



Initiative for Climate Action Transparency - ICAT

Guidance document for the Loss and Damage reporting tool for South Africa

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Prepared for:

UNEP CCC

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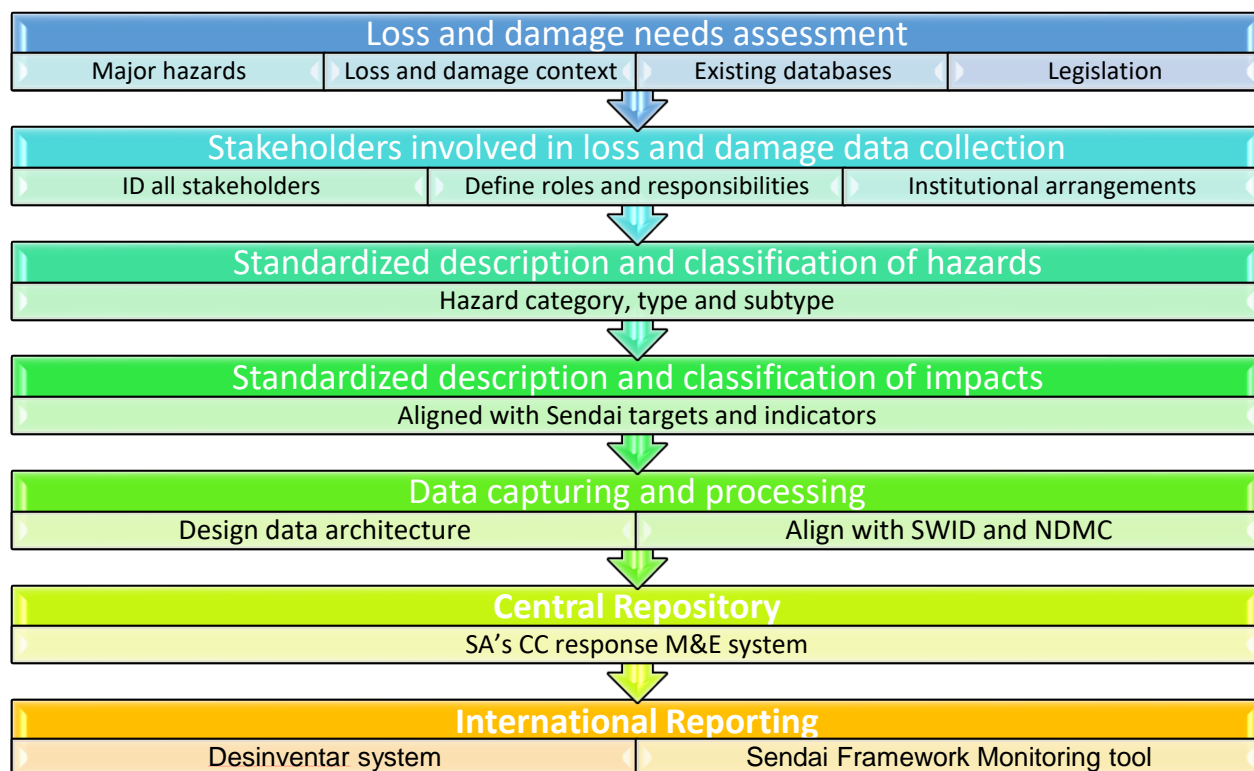
OVERVIEW

South Africa represents one of many countries where disasters are reported but no national database on loss and damage has yet been established. Data and information related to loss and damage are fragmented across numerous government departments, sector departments and private sector entities in South Africa. Not only are there various organizations collecting data, but the formats, hazard classifications, spatial and temporal resolution of the data differ substantially between data custodians. This complicates the comparison and integration of the various data sources to get a realistic picture of the true costs associated with weather-related disasters and how this impacts livelihoods. It also impairs an accurate, timely and high-quality monitoring process.

A Loss and Damage framework for South Africa was therefore developed by the Council for Scientific and Industrial Research (CSIR), as part of the Initiative for Climate Action Transparency (ICAT) Adaptation project, in partnership with the Department of Forestry, Fisheries, and the Environment (DFFE). The purpose of the framework is to guide the country on how it should approach the assessment of impacts from weather and climate-related disasters to ensure an accurate, timely and high-quality monitoring process.

A key outcome of the framework was the development of a simple excel based loss and damage tool. This tool is aimed at local municipalities and focuses on the most critical elements and data needs in terms of human and economic indicators to perform monitoring and evaluation of impacts. The aim is to simplify data collection, start out with collecting essential information and scaling up in steps to more complicated information. The loss and damage tool is therefore designed so that it can be expanded to include more complicated data capturing and analysis in future.

For further information regarding the process involved in developing the tool, users can obtain a copy of the project report which includes a needs assessment and stakeholder engagement report from dlotter@csir.co.za.



Section 1: Start - Tool introduction

This loss and damage tool is self-contained in an Excel file. It guides the user through the data entry process using macros and lookup tables and the collected data is stored on separate spreadsheets. This approach ensures that the data is collected accurately, and that data integrity is maintained while still having access to the data for further analysis. The reporting functionality allows the user to view a summarised view of the event and the productive economic loss.

What is the aim of the tool?

The tool is meant to support municipalities in assessing losses and damages (impact on lives, damage to infrastructure, property and environment) associated with climate-associated disasters or other extreme weather events. This information will be integrated into a national web-based disaster loss, damage and knowledge database system.

Who are the intended users of the tool?

This tool was developed to assist disaster management officials in local, district and metropolitan municipalities to report on loss and damage of lives, livelihoods and the economy after a declared disaster or extreme event.

What is loss and damage?

Loss refers to things that are lost forever and cannot be brought back, such as human lives, livestock or other animal and plant species loss.

Damages refer to things that are damaged, but can be repaired or restored, such as buildings, roads, bridges, water pipelines, electricity transmission lines etc. Its monetary value is expressed in terms of replacement/repair costs of totally or partially destroyed physical assets and stocks, according to prices prevailing just before the event in the disaster-affected area.

Why do we need the tool?

Assessing the true human and economic costs of disasters is central to addressing their impacts, allocating adequate resources for monitoring and preparedness, assessing their changes over time, and building resilient communities.

Understanding and quantifying disaster losses and damages is an important step towards taking responsibility and tracking progress of implementing measures and investments to reduce risk. Loss and damage reporting after weather-related disasters play a crucial role in informing decisions and setting priorities for climate change mitigation and adaptation.

What is the difference between declared disasters and extreme weather events?

A declared disaster is proclaimed through legal and policy instruments within the Disaster Management Act. Local and provincial government will therefore be able to get access to disaster relief funding from National Treasury once a disaster has been officially declared.

Not all extreme weather, hydrological or meteorological events fulfil the criteria for being declared disasters. This does however not imply that the impacts of these events cannot be equally or even more devastating. Several smaller or localized extreme events can also cause much more damage or economic consequences than a classified disaster.

In instances where a destructive extreme event has occurred but not declared as a disaster the local authority/municipality will need to access its own funding and resources to address the damage incurred.

How is this tool aligned with other reporting tools and disaster management processes?

This tool will assist disaster management officials to report on loss and damage of lives, livelihoods and the economy after a declared disaster or extreme event. The conducting of assessments to verify the impact of a disaster incident is legislated in the Disaster Management Act of South Africa.

The tool is aligned with the International Sendai Framework Monitoring System called DesInventar, which was developed by the United Nations office for disaster risk reduction.

The Sendai framework has 4 main targets:

1. Substantially reduce global disaster mortality by 2030.
2. Substantially reduce the number of affected people globally by 2030.
3. Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.
4. Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through

For each of the targets in the above box there are several indicators to assess the extent to which the target is being met. This tool will help the government to report on several of these indicators to help analyze disaster or extreme event trends and their impacts in a systematic manner. The information gathered in the tool will be shared with the NDMC and South African Weather Services' Severe Weather Impact Database.

This tool will also support and contribute to the Multi-Hazard Early Warning Tool that was developed by the CSIR as part of the ICAT project to help municipalities assess the effectiveness of their Early Warning Systems.

Categories and definitions of disaster/hazard events

This tool only assesses disaster or extreme events related to meteorological, hydrological and climatological hazards. Please see Section 7 for definitions.

Section 2: Review

This tab allows the user to load an event, view progress and add to/edit existing information.

Section 3: Event information

The event information tab records all the relevant information regarding the municipality and person responsible for entering the data, as well as specific information on the date, location, extent and type of disaster or extreme event.

Reporting institution and contact person

- Please enter the designated reporting municipality, related department, contact person details.
- Specific data entry cells have drop down menus for choosing certain types of records. In the case that a cell does not have a drop-down menu, it is possible to specify an alternative answer.

Event Information

- Provide information regarding the location, extent, date and coordinates of the disaster/extreme event.
- Please note that a unique 8-digit event ID number is generated for each disaster event.
- Information regarding both declared disasters and severe weather events is to be entered. Please note that severe weather is defined as any aspect of the weather that poses risks to life, property or requires the intervention of authorities. For a full description, please see definitions in section 4.

Disaster group

This tool focuses only on natural disasters and specifically meteorological, hydrological and climatological disasters. Each field is automatically linked to the disaster sub-group and the disaster type. See Table 1 for the Disasters Classification.

- Disaster sub-group: The natural disaster category is divided into sub-groups: Climatological, Hydrological and Meteorological disasters.
- Disaster main-type: Subdivision related to the disaster sub-group.
Disaster sub-type: Subdivision related to the disaster main type.

Section 4: Data entry

This data entry section is divided into a *human* and *economic* impact.

Human impact

The most critical part of any disaster event are the consequences in terms of human lives affected. Consequences to human lives are mostly recorded through metrics of fatalities, missing people and injuries, people left homeless or displaced.

INDICATORS FOR SENDAI FRAMEWORK TARGET 1: SUBSTANTIALLY REDUCE GLOBAL DISASTER MORTALITY BY 2030

1. Deaths: Number of people who lost their life because the event happened.
2. Missing: The number of people whose whereabouts since the disaster are unknown and presumed dead based on official figures.

INDICATORS FOR SENDAI FRAMEWORK TARGET 2: SUBSTANTIALLY REDUCE THE NUMBER OF AFFECTED PEOPLE GLOBALLY BY 2030

1. Injured: People suffering from physical injuries, trauma, or an illness requiring immediate medical assistance as a direct result of a disaster.
2. Number Of People Homeless: Number of people whose house is destroyed or heavily damaged and therefore need shelter after an event.
3. Number Of Dwellings Damaged
4. Number Of Dwellings Destroyed
5. Number of people whose livelihoods were disrupted or destroyed, attributed to disasters.

Event ID	
Global Target A: Substantially reduce mortality by 2030	
Number Of People Killed	
Number Of People Missing	
Global Target B: Substantially reduce the number of affected people by 2030.	
Number Of People Injured	
Number Of People Homeless	
Number Of Dwellings Damaged	
Number Of Dwellings Destroyed	
Number Of Livelihoods Disrupted	

Data Entry Information

Submit Target A & B

Economic Impact

This section focusses on the total monetary value of all damages and economic losses directly incurred as a result of the disaster or extreme event.

Total damages in Rand value are calculated according to the relevant departmental and sectoral standards and formulas. This could be based on replacement costs (e.g., demolition, architecture, development, administrative application fees), repair costs (e.g., costs of material, labour) income loss, rental loss after property has been damaged, etc.

INDICATORS FOR SENDAI FRAMEWORK TARGET 3: Direct economic loss attributed to disaster and TARGET 4: Damage to critical infrastructure.

Economic loss and damage are assessed according to the categories:

- 1). Productive (these refer to the sectoral components of Gross Domestic Product (GDP) such as agriculture, industry and services).
- 2). Public Infrastructure (these refer to infrastructure facilities, systems, and structures that are developed, owned, and operated by the government, as well as infrastructure facilities needed to support and sustain a community of people to live and work).
- 3). Cross-Cutting (these refer to Green Infrastructure and Environment)

Under each category there are sub-categories which further defines the specific sector:

1. Productive
 - 1.1.Agriculture
 - 1.2.Forestry
 - 1.3.Fisheries
 - 1.4.Aquaculture
 - 1.5.Industry
 - 1.6.Commerce
 - 1.7.Tourism
 - 1.8.Financial sector
2. Infrastructure
 - 2.1.Transport
 - 2.2.Communications
 - 2.3.Energy
 - 2.4.Water and sanitation
 - 2.5.Waste Management
 - 2.6.Community Infrastructure
3. Cross cutting
 - 3.1.Environment
 - 3.2.Green Infrastructure

Global Target C: Direct economic loss attributed to disaster.	
Global Target D: Damage to critical infrastructure.	
Productive economic loss	
Category	Productive
Sub-category	Agriculture
Type	Agricultural Infrastructure
Specify	<input type="text"/>
Number Destroyed or Damaged	<input type="text"/>
Area Affected (ha)	<input type="text"/>
Total Length (km)	<input type="text"/>
Total Loss	<input type="text"/>

Description
Crop and livestock production
Responsible Overarching
Cooperative Governance (NDMC)
National Treasury
Municipality
Responsibility
Department of Agriculture, Land Reform and Rural Development (DALRRD)

For each sub-category it is possible to add a value in terms of number destroyed or damaged, as well as a total value of the damage incurred (in Rands).

The infrastructure that was damaged or destroyed by the disaster is given in absolute values or percentages e.g. Houses (number), Bridges (number), Commercial/business (number), Roads (km), Rails (km), Education (number of schools), Health (numbers of health centers/hospitals), Forest (ha), Farmland/crops (ha) or Livestock (number).

For example: if a flood hazard damaged roads in a specific area, the user will choose “public infrastructure” as main category, “transport” as sub-category and “roads” as type. Next, the user will enter the distance of road damaged as well as costs associated with damage in rands.

Section 5: Spatial Data

Any spatial data (GIS data) that can support the assessment of losses and damages associated with the specific event can be added in this tab.

Please provide meta-data.

Event ID	
Is spatial data available?	
Identification	
Name of dataset	
Description	
Keywords	
Contact Details	
Who developed the dataset?	
Where can the data be accessed?	
When was the data collected?	
Publisher	
Distributor	
Spatial Reference	
Projection	
Geographic extent	
Horizontal accuracy	

Submit

Section 6: Reporting

The Loss and Damage Reporting tool has a reporting functionality which allows the user to view a summary of reported hazard events under “summary report” as well as a more detailed report on the damages associated for the economic sector under “report EconProd” (report on economic productivity).

Section 7: Definitions

Severe weather: Severe weather is any dangerous meteorological phenomenon with the potential to cause damage, serious social disruption, or loss of human life. Types of severe weather phenomena vary, depending on the latitude, altitude, topography, and atmospheric conditions. High winds, hail, excessive precipitation, and wildfires are forms and effects of severe weather, as are thunderstorms, downbursts, tornadoes, waterspouts and tropical cyclones.

Declared disaster: Declaration means declaring a local, provincial or national state of disaster in terms of section 27, 41 or 55 of the Disaster Management Act, 2002.

Hazard: A meteorological, hydrological or climatological phenomenon that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

Meteorological: A hazard caused by short-lived, micro- to meso-scale extreme weather and atmospheric conditions that last from minutes to days. Main types are storms, extreme temperature and fog.

Hydrological: A hazard caused by the occurrence, movement, and distribution of surface and subsurface freshwater and saltwater. Main types are flood, landslide and wave action.

Climatological: A hazard caused by long-lived, meso- to macro-scale atmospheric processes ranging from intra-seasonal to multi-decadal climate variability. Main types specific to South Africa are drought and wildfire.

Hydrological Hazard	Meteorological Hazard	Climatological Hazard
Avalanche, Snow, Debris	Cold Wave	Meteorological Drought
Coastal Erosion	Convective Storm	Hydrological Drought
Debris/Mud Flow/Rockfall/Landslide	Frost/Freeze	Agricultural Drought

Doline/Sinkhole/Subsidence	Hail	Fire – Cultivated Forest
Flash Flood	Heat Wave	Veldfire
Flood (Estuarine)	Heavy/Persistent Rain	
Flood (Raised Watertable)	Lightning	
Flood (Riverine)	Sandstorm/Duststorm	
Flood (Urban Infrastructure)	Snow/Ice	
	Storm Surge	
	Strong Wind	
	Tornado	
	Tropical Cyclone	

Disaster impact: is the total effect, including negative effects (e.g., economic losses) and positive effects (e.g., economic gains), of a hazardous event or a disaster. The term includes economic, human and environmental impacts, and may include death, injuries, disease and other negative effects on human physical, mental and social well-being.

Sendai Framework: The Sendai Framework for Disaster Risk Reduction 2015-2030 is a international agreement that was adopted by the United Nations (UN) member states to reduce, prevent and respond to disaster risks across the globe.

DesInventar: The Sendai Framework has an important sub-system the Disaster Loss Data Collection tool (called “DesInventar Sendai”) which permits the creation and maintenance of fully compliant Loss Databases that can be used for the systematic collection, documentation and analysis of data about losses caused by disasters associated with natural hazards.

Human impact: Number of people affected – including deaths, severely injured or illness, displaced due to loss of home or livelihoods.

Economic impact: Includes damage and loss assessment in financial terms – the costs of the damage, the costs of the reparation and restoration, the costs of emergency measures, the costs of long-term recovery (costs of disruption of economic activities, unemployment, indirect social costs such as those for the restoration of education and health systems).

Environmental impact: Includes the loss of and structural damage to nature conservation areas, ecosystems and protected species, as well as general environmental pollution. The costs of environmental recovery are in most cases seen as part of the economic impact.

Economic loss: Total economic impact that consists of direct economic loss and indirect economic loss.

Direct economic loss: the monetary value of total or partial destruction of physical assets existing in the affected area. Direct economic loss is nearly equivalent to physical damage.

***Indirect economic loss:** a decline in economic value added as a consequence of direct economic loss and/or human and environmental impacts. Indirect economic loss includes microeconomic impacts (e.g., revenue declines owing to business interruption), meso-economic impacts (e.g., revenue declines owing to impacts on natural assets, interruptions to supply chains or temporary unemployment) and macroeconomic impacts (e.g., price increases, increases in government debt, negative impact on stock market prices and decline in GDP). Indirect losses can occur inside or outside of the hazard area and often have a time lag. As a result they may be intangible or difficult to measure.

Local disaster: a type of disaster only affecting local communities which require assistance beyond the affected community.

Regional disaster: a type of disaster affecting a society which requires national assistance.

**Please not that Indirect Economic Loss is not considered in this tool.*

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