection.*

#### ***Conducting National/Regional/Local Level Environmental Data Analysis***

Analysis of the data collected is required to routinely monitor and address environmental concerns as they arise. Such environmental analysis may be conducted to help identify environmental "hot spots". This will require trained staff with adequate awareness of environmental issues to conduct routine multidisciplinary environmental analysis and make recommendations on mitigation strategies as needed by environmental decision makers.

*Objective: Build capacity and infrastructure to conduct routine environmental analysis.*

### ***Establishing an Environmental Network***

An EMS is intended for the support of environmental decision making and to improve environmental conditions and management. It is therefore important that users and providers of environmental information at the national, regional and local levels are adequately linked such that: 1) environmental information is collected with respect to user demands; 2) environmental information is adequately disseminated to all relevant environmental decision makers and stakeholders; and 3) adequate support is given for environmental information usage.

*Objective: Identify a coordination mechanism to ensure that national to local environmental information users and producers are adequately linked.*

### ***Set up a Working Group for Environmental Monitoring System***

An effective EMS requires all activities to be coordinated and integrated. A Working Group could be set up to oversee and coordinate that: 1) environmental data are routinely collected according to standards and user demand within respective institutions; 2) environmental analysis draws from a wide range of expertise and there is adequate poverty-environment diagnosis and is routinely conducted to satisfy user demands; 3) environmental information needs are routinely assessed and information routinely disseminated, and 4) environmental support are routinely reviewed to encourage environmental information usage (e.g., review of extension, environmental support funds, and policy).

*Objective: Set up an EMS Working Group to oversee the development and implementation of the EMS.*

### ***Key issues to be considered when developing an environmental monitoring system:***

- Establish national environmental data standards
- Identify departments to be involved in routine collection, analysis and use of environmental data.
- Identify mechanism for coordination amongst different agencies, sector ministries, projects and programmes that collect, analyse and use environmental data.
- Identify technical capacities to routinely environmental data.
- Acquire/ train/ retain staff to routinely collect, analyse, and use environmental data for the purpose of improving environmental and natural resource management.
- Identify financial resources to support routine collection, analysis and use of national environmental data.