

ANNEX I – GUIDANCE ON SD INDICATORS

This document contains guidance on:

1. Sustainable Development Matrix
2. Sustainable Development Indicators
3. Sustainability Monitoring Plan

1. Sustainable Development Matrix

Table I.1

Indicator	Mitigation measure	Relevance to achieving MDG	Chosen parameter and explanation	Preliminary score
Gold Standard indicators of sustainable development.	If relevant copy mitigation measure from "do no harm" –table, or include mitigation measure used to neutralise a score of ‘–’	Check www.undp.or/mdg and www.mdgmonitor.org Describe how your indicator is related to local MDG goals	Defined by project developer	Negative impact: score ‘–’ in case negative impact is not fully mitigated score 0 in case impact is planned to be fully mitigated. No change in impact: score 0 Positive impact: score ‘+’
Air quality				
Water quality and quantity				
Soil condition				
Other pollutants				
Biodiversity				
Quality of employment				
Livelihood of the poor				
Access to affordable & clean energy services				
Human and institutional capacity				

Quantitative employment and income generation				
Access to investment				
Technology transfer and technological self-reliance				
Justification choices, data source and provision of references				
Air quality				
Water quality and quantity				
Soil condition				
Other pollutants				
Biodiversity				
Quality of employment				
Livelihood of the poor				
Access to affordable and clean energy services				
Human and institutional capacity				
Quantitative employment and income generation				
Access to investment				
Technology transfer and technological self-reliance				

2. Sustainable Development Indicators

Please find below the list of sustainable development indicators per category and their corresponding parameters

Table I.2

Indicator	Description	Possible parameters
Environment		
Air quality	<p>Air quality refers to changes compared to the baseline in:</p> <ul style="list-style-type: none"> Pollution of indoor and outdoor air which may have a negative impact on human health or the environment, including particulates, NO_x, SO_x, lead, carbon monoxide, ozone, POPs, mercury, CFCs, Halogens. Also odour is considered to be a form of air pollution. <p>Pollution by gases covered under the Kyoto Protocol (carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorinated carbons (PFCs) and sulphur hexafluoride (SF₆.) are not included in this category as this category refers to changes in the environment in addition to reductions of greenhouse gases since GHG reductions are included in all greenhouse gas reduction projects by definition.</p>	<p>Concentrations and Emissions of:</p> <p>No_x</p> <p>SO_x</p> <p>Lead</p> <p>CO</p> <p>Ozone</p> <p>POPs</p> <p>Mercury</p> <p>CFCs</p> <p>Halogens</p> <p>Respirable Suspended Particulate Matter (RSPM)</p> <p>NH₃</p> <p>PM10</p> <p>VOC</p> <p>Total Suspended Particulate Matter (TSPM)</p> <p>Dust</p> <p>Health (e.g. –respiratory problems, eye irritation etc.)</p> <p>Odour</p>
Water quality and quantity	<p>Water quality refers to changes compared to the baseline in:</p> <ul style="list-style-type: none"> Release of pollutants and its impacts on the environment and human health, including biological oxygen demand and chemical oxygen demand, thermal pollution, mercury, Si_x, NO_x, POPs, lead, coliforms (bacteria from animal waste). <p>Water quantity refers to changes in water balance and availability in ground- and surface water.</p>	<p>Levels of:</p> <p>Biological oxygen demand</p> <p>Chemical oxygen demand</p> <p>Thermal pollution</p> <p>Mercury</p> <p>SO_x</p> <p>NO_x</p> <p>POPs</p> <p>Lead</p> <p>Coliforms (bacteria from animal waste)</p>

	In the specific context of hydro power projects, please refer to the guidance document on hydro projects.	Quantity- Water used in the process. Indirect parameters like fuel wood consumption etc. that can be proven to be linked to decreased surface water run off etc.
Soil condition	Soil condition refers to changes compared to the baseline in: <ul style="list-style-type: none"> • Pollution of soils, pollution of soils can be caused by lead, mercury, cadmium, possibly combined by a negative corresponding impact on human health. • Organic matter content • Erosion level 	Levels of: Lead Mercury Cadmium Soil refilling Soil erosion Indirect parameters like fuel wood consumption etc. that can be proven to be linked to decreased soil erosion etc.
Other pollutants	This indicator refers to changes compared to the baseline in: <ul style="list-style-type: none"> • Other pollutants of the environment, which are not already mentioned. For instance level of noise/ light, frequency of noise/light and time occurrence (daytime/night-time, weekdays/ weekend) is relevant for consideration. • Visual pollution 	Level of noise Frequency of noise (per day, per week, per month) Time occurrence (day/night, weekdays/weekend) Vibration from blasting activities. Solid/liquid wastes from construction stage
Biodiversity	Contribution to biodiversity refers to changes compared to the baseline in: <ul style="list-style-type: none"> • Number of genes (i.e., genetic diversity within a species) species and habitats existing within the project's impact boundaries. • Alteration or destruction of natural habitat • Depletion level of renewable stocks like water, forests, fisheries 	Number of affected and/or threatened Plants Number of affected and /or threatened mammals, birds, reptiles, fishes, and other species and habitats
Social development		
Quality of employment	Quality of employment refers to changes compared to the baseline in: <ul style="list-style-type: none"> • Labour conditions, such as job-related health and safety 	Training, workshops etc. Labour conditions

	<p>Qualitative value of employment, such as whether the jobs resulting from the project activity are highly or poorly qualified, temporary or permanent etc.</p>	
<p>Livelihood of the poor</p>	<p>Livelihood of the poor refers to changes compared to the baseline in:</p> <ul style="list-style-type: none"> • Poverty alleviation, e.g. changes in living standards, number of people living below the poverty line • Access to health care services (hospitals, doctors, medication, nurses etc.), affordability of services, reliability and quality of services, and diseases prevention and treatment, including HIV AIDS, measles, TB, malaria, cholera and others. • Access to sanitation including access to toilets/washrooms. Waste management facilities that offer the possibility of depositing waste in a sanitary way. • Access to an appropriate quantity, quality and variety of food that is a prerequisite for health. • Changes in proneness to natural disasters that may be climate change related (e.g. droughts, flooding, storms etc.) or unrelated (e.g. earthquakes, volcano outbreaks) • Long-term changes that differ from natural disasters in the sense that they occur steadily/increasingly but not suddenly (e.g. community's dependency on river water from a river with diminishing volumes of water) <p>Changes must be directly related to the service and not an unintended impact.</p>	<p>Children immunized against measles Maternal mortality ratio HIV prevalence among pregnant women Condom use rate of the contraceptive prevalence rate Condom use rate for high-risk people Population with comprehensive correct knowledge of HIV/AIDS/other diseases Prevalence and death rates associated with malaria Population rate in malaria-risk areas using effective malaria prevention and treatment measures Prevalence and death rates associated with tuberculosis Proportion of tuberculosis cases detected and cured under directly observed treatment short course DOTS (Internationally recommended TB control strategy) Infant mortality rate Life expectancy Number of hospitals available Number of doctors Number of physicians Number of nurses Proportion of births attended by skilled health personnel Under-five mortality rate Infant mortality rate</p>

		<p>Quality improvement of health care services</p> <p>Number of population with access to improved sanitation, urban and rural</p> <p>Number of population who can access to effective waste management system</p> <p>Prevalence of underweight children under-five years of age</p> <p>Proportion of population below minimum level of dietary energy consumption</p> <p>Availability of Reliable disaster warning and relief system at community, local, regional, and national levels</p> <p>Knowledge and information dissemination regarding natural disaster</p> <p>Money spent to collect fuel</p>
Access to affordable and clean energy services	<p>Access to energy services refer to changes compared to the baseline in:</p> <ul style="list-style-type: none"> • Presence, affordability of services and reliability of clean energy services in the local area or households 	<p>Change in Energy use</p> <p>Change in Traditional fuel consumption (% of total energy requirements)</p> <p>Electricity consumption per capita (kilowatt-hours)</p> <p>Reduced black outs, fluctuations</p>
Human and institutional capacity	<p>Human and institutional capacity refers to changes compared to the baseline in:</p> <ul style="list-style-type: none"> • Education & skills: Access to primary, secondary and tertiary schooling as well as affordability and quality of education. Educational activities which are not part of the usual schooling system, such as environmental training, awareness raising for health or other issues, literacy classes for adults, and other knowledge dissemination. • Gender equality: Livelihood and education for women that may include special schooling 	<p>Female combined gross enrolment ratio for primary, secondary and tertiary schools</p> <p>Female Adult literacy rate</p> <p>Change in female earned income</p> <p>Change in number of jobs and positions for women</p> <p>Change in decision-making structures at the community, local government levels</p> <p>Change in income and asset</p>

	<p>opportunities as well as other woman-specific training, awareness-raising, etc.</p> <ul style="list-style-type: none"> • Empowerment. Changes in the social structure, e.g. caused by a change in the distribution of income and assets. This may result in shifts in decision-making power at project level (e.g. participation in project executive board, ownership of CERs etc.), community level (e.g. community council) or at a higher level. Especially in communities with diversified ethnic or religious structures, changes in income and asset distribution may have an impact. Especially ownership of CERs or other direct involvement in the project may support participation in project decision-making. <p>The social/community initiatives must have long-term benefits.</p>	<p>distributions by region, ethnicity, religion, and socio-economic groups</p> <p>Women in government or decision making groups at community, regional, ministerial levels</p>
Economic and technological development		
<p>Quantitative employment and income generation</p>	<p>Quantitative employment and income generation refers to changes compared to the baseline in:</p> <ul style="list-style-type: none"> • Number of jobs • Income from employment (with salaries at par or better than the average local / sector wage level) in the formal and informal sector. Other income, such as from ownership of CERs, may be included • Local employment for skilled / un-skilled and permanent jobs. 	<p>Household income generated from the project</p> <p>Number of jobs created</p>
<p>Access to investment</p>	<p>Access to investment refer to changes compared to the baseline in:</p> <ul style="list-style-type: none"> • Investment into a country/region or technology. Without proper access to investment, projects may demonstrate credibility and reliability of loan takers and trust in the financial structure. Hence future investments into similar or other activities may be enabled. Only if financing possibilities are limited in the country/region or technology, a positive impact from demonstration of investment may exist. Investments may come from national or 	<p>Amount of domestic investment</p> <p>Amount of foreign direct investment</p>

	<p>international sources. Bilateral and unilateral investment should be distinguished, since the former do have this effect of demonstrating the viability of the host as a destination for investment, whereas the latter have this to a much lesser extent</p>	
<p>Technology transfer and technological self-reliance</p>	<p>Technology transfer and technological self reliance refer to changes compared to the baseline in:</p> <ul style="list-style-type: none"> • Technology development as well as adaptation of new technologies to unproven circumstances. Technology can be sourced from outside or inside the country as long as it is new to this particular region and introduced in a proven sustainable way. Demonstrating the viability of technologies new to a country/region may help in transforming the energy sector. • Activities that build usable and sustainable know-how in a region/country for a technology, where know-how was previously lacking. This capacity building enables spill-over effects to the area by replicating similar or different projects • Amount of expenditure on technology between the host and foreign investors regarding the contribution of domestically produced equipment, royalty payments and license fees, imported technical assistance or the need for subsidies and external technical support 	<p>Number of workshops, seminars organized, and training-related opportunities held for masons/external audience who would be directly involved in replication of the technology Number of participants who attend those capacity building activities R&D Expenditures</p>

3. Sustainability Monitoring Plan

The table format for your sustainability monitoring plan is given below. Copy the table for the number of indicators you are going to monitor and add extra rows in case more than one parameter is used to monitor one indicator.

Table I.3

No		
Indicator		
Mitigation measure		
<i>Repeat for each parameter</i>		
Chosen parameter		
Current situation of parameter		
Estimation of baseline situation of parameter		
Future target for parameter		
Way of monitoring	How	
	When	
	By who	