

# Sustainable Development Methodology

## PART V : MONITORING AND REPORTING



## Introductory Guide

### Impact Assessment Methodologies

#### Greenhouse gas impacts

-  Renewable Energy
-  Buildings Efficiency
-  Transport Pricing

-  Agriculture
-  Forestry



Sustainable Development



Transformational Change



Non-State and Subnational Action

### Process Guidance Documents



Stakeholder Participation



Technical Review

# Overview of the SD methodology

## Part I: Introduction, objectives and key concepts

Understand the purpose and applicability of the methodology (Chapter 1)  
Determine the objectives of the assessment (Chapter 2)  
Understand key concepts and steps, and plan the assessment (Chapter 3)



## Part II: Defining the assessment

Clearly define the policy to be assessed (Chapter 4)  
Choose which impact categories and indicators to assess (Chapter 5)



## Part III: Qualitative approach to impact assessment

Identify specific impacts of the policy within chosen impact categories (Chapter 6)  
Qualitatively assess each specific impact (Chapter 7)



## Part IV: Quantitative approach to impact assessment

Estimate baseline values for impacts included in the quantitative assessment boundary (Chapter 8)  
Estimate policy scenario values for the same impacts (ex-ante) (Chapter 9)  
Estimate policy scenario values for the same impacts (ex-post) (Chapter 10)  
Assess uncertainty (Chapter 11)



## Part V: Monitoring and reporting

Monitor the performance of indicators over time (Chapter 12)  
Report the results and methodology used (Chapter 13)



## Part VI: Decision-making and using results

Evaluate synergies and trade-offs, and decide which policies to implement (Chapter 14)

# Part V: Overview

## Part V: Monitoring and Reporting

Monitor the performance of indicators over time (Chapter 12)

Report the results and methodology used (Chapter 13)

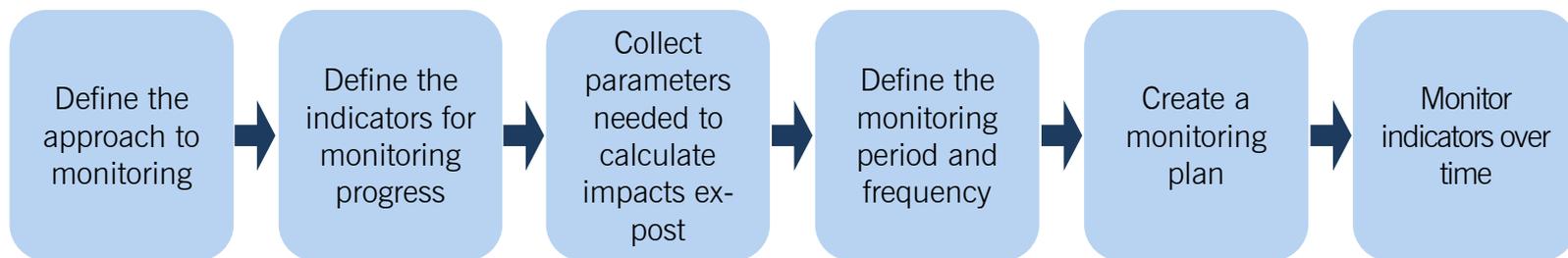


This button indicates a key recommendation

This is an interactive panel: navigate by clicking on a particular step

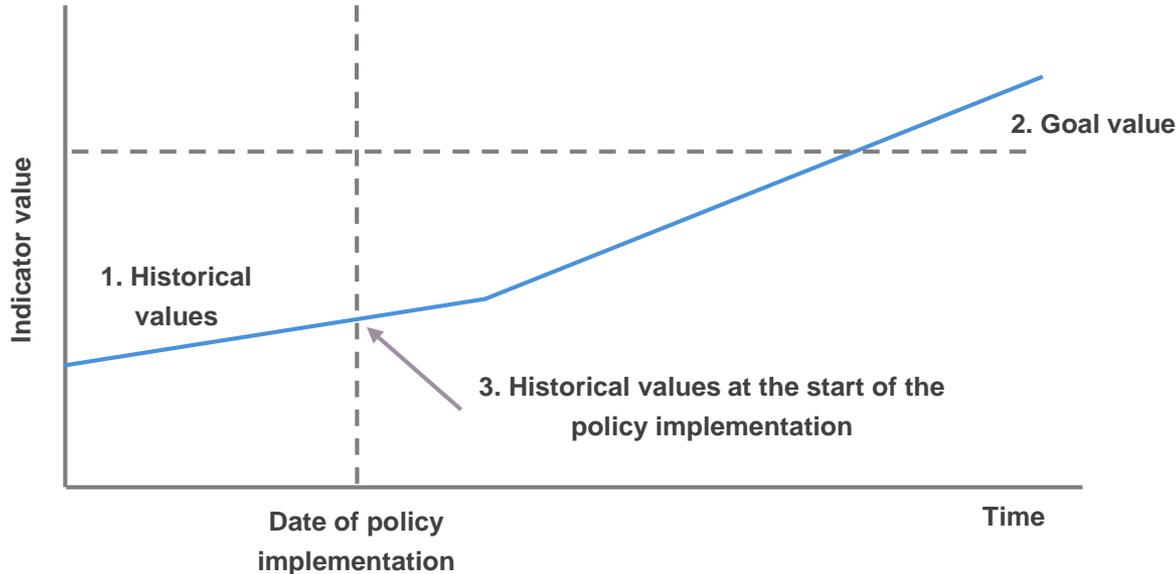
## Chapter 12. Monitor the performance of indicators over time

How to monitor the performance of a policy over time by tracking the progress of key indicators, collect data needed for ex-post assessment and prepare a monitoring plan.



# 12.1 Define approach to monitoring

MONITOR PERFORMANCE	EX-POST ASSESSMENT
<ul style="list-style-type: none"><li>Tracking of indicators only</li></ul>	<ul style="list-style-type: none"><li>Tracking of indicators</li><li>Collection of a broader set of parameters</li></ul>
Useful for: <ul style="list-style-type: none"><li>Understanding progress over time</li><li>Understanding whether indicators of interest are moving in the right direction</li><li>Tracking progress towards meeting goals</li></ul>	<ul style="list-style-type: none"><li>Baseline scenario is required to attribute observed impacts to a specific policy (correlation does not entail causality)</li></ul>



# 12.2 Define indicators for monitoring progress and data collection (12.3)

- When selecting indicators, users should consider:



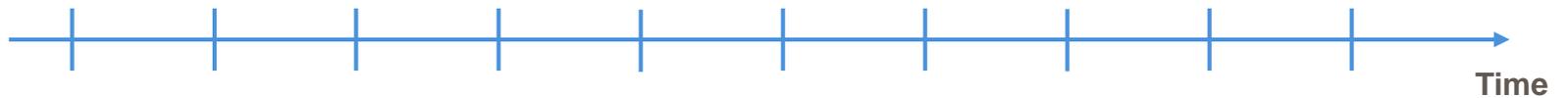
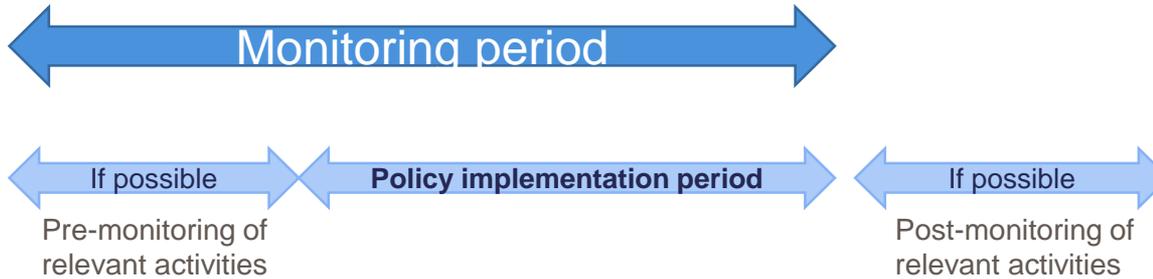
- Monitoring based on monitoring plan ([Section 12.5](#)) and chosen approach ([Section 12.1](#))
- Selection based on an inclusive stakeholder consultation.  
↳ Refer to ICAT *Stakeholder Participation Guide*
- For ex-post quantitative assessments : identification and collection of needed parameters (Chapter 5)

- Define indicators that will be used to track performance of the policy over time for each impact category included in the assessment
- Collect data needed for ex-post assessments.

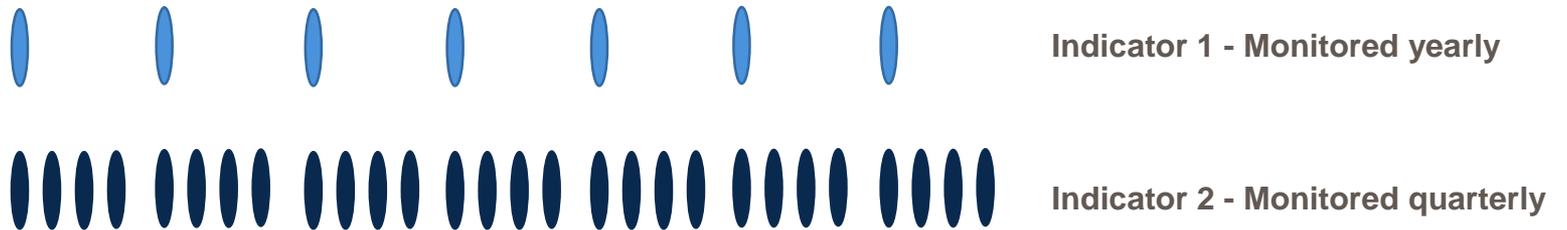


# 12.4 Define the monitoring period and frequency

MONITORING PERIOD



MONITORING FREQUENCY



# 12.5 Create a monitoring plan

KEY ELEMENTS TO INCLUDE	ADDITIONAL INFORMATION
<ul style="list-style-type: none"><li>• Brief <b>description</b> of each indicator</li><li>• <b>Source of data</b> for each indicator and parameter</li><li>• Monitoring <b>period</b></li><li>• Monitoring <b>frequency</b></li><li>• Measurement or data collection <b>methods</b></li><li>• <b>Historical</b> value</li><li>• <b>Goal</b> value</li><li>• <b>Entities</b> or <b>institutions</b> responsible for monitoring the respective indicator and collection of parameters</li></ul>	<ul style="list-style-type: none"><li>• Methods for generating, storing, collating and reporting <b>data</b></li><li>• <b>Level of uncertainty</b> of data and how this uncertainty will be accounted for</li><li>• <b>Databases, tools</b> or <b>software</b> systems to be used for collecting and managing data</li><li>• <b>Procedures</b> for internal auditing, quality assurance and quality control, including record keeping and internal documentation procedures, and length of time data will be archived</li><li>• Whether data are verified and, if so, <b>verification procedures</b> used</li><li>• <b>Roles</b> and <b>responsibilities</b> of relevant personnel involved in monitoring</li><li>• <b>Competencies</b> required and any training needed to ensure that personnel have the necessary skills.</li></ul>

Create a plan for monitoring indicators.



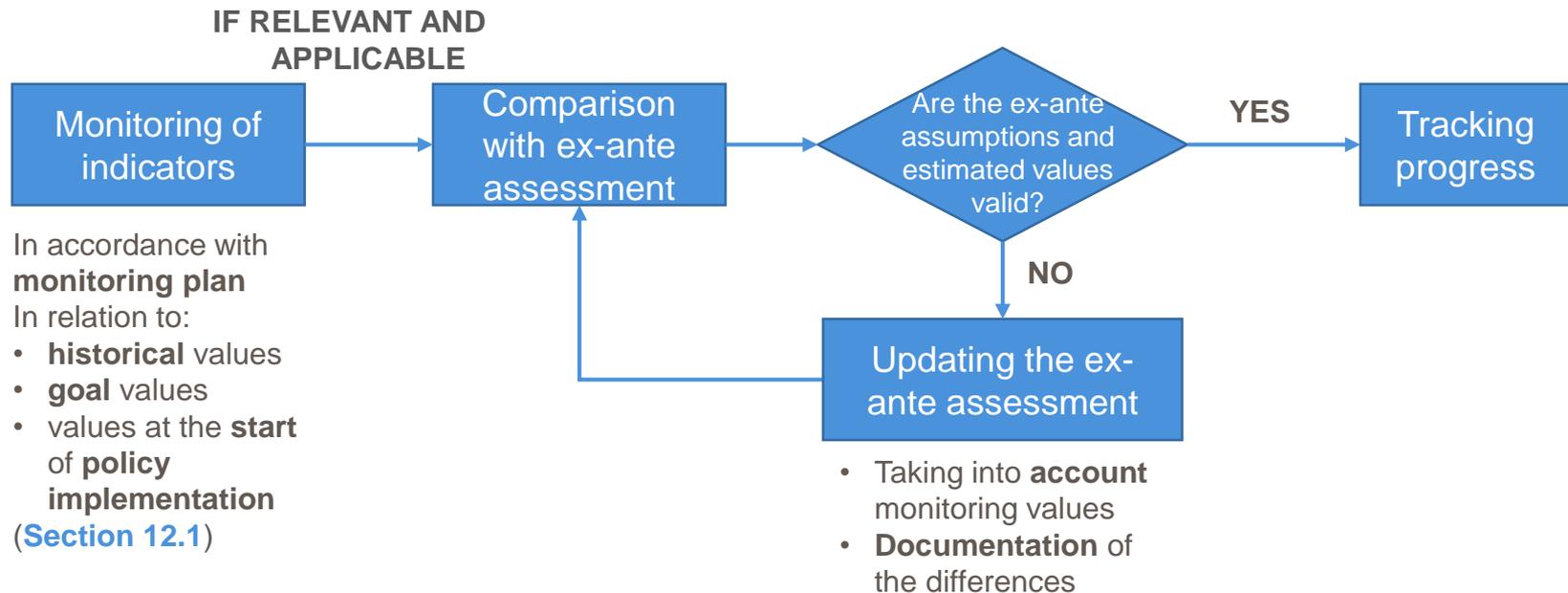
Chapter 12

Chapter 13

Reporting template

Example

# 12.6 Monitor indicators over time and tracking progress



- Monitor each of the indicators over time in accordance with the monitoring plan.
- Separately monitor indicators for different groups in society where relevant (men/women, urban/rural areas etc.).



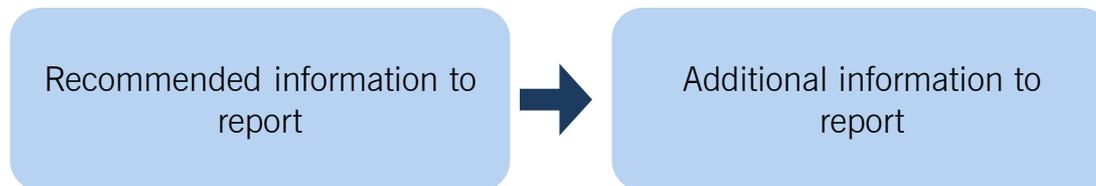
# 12.7 Tracking progress towards SDGs

- Tracking overall progress towards SDGs should be aligned with existing and emerging national frameworks, targets and indicators
- Establishment of MRV system for data collection to individual policies and actions



## Chapter 13. Report the results and methodology used

Reporting the results, methods and assumptions used is important to ensure that the impact assessment is transparent, and gives decision makers and stakeholders the information they need to properly interpret the results.



# 13.1 Recommended information to report

GENERAL INFORMATION	The <b>name</b> of the policy/action assessed.
	The <b>person(s)/organization(s)</b> that did the assessment
	The <b>date</b> of the assessment
2. OBJECTIVES	Whether the assessment is an <b>update</b> of a previous assessment, and if so, links to any previous assessments
	Describe the <b>objective(s)</b> and <b>intended audience(s)</b> of the assessment
3. KEY CONCEPTS AND, STEPS	Whether the assessment consists of a <b>qualitative assessment, quantitative impact assessment</b> and/or <b>tracking progress</b> of indicators over time.
	Opportunities for <b>stakeholders</b> to participate in the assessment
4. DESCRIBING THE POLICY OR ACTION	State whether the assessment applies to an <b>individual policy/action</b> or a <b>package</b> of related policies
	Provide a <b>description of the policy</b> or action included recommended information
	State whether the assessment is <b>ex-ante, ex-post</b> , or a combination
5. CHOOSING WHICH IMPACT CATEGORIES AND INDICATORS TO ASSESS	A list of <b>impact categories</b> included and excluded from the assessment boundary, with justification for exclusions of impact categories that may be relevant, significant or identified by <b>stakeholders</b>
	<b>Indicator(s)</b> selected for each impact category included in the assessment boundary.
6. STARTING SITUATION	A list of <b>all sustainable development impacts</b> identified, using a causal chain and/or table format
7. QUALITATIVELY ASSESSING IMPACTS	The <b>assessment period</b>
	A <b>description</b> of each specific impact
	The <b>outcomes</b> of the <b>qualitative assessment for each impact</b> (including likelihood, magnitude and whether it is positive or negative), including which identified impacts are significant, and the methods and sources used
	A <b>summary</b> of the <b>qualitative assessment results</b> for each impact category, including impacts of the policy on different groups in society, where relevant

Report information about the assessment process and the sustainable development impacts resulting from the policy .



# 13.1 Recommended information to report

## 8. ESTIMATING THE BASELINE (quantitative approach)

A list of **impacts** and **indicators** included in the quantitative assessment boundary and a list of any impacts that are not quantified, with justification

A **description** of the **baseline scenario** for each indicator being estimated and a justification for why it is considered to be the most likely scenario

The **methods, assumptions** and **data** used to **estimate the baseline scenario** for each indicator being estimated, including the source of the baseline scenario if adapted from a previous analysis

The **baseline values** for each indicator being estimated over defined time periods, such as annually over the assessment period, if feasible

The **methods, assumptions** and **data sources** used to calculate baseline values

A list of **policies, actions** and **projects included in each baseline scenario**, with justification for any implemented or adopted policies, actions or projects with a potentially significant impact that are excluded from a baseline scenario

A list of non-policy drivers included in each baseline scenario, with justification for any relevant non-policy drivers excluded from a baseline scenario

Which **planned policies** are included in the baseline scenario, if any

**Justification for the choice** of whether to **estimate new baseline values** and assumptions or to **use published baseline values** and assumptions

If it is not possible to report a data source, justification for why a source is not reported

## 9. ESTIMATING IMPACTS EX-ANTE

The **estimated net impact of the policy**, for each indicator, over defined time periods, such as annually and cumulatively over the assessment period, if feasible

The **total in-jurisdiction impact** and, separately, the **total out-of-jurisdiction impact**, for each indicator, if relevant and feasible

**Justification** for why any impacts in the assessment boundary have not been estimated, with a qualitative description of the impacts

The **assessment methods** used

A **description** of the **policy scenario** for each indicator being estimated

The **policy scenario values** for **each indicator** being estimated, and the methods, assumptions and data sources used to calculate policy scenario values

**Distributional impacts** on different groups in society

Report information about the assessment process and the sustainable development impacts resulting from the policy .



# 13.1 Recommended information to report

10. ESTIMATING IMPACTS EX-POST	The <b>estimated net impact of the policy</b> , for each indicator, over defined time periods, such as annually and cumulatively over the assessment period, if feasible
	The <b>total in-jurisdiction impact</b> and, separately, the <b>total out-of-jurisdiction impact</b> , for each indicator, if relevant and feasible
	<b>Justification</b> for why any impacts in the assessment boundary <b>have not been estimated</b> , with a qualitative description of the impacts
	The <b>assessment methods</b> used
	The <b>policy scenario values</b> for <b>each indicator</b> being estimated, and the methods, assumptions and data sources used to calculate policy scenario values
11. ASSESSING UNCERTAINTY	<b>Distributional impacts</b> on different groups in society
	The <b>method</b> or approach used to <b>assess uncertainty</b>
12. MONITORING PERFORMANCE OVER TIME	A <b>quantitative estimate</b> or <b>qualitative description</b> of the <b>uncertainty</b> and <b>sensitivity</b> of the results, to help users of the information properly interpret the results
	A <b>list of indicators</b> used to track progress over time and the rationale for their selection
	<b>Sources</b> of indicator data and monitoring frequency
	The <b>performance</b> of the <b>policy over time</b> , as measured by the indicators, and whether the performance of the policy is on track relative to expectations
	Whether the <b>assumptions</b> on key indicators within the ex-ante assessment <b>remain valid</b> , if applicable
	<b>Trends</b> in indicators for <b>different groups</b> in society

Report information about the assessment process and the sustainable development impacts resulting from the policy .



## 13.2 Additional information to report

- The impact of the policy on **different groups in society**, such as men and women, people of different income groups, people of different racial or ethnic groups, people of different education levels, people from different geographic regions, and people in urban versus rural locations
- A range of **likely values** for the **net change in each indicator**, rather than a single estimate, when uncertainty is high
- **Historical values** for the indicators included in the assessment
- **Sustainable development goals** of the implementing jurisdiction
- The **contribution** of the **assessed policy** towards the jurisdiction's sustainable development goals
- How the policy is **modifying longer-term trends**
- Any potential **overlaps** with other policies
- Any **limitations** in the assessment not described elsewhere
- The **type of technical review** undertaken (first, second or third party), the qualifications of the reviewers and the review conclusions (further guidance on reporting information related to technical review is provided in Chapter 9 of the ICAT Technical Review Guide)
- Other relevant information

Report information about the assessment process and the sustainable development impacts resulting from the policy .



# Case Studies using this Methodology

- Sustainable Development Impact of the Cities Footprint Project on the Sustainable Development Goals in Five Cities of Bolivia
- An Assessment of the Sustainable Development Impact of Biodiversity Policy in South Africa through the ICAT SD Guidance



# Thank You

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# Checklist of key recommendations

Chapter	Key recommendation
Chapter 12. Monitoring performance over time	Define indicators that will be used to track performance of the policy over time for each impact category included in the assessment.
	If estimating impacts ex-post, collect data needed for ex-post assessment
	Create a plan for monitoring indicators.
	Monitor each of the indicators over time, in accordance with the monitoring plan.
	Separately monitor indicators for different groups in society, where relevant.
Chapter 13. Reporting	Report information about the assessment process and the sustainable development impacts resulting from the policy (including the information listed in Section 13.1)

# 12.2 Selected indicators for monitoring progress of a solar PV incentive policy

Impact category	Indicator	Explanation of chosen indicator
Energy (SDG 7)	Solar capacity installed (MW)	These indicators will track the quantity of renewable energy installed and generated from the solar PV incentive policy.
	Electricity delivered from solar PV installations (MWh)	
Health (SDG 13)	Emissions of PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> and NO <sub>x</sub>	The policy will improve health of people by avoiding burning of kerosene/paraffin, which causes severe indoor air pollution by emitting noxious fumes and soot. Kerosene lighting is hazardous, and is responsible for many burns and deaths. The policy will also improve health-care conditions by providing lighting and refrigeration for health clinics.
	Number of premature deaths due to air pollution	
Quality of life (SDGs 1, 2, 16)	Number of health clinics electrified	The policy will provide more reliable lighting conditions, allowing children to study at home, which has a significant impact on improving child education in rural families and future employability. With a more reliable light source, adults can pursue productive activities in the house after nightfall.
	Number of households having access to clean, reliable and affordable electricity	
Access to clean energy/energy security (SDG 7)	Share of people having access to reliable electricity services	In the absence of reliable grid electricity, people depend mostly on diesel generators and kerosene/paraffin lamps for lighting. The policy will make people less dependent on expensive fuels and reduce the need to purchase fuel. The policy will enable use of local energy sources, independent of geopolitical uncertainty.
Empowerment of women (SDG 5)	Share of female entrepreneurs	The policy will create opportunities for new income-generating activities for women and women's associations.
Employment/job creation and income generation (SDG 8)	Number of people (men/women) in jobs	The policy will encourage new job-creating and income-generating activities related to renewable energy supply and installation, mini-grid operation, awareness raising, and marketing and accounting, thereby creating many new jobs. The generation of income will enhance economic growth and provide the means to afford electricity.
	Household income	
Economic productivity (SDG 8)	Number of households with improved economic productivity	The policy will foster productivity, increase production efficiency and enable added-value activities.
Food security (SDG 2)	Number of households with improved food security	The policy will reduce food waste by improving refrigeration. It will also promote better food processing, adding value to agricultural products.
Safety (SDG 3)	Number of people affected by hazardous conditions	Kerosene/paraffin lighting is hazardous and is responsible for loss of property through fire, as well as burns and death. The policy will foster the implementation of safety measures such as street lighting, security lighting, remote alarm systems, electric fences and road signs.



# 12.5 Template for monitoring plan

Indicator	Source of data	Monitoring frequency	Measurement method	Responsible entity or institution	Historical value in 2015	Goal value for 2022
Rooftop solar capacity installed	Government statistics	Monthly	Name plate showing installed capacity; ground verification on a random sample basis	Ministry of Energy		
Electricity delivered from solar PV installations	Government statistics	Monthly	Electricity meters; ground verification on a random sample basis	Ministry of Energy		
Number of health clinics electrified	Survey	Annual	Community-level assessment	Health Ministry		
Number of households having access to clean electricity	Survey	Annual	Community-level assessment	Ministry of Energy		
Number of people having access to electricity services	Survey	Annual	Community-level assessment	Ministry of Energy		
Number of female entrepreneurs	Survey	Annual	Community-level assessment	Ministry of Social Affairs		
Number of people in jobs, disaggregated by gender	Government statistics	Monthly	Community-level assessment	Ministry of Social Affairs		
Money saved through replacement of kerosene by solar energy (which requires further parameters to calculate cost of kerosene, and amount of kerosene saved)	Statistics and/or survey	Biennial	Sector-level assessment (cost of kerosene); community-level assessment (amount of kerosene saved)	Ministry of Energy		

# 12.5 Example of a monitoring plan in South Africa

Indicator	Source of data	Monitoring frequency	Measurement method	Responsible entity or institution	Goal value for year Y
Areas protected (ha, km, km <sup>2</sup> )	Provincial conservation authorities, South Africa's Scientific Authority	National Biodiversity Assessments are updated every 7 years	Land survey	SANBI, with support of DEA and CSIR	By 2028, in protected areas: 10.8 m land-based hectares, 353 km inshore; 210,000 km <sup>2</sup> marine offshore in SA's EEZ plus 93,300 km <sup>2</sup> marine offshore in Prince Edward Islands EEZ
Percentage of threatened species conserved ex situ	Provincial conservation authorities, South Africa's Scientific Authority	Every 4 years (monitoring processes being developed by 2020)	Counts of threatened species (IUCN Red List)	SANBI and Botanical Society of South Africa	60% of threatened plant species by 2020
Percentage of species with ex situ collections active in restoration programmes	SANBI	Every 4 years	Reported	DEA, with support from SANBI's zoological and biological gardens	1% of plant species by 2020
Threat status of ecosystems	Provincial conservation authorities, DEA, DAFF, CSIR, research institutions	National Biodiversity Assessments are updated every 7 years	Four datasets (ecosystem types, ecological conditions, protected areas, biodiversity targets); local datasets where possible, otherwise global with some ground truthing	SANBI	Minimum 60% of each ecosystem type in good ecological condition
Protection level of ecosystems	Provincial conservation authorities, South Africa's Scientific Authority	National Biodiversity Assessments are updated every 7 years	As above	SANBI	Minimum 20% of each ecosystem
Benefit sharing: patents that exist for products made from local biodiversity, or that use local or indigenous knowledge, and that have benefit-sharing agreements	International patent registry; agreements registered under South Africa's Bioprospecting, Access and Benefit-Sharing Regulatory Framework	Every year	Desktop review	DEA	By 2025, benefit-sharing agreements exist for patents that are commercialized. Benefit-sharing agreements have been reviewed
Percentage of spatial development frameworks (SDFs), integrated development plans and land-use schemes that include biodiversity considerations	All national, provincial and municipal departments responsible for development planning and monitoring; Department of Rural Development and Land Reform	Every 5 years	Reporting progress on the Mid Term Strategic Framework	Presidency	By 2020, 100% of SDFs include maps for critical biodiversity areas and control development
Increase in average annualized GDP growth rate of the South African bioprospecting and wildlife sectors	StatsSA	Every year	NBES	DEA	By 2030, 10% increase compared with 2020



# 12.7 Illustrative example of selecting national indicators for tracking progress (1/2)

Examples of goals	Examples of corresponding targets	Indicator	Source of data	Monitoring frequency	Measurement method	Responsible entity or institution	Historical value	Target value
<b>Examples of SDGs relating to a renewable energy policy</b>								
<b>SDG 3: Ensure healthy lives and promote wellbeing for all at all ages</b>	Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Number of health clinics electrified	Survey	Annual	Community-level assessment	Health Ministry	75	250
<b>SDG 5: Achieve gender equality and empower all women and girls</b>	Target 5.5: Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life	Share of female entrepreneurs (%)	Survey	Annual	Community-level assessment	Ministry of Social Affairs	10	30
<b>SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all</b>	Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services	Share of people with access to electricity services (%)	Survey	Annual	Community-level assessment	Ministry of Energy	58	85
<b>SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</b>	Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	Share of people (men/women) in jobs	Survey	Monthly	Community-level assessment	Ministry of Social Affairs	65	85

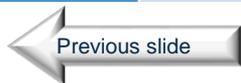
# 12.7 Illustrative example of selecting national indicators for tracking progress (2/2)

Examples of goals	Examples of corresponding targets	Indicator	Source of data	Monitoring frequency	Measurement method	Responsible entity or institution	Historical value	Target value
<b>Examples of other SDGs in a country</b>								
<b>SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture</b>	Target 2.3: By 2030, double the agricultural productivity and the incomes of small-scale food producers	Rice yield growth (kg/ha)	National rice information system	Annual	Combined remote-sensing/crop modelling approaches	Ministry of Agriculture	2125 kg/ha in 2010	2700 kg/ha by 2020
<b>SDG 3: Ensure healthy lives and promote wellbeing for all at all ages</b>	Target 3.1: By 2030 reduce the global maternal mortality ratio to less than 70 per 100,000 live births	Reduction in the national maternal mortality rate	Survey, civil registration systems	Annual	Large population-based surveys, counting	Health Ministry	300 in 2010	50 by 2030
<b>SDG 6: Ensure availability and sustainable management of water and sanitation for all</b>	Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all	Proportion of population that has access to a sustainable, safe water supply and hygienic sanitation in the household	Survey	Annual	Large population-based surveys	Health Ministry	75% in 2015	100% by 2030
<b>SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all</b>	Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix	Share of renewable energy in national energy mix	National energy information system	Annual	Calculation based on MW of renewable energy installed	Ministry of Energy	65% in 2016	85% by 2027
<b>SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</b>	Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	National Construction Code for buildings takes into account extreme wind events	National Construction Code	Once (in 2018)	Presence/absence of features on extreme wind events in National Construction Code for buildings	Ministry of Construction	In 2014, National Construction Code for buildings does not take into account extreme wind events	By 2018, National Construction Code for buildings includes features on extreme wind events



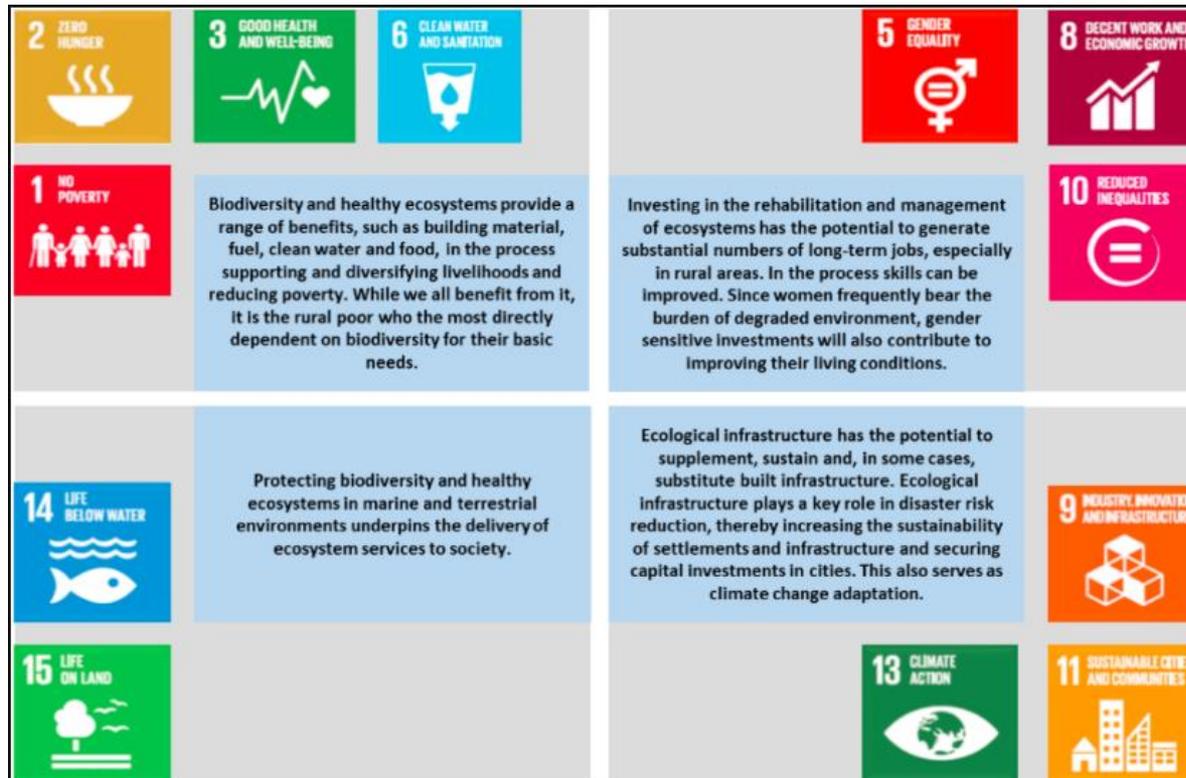
# 12.7 Monitoring progress towards SDGs by cities in Bolivia

SDGs or other goals	Corresponding targets	Indicator	Level of data collection	Source of data	Responsible entity or institution	Measurement method
Goal 6: Ensure availability and sustainable management of water and sanitation for all	Target 6.4: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of fresh water to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1: Change in water-use efficiency over time	General Sources	National Statistical Office (INE), particularly for economic data. Administrative data collected at country level by the relevant institutions, either technical (for water and irrigation) or economic (for value added). These data are then compiled by FAO, World Bank, UNSD and other international institutions; harmonized; and published in sectoral databases such as FAO's AQUASTAT, the World Bank's Databank and UNSD's UNdata.	WHO, UNICEF, Vice-Ministry of Water and Irrigation	Water use efficiency is defined as the value added for a given major sector divided by the volume of water used. The unit of the indicator is value/volume (commonly \$/m <sup>3</sup> ). Services' water supply efficiency is calculated as the service sector value added divided by water used for distribution by the water collection, treatment and supply industry, expressed in \$/m <sup>3</sup> .
			City of La Paz	Report from Public Social Enterprise of Water and Sanitation of La Paz (EPSAS)	Municipal government water and sanitation directorate (EPSAS)	
			City of Cochabamba	Report from Cochabamba Municipal Service of Drinking Water and Sanitation (SEMAPA)	Municipal government water and sanitation directorate (SEMAPA)	
			City of Santa Cruz	Report from Drinking Water and Sanitary Sewer Service (SAGUAPAC)	Municipal government water and sanitation directorate (SAGUAPAC)	
			City of El Alto	Report from Public Social Enterprise of Water and Sanitation of El Alto (EPSAS)	Municipal government water and sanitation directorate (EPSAS)	
			City of Tarija	Report from Co-op for Water Services and Sanitation Tarija (COSSALT)	Municipal government water and sanitation directorate (COSSALT)	



# Insights from South Africa

- Conservation and sustainable use of biodiversity in South Africa is linked to 12 SDGs. (United Nations, 2017)



See Chapter 3 in: [An Assessment of the Sustainable Development Impact of Biodiversity Policy in South Africa through the ICAT SD Guidance](#) (Keen 2019)