

# Guidance Note on Integrating Environment linked Poverty Concerns into Planning, Budgeting, and Monitoring Processes



UNDP-UNEP Poverty-Environment Initiative



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United Nations Development Programme – United Nations Environment Programme

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The Poverty-Environment Initiative (PEI) of the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) is a global UN effort that supports country-led efforts to mainstream poverty-environment objectives into national development planning. PEI provides financial and technical assistance to government partners to set up institutional and capacity-strengthening programmes and carry out activities to address the particular poverty-environment context.

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# Guidance Note on Integrating Environment linked Poverty Concerns into Planning, Budgeting, and Monitoring Processes

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## Introduction

The contribution of environment and natural resources (ENR) to the wealth of nations and to human well-being, particularly in low-income countries, plays a vital role in promoting pro-poor economic growth. In 43 countries classified as “low-income”, natural capital makes up 36 per cent of total wealth (WAVES 2012). In lower-middle income countries natural capital makes up 25 percent of total wealth (Canuto and Cavallari 2012). Significant percentages of the population, particularly the poor, in these low-income and lower-middle income countries depend on ENR for their livelihoods and income (WAVES 2012). While rapid economic growth over the past two decades has lifted millions of people out of poverty and enabled substantive progress towards achieving the Millennium Development Goals, the increasing pressure on land and water resources is eroding the natural asset base of the poor. The vulnerability of the poor is further magnified by the high and increasing incidence of natural disasters such as droughts and floods, and the impacts of climate change. If these trends continue, the considerable development gains made by countries over the past two decades will be reversed in a significant number of countries.

To address these challenges, governments need to invest in more sustainable environment and natural resource (ENR) use that contributes to achieving poverty reduction and other development goals. This requires that poverty-environment mainstreaming efforts assess and measure the links between ENR use and poverty, demonstrate how more sustainable use of ENR can help reduce poverty, and identify and implement actions to improve ENR sustainability such that it contributes to the reduction of poverty and the achievement of related development goals, such as food security.

The purpose of this note is to provide development practitioners and policy-makers with guidance to meet these three requirements. This guidance is based on the experience of the UNDP-UNEP Poverty-Environment Initiative (PEI) which supports

programme countries to quantify identified ENR-poverty links in terms of the impact on poverty and to identify policy options to accelerate poverty reduction through the more sustainable use of ENR. PEI also supports governments in designing and implementing sustainable ENR objectives, policies, programmes and projects that contribute to poverty reduction.

Section 1 of this guidance note introduces the concept and measurement of poverty and its multidimensional nature. The links between ENR and poverty are discussed in section 2, including traversal issues such as climate change and gender. Section 3 elaborates on a programmatic approach for improved inclusion of poverty elements in poverty-environment mainstreaming which is based on the successful experience of PEI to date. Methodologies and tools to assess ENR-poverty linkages, and integrate and operationalize environment-linked poverty reduction concerns into policies, plans, programmes and projects are discussed in section 4. This is followed by guidance on supporting the use of poverty-environment indicators in section 5. The guidance note concludes with a brief discussion on identifying priority policy and programme ENR sustainability interventions for reducing poverty.

## 1. The Concept and Measurement of Poverty

Poverty is not a self-defining concept. A wide-range of poverty literature includes a number of definitions of poverty. For example, Lipton and Ravallion (1995) state that “... poverty exists when one or more persons fall short of a level of economic welfare deemed to constitute a reasonable minimum, either in some absolute sense or by the standards of a specific society.” The World Bank defines poverty as deprivation in well-being, where well-being can be measured by an individual’s possession of income, health, nutrition, education, assets, housing and certain rights in a society such as freedom of speech (Haughton and Khandker 2009). Frankenberger (1996) defines absolute

poverty as when one is unable to meet basic needs requirements such as adequate food, safe water, health care, shelter, primary education and community participation.

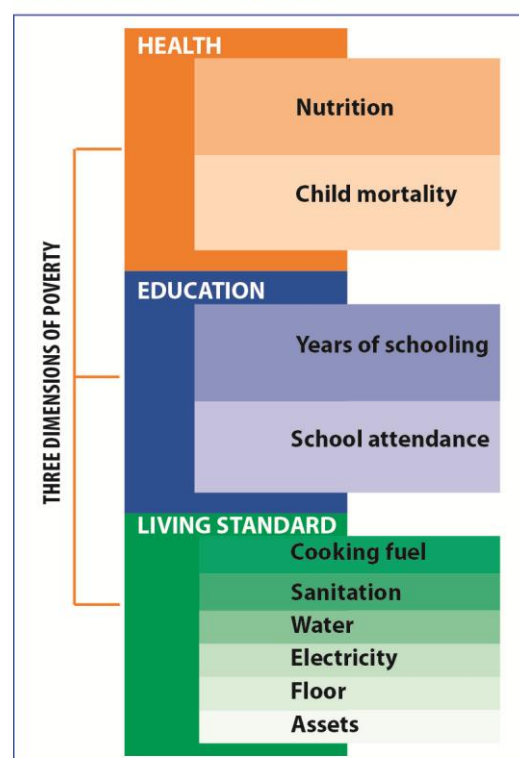
Despite universal acknowledgement of the multidimensional nature of poverty, there has been a tendency by policy-makers and development practitioners to focus primarily on income or consumption levels when defining poverty. While one-dimensional measurements of poverty have their uses, no single indicator alone can capture the multiple aspects that constitute poverty – such as poor health, lack of education, inadequate living standard, lack of income (as one of several factors considered), lack of access to clean water and sanitation, disempowerment, poor quality of work and threat from violence. For instance, earning USD 1.25 per day is unlikely to mean the end of the many overlapping deprivations faced by poor people, including malnutrition, poor sanitation, a lack of electricity or inadequate schools (Alkire and Sumner 2013).

A multidimensional measure can incorporate a range of well-being, social and economic indicators to capture the complexity of poverty and better inform policies to address it. The OPHI Multidimensional Poverty Index (MPI) methodology is an example of a multidimensional measure of poverty. The MPI identifies multiple deprivations at the household and individual level in health, education and standard of living. It can be broken down by indicator to show how the composition of multidimensional poverty changes for different regions, ethnic groups and so on—with useful implications for policy.

The MPI reflects both the prevalence of multidimensional deprivation, and its intensity—how many deprivations people experience at the same time and to what degree. It can be used to create a comprehensive picture of people living in poverty. MPI indicators can be adapted at the country level where the multidimensional poverty approach to assessing deprivations at the household level can be tailored using country-specific data and indicators to provide a richer picture of poverty at the country level.

Whether one-dimensional or multi-dimensional, poverty or relative poverty can be measured in terms of income, consumption and assets.

## Multidimensional Poverty Index



Source: OPHI.

Consumption measures of poverty are not ideal but have substantive advantages over income measures. For example, income measurement may be substantively inaccurate whether informal markets, bartering and non-paid work are important. People may be unwilling to reveal income data. Consumption provides a more accurate indication of actual wellbeing, though consumption figures collected in one year may not provide an accurate indication of long-term wellbeing. Assets – either outright ownership or access rights - are important as they are a key indicator of longer-term well-being and also reduce vulnerability to economic and other shocks.

There are quantitative and qualitative measures of poverty, which include monetary and non-monetary measures. Income and expenditure in dollars are quantitative monetary measures; calorific intake is a non-monetary quantitative measure. Distance to water and time taken to collect water and firewood are other non-monetary quantitative measures.

The qualitative approach “...uses a variety of flexible methods that combine both visual (mapping, matrices, diagrams) and verbal (open-ended interviews, discussion groups) techniques, with the objective of better defining the experience of

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individuals, groups, households and communities” (p. 18, Omiliola, 2011, referring to Robb, 1999). Qualitative methods include a focus on how poor people identify their deprivations and provide greater depth and understanding of dimensions of poverty and how they interact. For example, a PEI Rwanda study on the economic consequences of unsustainable ENR use that included discussions with poor people identified how the lack of alternatives to fuel wood was leading to deforestation and worsened child health indicators. The link being that to save on fuel wood, caregivers were reducing time they spent on boiling water and cooking food, which resulted in increased rates of water borne diseases and decreased nutritional absorption by very young children.

Another aspect of measuring poverty is the unit of observation chosen. Many surveys focus on the household level, but focusing on individuals is necessary to gain disaggregated data. For example, gender disaggregated data is important as well-being can vary widely between men and women in a household.

## **2. ENR – poverty linkages: What, why and examples**

ENR use generates economic and social benefits for people over time. ENR constitute a significant economic base in many countries. Natural resources such as soils, forests, fisheries, water, and minerals, among others, are the principal sources of income, social protection, employment creation and human capital development (health and education), particularly for rural families and communities living in poverty. It has been estimated that ecosystem services and other non-marketed goods make up between 50 and 90 per cent of the total source of livelihoods among poor rural and forest-dwelling households—the so-called ‘GDP of the poor’ (TEEB 2010). In southern Ethiopia, for instance, forest income kept a fifth of the population above the poverty line, reducing income inequality some 15 per cent (UNDP 2011a). However, unsustainable ENR use reduces these benefits and imposes costs. For example, water scarcity disproportionately impacts the poor, particularly low-income women and girls. Women in sub-Saharan Africa, for example, spend 40 billion hours per year collecting water, time that instead could be spent on education or income generating activities (UNDP 2009). Without a basic education

or the ability to get a formal wage-earning job, many women become locked in a vicious cycle of poverty.

Similarly, soil erosion as a result of unsustainable agricultural practices reduces agricultural productivity, crop yields and incomes for rural dwellers. A 2011 PEI supported economic study in Malawi estimated that if soil erosion was addressed and lost agriculture yields were recovered, 1.88 million people could be lifted out of poverty between 2005 and 2015 (Government of Malawi and PEI 2011). Nearly three billion people still rely on solid fuels to meet their energy needs (World Bank 2011a). The dependence on firewood and charcoal by rural poor households leads to deforestation and generates high levels of indoor air pollution predominantly impacting the health women and children (World Bank 2011a). In 2012, household indoor air pollution from cooking with solid fuels was responsible for 4.3 million deaths, and 7.7 per cent of the global mortality. Almost all these deaths occurred in low- and middle-income countries (WHO n.d.).

Climate change is increasingly having negative impacts on poor communities around the world. Increased storm severity and frequency, changing rainfall patterns and rising sea levels exacerbate existing economic, political and humanitarian stresses. Climate change is threatening the stability and productivity of agricultural production. Long term changes in the patterns of temperature and precipitation, characteristics of climate change, are expected to shift production seasons, pest and disease patterns, and modify the set of feasible crops affecting production, prices, incomes and ultimately, livelihoods and lives. It is estimated that up to 600 million more people in Africa could face malnutrition as agricultural production reduces due to climate change impacts (UNDP 2011b). An additional 1.8 billion people could face water shortages, especially in Asia (UNDP 2011b).

The poorest are often the most vulnerable to climate change as they have the least capacity to respond to, recover from or adapt to climate-related shocks and stresses (CARE 2011). Lack of access to and control over livelihood resources such as agricultural and forest lands and water resources exacerbate the vulnerability of the poor and impede their ability to adapt to climate change (CARE 2011). Similarly, lack of access to basic services, including health, agricultural extension and financial services also reduce their ability to cope with climate-related stresses. Poorer households also often have more limited access than the non-poor to

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social protection and safety nets after disasters, which make them more vulnerable to weather shocks. Data from the World Bank's ASPIRE database shows that the average per capita transfer received by the extreme poor from social protection after disasters is much lower than the transfer received by the richest quintile (World Bank 2014). In Malawi, for example, those in the poorest quintile receive on average 0.5 cents per day, while the richest 20 per cent receive more than 17 cents (World Bank 2014). In Colombia, the poorest receive 23 cents per day and the richest more than \$4.6 (World Bank 2014).

Gender also influences the dynamics of vulnerability as it is women who are most often at a disadvantage when it comes to adaptation (UNDP 2009). Poor women's limited access to resources, restricted rights, limited mobility and muted voice in shaping decisions make them highly vulnerable to climate change as existing patterns of inequality will be magnified (UNDP 2009).

In summary unsustainable ENR use coupled with the impacts of climate change make it more difficult to achieve development goals, such as poverty reduction and food security with the poor being the most vulnerable due to their higher dependence on ENR in many developing countries.

### 3. An Approach to Poverty-Environment Mainstreaming

While the links between poverty and ENR have been explored in many PEI and other poverty-environment related studies,<sup>1</sup> those linkages need to be quantified more systematically in terms of impact on poverty and other development goals. Further there needs to be more pro-active and comprehensive efforts to identify policy options to accelerate poverty reduction through the more sustainable use of ENR.

The recommended approach to improved inclusion of poverty elements of poverty-environment mainstreaming is based on the successful PEI experience to date that successful poverty-environment mainstreaming requires a programmatic approach — adapted to national circumstances. This approach is set out in detail in the PEI Handbook. It consists of three components with a cluster of tasks needed for each component— for which a range of analytic tools can be used. The components are the following:

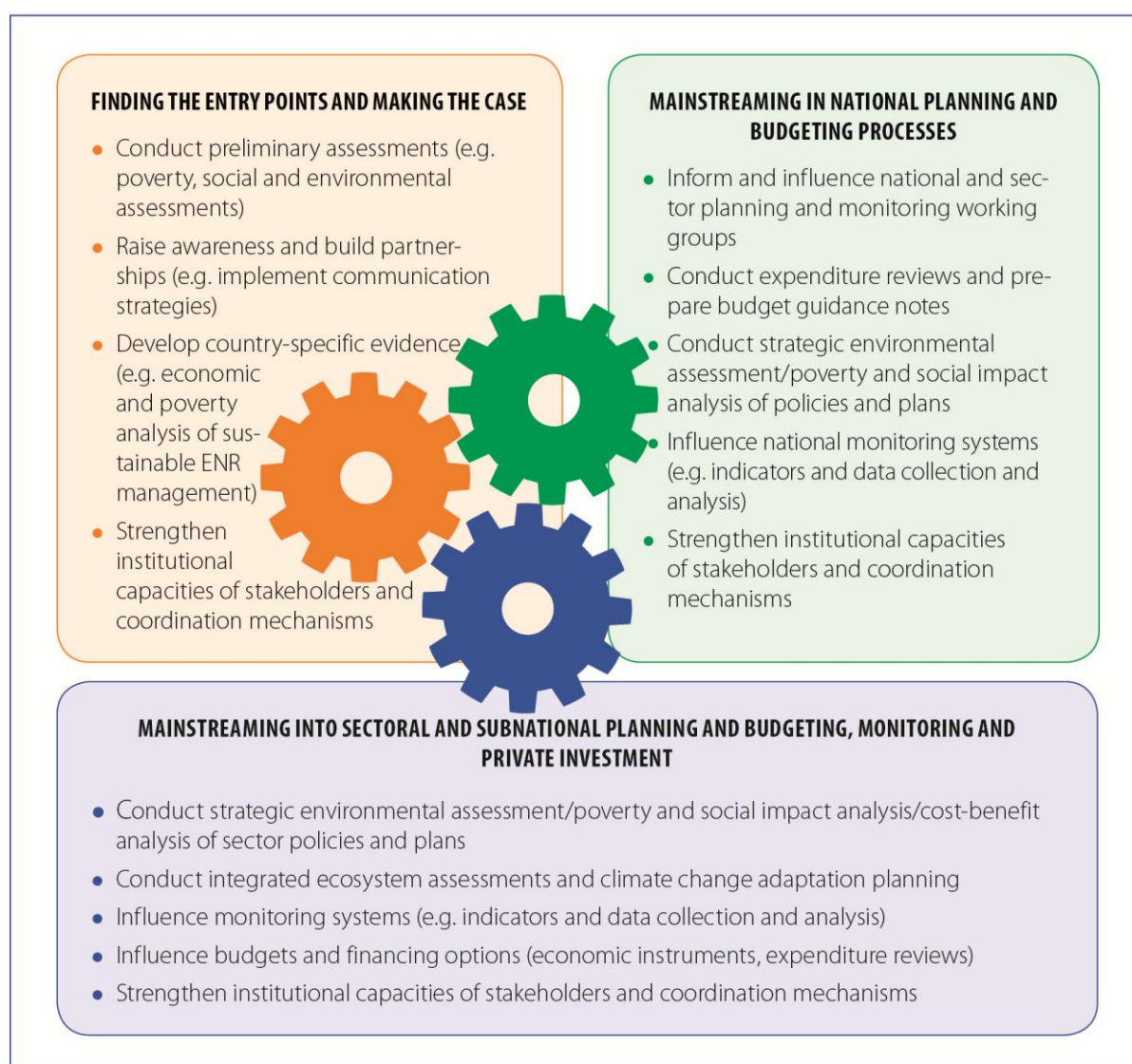
- Finding the entry points and making the case
- Mainstreaming poverty-environment objectives in national planning and budgeting processes
- Mainstreaming into sectoral and subnational planning and budgeting, monitoring and private investment

The components should be considered a flexible model to help guide the choice of activities, tactics, methodologies and tools in a particular country situation. Stakeholder engagement occurs throughout, from inception through policy development, implementation and monitoring. Each successive component builds on previous work, but the chronology is not fixed. Rather, mainstreaming poverty-environment objectives is an iterative process in which activities may take place in parallel or in an order different from that presented here, according to a country's particular priorities and needs.

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<sup>1</sup> E.g. in Burkina Faso, Malawi and Mozambique; see <http://www.unpei.org/economic-valuation-and-analysis-%E2%80%93-a-building-block-towards-inclusive-green-economy>

## PEI Programmatic Approach for Poverty-Environment Mainstreaming



### **Finding the entry points and making the case.**

This component sets the stage for strengthening the poverty dimension of poverty-environment mainstreaming. Preliminary assessments should provide an overview of national poverty levels and drivers, including poverty-ENR linkages. This includes identifying the poor and understanding their priority needs. These findings can then be used for awareness raising, highlighting how more sustainable ENR use could help reduce poverty.

A key element of successful poverty-environment mainstreaming is generating economic evidence of the links between poverty and ENR. This evidence provides a detailed economic rationale to support policy makers to better incorporate poverty-environment objectives in policies, plans and budget processes in such a way that it can

contribute to poverty reduction, economic growth and the achievement of development goals.

With respect to poverty elements, quantifying the linkages involve an analysis of how unsustainable natural resource use and environmental degradation impact on poverty levels—e.g. how soil erosion contributes to poverty. A multi-dimensional approach should be taken into account in this analysis of the linkages, including indicators such as income, access to assets such as land, health, food security, water, energy and education. The quantification should be disaggregated by gender to identify, for example, differences in incomes, the time women spend on water and firewood collection, children's access to education, etc.

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It may be advisable and more practical to first prepare a general economic assessment of economic-ENR linkages which includes some poverty-ENR linkages and then to carry out a detailed disaggregated assessment that quantify poverty-ENR linkages. This is so that an overall picture of economic-ENR linkages is obtained to generate support across a range of MDAs (Ministries, Departments and Agencies) and other stakeholders for poverty-environment mainstreaming.

**Mainstreaming into national planning and budgeting processes.** This component focuses on integrating poverty-environment objectives into a previously identified and on-going policy, national development planning or budget process. The rationale for this integration is based on the country-specific evidence referred to above of how more sustainable ENR management and climate change adaptation can help achieve national development goals, including poverty reduction.

Activities build on previous work with a priority of engaging in key development planning and budgeting processes often led by ministries of planning and finance, such as the preparation and/or review of national development plans or strategies, Medium Term Expenditure Frameworks (MTEFs) and annual budget processes. The purpose of this engagement is to ensure that pro-poor sustainable ENR objectives are included and that ministries of finance agree to increase budget allocations for such sustainability. In addition to the economic evidence, expenditure reviews and budget guidelines supporting increases for pro-poor ENR sustainability are important tools.

While most developing country governments state that poverty reduction is a top priority, this may not be adequately reflected in the design and implementation of policies, strategies and programmes. Government may not include an assessment of the poverty reduction impacts of different options for policy, strategy and programmes. This may reflect an implicit assumption that economic growth will reduce poverty and/or the lack of tools and capacity to adequately include poverty reduction objectives in policies, strategies and programmes. Thus, the degree poverty reduction is focused on plus the capacity to use poverty reduction tools and analysis should be assessed. Relevant tools such as PSIA are outlined in later sections of this Guidance Note. The results of the assessments should then be used to identify specific actions to improve the

inclusion of poverty reduction in government policies, strategies and tools relevant to poverty-environment mainstreaming.

Another important element is support for the inclusion of poverty-environment indicators in the national monitoring systems and critically, their implementation. There may be an opportunity to support development and application of multidimensional poverty indices that include poverty-ENR linkages.

**Mainstreaming into sectoral and subnational planning and budgeting, monitoring and private investment.** This component focuses on: i) operationalizing poverty-environment objectives in national policies and plans through engagement in key sector and subnational planning, and budget processes, ii) integrating poverty-environment objectives in mechanisms to guide private sector investment, and iii) integrating and applying poverty-environment indicators in associated monitoring processes to ensure that intended outcomes are achieved and that the well-being of the targeted beneficiaries improves. It essentially focuses on the substantive implementation of pro-poor ENR sustainability objectives, whereas the previous component focuses more on their integration at national level.

Activities include assessments of how well sector and sub-national policies and plans include pro-poor ENR sustainability. Influencing and assessing sector policies require substantive engagement with sector working groups; the collection of more sector specific, detailed evidence of poverty-ENR linkages; and inputs to sector policy and strategy drafts that include actions to improve ENR sustainability and reduce poverty. An additional area to focus on is to improve sector coordination mechanisms for cross-cutting issues by, for example, supporting the development or strengthening of existing cross-sector coordination platforms and institutional decision-making processes. At the sub-national level (i.e. district and provincial) it includes working with ministries of local government to better include pro-poor sustainability in district and provincial planning and budgeting mechanisms. For example, in Nepal, the Government has developed an Environment Friendly Local Governance Framework to mainstream sustainable natural resource management into local development planning to achieve multiple benefits including poverty reduction. With PEI support, change needed to implement the framework has been identified and will be rolled out to national, district

and village governments down to the household level.

Increasing budget, donor and other financial allocations for pro-poor sustainable ENR investments, such as sustainable agriculture or strengthening resilience to climate change is a key focus under this component. This includes supporting the preparation of sector and sub-national budgets for pro-poor ENR sustainability investments. This may require more specific economic evidence and it is very important that such evidence identifies the poverty reduction benefits of sustainable ENR use. Influencing budgets will also require substantive engagement in budget processes – both annual and medium-term budget frameworks. It is important to also highlight the potential for increasing government revenues through more investment in sustainable ENR, for example, through improved royalties from sustainable forestry, which could be coupled with analysis of pro-poor revenue sharing mechanisms. PEI Mozambique has, for example, supported the government to review benefit sharing mechanisms for the forestry, gas and mining sector.<sup>2</sup> Similarly, in the Philippines, PEI has supported the Government to manage assets and revenues from environmental and mineral resources for local development and poverty reduction through improving national systems and regulatory frameworks and building capacity of local government to collect and utilize natural resource revenue.

As with the previous component, monitoring of delivery and results is important and integrating poverty-environment indicators into the sector and subnational monitoring systems is also key.

There are a range of tools to assist with the above, which are outlined in section 4.

#### **4. Methodologies and tools to assess ENR-poverty linkages and integrate and operationalize poverty assessment and environment-linked poverty reduction objectives into policies, plans, programmes and projects**

There are a number of tools to assess ENR-poverty linkages at macro, sector, local and household levels. These include general equilibrium modelling at the macro level which can measure the impact on GDP, adjusted net saving (ANS), partial equilibrium modelling at the sector level, mapping of ENR-poverty linkages, vulnerability assessments, and household surveys. Poverty impact assessments (PIA), Poverty and Social Impact Analysis (PSIA), Multidimensional Poverty Assessment Tool (MPAT), and Cost benefit analysis (CBA) are methodologies and tools to support the integration and operationalization of poverty assessments and environment-linked poverty reduction concerns into the design, revision, and implementation of policies, plan programmes and projects. These are discussed below.

**General Equilibrium Modelling** is a quantitative method to estimate the impact of policy, budgetary and other changes, including external shocks on the economy as a whole. General Equilibrium Modelling is used if an economic or other policy change is expected to have significant impacts throughout the economy. It is the best option if analysing the static/dynamic, direct/ indirect and short/long term effects caused by a change or proposed change. For example, it is used to estimate the impact of, among others:

- Fiscal policy
- Trade policy
- Climate Change shocks
- Changes in international prices

For example, it can help estimate the effect of decreasing tariffs on imports on the market for the relevant goods as well as on Government tax collection, trade flows, household income and employment, among other variables. In the ENR context, it has been used in Malawi to estimate the economic impacts of unsustainable natural resource use on GDP and to estimate the impact of soil erosion on poverty (Yaron et al. 2011).

The key advantage of General Equilibrium Modelling when compared to other quantitative methods is its potential to capture a much wider set

<sup>2</sup> <http://www.unpei.org/latest-news/mozambique-reviews-benefit-sharing-mechanisms-for-the-forestry-gas-and-mining-sector>

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of economic impacts. Hence, it is possible to evaluate the implementation of a policy reform as well as the distributive effects within the economy at different levels of disaggregation. However, detailed economic data is needed to construct a good GEM and this can be a significant challenge in some developing countries.

Partial equilibrium modelling is a derivative of general equilibrium analysis that focus on changes in one market or variable.

Resources:

[General Equilibrium Models for Development Policy](#), The World Bank, 1982.

[Maquette for MDG Simulations \(MAMS\)](#), The World Bank

**Adjusted Net Savings (ANS)**, sometimes known as genuine savings, measures the true rate of savings in an economy after taking into account investment in human capital, depletion of natural resources and damage caused by pollution.<sup>3</sup> It seeks to provide national-level decision makers with a relatively simple and clear indicator of how sustainable their country's investment policies are. While standard measures of "savings" and "investment" reflect changes in the value of a certain, limited set of assets, a more inclusive and realistic definition of what constitutes an asset can lead to a correspondingly more realistic picture of how a nation invests. In standard national accounting, only the formation of fixed, produced capital is counted as an investment in the future and thus as an increase in the value of the assets available to society. Likewise, standard calculation of net saving rates includes only depreciation in the value of human-made capital as a decrease in the value of a nation's assets. The adjusted net savings framework takes the broader view that natural and human capital are assets upon which the productivity and therefore the well-being of a nation rest. Since depletion of a non-renewable resource (or over-exploitation of a renewable one) decreases the value of that resource stock as an asset, such activity represents a disinvestment in future productivity and well-being.

In Malawi, The World Bank estimated ANS for 2006 to be 12.24% of Gross National Income (GNI), indicating that national wealth was increasing

(Yaron et al. 2011). However, this estimate excluded the latest evidence on deforestation from woodfuel use, the cost of soil nutrient losses, estimates of the costs of indoor air pollution or any estimates for the fisheries or wildlife sub-sectors. By including these items the Government of Malawi through a PEI supported economic study found that the country's ANS for 2006 falls to 7.14% of gross national income (Yaron et al. 2011). The findings of the study have increased the Government of Malawi's commitment to ensure that pro-poor sustainable environment and natural resource funding increases. The Ministry of Finance guidelines for the preparation of the 2013/14 as well as the 2014/15 budget include a chapter on the importance of the alignment with sustainability guidelines.

Resources:

[Manual for Calculating Adjusted Net Savings](#), The World Bank, 2002.

**Institutional and Context Analysis (ICA)** refers to *analyses that focus on political and institutional factors, as well as processes concerning the use of national and external resources in a given setting and how these have an impact on the implementation of programmes and policy advice* (UNDP 2012). It can help development practitioners become more strategic in their engagement with different actors and sectors. When carrying out an ICA or its equivalent at the start of the poverty-environment mainstreaming process, assessment of how the country assesses poverty and what it is actually doing to reduce poverty should be carried out, including on whether poverty-ENR links are reflected.

In terms of poverty assessments, the ICA should include the following:

- Poverty levels, degree of inequality, trends, geographical spread
- How poverty is measured
  - Household survey – frequency, contents
  - Poverty indicators
  - Single or multidimensional
  - Level of disaggregation
- Poverty drivers identification
- Poverty impact identification
- Poverty-environment linkages identification

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<sup>3</sup> World Bank, <http://data.worldbank.org/data-catalog/environmental-accounting>

- Assessment of poverty awareness e.g. number of articles in the main newspapers

In terms of assessing how poverty reduction is included in policies, plans and programmes the focus should be guided by the following question: What is actually being done to reduce poverty?

- Macro-level poverty reduction targets (e.g. as in PRSP, NDP)
- Inclusion and application of poverty indicators and poverty-environment indicators in national monitoring frameworks
- Identification of specific poverty reduction policies, strategies, plans, etc. and overview of effectiveness (based on existing data)
- Degree of inclusion of national level poverty reduction targets in other relevant policies, plans, programmes and projects. For example, does the agriculture sector plan include a focus on rural poverty reduction? Do women have equal rights over access to land? If not, is Government going to introduce land rights for women?
- Degree of inclusion of poverty-environment objectives in policies, plans, etc. at different levels
- Are sufficient budgets being allocated to poverty reduction efforts?
- Do donors prioritise support for poverty reduction and if so how?

Thirdly, the tools used to incorporate poverty reduction in national planning, policy, programme and project decision-making should be identified. For example:

- What poverty-assessment tools are applied in the design and monitoring of policies, plans, programmes and projects? (See tools referred to in this section).
- Are tools to measure sustainability-poverty linkages applied?
- Do the standard government manuals for programme and project design, including cost-benefit analysis, require distributional analysis?
- Is distributional weighting in favour of poorer or more vulnerable groups applied?

PEI experience in a number of countries suggests that the ICA will probably find weakness in national efforts to assess poverty and that efforts to reduce poverty require substantive strengthening. In that case it is necessary to identify why these weaknesses exist and to identify steps to

strengthen efforts to measure and address poverty. This is most likely to require a specific focus in a related study. For example, a study identifying the economic cost of unsustainable ENR could include a specific focus on poverty. Such a study should:

- a) Identify the main methodological, institutional, legal and budgetary barriers to the adequate measurement of poverty and to the design and implementation of actions to reduce poverty, particularly ENR related poverty.

- *Methodological*

This section should address the question of whether or not the tools used by government, donors and other development decision-makers, planners, economists etc. are the appropriate ones for assessing the multidimensional nature of poverty in a disaggregated manner. Secondly, whether appropriate tools are used for poverty reduction in the design, implementation and monitoring of policies, plans, programmes and projects.

- *Institutional*

This includes development planning and implementation institutional structures, design, mandates and processes. It includes how effectively they operate in general and specifically how effectively include poverty assessments and reduction. For example, if poverty reduction is a national priority, how is this reflected in sector policies and plans? What are the mechanisms for cross-Ministry and cross-sector co-ordination with respect to poverty reduction? Are there capacity constraints that create bottlenecks?

- *Legal*

For example, do laws governing the forestry include provisions designed to contribute to poverty reduction? Do land tenure laws discriminate against women?

- *Budgetary*

Do annual and medium terms budgets include adequate allocations to support poverty reduction efforts? If not, identify the reasons. E.g. Is there inadequate coherence between national poverty reduction targets and budgetary allocations, what causes this incoherence.

- b) Recommend actions (methodological, institutional, legal and budgetary) to 1) remove those barriers; 2) improve national capacities to implement and sustain the actions. These

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recommendations should be results based and realistic.

**Resources:**

[Institutional and Context Analysis Guidance Note](#), UNDP, 2012.

[Draft Institutional Analysis Report for Botswana](#), UNDP-UNEP PEI, 2009.

**Mapping of ENR poverty linkages:** Aggregate, national level indicators often mask important differences between regions or areas. Therefore, the analysis of poverty, its determinants and poverty-reducing interventions requires a focus on poverty information that is further geographically disaggregated. Furthermore, poverty is multidimensional and has multiple determinants – geographic and agro-climatic factors, services, etc. Hence, poverty mapping – the plotting of such information on maps is useful to display information on the spatial distribution of welfare and its determinants. It is also useful to simultaneously display different dimensions of poverty and/or its determinants. It also helps pinpoint areas where development lags and highlights the location and condition of infrastructure and natural resource assets that are critical to poverty reduction programs.

The building blocks of poverty maps include:

- Information sources: censuses, surveys, administrative data, and other sources of information (e.g. information on rainfall and agro-climatic conditions)
- Geographic Information Systems: enable the display of information on the basis of their geographic coordinates and also allow combining information from heterogeneous sources.
- Small area estimation: combines information from surveys (which contain comprehensive information) and censuses (which allow fine disaggregation). This enables the presentation of detailed information on poverty that is sufficiently disaggregated to capture heterogeneity.

Poverty-environment mapping has been undertaken in Rwanda and Tanzania, with PEI support, and has proved to be a useful tool not only for analysis and presentation of poverty-environment concerns but also as an advocacy tool to raise awareness on key poverty-environment issues.

**Resources:**

[Poverty Mapping](#), The World Bank

[More than a Pretty Picture: Using Poverty Maps to Design Better Policies and Interventions](#), The World Bank

[Background on Poverty Mapping](#), World Resources Institute, 2002.

[Where are the Poor? Experiences with the development and use of poverty maps](#), World Resources Institute, 2002

[Choosing a Method for Poverty Mapping](#), FAO, 2003.

[Using Approaches and Technologies for Mapping Land and Natural Resource and Rights: Learning Note](#), IFAD, 2013

**Vulnerability Assessments** are essential for shaping climate change adaptation decisions. They help to define the nature and extent of the threat that may harm a given human or ecological system, providing a basis for devising measures that will minimize or avoid this harm. They provide a means to understand how different groups, including women will be impacted by climate change and to identify adaptation measures based on needs and priorities. There are various methodologies available to assess climate risk and vulnerability at various scales and should incorporate climate data and local knowledge. For local vulnerability assessments, it is important to involve local communities in a participatory manner, especially the poor as they may provide access to a broader knowledge base, which in turn improves problem definition and strengthens the analysis.

CARE has developed a process which uses a series of guiding questions to analyse information at national, local government/community, and household/individual levels. The idea is to combine the information gained at different levels using the various analytical tools. With this information, users should be well-positioned to draw conclusions about adaptive capacity in the target communities, and to design appropriate interventions to support adaptation. The table above includes a sample of guiding questions at the local government/community level. Suggested tools for gathering and analysing data follow.

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resilient Livelihoods                         | <ul style="list-style-type: none"> <li>• Are scaled-down climate projections available?</li> <li>• If so, what are the observed and predicted impacts of climate change for the region and/or ecological zone?</li> <li>• Do local institutions have access to information on current and future climate risks? - What livelihood groups or economic sectors are most vulnerable to climate change?</li> <li>• Do local plans or policies support climate-resilient livelihoods?</li> <li>• Do local government and NGO extension workers understand climate risks and promote adaptation strategies?</li> </ul>                                                                                                                                             |
| Disaster Risk Reduction                       | <ul style="list-style-type: none"> <li>• What are the most important climate-related hazards the region and/or ecological zone faces? Non-climate related?</li> <li>• How are hazards likely to change over time as a result of climate change?</li> <li>• What groups within the community are most vulnerable to disasters?</li> <li>• Do local institutions have access to disaster risk information? - Are local disaster risk management plans being implemented?</li> <li>• Are functional early warning systems in place at the local level?</li> <li>• Does the local government have the capacity to respond to disasters?</li> </ul>                                                                                                               |
| Capacity Development                          | <ul style="list-style-type: none"> <li>• What are the most important institutions in facilitating or constraining adaptation?</li> <li>• Do local institutions (governmental and non-governmental) have capacity to monitor and analyze information on current and future climate risks?</li> <li>• Do local institutions have capacity to plan and implement adaptation activities?</li> <li>• Are resources allocated for implementation of adaptation-related policies? What is the budget? Where are the resources coming from?</li> <li>• What are the existing capacity and resource needs and/or gaps for climate change adaptation?</li> <li>• What new capacities may be needed to address changing circumstances due to climate change?</li> </ul> |
| Addressing Underlying Causes of Vulnerability | <ul style="list-style-type: none"> <li>• What social groups within the community are most vulnerable to climate change?</li> <li>• Are local planning processes participatory?</li> <li>• Do women and other marginalized groups have a voice in local planning processes?</li> <li>• Do local policies provide access to and control over critical livelihoods resources for all?</li> <li>• What are the other factors constraining adaptive capacity of the most vulnerable groups? Do vulnerable communities and groups have any influence over these factors?</li> </ul>                                                                                                                                                                                |

The Analytical tools used include:

*Secondary research:* An understanding of the livelihoods strategies, socio-economic situation, power dynamics and local governance in the target communities is critical to ensuring that facilitators are effective during field work, and to identifying focus groups within the community. Sources for information include Government documents (poverty reduction strategies, development plans, official statistics), assessment reports from NGOs or UN organizations, vulnerability monitoring programs, etc.

*Policy analysis:* local-level plans or policies may be important in shaping adaptive capacity of vulnerable households and individuals. Regional or district plans and/or sector strategies can provide useful information on priorities of local governments. Further, the process for developing these policies

and strategies can provide insights into the level of participation of vulnerable people in establishing these priorities.

*Institutional Mapping:* Institutions play a critical role in supporting or constraining people's capacity to adapt to climate change. In order to better understand which institutions are most important to people in the target communities, an institutional mapping exercise is useful.

*Key informant interviews:* Key informants can provide useful insights into local governance structures and status of implementation of local policies and programs. Power issues within and between communities and other stakeholders can also be revealed through interviews with key actors. Key informants at the local government/community level would include: local leaders (chiefs, mayors, elected representatives, etc.), representatives of

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community-based organizations such as farmer's groups, water and sanitation committees, etc., representatives of women's groups or other rights-based groups, representatives of NGOs working on programs or advocacy in the target area, and academic/research institutions engaged in the target area.

Resources:

[Climate Vulnerability and Capacity Analysis Handbook](#), CARE. 2009.

[The PROVIA Guidance on Assessing Vulnerability, Impacts and Adaptation to Climate Change](#), UNEP, 2013.

**Household Surveys** are a significant source of socio-economic data. Important indicators to inform and monitor development policies are often derived from such surveys. These surveys are administered at the household level and collect information related to the household's consumption of goods and services and also about the individuals living in those households. They are a rich source of pertinent information such as size and structure of household, education levels, health status, livelihood and income sources and levels, consumption, access to natural resources, access to public services, and so on. Household surveys sample carefully selected households, and are designed to yield results that are representative at national, and selected subnational (provincial or rural/urban) levels.

Based on the household survey data, poverty can be measured through income or consumption. In developing countries, it is often not possible to accurately measure income. Measuring consumption is then the preferred alternative, as it provides accurate information on how well households are actually able to meet their basic needs. It includes consumption from own production and common property resources which can be a significant component of the consumption of rural households. Furthermore, the survey data can provide important insights towards understanding the poor. For example, the dependence of the poor on environmental and natural resources can be

measured quantitatively, and thus a measure of benefits received. Such analyses could be done to compare the dependence of the non-poor with poor households on natural resources, and ascertain the type and level of uses important for different income groups, and better targeting of the poor.

Household Surveys include Living Standards Measurement Study surveys, Integrated Surveys, Priority Surveys, Core Welfare Indicator Questionnaire (CWIQ) surveys, Household Budget Surveys, Labour Force Surveys, Demographic and Health Surveys, education surveys, etc.

Resources:

[Household Sample Surveys in Developing and Transition Countries](#), United Nations, 2005.

[Survey and Analysis Tools](#), The World Bank

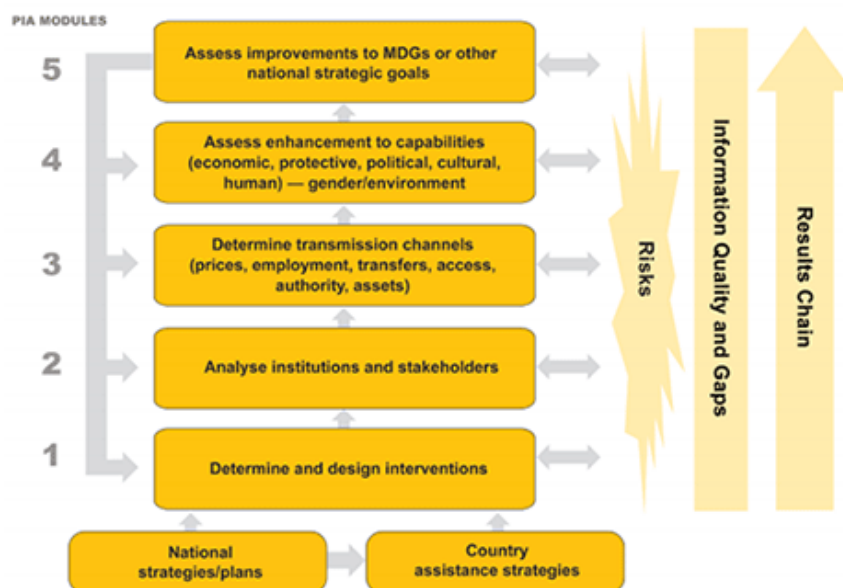
[A guide to living standards measurement study surveys and their data sets](#), Living standards measurement study (LSMS) working paper ; no. LSM 120. The World Bank. 1995.

[Principles and Recommendations for Population and Housing Censuses](#), United Nations, 2008.

**Poverty Impact Assessment (PIA)** helps decision makers determine strategic choices for public actions so as to have the greatest impact on reducing poverty and achieving pro-poor growth (OECD 2007). It aims at informing operations at project and programme level, and provides decision makers with a better understanding about potential winners and losers of an intervention and thus supports a results-oriented approach.

PIA is best used prior to assessing the impacts which can be expected from planned reforms and programmes. Hence it can leave room for different options, identify mitigating measures and needed modifications, and support decision makers in choosing the solutions that are appropriate. PIA can also be applied during implementation to adjust and fine-tune implementation and also after implementation to support evaluations and identify lessons learned.

## The PIA Process



Source: OECD

The PIA is composed of five modules (see diagram above).

Module 1 - Poverty situation and relevance to national strategies and plans assesses the general poverty situation and relevance of the intervention to national strategies and plans.

Module 2 – Stakeholder and institutional analysis looks at the institutions and stakeholders that influence and are influenced by the intervention, their respective roles, as well as their interest in supporting or impeding the intervention.

Module 3 - Identification of transmission channels and overall results by channel. The main transmission channels are prices, employment, transfers, access, authority and assets.

Module 4 - Assessment of stakeholders' and target groups' capabilities provides an outline of the likely results on stakeholder groups in relation to the different dimensions of poverty (economic, human, socio-cultural, political and security-related). Gender, empowerment and equity issues are closely examined.

Module 5 - Assessment of results on MDGs and other national strategic goals provides a rough

estimation of the possible impacts on the MDGs or other national goals.

In each module the risks, information quality and monitoring needs are assessed and recommendations are made, based on evidence, on how the intervention can be improved.

### Resources:

[Promoting Pro-poor Growth: A Practical Guide to Ex Ante Poverty Impact Assessment](#), OECD, 2007.

**Poverty and Social Impact Analysis (PSIA)** is an analytical approach used to assess the distributional and social impacts of policy reforms on different groups (World Bank 2013). PSIA can be carried out ex ante or ex post policy reform. If conducted before or during the reform process, the analysis can provide a sound empirical basis to inform the design and sequencing of alternative policy options. If conducted after the reform, PSIA can help assess the actual impacts of the policy, which can suggest ways to mitigate any adverse effects and help decision makers understand the likely impacts of future reforms.

While PSIA and PIA are tools for analysing the distributional impacts of policies, programmes and

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projects on the well-being of especially poor women and men, the main difference between these tools is the level of intervention which has implications for the scope of the analysis and for the required time and resources. PSIA often requires a considerable effort of specific data collection for thorough social, political and economic analysis comprising a whole range of quantitative and qualitative tools including micro- and macroeconomic modelling. As a less resource intensive version, PIA draws predominantly on existing data and analyses. It provides an estimation of effects and a quick overview.

The PSIA process is similar to the PIA. The key steps include:

*Identifying stakeholders:* those who are affected positively and negatively, and those influential groups and actors who can influence decision-making and implementation.

*Understanding the transmission channels:* modelling the major impact chains of the intervention through the six transmission channels (prices, employment, transfers and taxes, access, assets, and authority).

*Assessing institutions:* to what extent the foreseen impacts can be realized in view of the capacities and other constraints of involved institutions and organisations.

*Analysing impacts:* the expected effects—whether intended or not—at the micro-level and their distribution across social groups.

*Assessing risks:* to anticipate and avoid unintended consequences. Risks can result from certain country contexts such as political instability, social tensions, political economy or institutional weaknesses. They can also be exogenous such as natural disasters or regional economic crises.

Gender is a relevant dimension of policy reform impacts as different groups of women and men have different needs and roles in society; each group is affected differently by economic, social and political processes. PSIA that recognizes the gender dimensions of reforms can inform policy interventions, so that they can take these gender differences into account. This in turn has the potential to improve policy effectiveness and impact. Please see resources section for guidance on integrating gender into PSIA.

In Botswana, PEI supported the Government in undertaking a PSIA of the Integrated Support Programme for Arable Agriculture Development (ISPAAD). Established by the Government to support and develop the agriculture sector, the objectives of ISPAAD were to increase grain production, promote food security at the household and national levels, commercialize agriculture through mechanisation, facilitate access to farm inputs and credit, and improve extension outreach (UNDP-UNEP PEI 2013). The PSIA aimed to analyse the performance of the programme, with particular focus on key programme activities and the impact on poor people, vulnerable groups and the environment. It found that 1) ISPAAD packages have been delivered to predominantly poor beneficiaries, however there has been substantial leakage to larger farmers and tractor owners, 2) Seed and fertilizer distribution and the promotion and use of appropriate tilling techniques and farming systems need to be tuned to land suitability conditions and relevant characteristics of agro-ecological zones, 3) as an agriculture development programme, ISPAAD has generated sub-economical returns on investment and would in its current form be unsustainable in the long term. However, if redesigned ISPAAD has the potential to effectively support agricultural and rural development, including the aspirations of female-headed households, and help eradicate poverty. The Government of Botswana is in the process of modifying the ISPAAD to ensure that farmers access the right type of seeds informed by the findings from the PSIA. This is likely to enhance overall arable productivity and effectiveness of the main agriculture programme and further contribute to rural poverty alleviation and food security.

#### Resources

[PSIA – Gauging Poverty Impacts](#), International Poverty Centre, UNDP, 2008.

[A User's Guide to Poverty and Social Impact Analysis](#), The World Bank, 2003.

[Integrating Gender into Poverty and Social Impact Analysis](#), The World Bank, 2013.

**Multidimensional Poverty Assessment Tool (MPAT)** presents data that can inform all levels of decision-making by providing a clearer understanding of rural poverty at the household and village level. It uses purpose-built surveys to gather data on people's perceptions about fundamental and interconnected aspects of their lives, livelihoods and environments. The data is then combined,

distilled and presented in an accessible way through standardized indicators, developed through a comprehensive participatory process.

*The process:* The tool collects a variety of data through the MPAT Household and Village Surveys and then organizes it using the 10 MPAT dimensions, or components (see figure below).

The survey questions are designed to be broad enough to be applicable in most rural contexts and precise enough to act as quality proxy measures for the components they represent. The Household Survey is used to collect the vast majority of MPAT data, with additional data collected through the Village Survey.

The MPAT surveys and implementation process have been standardized so that survey questions and processes are completed the same way for each household. This is to ensure that quality data are collected. Once the data are collected, survey responses are assigned numerical values. These are in turn aggregated into subcomponents, which are then given weightings and aggregated further into the 10 MPAT components.

An important contribution of MPAT is that the values and weights that are assigned to each response and subcomponent have been standardized across countries and contexts, resulting in MPAT scores that permit cross-situation analysis and comparisons across projects, places and time (IFAD 2014).

MPAT can be employed at various points in the project cycle: at the beginning, for baseline poverty studies, situation analysis and project design; during project implementation, to support mid-course correction; and at project end, to track long-term community outcomes and poverty alleviation.

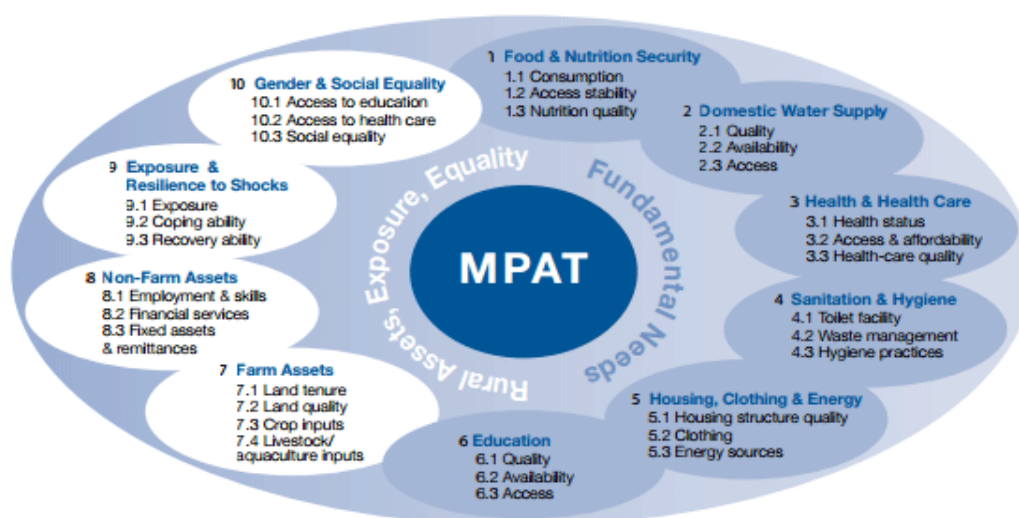
#### Resources:

[MPAT User's Guide](#), IFAD, 2014

[MPAT Household Survey](#), IFAD

[MPAT Village Survey](#), IFAD

## MPAT's components and sub-components



Source: IFAD

**Cost-benefit analysis (CBA)** is a systematic process for identifying, valuing, and comparing costs and benefits of a project (Buncle et al. 2013). CBA helps determine whether the benefits of a project outweigh its costs, and by how much relative to other alternatives. The objective is to: a) **determine** whether the proposed project is (or was) a sound decision or investment; and/or; b) compare alternative project options, and make a decision on the preferred option. Ultimately, a CBA helps inform decisions about whether to proceed with a project or not, and to choose which project option to implement, where there are several options.

The key features of a CBA are:

- All related costs (losses) and benefits (gains) of a project are considered, including potential impacts on human lives and the environment.
- Costs and benefits are assessed from a whole-of-society perspective, rather than from one particular individual or interest group (that is, a public and not a private perspective is taken).
- Costs and benefits are expressed as far as possible in monetary terms as the basis for comparison.<sup>4</sup>
- Costs and benefits that are realised in different time periods in the future are aggregated to a single time dimension (discounting) (Buncle et al. 2013).

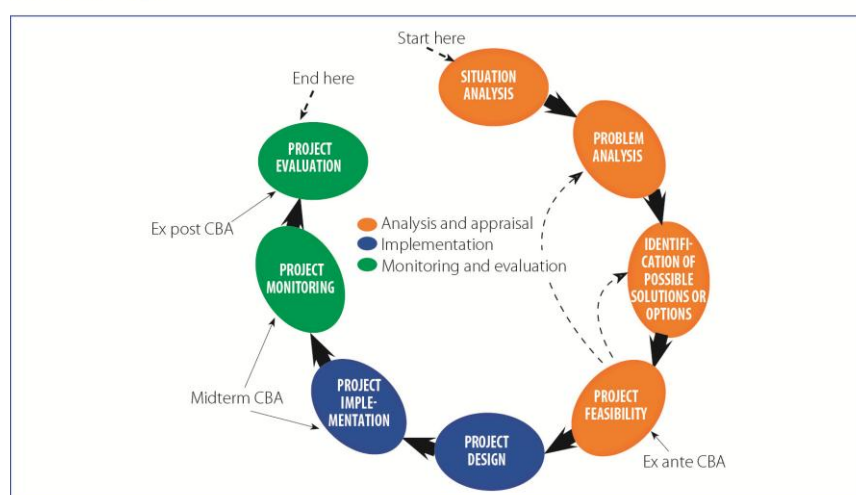
CBA may be used at a number of points during the 'project cycle'. The figure below shows the stages of the project cycle at which CBA can be applied.

These are *ex-ante* (before project implementation), *mid-term*, and *ex-post* (after project implementation). Applied at the different stages, CBA can serve slightly different functions.

An *ex-ante* CBA is undertaken while a project is still under consideration, typically before a decision is made (by a government or external donors) to support it. Ex-ante CBAs are primarily done to assess whether a project is worthwhile or feasible, which project option out of several is best, and to inform adjustments to project design. A *mid-term* CBA is carried out mid-way through a project to check that the project is on track and to inform any design refinements or adjustments for the remainder of the project period. An *ex-post* CBA is undertaken at the end of the project period to evaluate the performance of the project. This can support transparency and accountability in reporting on how well public funds have been spent.

The 'ideal' time to undertake a CBA depends on what one would want to do with the findings. For example, a CBA will be most informative about project design if it is carried out before implementation (*ex-ante*), but the values estimated will only be projections. For certainty about actual achievements, an *ex-post* CBA would be needed.

Cost-Benefit Analysis

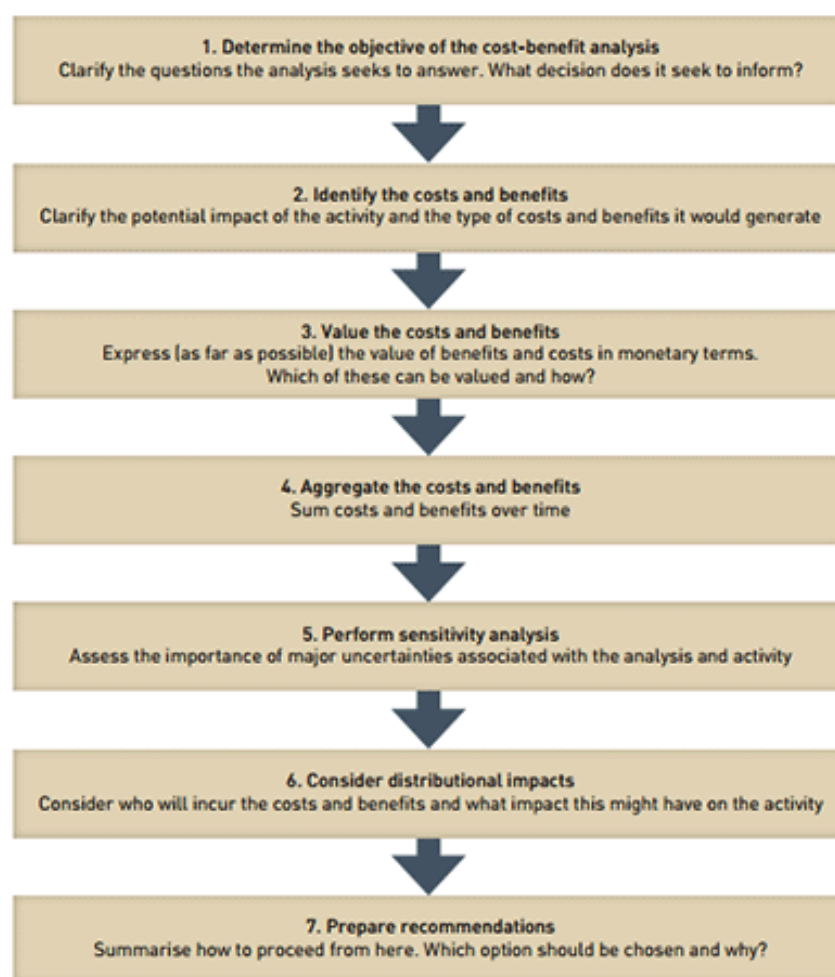


Source: Buncle et al. 2013, as adapted from Lal and Holland 2010.

<sup>4</sup> Costs and benefits that cannot be quantified in monetary terms are still considered during decision making.

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A CBA involves key steps that are not necessarily rigid. Please see figure below.



*Step 1* of the process is to determine the objectives of the CBA. This includes: (a) confirming the underlying problem and links with the proposed project options; and (b) clarifying what decision the CBA will inform, and hence what we want to know as a result of the analysis.

*Step 2* is to identify the costs and benefits for each option under consideration. To do this an assessment of what would happen if the project was not implemented ('without-project' scenario) should be undertaken, and then compare this to what would happen if each of the proposed options ('with-project' scenario(s)) were implemented). This 'with-and-without' analysis allows the changes (benefits or costs) resulting from a project to be identified.

*Step 3* is to quantify the inputs (the physical amounts, e.g. number of water tanks) and outputs (e.g. litres of water available each year) for each of the project options. The costs and benefits

quantified in this way must be those that would result from the project activities.

*Step 4* is to aggregate the costs and benefits. Aggregation denotes bringing together all the different costs and benefits over the life of the project, and presenting them as one number (value or ratio). The purpose of this step is to facilitate comparison of the different options. Aggregating costs and benefits is done in two parts: (a) present costs and benefits realised over time in present day values (discounting); and (b) sum present values of each cost and benefit category into a single metric known as net present value (NPV).

*Step 5* is sensitivity analysis which shows how sensitive or robust results are to changes in key assumptions (about uncertain parameters), and thus how confident we can be in the results of the CBA, and making recommendations about the project based on these results.

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Step 6 of the CBA process considers the distributional impacts of the proposed project i.e. who will incur the costs and benefits and what impacts this might have on the activity. If governments have a commitment to target the well-being of specific groups in society, the costs or benefits estimated in a CBA could be weighted in favour of these groups.

Step 7 is to prepare recommendations for the preferred option. The rationale for recommending the preferred option should be clear and defensible.

Resources:

[Cost-Benefit Analysis for Natural Resource Management in the Pacific: A Guide](#), SPREP/ SPC/ PIFS/ Landcare Research and GIZ, 2013

[Guide to Cost Benefit Analysis of Investment Projects](#), European Commission, 2008

[Supplemental Cost-Benefit Economic Analysis Guide](#), UNEP, 2009

[Handbook of Cost-Benefit Analysis](#), Commonwealth of Australia, 2006

## 5. Supporting the use of Poverty-Environment Indicators

The overall purpose of Poverty-Environment indicators is to provide a measurement framework through which to: (a) identify whether environment and poverty reduction objectives contribute to achieving national and sub-national development policies, objectives and targets; and (b) enable assessment of progress towards sustainable environment and natural resource management and poverty reduction.

The identification and integration of poverty-environment indicators in national monitoring and data gathering systems enable national planning institutions and sectors to monitor the implementation of poverty-environment objectives in key policies and strategies. Identifying indicators and corresponding data collected over time will also enable regular assessments of trends in environment status and poverty levels (and links between the two).

Monitoring poverty-environment issues allows policymakers and implementers to demonstrate the impact of policy measures put in place, share lessons learned, make adjustments in policies and guide budget and resource allocation. Monitoring also contributes to a better articulation of policies and measures for poverty-environment issues, and identifies emerging issues to be addressed in future policy documents and related implementation measures.

A range of poverty-environment indicators are available, from one dimensional indicators to multidimensional indices, such as the MPI. However, the MPI does not measure ENR linked deprivation. While there are some environment related indicators included in the MPI, the deprivation aspect could be better captured. For example, in Tanzania, an indicator used is “% of HHS in rural and urban area using alternative sources of energy to woodfuel (including charcoal) as their main source of energy for cooking”. However, the “deprivation” aspect of woodfuel potentially needs to be considered. For instance questions of “time spent” to collect woodfuel, and by whom. In addition, percentage of HHS income spent on woodfuel could give a better sense of deprivation. PEI is working with OPHI to integrate ENR indicators into the MPI. From PEI experience, a key challenge is to ensure that indicators are actually applied, with data collected, analysed then fed back into policy, strategy and project reviews.

**Examples of Poverty-Environment indicators:**

| Main Issue                                                     | Poverty-Environment Indicator                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NRM and livelihoods                                            | <ul style="list-style-type: none"> <li>• Proportion of poor who depend directly on natural resources for their livelihoods;</li> <li>• Distribution &amp; types of property rights/access on natural resources;</li> </ul>                                                                                                                                                                                        |
| Food security                                                  | <ul style="list-style-type: none"> <li>• % of household income spent on food</li> <li>• % of population below minimum level of dietary energy consumption.</li> </ul>                                                                                                                                                                                                                                             |
| Access to drinking water                                       | <ul style="list-style-type: none"> <li>• % of the poor with access to safe drinking water;</li> <li>• Time/distance spent per day collecting water and trend over time (by women and children);</li> <li>• % of poor households' income spent on water</li> </ul>                                                                                                                                                 |
| Access to water for irrigation                                 | <ul style="list-style-type: none"> <li>• % of poor farmers with access to sufficient water</li> </ul>                                                                                                                                                                                                                                                                                                             |
| Access to energy resources                                     | <ul style="list-style-type: none"> <li>• % of poor using firewood and/or charcoal as major source of energy;</li> <li>• Average time/distance spent per day collecting fuelwood (esp. women, children) and trend over time;</li> <li>• % of household income spent on fuelwood ;</li> <li>• % of poor households using improved stoves or cleaner fuel;</li> </ul>                                                |
| Land/soil degradation                                          | <ul style="list-style-type: none"> <li>• % of the poor living in degraded areas/marginal land (e.g. eroded lands)</li> <li>• Average cultivated area (ha) of poor households;</li> <li>• Soil nutrient levels.</li> <li>• Soil erosion rates</li> <li>• Average yields</li> <li>• Deforestation rates;</li> </ul>                                                                                                 |
| ENR related health impacts                                     | <ul style="list-style-type: none"> <li>• Respiratory infections incidence;</li> <li>• Water borne diseases incidence</li> <li>• Mortality rate for children under five years</li> <li>• DALYs lost (Disability Adjusted Life Years)</li> <li>• Malnutrition</li> <li>• Childhood stunting</li> </ul>                                                                                                              |
| Natural disasters (eg: landslides, drought, floods, etc.)      | <ul style="list-style-type: none"> <li>• Incidence and severity of environmentally related disasters</li> <li>• Number of deaths from environmentally related disasters;</li> <li>• Number of people made homeless by environmentally related disasters</li> <li>• % of population living in vulnerable areas prone to natural disasters</li> <li>• Incidences of conflict in use of natural resources</li> </ul> |
| Inclusion of poverty-environment objectives at national levels | <ul style="list-style-type: none"> <li>• Number of poverty-environment objectives in policies plans</li> <li>• Budget, donor &amp; other financial allocations for poverty-environment objectives</li> </ul>                                                                                                                                                                                                      |

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## 6. Identifying priority policy and programme ENR sustainability interventions for reducing poverty

The tools discussed above are also key to identifying ENR sustainability interventions to help reduce poverty. However, these tools are only as effective as their use.

If government policy and programme development and implementation procedures already include ex-ante distributional impact analysis and prioritise poverty reduction, then the focus of poverty-environment mainstreaming initiatives is to ensure that assessments of ENR sustainability-poverty reduction links are included in their application. This implies that those links are identified and then actions are designed and implemented that reduce poverty through sustainable ENR use, using tools as referred to above.

Where government policy and programme development and implementation procedures do not routinely include ex-ante distribution impact analysis and prioritise poverty reduction, then ensuring ENR sustainability interventions to help reduce poverty is markedly more challenging. PEI experience, especially in Africa, suggests that, while poverty reduction is a stated national priority, the application of tools to measure poverty and in particular the concrete inclusion of specific policy and programme actions to reduce poverty are inadequate. Further, PEI experience suggests that the assessment of different options to meet a stated development goal such as food security does not include an adequate assessment of the poverty reduction implications of different options. For example, a proposal to increase agricultural production intensity may not assess the poverty implications of proposed land consolidation that would displace small holder farmers. The policy makers may not compare the potential poverty impacts of the land consolidation option with another option for increasing small holder farm productivity.

This highlights that the poverty-environment mainstreaming programme should assess at an early stage how substantially the government includes poverty assessments and how it includes poverty reduction in its policy development and implementation efforts. Following this, the programme should adopt a strategy consistent with the degree to which the government focuses on poverty reduction. Where the general poverty reduction focus is inadequate, then the poverty-

environment programme should place more weight on working with partners to encourage government to adopt a stronger focus on poverty reduction in its policy and programme development and implementation. Poverty-environment programmes can generate substantive influence if economic studies have strong evidence of the ENR sustainability-poverty reduction links, and if this evidence is used pro-actively, particularly with donor agency support. This evidence provides a rationale for an increased focus on ENR sustainability-poverty reduction and poverty-environment tools such as those outlined above provide the means for governments to operationalise an increased focus on poverty reduction. Poverty-environment country programmes should include support for the use of these tools.

Poverty-environment country programmes need to include a focus on identifying and prioritising specific opportunities where increased investments in sustainable ENR use can reduce poverty and then support government to develop and implement specific policy and programme interventions to do so. Support to the allocation of necessary budgetary or donor resources is important. This support should also extend to the adoption and use of poverty-environment indicators in the national monitoring system. Supporting the adoption of multi-dimensional poverty indices is also encouraged.

These priorities should be based on cost-effectiveness in terms of reducing poverty in a multi-dimensional sense and focused on ENR related poverty. Cost-benefit analysis that identifies potential distributional impact is important. The use of distributional weighting is also recommended, with sensitivity to different weights included in the analysis. As with all poverty-environment mainstreaming efforts, it is important that a cross-sector approach be taken when designing ENR sustainability-poverty reduction interventions, particularly as the costs of investments to reduce poverty may be in a different sector to where the benefits accrue. For example, investments in providing clean water to households bring benefits to the health sector, with reduced incidence of water borne diseases.

The priorities focused on under a national poverty-environment programme should be consistent with key government development planning processes. For example, if food security is a government priority, then priority poverty-reducing actions

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should include one or more focused on the agricultural sector. Soil erosion control programmes, training of extension officers in pro-poor sustainable agriculture could be priority interventions.

Priority actions could include institutional reform to strengthen the focus on poverty reduction in the Terms of Reference of key development planning working groups, for instance. Mandating the calculation of distributional impacts in government CBA manuals and the application of distributional weighting in programme and project decision-making could be other priorities.

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