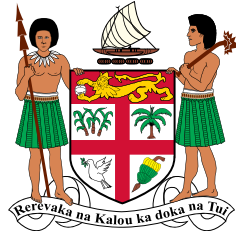




POST DISASTER ASSESSMENT (PDNA) STANDARD OPERATING PROCEDURE (SOP)

Fiji WaSH Sector | 07 February 2023



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Acknowledgment

This publication was prepared under the Asian Development Bank (ADB) technical assistance project Building Disaster-Resilient Infrastructure through Enhanced Knowledge. Grant funding for the project came from the Japan Fund for Prosperous and Resilient Asia and the Pacific (JFPR), financed by the Government of Japan through ADB.

The United Nations Development Programme delivered output 3 of such Project with the aim to enhance technical capacities for recovery planning, and implementation, including adapting the Post Disaster Needs Assessment (PDNA) and Disaster Recovery Framework (DRF) guidelines to national contexts and specific infrastructure sectors, with the focus of this guidance being Fiji's WASH sector.

This publication has been developed with collaboration and input from various partners, including the Ministry of Rural & Maritime Development and Disaster Management, the Ministry of Lands and Mineral Resources, the Ministry of Infrastructure and Meteorological Services, the Ministry of Health and Medical Services, Water Authority of Fiji and Fiji WaSH Cluster Partners including UNICEF.

This guidance has been prepared by independent consultant Mr. Peter Sharry, under the overall supervision and technical guidance of Ms. Rita Missal - UNDP Recovery Advisor, Ms. Joana Sampainho - UNDP's Recovery Analyst, and in close collaboration with Mr. Paula N. B. Cirikiyasawa - the National Project Coordinator in Fiji.

Abbreviations

DISMAC	Disaster Management Committee (Divisional, Provincial and District Level)
DSLO	Disaster Service Liaison Officer
DWS	Department of Water and Sewerage
ER	Early Recovery
GIS	Geographical Information System
GPS	Global Positioning System
HIC	Humanitarian Information Centre
IASC	Inter-Agency Standing Committee
NDMA	Fiji Natural Disaster Management Act 1998
NDMC	National Disaster Management Council
NDMO	National Disaster Management Office
NDMP	Fiji National Disaster Management Plan 1995
NDRRP	Republic of Fiji National Disaster Risk Reduction Policy 2018 - 2030
NEOC	National Emergency Operations Centre
NGO	non-governmental organisation
OHCHA	United Nations Office for the Coordination of Humanitarian Affairs
PDNA	Post Disaster Needs Assessment
UNDG	United Nations Development Group
UNDP	United Nations Development Programme
WAF	Water Authority of Fiji

Glossary

Build Back Better (BBB) - a strategy aimed at reducing the risk to the people and infrastructure of nations and communities in the wake of future disasters and shocks. The approach promotes recovery that is sustainable, resilient and inclusive.

Consultation – A two-way exchange of information, comments, ideas and suggestions. Consultation outputs are considered as inputs for decision-making; they must be taken into account but need not determine decisions.

Damage – (Disaster Effect) Total or partial destruction of physical assets existing in the affected area. Damage occurs during and immediately after the disaster and is measured in physical units (i.e. square meters of housing, kilometres of pipework or roads, etcetera). Its monetary value is expressed in terms of replacement costs according to prices prevailing just before the event. The value of damage is used as the basis for estimating reconstruction needs.

Disaster – A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.

Displaced persons – persons who, for different reasons or circumstances, have been compelled to leave their homes.

Early recovery – Recovery that begins early in a humanitarian setting. Early recovery is not intended as a separate phase within the relief-development continuum, but rather as an effort to strengthen the effectiveness of the linkage. Early recovery encompasses livelihoods, shelter, governance, environment and social dimensions, including the re-integration of displaced populations.

Losses – (Disaster Effect) Changes in economic flows arising from the disaster. They occur until full economic recovery and reconstruction is achieved, in some cases lasting for several years. Typical losses include the decline in output in productive sectors (agriculture,

livestock, fisheries, industry and commerce) and the lower revenues and higher operational costs in the provision of services (education, health, water and sanitation, electricity, transport and communications). Also considered losses are the unexpected expenditures to meet humanitarian needs during the post-disaster emergency phase. Losses are expressed in current values.

Participation – A process by which stakeholders are active and equal partners in decision-making, and may have shared ownership and control over project/ programme design and implementation (and also eventual evaluation).

Protected area – Portions of land protected by special restrictions and laws for the conservation of the natural environment. They include large tracts of land set aside for the protection of wildlife and its habitat; areas of great natural beauty or unique interest; areas containing rare forms of plant and animal life; areas representing unusual geologic formations; places of historic and prehistoric interest; areas containing ecosystems of special importance for scientific investigation and study; and areas that safeguard the needs of the biosphere.

Rehabilitation – The full, or at least partial, restoration of degraded landscapes and/or impaired ecosystem services to their state prior, for example, to the site being occupied as a site for transitional shelter for displaced people.

Vulnerability – The extent to which a community, structure, service or geographic area is likely to be damaged or disrupted by the impact of a particular hazard.

WaSH – Water supply, Sanitation and Hygiene.

Water catchment – An area, often a combination of mountain ranges and basins, that ‘catches’ rainfall. Water from rain is absorbed into the soil and stored in underground reservoirs, or is fed into a river, aquifer, or lake.

Introduction

1. Introduction to The Standard Operating Procedure (SOP)

Following a disaster event, emergency response and relief is required to meet the immediate needs of affected populations. It is also essential to estimate the overall impact of the disaster on the country. The impact of damage and loss at the personal and household level as at the larger socio-economic level must be assessed. The Post Disaster Needs Assessment (PDNA) is a government led process which provides estimates of resources (quantified by a universally recognised methodology) required for recovery and reconstruction, identifies priorities for intervention, and guides the development of a comprehensive programme for recovery, reconstruction and risk management.

1.1. Objective of the Standard Operating Procedure

The overall objective of this SOP is to provide guidance/better understanding of a mechanism required to undertake a systematic and harmonized WaSH Sector PDNA after a disaster event, by the Government of Fiji. This SOP includes steps for PDNA preparedness measures in the sector, such as PDNA training, baseline data collection, and data management. The intended outcome of the SOP is to:

- Provide an assessment process for achieving a single and coherent assessment of the WaSH related damage and loss on the affected populations in the geographical areas and economies affected by the disaster event, that will guide the development of the recovery and reconstruction plan and implementation of actions to build back better.

1.2. General Guidelines

This SOP documents the governance context and detailed process steps needed to undertake post disaster damage, loss and needs assessment following a natural hazard in Fiji. The following general guidance will apply for the conduct of a PDNA in Fiji:

- The decision to trigger a PDNA lies with the National Disaster Management Council (NDMC) of the Government of Fiji.
- The PDNA shall be led by the National Disaster Management Council (NDMC) through the National Disaster Management Office (NDMO) in close co-ordination with the Ministry of Economy and in partnership with development partners. The Mandate for coordination passes to the Ministry of Economy for the recovery phase.
- The scope of the PDNA assessment shall be limited to assessing the needs for recovery and reconstruction and not for emergency relief and response.
- The timing and duration of the assessment shall depend on the scope and effect of the disaster event. The PDNA process is normally expected to take 4 to 6 weeks.
- Consultations shall be undertaken with representatives from affected communities such as farmers, local business enterprises, vulnerable populations in the community etc. to understand the needs at the household and local level.

2. Fiji's Disaster Response Governance Arrangements

2.1. Governance Context and this SOP

This SOP reflects and is subject to the requirements of:

- Fiji Natural Disaster Management Act (NDMA) 1998
- Fiji National Disaster Management Plan (NDMP) 1995
- The Republic of Fiji National Disaster Risk Reduction Policy (NDRRP) 2018-2030
- Fiji's National Emergency Operations Centre Standard Operating Procedures 2010
- Post Disaster Needs Assessments Guidelines, Volume A (EU, World Bank, UNDG 2013)
- Post Disaster Needs Assessments Guidelines, Volume B: Water and Sanitation (EU, World Bank, UNDG 2013)

The Fiji Government's policies and documents take precedence and should be referred to if any clarification is required.

2.2. Responsibility for PDNA Implementation

Fiji's Natural Disaster Management Act 1998(NDMA) documents the governance responsibilities for disaster response and recovery. The National Disaster Management Office (NDMO) is responsible for day-to-day operations during any disaster response (Figure 2). The National Disaster Controller will direct the NDMO, which will be responsible for the management of the PDNA process. (See below)

2.3. Disaster Management and Response Institutions and the PDNA

The NDMP interprets the requirements of the NDMA. It defines the organisational arrangements, roles and responsibilities for control and coordination of all disaster related activities in Fiji including damage and loss assessment tasks as conducted during the PDNA. The primary entities within the disaster management structure with responsibility for the PDNA process and Recovery Planning are:

- The **National Disaster Management Council (NDMC)**: has overall national responsibility for resourcing and implementing the PDNA. The Chair of the NDMC, which is the Minister for Rural and Maritime Development and Disaster Management, is responsible for disaster management activities.
- The **National Disaster Management Office (NDMO)**: manages the day-to-day operations of disaster management including PDNA, under the direction of the National Disaster Controller.
- **Divisional and District Administrations** assist the PDNA process and administer the response in their areas.
- The **WaSH Cluster**, as part of the National Disaster Cluster System, provides a key supporting role to the PDNA and Recovery Planning through the provision of sector specialists and some practical resources.
- The **Ministry of Economy** supports PDNA development and has overall responsibility for implementation and monitoring of the Recovery Framework.

The Fiji National Emergency Operations Centre SOP 2010 (NEOC SOP) describes the roles within the disaster response structures. Key roles which contribute to the PDNA and recovery planning processes include:

- **National Disaster Controller** - who advises the minister on operational matters relating to disaster management and activities including PDNA. This role is usually filled by the Permanent Secretary for the Ministry of Rural and Maritime Development and Disaster Management(or the Permanent Secretary responsible for NDMO oversight) , and is responsible for the overall disaster response organisation.

- **National Disaster Coordinator** - coordinates, supervises, and implements policies of the council and the duties and functions of the NDMO.
- **Disaster Service Liaison Officers (DSLO)** - The DSLO is the main point of contact for liaison, coordination and cooperation in all disaster management-related matters between NDMO/ NEOC/ DISMAC and their respective agency (e.g. military, police),
- **Divisional Commissioners** oversee the disaster management activities in their respective divisional boundaries of responsibility.
- **District Officers/Provincial Administrators** are designated points of authority and command at sub-national levels during disasters, overseeing the disaster management activities in his/her respective district they facilitate and assist the PDNA process through local information gathering, and guide and monitor recovery efforts.

At Division, Provincial and District levels, there are no dedicated disaster response organisation outside of an emergency response.

Disaster preparedness and response planning takes place cooperatively based on established development practices. (Figure 1).

During an emergency response, the National and Divisional Emergency Operations Centres (EOCs) and Disaster Management Committees (DISMACs) are activated and integrated into the organisational structure as shown in Figure 2.

The primary WaSH sector PDNA contacts within the disaster management structure are the Permanent Secretary for the Ministry of Rural and Maritime Development and Disaster Management, and the Director of the National Disaster Management Office (NDMO). The NDMO is the primary stakeholder for the baseline data gathering and provision.

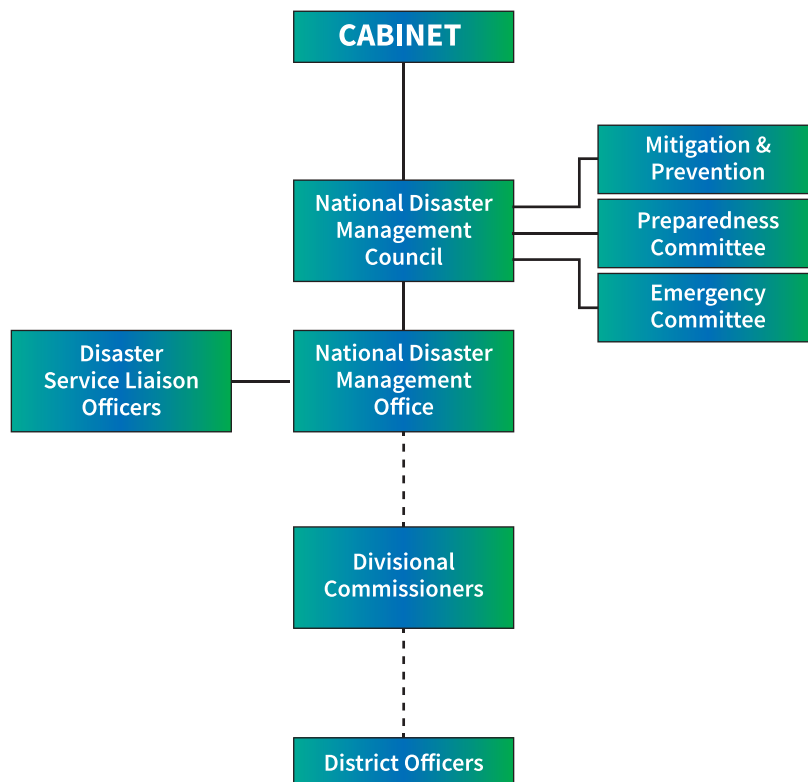


Figure 1: Permanent Bodies of the Fiji Disaster Management Structure (NDMP 1995)

The NEOC is normally activated only when a specific threat such as a cyclone develops, or when a disaster has occurred. The primary function of the NEOC is to gather, collate, assess, and distribute information. It also coordinates requests for assistance during emergencies. The NEOC incorporates three operating units:

- a) Information and Communication Unit – records and distributes all incoming messages, provides information to the public and Agencies and informs the NDMC-EC as and when required.
- b) Operations Unit – support to agencies, districts, and divisions. Arranges for operations initiated from the National level, such as a PDNA.
- c) Assessment unit – responsible for gathering and distribution of all damage and needs assessment information.

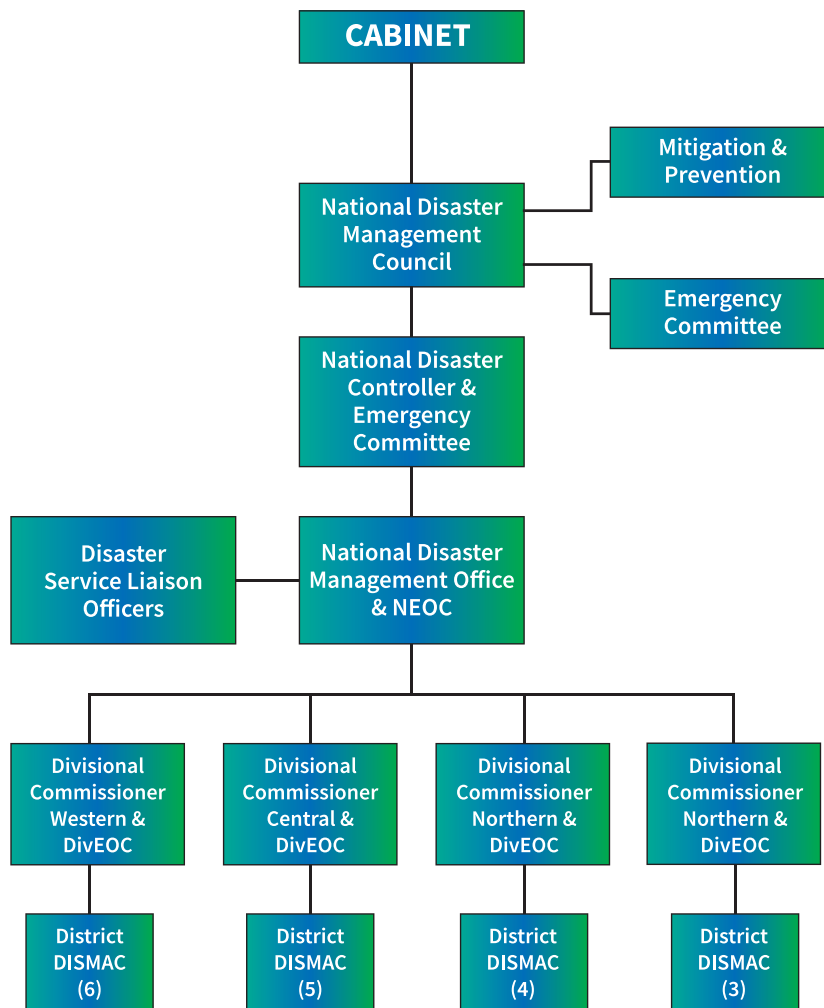


Figure 2: Fiji Disaster Management Structure during emergency operations (NDMP 1995)

2.4. WaSH Sector Stakeholders for PDNA

For the WaSH sector PDNA and Recovery Planning activities, the key stakeholders within the disaster management structures and related Fiji Government departments are:

NDMO:

- Minister for Rural & Maritime Development and Disaster Management
- Permanent Secretary for the Ministry of Disaster Management
- Director of the National Disaster Management Office

- National Disaster Controller of the National Disaster Management Office

Divisional and District Response Coordination:

- Divisional Commissioners (Northern, Eastern, Southern and Western)
- District Officers

Water and Wastewater Assets:

- Permanent Secretary – Ministry of Infrastructure and Meteorological Services
- Director – Department of Water and Sewerage
- CEO – Water Authority of Fiji
- Director – Ministry of Health and Medical Services

Rural Groundwater Bores and Reticulation:

- Permanent Secretary for the Ministry of Lands and Mineral Resources
- Director Mineral Resources Department – Ministry of Lands and Mineral Resources

Wash Cluster:

- WaSH Cluster Lead – Ministry of Health and Medical Services
- Secretariat WASH Cluster – Ministry of Health and Medical Services
- Cluster Co-Lead – UNICEF

Fiji Bureau of Statistics:

- Chief Executive
- Chief Statistician

Ministry of Economy (For Recovery planning and implementation):

- Minister for Ministry of Economy
- Permanent Secretary for Ministry of Economy

3. Disaster Preparedness

3.1. Stakeholder Consultation

Stakeholder consultation to review systems, stored data and associated coordination approaches should be undertaken in preparation for a PDNA at least annually, between disaster activations prior to the Cyclone Season (November-April). This may be initiated by the NDMO or performed at the request of water sector stakeholders. Consultation should be as wide as practical to permit participation by key actors in the sector. As WaSH is a cross-cutting sector, the involvement of other stakeholders in addition to the key contacts listed above is highly advisable and should include:

- Ministry of Education, Heritage and Arts - water and Sanitation in Schools;
- The Pacific Community (SPC); and
- Development Partners.

Regular stakeholder discussions provide opportunities to review the baseline data (SOP Section 3.4) and identify any necessary updates to it. Gaps in the data can be identified and addressed. Old data may be flagged for a new survey. Updates to data may be included from past disaster assessments, or from recent survey data gathered by the sector stakeholders during normal development activities.

3.2. PDNA Training

Participants in the PDNA should be trained in advance to provide familiarity with the concepts and processes involved. PDNA training for individuals can be accessed online at no cost, through the World Bank Open Learning Campus (<https://olc.worldbank.org/>). Training of PDNA participants should be a regular process, undertaken at least annually in preparation for disaster response. Organisations such as the UNDP in close coordination with SPC may provide in-person group training in the PDNA methodology on request from the Fiji Government given the evolving partnership over the years.

Participants in the PDNA should be conversant with the use of Microsoft Excel for data capture, and processing.

Field team members should be familiar with the use of handheld GPS units to save locations of damaged assets, and how to backup and copy the data correctly into the assessment tool(s). Skills in the use of phone Apps and Tablets for data capture would be advantageous. Training with the tools and templates should be arranged for potential PDNA team members before the cyclone season, if possible, to provide a pool of skilled assessors in advance of a disaster, to expedite response activities. This training could be performed in parallel with the collection or update of baseline WaSH sector data.

3.3. Data Collection Templates

As part of the UNDP-ADB Project: Building disaster-resilient Infrastructure through Enhanced Knowledge, standard data collection templates (in MS Excel) have been developed for the Fiji WaSH Sector baseline data collection and PDNA processes:

- Damage Assessment template; and
- Loss Assessment template

The Damage and Loss Assessment Templates are provided on separate tabs of a single excel workbook. The Damage and Loss Assessment Template (DLAT) workbook can and should be used for baseline / routine data collection as well as the PDNA. It incorporates, among other information:

- Location / Asset details (Name, GPS co-ordinates, Tikina, Province, Division);
- Date of assessment;
- Owner / Responsible Person name and phone number;
- Affected households and/or individuals;
- Asset type selections (Lookups and free text);
- JMP classifications for water supply and sanitation;
- Asset condition and functionality ratings; and
- Asset damage and Loss estimates.

In some instances, the data entry fields in the DLAT are constrained; for example, the GPS coordinate values must be entered in decimal degrees and fall within a controlled range of values covering Fiji. This reduces but doesn't eliminate the risk of locations being stored incorrectly. The DLAT uses lookup functions to create some user inputs from defined lists of asset types, materials, units of measure, and replacement unit costs for consistency in the data set.

The Emergency Works Cost (EWCL) template is used to capture actual costs incurred to address emergency works. This would normally encompass items such as clearing vegetation to access a site, minor repairs to eliminate a hazard such as a burst pipe, temporary reinstatement of power to a sewage pump station etc. Emergency Works Costs may also be incurred for items such as water carting while services are restored. These costs would normally be incurred during the Rapid Assessment phase immediately after the disaster but may include costs incurred by the PDNA team to achieve assessment goals.

Expenses incurred for emergency works and PDNA execution should be captured using this template to:

- a. Apply for funds recovery from the relevant Ministry and
- b. Ensure that the costs are included in the disaster Losses reporting in the PDNA.

3.4. Baseline Data Collection

The PDNA process advocates for the preparation of baseline data for each sector. The baseline data allows for comparison of the pre- and post-disaster situation to assess the extent of damage and loss due to the disaster.

The PDNA Guideline Volume A states that:

“Baseline data is critical to determining the overall impact of the disaster across all sectors, including its impact on human development. Baseline data also contributes to the vulnerability analysis and towards an understanding of the underlying causes of the disaster. That in turn contributes to planning an effective and resilient recovery. Sector teams gather data on pre-disaster baseline conditions pertinent to their sector.”

“Generally the information collected includes the following:

- *Pre-disaster demographic, socio-economic, geographic, ethnic and cultural information;*
- *Pre-disaster asset data for each sector;*
- *Nature and extent of pre-disaster hazards, vulnerabilities and risks;*
- *National - as well as regional (or local) development plans, socio-economic goals in the short term, and poverty reduction strategies.”*

A robust and representative baseline data set forms the basis for understanding the effects of the disaster on Infrastructure and other Physical Assets such as parts and mobile equipment. It assists response planning in the wake of a disaster by identifying assets which may be affected.

Useful baseline indicators for the WaSH Sector include measures of WaSH access and level of service performance:

- Inventory of water sources, treatment, and distribution assets.
- Location, JMP classification and number of water supply services / supply points.
- Inventory of wastewater collection and treatment assets.
- Location, JMP classification and number of sanitation facilities.
- Number of households and individuals accessing the water supply and sanitation services at each location
- Location and type of solid waste management assets and services.

Table 1: WaSH Indicator Type Examples and Associated Infrastructure

Indicator	Examples of Infrastructure Types
Inventory of water sources, treatment, and distribution assets	<p>Examples.</p> <p>Water Sources:</p> <ul style="list-style-type: none"> - Stream (protected or unprotected intake) - Hand dug well - Groundwater bore - Rainwater harvesting and storage <p>Treatment:</p> <ul style="list-style-type: none"> - Trash Screen - Roughing Filter - Ecological Purification System (EPS) - Chlorination <p>Distribution:</p> <ul style="list-style-type: none"> - Submersible pump - Centrifugal pump - Storage tank - Distribution pipework and fittings - Water truck or cart
Location, JMP classification and number of water supply services / supply points	<p>Examples:</p> <ul style="list-style-type: none"> - Piped Water into dwelling (Improved) - Public tap, standpipe (improved) - Unprotected Well (Unimproved) - Uncovered Cistern or Tank (Unimproved)
Inventory of wastewater collection and treatment assets	<p>Examples:</p> <ul style="list-style-type: none"> - Flush Toilet - Pour Flush Latrine - Dry Latrine - No Facility (open defecation)

Indicator	Examples of Infrastructure Types
Location, JMP classification and number of sanitation facilities	Examples: <ul style="list-style-type: none"> - To piped sewer system (Improved) - To septic tank (Improved) - To open drain (Unimproved) - Ventilated Improved Pit (Improved) - Pit Latrine WITHOUT Slab / Open Pit (Unimproved)
Number of households and individuals accessing the water supply and sanitation services at each location	Inventory / count.
Location and type of solid waste management assets and services	Examples: <ul style="list-style-type: none"> - Burning Bin – Household - Community Waste Pit - Solid waste removal service

With UNDP and the Fiji government’s collaborative efforts as part of the *UNDP-ADB Project: Building disaster-resilient Infrastructure through Enhanced Knowledge*, a baseline WaSH data set for the Fiji WaSH sector has been developed in 2022, using data provided by the Department of Water and Sewage and the Mineral Resources Department, and can be obtained from the NDMO. On the regional platform, this work was undertaken in collaboration with SPC given the work carried out on the water sector over the years and PDNA over the years.

The initial baseline data set is predominantly from rural locations and includes water source and wastewater service information. Other sources of WaSH sector asset data that should be included and regularly updated in the baseline data set include:

- Water Authority of Fiji – predominantly urban water supply and wastewater infrastructure and services
- Ministry of Lands and Mineral Resources – rural groundwater bores and water reticulation infrastructure.
- Ministry of Health and Medical Services – water and wastewater assets in health facilities; and
- Ministry of Education, Heritage and Arts – water and wastewater assets in schools.

The Baseline Data set is a valuable resource for the PDNA team and the stakeholders which contributed to its creation. The existence of the baseline data set reduces the effort, expense and time necessary to gather reliable baseline data as part of the PDNA process. Because the data has been gathered in a controlled fashion it should also be more reliable than data collected rapidly in the immediate aftermath of a disaster.

The baseline data set should be a “live” record of the installed and decommissioned WaSH assets and must be updated regularly to remain current. Stakeholders which have WaSH infrastructure related data must (collect and retain) provide the data in the preferred format (and platform) as advised by the NDMO, based on the PDNA Damage and Loss Assessment Template (DaLAT). As the data set is updated over time it will become more comprehensive in its coverage and be of more use in PDNAs after future events.

An additional benefit of a current baseline data set is that it enables the rapid development of an initial damage assessment (IDA) in the immediate aftermath of the disaster, particularly if the baseline includes reliable cost basis information.

3.5. Information Management

The NDMO is the primary custodian of disaster management related data in Fiji and will have responsibility for the consolidated baseline WaSH sector data set. The NDMO or its designate (e.g. Department of Water and Sewerage) will maintain the latest version of the PDNA WaSH data collection template(s) and make them available for use by sector stakeholders.

The NDMO will initiate the review of the data and request data updates from stakeholders as part of its disaster preparedness responsibilities. This is required on at least an annual basis under the NDMP. If errors or desired changes are identified in the data collection templates, these should be communicated to the NDMO. The NDMO will then update the template and issue a new version to the stakeholder contacts.

3.6. PDNA Resource Planning

Prior to a disaster activation, a draft schedule of resources required for WaSH PDNA execution should be made and a preliminary budget prepared. This schedule can be prepared based on the resourcing requirements experience during the last PDNA and adjusted annually, including input on resource requirements from the baseline data gathering process. The required implementation resources and budget will vary with the scale of the disaster to be assessed, but the preliminary schedule and background to it will aid timely and accurate estimation of requirements for the new assessment work.

3.7. PDNA Cost Estimate and Funding Strategy

Appendix A of this SOP provides an example template for Estimated in-country Costs to Conduct the PDNA. It provides suggested headings and cost elements for consideration. The template may be used during the preparedness phase to estimate the funding contingency to be made by the Government and international development partners in the event of a PDNA. The overall cost of performing the PDNA will vary with the scale of the disaster and the impact on the sector. However, the types of resources and baseline requirements can be established in advance for provisional funding allocation.

The cost estimate template has also been provided in spreadsheet format - PDNA Estimated in-country costs to Conduct the PDNA.xlsx.

Funding for PDNA preparedness and execution shall be sourced in accordance with the “Financial Arrangements” section of the NDMP through the NDMO and in consultation with the Ministry of Economy.

“Administrative costs, such as meals, subsistence, overtime, etc. should be borne by individual agencies. It is the responsibility of individual agencies to meet, or make adequate arrangements to meet incurred costs arising from the provision of their assistance in the implementation of this plan.Disaster response operations should not wait for the normal Public Service financial procedures, and the Ministry of Economy [sic] should produce appropriate financial regulations and procedures to ensure that the quickest possible approval mechanism is in place.”¹

4. PDNA Activation

4.1. PDNA Activation Trigger

The decision to undertake a PDNA is made by the Emergency Committee of the National Disaster Management Committee (NDMC) – see Figure 3.

When Emergency Operations are initiated, Fiji’s National Disaster Controller will assume overall command of emergency operations. S/he will be informed of support needs by the National, Division and District levels of government. The Divisional Commissioners and the District Officers are in control of the emergency operations as Divisional and District Officer roles respectively.

The Post Disaster Needs Assessment (PDNA) is a government-led process which provides estimates of resources required for recovery and reconstruction, identifies priorities for intervention, and guides the development of a comprehensive programme for recovery, reconstruction and risk management. Resources for supporting the PDNA process and funding recovery should be provided from Fiji Government and other national resources in the first instance. Only after these resources are fully allocated should international assistance be requested.

International assistance in conducting PDNA is likely to be required for **medium- to large-scale events** and to inform subsequent international funding requests. A formal request for PDNA assistance in these cases is issued to the sector agencies, the UN and other appropriate stakeholders. Should the Government wish to undertake a PDNA it may choose to request support from external agencies such as the EU, UNDP, The World Bank, ADB, SPC, The ICRC or other NGOs. Requests from the Government of Fiji for International Assistance, including PDNA execution, will be undertaken in accordance with the requirements of Appendix F – International Assistance, of the Fiji National Disaster Management Plan 1995.

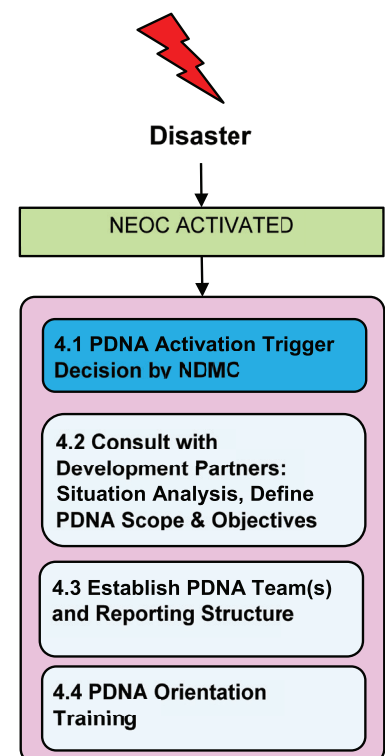


Figure 3: PDNA Activation Schematic

4.2. Consultation with Development Partners

After receiving an official government request for assistance, the National Disaster Management Council and NDMO shall hold a PDNA consultation meeting with representatives of international development agencies. The purpose of this meeting is to define and agree on the scope of the assessment, objectives, and its intended results. During this first meeting, a formal agreement reached with the Government ensures that the Ministry of Economy in co-ordination with NDMO will lead the assessment and conduct it with the substantive support of the United Nations, under technical leadership of UNDP, SPC and multilateral or bilateral donors. This agreement should also include the consent to use the standard assessment methodology. This will facilitate unlimited access to the affected areas, and the organization of a joint assessment team of experts with the government’s leadership and full support.

Another component of these preliminary contacts is to approach other partners in the assessment. The UN Resident Coordinator will be the strategic focal point of the PDNA process whilst UNDP will be the operational focal point from the United Nations perspective. These contacts serve several purposes: to ascertain partner willingness to cooperate in the assessment, to discuss the possible scope and timing of their participation, and to gather their preliminary findings on the disaster.

4.2.1. Situation Analysis

Decision on undertaking a full damage and loss assessment is made based on an initial Situation Analysis, using data provided from the rapid assessment teams and other people in the disaster area. If the Situation Analysis indicates that the extent of the damage is small, a full-fledged damage, loss and needs assessment may not be required since recovery needs can be met based on existing assessments. If the situation analysis results in a decision to undertake the assessment, the NDMC shall provide direction on the geographical coverage and locations, sectors and sub-sectors to be assessed.

The Situation Analysis would include the following:

- A description of the disaster and its impact on the affected areas and country overall.
- Overview of current and planned response actions to provide immediate response and relief by humanitarian agencies.
- Specific effects on the WaSH sector and sub-sectors.
- Information gaps that need to be filled.
- The recovery needs that are emerging and need to be assessed, potentially through the PDNA.
- Potential mechanisms for consultation with affected communities.

4.2.2. Define the PDNA Scope and Objectives

The PDNA Scope will be defined by the NDMC in consultation with development partners. The document shall indicate the main focus (geographic and sectoral) of the assessment and its anticipated benefits, the duration, main activities, Terms of Reference (ToR) of the assessment and the expected cost.

Defining the scope of the PDNA assessment will depend on several factors including:

- Quality and timely information from the disaster area.
- Security and Access.
- Scale of the disaster.
- Density and location of the affected population(s).
- Identification of where other data are being gathered and might be available; and
- Responses to specific expressed needs of the affected communities.

This will, however, clearly vary from one situation to another and it may be helpful for the PDNA if a checklist of key considerations is developed at this phase of work to help structure and guide decisions regarding the physical scope of the assessment.

4.3. The PDNA Team Composition and Responsibilities

The PDNA is led nationally by the High-Level Management Team and implemented by the PDNA Coordination team.

4.3.1. High-Level Management Team

The High-Level Management Team would normally be led by the Chair of the NDMC. The team may include the RC/HC of the UN system, the Country Director of the WB, the EU Country Representative, SPC representative and/or the Representatives of UN agencies depending on need and as requested by the Government of Fiji. Other members may be added at the discretion of the Fiji Government, in consultation with other members.

Responsibilities:

The primary role of the High-Level Management Team is to:

- Provide strategic guidance with respect to the PDNA;
- Make key management decisions;
- Ensure the necessary resources are available to meet the PDNA objectives.

The High-Level Management Team will be supported by the PDNA Coordination Team, which also serves as the secretariat to the High-Level Management Team.

4.3.2. PDNA Coordination Team

During the emergency response, all coordination teams will be directed by the National Disaster Controller. The PDNA Coordination Team should comprise the National Disaster Controller and the respective team leaders of the main UN agencies, the WB, and the EU. The Government designated PDNA Team Leader (National Disaster Controller) is the head of the Coordination Team. Other members may be added at the discretion of the Government, in consultation with partners.

Responsibilities:

The PDNA Coordination Team is responsible for overseeing and managing the PDNA process and for ensuring that it is successfully achieved. The team manages the day-to-day planning, implementation, and coordination of the assessment as well as the development of the Recovery Strategy. The team is tasked with providing coherence across varied institutional and sectoral approaches. It must ensure that adequate attention is paid to inter-sectoral and cross-cutting themes.

Established at the initiation of the PDNA, this team would remain fully operational throughout the PDNA process. It is important for this team to ensure that coordination processes are transparent, participatory, impartial, and useful. The team would serve as the secretariat of the High-Level Management Team.

4.3.3. The WaSH Sector PDNA Team

The WaSH Sector PDNA team within the PDNA Coordination Team, will consist of at least the WaSH Team Leader plus National and International sector specialists representing the key WaSH sector stakeholders. Key Government stakeholders that should be included in the WaSH Sector PDNA team include:

- Ministry of Infrastructure and Meteorological Services
 - » Water Authority of Fiji
 - » Department of Water and Sewerage
- Ministry of Lands and Mineral Resources
 - » Mineral Resources Department
- Ministry of Health and Medical Services
- Ministry of Education
- Division and District representatives

The WaSH Sector PDNA team will report to the overall PDNA team Leader. The team will consist of the WaSH PDNA Team Leader (usually from the WaSH Cluster), plus National and International WaSH sector specialists and support staff. The National Sector Specialists may be drawn from the key sector stakeholder organisations in-country including UNICEF and SPC.

4.3.4. Technical Support Team

Technical support functions should include specialists in procurement, ITC, administration, finance, security, information management, logistics, and operations. The areas of expertise and the number of staff needed will depend on the context of the disaster.

Responsibilities:

The technical support function is responsible for supporting the Coordination Team on all matters pertaining to logistics and operations. The personnel provide the day-to-day logistical, administrative and other technical support needed by the sectoral/thematic teams, the Coordination Team as well as the High-Level Management Team.

Details of the specific task responsibilities of the PDNA teams are provided in the Toolkit section of the “Fiji PDNA Guidelines Volume A (2022)” document.

4.4. PDNA Team Reporting Relationships

The WaSH Sector PDNA team via the Team Leader, will operate under the coordination of the NEOC Operations Unit and Assessment Unit. Depending on the scale and location of the disaster there may be more than one PDNA team deployed for the water sector. In Fiji, most of the emergency operation management is performed at the Division and District level. The PDNA team, at the instruction of the National Disaster Controller, will be required to work closely with the Divisional Commissioner and Disaster Liaison Officer to plan and coordinate and deliver the assessment(s).

While WASH’s immediate focus is often on health and well-being, it also impacts on other quality-of-life components such as livelihoods, security and education. Almost all essential public services and their delivery are dependent, to some degree, on the good functioning of the WASH sector, making WASH one of the divisions with the most linkages to other sectors and subsectors to be evaluated. Ensure that clear and regular communication is maintained between the WaSH team and other units in the PDNA process to minimise duplication of effort and costs during the planning, assessment and reporting activities.

4.5. PDNA Orientation Training

Once the PDNA team and PDNA scope are established, the Team Leader shall arrange for orientation training session(s). The training will be delivered by a member or members of the NDMO or PDNA Team who are already trained in the PDNA methodology. The training will provide a broad understanding of the overall approach of the assessment, how the various parts are integrated, and how the assessment shall be conducted.

One joint briefing from the NDMO PDNA Coordination team will be provided to all sector teams on the assessment objectives, deliverables, duration, communication channels, and reporting requirements.

5. PDNA Data Collection

5.1. Context Analysis

The first step is to understand the WaSH context which existed before the disaster, through review of the pre-disaster baseline WaSH data set for the areas affected by the disaster. This process provides an understanding of the types and quantities of WaSH resources which may have been damaged or destroyed in the disaster area. The baseline data analysis helps to frame and inform the post-Disaster damage and loss assessment by documenting the pre-disaster context. This is achieved by comparing the pre-disaster context with the post-disaster situation to determine the damage and losses associated with the disaster.

Step 1 – Analyse the Pre-disaster WaSH Context in the Affected Areas

During disaster preparedness activities, the WaSH Sector baseline database should have been updated by the data stakeholders to provide a current reference point for the pre-disaster WaSH context (SOP Section 3.4). The WaSH Sector assessment team shall use that data base as a primary reference source in addition to data from the other sources listed in the SOP.

Where there are data gaps, the team shall initiate collection of baseline WaSH data in coordination with Divisional, Provincial and District counterparts to verify what was in place before the disaster. If baseline data cannot be confirmed from primary or secondary data sources, field visits by one or more members of the PDNA team may be necessary to gather primary data to verify the baseline and post-disaster conditions. The baseline data confirmation and analysis informs the development of the assessment strategy, helps identifying pre-disaster vulnerabilities and contributes to inform the final recovery plan incorporating Build Back Better innovations.

Who: This task would ideally be conducted by a core team of 3-5 people depending on the scale of the disaster, co-ordinated by the Team Leader.

When: Information gathering should begin even before the team is mobilised, particularly since many reports and databases may be available online or available from the NDMO. The Team Leader may need to assume this responsibility alone initially.

Resources needed: Internet access, copies of baseline information resources (see below), support staff to gather information.

Time required: Typically, 3-4 days could be spent sourcing and reviewing background material depending on what resources were consolidated prior to the disaster.

Key sources of pre-disaster baseline information are likely to include, but not be restricted to:

Table 2: WaSH Sector Baseline Data Sources

Data Custodian	Data Held	Contact
NDMO	WaSH Sector Asset Database	Director - NDMO
Department of Water and Sewerage	Location details and general descriptors of Rural WaSH infrastructure (water source descriptor, # of water tanks per location with construction material and capacity, # of water standpipes, # of toilets, # of showers). It flags the presence or absence of water treatment and the type. The data includes some schools. GIS (map) layers are available online.	Director – Department of Water and Sewerage.
Water Authority of Fiji*	Summary descriptors of some (Urban) WTP and WWTP assets.	Chief Executive Officer – via the Director, Department of Water and Sewerage.
Fiji Bureau of Statistics (FBOS)*	Summary statistics for water supply access, handwashing facilities and toilet access aggregated at Province and new Tikina level.	Chief Statistician (Household Survey Division)
UNICEF*	Detailed statistical analysis of the 2017 FBOS Census data based on JMP water and sanitation access ladder classification statistics.	Cluster Co-Lead – UNICEF,
Mineral Resources Department	MRD's data will include specifics of the groundwater bores, pumps, reticulation systems installed by MRD and associated detailed costing.	Director - Mineral Resources Department
Ministry of Health and Medical Services	WaSH data for health facilities.	WaSH Cluster Lead – Ministry of Health and Medical Services, Secretariat WASH Cluster - Ministry of Health and Medical Services
Ministry of Education, Heritage and Arts	WaSH data for schools.	Head of National Education Service Delivery

*Data also included in the NDMO baseline data set for annual update by data owners.

Other sources of information from various stakeholders include:

- Previous PDNA assessment data and reports from NDMO.
- Satellite images and maps (NDMO).
- Photographs and technical drawings of water and wastewater installations or representative examples (DWS, WAF,

- Statistical data for housing, schools, health facilities etc. from Bureau of Statistics
- Details of available spares and consumables.
- Location and capacity of water and wastewater carting services
- Contact details for stakeholders to be consulted such as local authorities, NGOs and community leaders in the impacted areas.
- Capacity assessment of local organisations to conduct or assist with the PDNA.
- Local knowledge from community members and development actors to provide context and help set assessment priorities.

Prior to undertaking a damage and loss assessment, it's also necessary to collect the following baseline information:

- Existing similar service capacities in nearby unaffected locations that may be used as alternative, temporary solutions after disasters.
- Statistical data on water supply, wastewater and solid waste demands by main consumers, including their seasonal variations over the year.
- Projections of the above for the current and subsequent calendar years.
- Financial information on the enterprises that provide services in the sector, including monthly operational data on revenues and production costs, as well as differential rates charged to consumers.

This data gathering and review will familiarise team members with the pre-disaster context and aid planning of the post-disaster assessment. The information collected should be packaged (electronically) for assessors to take into the field for reference during the site assessments.

5.2. Deployment

Field visits of the PDNA Team, along with synthesizing data collected from the local officials, are the basis of the damage and loss assessment and must be conducted comprehensively to ensure accurate estimates. Field visits by assessors alongside local personnel are an important part of the PDNA data gathering process. They provide valuable opportunity to:

- Collect and validate primary data for damage and losses;
- Engage with different sectors of the community to assess differential disaster impacts on women, the elderly, people with disabilities, and culturally or otherwise diverse minority groups such as LGBTIQ people;
- Obtain and capture indigenous knowledge of living with and responding to disasters in a given area. This knowledge can be valuable in devising recovery and prevention strategies including build back better (BBB) approaches.

A deployment and assessment schedule will be prepared by the WaSH PDNA team based on the baseline data and Situation Assessment, in consultation with the overall PDNA leader and the National Disaster Controller. The WaSH PDNA Team Leader will determine the allocation of assessment team members and resources to the affected District(s) in consultation with the operating protocols outlined above.

The deployed WaSH assessment team(s) should include:

- WaSH Infrastructure Specialist(s).
- Technical representative(s) from DWS or WAF depending on the location of the disaster.
- Public Health Specialist.

- Data managers / clerks to help with data gathering and management.
- Local Disaster Liaison Officer.
- Local community stakeholder / leader to assist with engagement and access.
- Logistics coordinator / driver to help with transport, food and accommodation arrangements for the team.
- Additional resources if required to respond to the specific location, cultural, or security context.

5.3. Assessment of Damage and Losses

This section of the SOP provides guidance information about assessing damage and loss from the PDNA Guidelines Volume B- WaSH (2013). The assessment of damage and loss may be performed by the PDNA team based on information collected by Provincial or District officers, in addition to data collected during the field visits. The estimation of damages and losses is done via gap analysis, comparing pre-disaster data with post-disaster.

The team will gauge the magnitude of infrastructure damage and losses of economic flows. The assessment data for damage and losses is to be recorded using the standard PDNA templates and should be supplemented with photographs and additional notes.

Once the damage has been assessed and recorded, an estimate of the cost of the damage and associated losses can be made. The estimation of damages and losses should be determined by repair or replacement costs expressed in pre-disaster values.

5.3.1. Damage

Damage refers to the total or partial destruction of infrastructure and physical assets. Its cost is estimated at the replacing or repairing market prices prevailing just before the disaster. Damage is valued first in physical terms (number of houses of a specific typology, km of roads or pipelines, size and types of schools or hospitals) and then in terms of their monetary value. Monetary value of the damage is the replacement cost according to market price prevailing just before or immediately after the disaster.

The Water and Sanitation sector includes separate sub-systems required for the provision and treatment of drinking water, as well as the collection, treatment and disposal of wastewater and management of solid waste. It is important to ensure that the ownership of damage and losses is separated for these sub-systems and to define them as public and/or private sector.

Major unit items that will be recorded in the assessment templates² are:

- **Partial or complete collapse of water supply facilities, urban, peri-urban or rural**, which are part of the source, collection, storage, treatment and distribution of water supply. Care must be taken to include household systems, such as rooftop rainwater harvesting tanks, backyard or communal hand dug wells or shallow boreholes, which may exist outside of the main urban supply networks. Smaller systems often occur in rural, peri-urban and informal urban periphery settlements which may not be administratively recognized by authorities and therefore unlikely registered or recorded.
- **Partial or complete collapse of sanitation facilities, urban, peri-urban or rural**, which are part of the larger piped sewage systems for the urban context or smaller distributed systems for storage and treatment of wastewater. This can also include damage or destruction of fleets of

trucks, tanks and pumps for emptying septic tanks and then transporting the waste to central management and treatment. Sewage treatment facilities, including sewage treatment plants and settling ponds, are also part of the sanitation system, which can be damaged or destroyed.

- **Partial or complete collapse of solid waste management facilities, urban, peri-urban or rural**, is often particularly essential to a post-disaster response. This can include destruction or damage to community collection facilities such as rubbish containers, central collection sites and the access to the sites, loss, damage or destruction of the collection transport network such as trucks, motorized or handcarts. Hand-carts are sometimes used in rural and village settings where there are community driven solid waste initiatives. Dumping sites may become damaged: security fences may be destroyed, waste pits may be covered by landslides, or their solid waste content mobilized by flooding.
- **Partial or complete collapse of administrative buildings, laboratories, storage sites and Operations and Maintenance (O&M) materials and supplies**, which are not only essential for the administration and management of delivery of services, but also for ensuring the necessary ongoing operation and maintenance of facilities. The secure storage and content of chemicals for treatment facilities or spare parts for repairs are essential for maintaining the delivery of services. It is important to ensure that this information is shared with the infrastructure team to avoid double counting.
- **Damage to physical assets pertaining to the administrative functions of the sector** (buildings, infrastructure and major equipment of the government agencies and NGOs, at the central and local levels). This also may be captured by the Infrastructure Team, so close collaboration with this team is required.

5.3.2. Damage Assessment

Step 2 – Local Consultation and Planning

On arrival in the affected area, the PDNA Team should meet with local counterparts to obtain the latest updates on the disaster impacts, confirm the scope of the assessment and agree any modifications required, fine-tune the logistics arrangements, communication plan and coordination of the assessment with the local disaster management team. If any locals joining the PDNA team are unfamiliar with the PDNA process, this is an appropriate time to provide basic training for them.

The damage assessment is performed in the field by the assessment team, in consultation with local agencies and the impacted communities. The team must record details of each asset that has been damaged in the disaster. Assets which are simply run-down or due to be replaced but not damaged by the disaster are not to be included in the damage and loss assessment. This can be determined in consultation with the baseline data set and using knowledge of the local team members.

The DALA PDNA Damage and Loss Assessment template is used to capture the damage and loss information. The template can:

- Capture multiple assets per line (e.g. in a village or school to capture water plus wastewater plus solid waste). This is like the baseline data structure for the rural and peri-urban assets reported by DWS in 2021.
- Capture one discrete asset and location per line where the assets are larger, more complex or separated from other nearby assets. (e.g. a water source and a water tank may be some distance apart and need to be defined separately)

Step 3 - Identify and Assess the Asset Damage

During the damage assessment, identity and location information and point of contact person for the damaged asset are captured. Asset details including public or private ownership, asset JMP classification, number of people served, asset physical condition rating and asset functional performance rating are also determined and recorded.

Complete the data entry fields in the DALA template to identify and locate the asset:

- Enter the Village, Settlement, School or location name
- Select the Location type – household, village, settlement, health facility, market etc.
- Select the location Zone – Rural, peri-urban or Urban
- Select the traditional Tikina name if known. The new Tikina name will be automatically loaded in the next column. Otherwise just type the new Tikina name in the next column.
- Enter the location coordinates into the Latitude and Longitude columns, in Decimal Degrees.
- Enter the inspection date and contact details for the asset owner.
- Enter the details for the affected population (if known).
- Complete the appropriate asset classification fields for the asset(s) depending on whether a water supply, wastewater system or solid waste management system is being assessed.

In 2020, the Pacific Region Infrastructure Facility (PRIF) released a guideline titled “Methodology for Condition Assessment of Public Sector Infrastructure Assets in Pacific Island Countries”. The document provides standardised descriptors and scales for determining asset condition rankings, considering normal deterioration or damage effects.

The PRIF physical condition ratings (Table 4) and functional performance ratings (**Error! Reference source not found.**) are useful classifications for damage assessment and routine maintenance planning purposes across asset classes. These regional asset condition categories have been incorporated into the DALA template, to provide standardisation of the assessment for disaster response as well as baseline asset assessment purposes.

First, choose the PRIF Asset Class for the Asset component being assessed (Table 3), using the dropdown list. The spreadsheet looks up the maximum Condition and Performance weightings supplied for the asset class and populates the data sheet.

Table 3: PRIF Asset Condition Weighting System

Asset Type	Physical Condition Weighting	Asset Functional Performance Weighting	Maximum Score (Sum of Weightings x 5)
Water Treatment Plant, Desalination or Pumping Station	3	6	45
Water Storage Tank or Rain Harvesting system	5	5	50
Water Distribution or Sewer Collection Pipeline	2	8	50
Water or Sewer Manhole	6	3	45
Not Specified in PRIF	5	5	50

Using the categories in Table 4, assess the assets’ physical condition(s) and select the rating into the DALA template using the in-built dropdown tool.

Next, assess the assets’ current performance rating(s) using Table 5 – i.e., how well is the asset working? (An asset may be damaged but still be working to varying degrees). Enter the rating into the template using the in-built dropdown tool.

Based on the PRIF Class of Asset selected initially and the assessment choices, the spreadsheet calculates an Asset Condition Index (%) as a percentage of the maximum score possible for that asset class. This can help to estimate the disaster repair cost and prioritise activities such as future maintenance or replacement.

Table 4: PRIF Asset Component Physical Condition Ratings

Asset Component Condition	Physical Condition Rating	Interpretation
Asset component in brand new condition, with no wear, no damage, no deformation, no defects, no deterioration, no impairment.	5	Excellent
Asset component in “like new” condition, with minor wear and no damage, no defects, no deformation, no deterioration, and no impairment.	4	Good
Asset component shows minor wear, minor deformation, minor damage, minor defects, minor deterioration, minor impairment, asset condition can be maintained through normal preventative maintenance.	3	Fair
Asset component with major deformation, degradation, deterioration, damage or defects and serious impairment in condition; however, component condition can be restored through economically efficient rehabilitation/refurbishment of degraded/faulty components.	2	Poor
Asset component with major degradation, deterioration, damage or defects and serious impairment in condition, and it is not possible to restore the component condition through economically efficient rehabilitation/refurbishment.	1	very Poor

Table 5: PRIF Asset Component Functional Performance Ratings

Asset Functional Performance Rating	Performance Score	Interpretation
Asset’s functional performance exceeds the upper limit of the desired service levels	5	Excellent
Asset’s functional performance meets the upper limit of the desired service levels	4	Good
Asset’s functional performance meets the lower limit of the desired service levels	3	Fair
Asset’s functional performance does not meet the lower limit of the service level requirements, however through refurbishment/renewal it is possible to restore the performance to acceptable levels.	2	Poor
Asset’s functional performance does not meet the lower limit of the service level requirements, and it is not possible to restore the performance to acceptable levels through renewal/refurbishment.	1	Very Poor

Step 4 - Estimate the Cost of the Damage

Once the asset condition is assessed and details entered into the DALA template, the cost of the damage to the infrastructure (repair or replacement) must be described and estimated. Write a description of the damage and the required actions into the appropriate cell.

- Select the Damaged Component from the dropdown list, or describe it in the next column if it isn't listed.
- Enter the damage or repair quantity (Qty). For items not in the Lookup Data (previous step), enter the Unit of Measure (UOM) and Unit Cost.
- Enter the % replacement cost if required to apportion costs to damage versus wear and tear. Items will have 100% here if replacement or repair is only due to the disaster event.

The DALA template will calculate the cost of the damage based on the selected type of infrastructure, the entered quantity of damaged material and the replacement material and labour costs. These costs may be automatically loaded from the Lookup Data table in the spreadsheet or entered manually by over-writing the saved formulas.

WaSH infrastructure construction can use labour-intensive methods and be restricted to locally available materials and resources. The costs of infrastructure repair or replacement will be greatly influenced by local wage rates and prices of locally available materials and equipment. The unit prices of common types of infrastructure (buildings, pumps, locally manufactured pipe and conduit) are usually available with the local government authority, particularly in the technical or engineering unit.

Unit costs for some common material and equipment items have been pre-populated in the data tab of the assessment template. Additional items can be added to the data table using the structure provided. Existing values may be edited to reflect local knowledge and cost changes over time. Where known the rates used must be the installed cost i.e. inclusive of labour.

NOTE: When material costs and other standard data in the Data Lookup sheet are changed, they will automatically update in the entry form if the lookup and Index functions are working. Otherwise select Data, Refresh All in Excel to update the entry form with the new lookup data.

Another possible source of information could be the Public Works Department. If cost information is not available for any infrastructure item, the engineer (or technical expert) in the assessment mission, in consultation with community, should be able to determine the cost by analysing the efforts and resources required in each step of the construction method or by referring to the original installation cost.

- Complete the damage quantity data and repair or replacement cost information if know. If unsure leave the field blank for completion when the data set is reviewed with the sector specialist and local contacts.

Once the cost to repair the damage or replace the asset has been assessed, an estimate of the value of associated economic losses can also be made.

5.3.3. Losses

Economic **losses** refer to changes in economic flows arising from the disaster. These changes in flows continue until the achievement of full economic recovery and reconstruction, in some cases lasting for several years. Losses are expressed in current monetary values and must include an estimation of the cost of addressing social needs arising from the damage. The economic value of losses should include:

- Effects on production of goods and services and access to goods and services.

- Effects on governance and decision-making processes.
- Increased risks and vulnerabilities.

The effects of limiting access to water supply, sanitation and hygiene services (WaSH services), including management of solid waste, can be very quickly felt among the affected population, as follows:

- Reduced ability to engage in productive livelihoods which rely on water supplies or arising through illness due to lack of clean water.
- Knock-on effects of increased costs of WaSH services reducing income for individuals and households.
- Increased water costs for commercial activities leading to increased costs for products.
- Reduced access to or delivery of essential or public services such as education or health care due to lack of water and sanitation services to these public services facilities.

The estimation of loss from damage to an asset (such as a water tank) or infrastructure (such as buried pipes) relies on participatory consultation with the affected communities and individuals. The change in economic flows (loss or gain) must be carefully considered as a cause-effect relationship. For example, a damaged water intake or pipeline may result in income loss for farmers due to current and future crop failure and inability to market produce. The farmers may have to buy water for drinking and/or irrigation from an alternative source.

Economic losses arise from the disruption of basic service delivery (e.g. water supply stops) as well as decline in the quality of service delivery (e.g. there is good water flow but the water is dirty so its undrinkable). Economic gain (negative loss) can arise through creation of new or additional opportunity during the disaster response such as an increased need for water carting services.

Assessment of loss (or gain) should consider:

- Disruption of production of goods and services as well as declined quality of basic service delivery.
- **Constraints** faced by households and communities to access services and goods.
- **Decline of revenues** and/or income and disruption to production of goods.
- **Additional costs** to access basic goods and services.
- Can occur for a relatively long period until restoration of services/production of goods and access are restored and livelihoods are stabilised.
- Effects on governance and decision-making processes. Disruption in community's governance processes.
- **Additional functions** and **capacities** of the national and local government to respond to emergencies and lead recovery process
- **Costs are estimated** as the increased costs for coordination, provision of temporary facilities and staff, resources to restore government capacities and service delivery over time.
- Increased risks and vulnerabilities.
- The **economic value** is estimated on the increased expenditure for managing new risks arising from the disaster. This can include items such as increased chemical usage to treat contaminated water.
- Increased instability of slopes. Increased structural vulnerability of structures such as water storage tanks and toilets or septic systems.
- Increased socio-political, conflict and security risks due to reduced WaSH access.
- Costs to manage increased risks of the transmission of diseases (cholera, malaria) vector control and medical care

5.3.4. Loss Assessment

Step 5 - Estimate the Value of Losses

Losses can only be accurately valued through discussion with the affected parties. Depending on the resources available to the PDNA team, it may only be possible to assess losses for selected examples of different types of impact, then scale up the loss estimates. Examples of where WaSH related losses can occur include but are not limited to:

- Subsistence or market gardens where crops have been damaged or destroyed.
- Small business where loss of WaSH services has reduced business output, or possibly has created an opportunity for gain (negative loss)
- Impacts through disruption to Government Services
- Increased costs to access WaSH services and supplies either as costs or goods and/or transport costs.

NOTE: During the assessment process, it is important to note that changes in the flow of income because of changes in production patterns arising in water-consuming sectors (such as agriculture, industry, and trade and tourism) will be estimated and accounted for under each of those sectors. This is done as production losses and/or as higher production costs when alternative, higher-cost sources of water are necessary as interim solutions.

A guidance survey to assess losses has been prepared and should be used as a guide for the loss discussion with affected stakeholders. **Losses are always valued at current market prices during the assessment.** Once the loss estimate survey is completed the estimated loss should be transferred to the DALA template entry line for the associated damaged or destroyed asset or location.

- To ascertain losses, it is essential that the assessment specialists **develop an objective calendar of repair and replacement** of the affected assets.
- They should take into consideration the **availability and delivery schedule** of adequate financing, replacement materials, equipment and machinery that will enable re-establishment of pre-disaster service levels.

Based on the above, the assessment specialists develop a preliminary calendar or schedule for recovery of capacity and access to water and sanitation service.

When the demand for services has been considerably affected (for instance when destruction of housing and industries is widespread in an urban area), projections of the recovery for demand of water supply and sanitation services must be made as well and superimposed on the calendar of supply recovery. Losses are then estimated by comparing the pre-disaster to the post-disaster performance of each sub-system.

Each of the following issues must be analysed:

- Higher operational costs (due to use of alternative sources or means of supply and disposal, the temporary operation of damaged system components, or the temporary, more-intensive operation of undamaged system components)
- Lower operational revenues for sector enterprises until services are brought back to normal levels (as a result of the temporary total suspension of operations, partial supply of services while assets are under repair, and temporary decrease of demand from consumers).

In practice it is quite possible that the water and sanitation systems are repaired and reconstructed before the demand for their services recovers to pre-disaster levels. In the case of major disasters where entire cities are destroyed, the demand for water and sanitation services will not recover to

pre-disaster levels until housing and industry have been fully reconstructed. As a result, revenues for the service enterprises will not recover until that time. The water and sanitation sector assessment specialist must therefore consult with the housing and industry sector specialists to ensure that estimated losses in the sector cover the entire period of reconstruction for the housing and industry sectors.

- **Losses should be estimated on a calendar year basis**, including losses in the year of the disaster and in the subsequent years of recovery and reconstruction.
- **The ownership of damage and losses is separated into public and private sector.**

During the loss assessment, production losses arising in water consuming sectors (such as agriculture, industry, and trade and tourism) need to be estimated and accounted for under each of those sectors. This is measured either as production losses and/or as higher production costs when alternative, higher-cost sources of water are necessary as interim solutions.

- All loss related data should be compiled in the data collection template along with any queries and notes to assist later analysis and reporting.

6. Data Consolidation and Analysis

6.1. Data Consistency Review

Step 6 – Check the Field Data for Gaps and Consistency

During the fieldwork, the collected data should be backed-up and reviewed daily to check for consistency of survey approach between assessors, missing data and any issues or queries arising. Once the fieldwork is complete the PDNA team should begin with data consolidation and analysis process. There may be lagging some assessment data, such as estimates from loss surveys, that needs to be updated in the DALA templates. This should be performed at the earliest possible time, and preferably while in the field so the overall cost estimate is kept up to date. Once all data is available, the summary data from separate working copies of the DALA template (i.e. different assessment teams) should be consolidated into a single summary sheet.

6.2. Data Consolidation and Synthesis

Once data from various WaSH PDNA teams is prepared, it must be consolidated and analysed to develop the WaSH sector assessment outputs. It may be necessary to do this once teams have returned to the Emergency Operations Centre where they are based.

Step 7 – Consolidate and Analyse the Data

The following tasks should be performed:

- i. Data analysis at the sector level:
 - » The consolidation, processing and analysis of data on damage and losses collected is performed by each Sector Team.
 - » Once the damage and losses are compiled, identify sector recovery needs and priorities and timelines for synthesis into the sector report (see below).
- ii. Inter-sector data analysis:
 - » Cross-check findings across sectors. Do a multi-sector analysis with other sector teams to achieve a common understanding of the disaster.
 - » Identify common priorities across geographic areas, vulnerable groups, cross-cutting issues and themes, and establish a common basis for recovery planning.
- iii. Consultation:
 - » Consultative process of engagement with local stakeholders in affected areas to agree on priority needs and recovery strategies.
 - » Cross-checking needs/recovery strategies across sectors and geographical areas.
- iv. Impact analysis at the macro level
 - » (Projection of the impact on the economy and on human development.)

6.3. Human Development Impact Analysis

In addition to the significant effects that disaster events have on the economy, disasters severely impact people's well-being. Disaster events can deprive households of their basic living conditions and standard of living, destroy their livelihoods and income base, erode their productive assets, reduce their access to basic services, such as health and education, and compromise their food security. As a result, poverty may become entrenched, inequality may increase and human development progress may be undone or at risk. When disasters occur, poor households suffer disproportionately. While the total share of economic losses

sustained by poor households may be relatively low, the impact upon these households is usually very high. This is because poor people often live in hazard-prone regions, are exposed to hazards more often, are more vulnerable and lose a bigger proportion of their wealth and assets in the disaster. They also have a lower capacity to cope in the aftermath and receive less support from safety nets and social protection mechanisms.

The overall goal of a human development impact assessment is to evaluate the impact of disasters on people, their living conditions, health, access to education, livelihoods, food security, social status, as well as on overall levels of poverty and human development. More specifically, the objectives of a human impact assessment are to:

- understand the human dimension of the disaster's impact
- inform the recovery strategy, especially to mitigate the impact on humans
- guide priority recovery actions and identify population groups, for example, to prioritize and target households and areas with the highest human impact or incidence of poverty
- inform the adjustment of national development plans, poverty reduction strategies and social protection programmes
- analyse how the impact on humans may compromise the achievement of national SDG targets and policy considerations.

Step 8 – Assess Human Development Impacts

The Human Development Impact Analysis in the WaSH Sector should be undertaken collectively with the overall PDNA team. The human impact assessment must answer the following key questions:

- What are the main demographic characteristics of the areas and populations affected – for example, the main population groups in terms of income/wealth, livelihood groups, ethnicity, social class, gender, religion, disability, age?
- What are the main social networks and support mechanisms?
- How is the disaster affecting different population groups; who is most affected and why; and which groups are particularly vulnerable or at risk?
- How did the disaster (including damage and losses) affect people, their households, living conditions, health, access to education, livelihoods, food security and social equality?
- How are households coping with the disaster and its impact?
- What are the capacities and resources that people and communities can contribute to recovery?
- What are the priorities for people's recovery?
- What are the overall potential future consequences, for example, in relation to poverty?
- What are the key recommendations for the recovery process to minimize the human impact?

6.4. Macro-Economic Analysis

As part of the assessment, the impact of damage and losses on the macro-economic performance needs to be estimated. Estimates are also made of the well-being of persons and households in the absence of post-disaster interventions. The macro-economic impact analysis concerns the possible impact on GDP and the impact on the balance of trade and payments on the fiscal budget, especially when the sector enterprises are government-owned, or receive government subsidies.

Step 9 – Assess Macro-Economic Impacts

1. Assess estimates of the value of assets that will require import from abroad when no domestic production is available. Imports may include equipment, machinery, parts, and materials.
2. Estimate losses on the government budget in terms of increased operational costs and lower revenues. If the government directly owns the sector enterprises, losses will be sustained in the fiscal budget.
3. When the operation of a private sector enterprise is government subsidised, the assessment specialist should ascertain whether the subsidies should continue uninterrupted and at the same level during the rehabilitation and reconstruction stage. Changes to the subsidy level (+/-) should be included in the estimation of impacts.
4. A second round of macro-economic impact(GDP, Trade & Balance of Payments) analysis is made to ascertain the positive effects of recovery and reconstruction activities once the needs have been estimated. This analysis includes estimations for alternative funding scenarios to meet the projected needs. The WaSH sector team needs to supply the analysis information to the specialist making the overall macro-economic impact analysis.
5. To determine the impact on the well-being of the affected population, the decline in personal or household income and the possibly higher expenditures are estimated once the production losses are assessed. This information should also be provided to the assessment team in charge of the household impact analysis.

7. Formulate the Recovery Strategy

The assessment produces a report of the damages, losses and needs that is then summarized into a Recovery Strategy. The Strategy identifies recovery priorities, a cost structure, stakeholders, and suggests a timeframe for recovery. It defines the vision for recovery, identifies priority interventions as well as results and costs for recovery within a given time frame. It provides the critical link between assessment results and a comprehensive Disaster Recovery Framework. The Recovery Strategy forms part of the PDNA and constitutes its main goal. The development of the Recovery Strategy is facilitated by the PDNA Coordination Team with oversight from the High-Level Management Team.

The Recovery Strategy answers the following questions:

1. What are the priority recovery needs of the affected population?
2. What measures and capacities are required to revitalize people’s abilities to restore their full potential to lead productive, creative lives in accordance with their needs and interests, including protection against risk?
3. What recovery interventions will address these requirements, and what are their broad resource requirements?
4. Given the above, what are the broad intended results and the necessary staging/timing to address them?

The elements of the Recovery Strategy are summarised in Figure 4 and a sample template for the PDNA report and Recovery Strategy is included in the PDNA Guidelines Volume A World Bank (2013a).

MAIN ELEMENTS	DESCRIPTION				
RECOVERY NEEDS	Outline of recovery needs for each of the components of disaster effect and disaster impact				
	1/For reconstruction of physical assets Build Back Better (BBB)	2/To restore service delivery and access to goods & services Build Back Better (BBB)	3/To restore governance and decision making processes Build Back Better (BBB)	4/To reduce risks and vulnerabilities Build Back Better (BBB)	
VISION & GUIDING PRINCIPLES	Overall vision for recovery and agreed guiding principles				
INTENDED SECTORAL RESULTS	Outline of aggregated sector results specifically				
	1/Priority Needs and Intervention	2/Recovery Costs	3/Expected Outputs	4/Intended Outcomes	
IMPLEMENTATION ARRANGEMENTS	Broad sectoral implementation strategy in terms of				
	1/Partnerships coordination and management	2/Cross-cutting themes	3/Links to development	4/Resource mobilization	4/Key assumptions and constraints

Figure 4: Elements of the Recovery Strategy - World Bank (2013a)

The steps to developing the Recovery Strategy are as follows:

1. Perform Stakeholder Consultation with national and regional governments, affected communities, civil society agencies and private sector partners to draft the Recovery Strategy and validate the priorities and needs of the recovery and reconstruction roadmap.

2. Define the vision for recovery and the strategy for recovery actions within the sector and affected region.
3. Define the Intended Sectoral Results - Priority Needs and Interventions, Recovery Costs, Expected Outputs, and Intended Outcomes.

7.1. Stakeholder Consultation

Consultation is required throughout the PDNA process and is especially important at the time of developing the Recovery Strategy. Consultation at this stage of the PDNA process may be conducted as part of the overall Recovery Strategy consultation process rather than separately, as determined by the overall PDNA Leader.

Key stakeholders in the government, international agencies, NGOs and local communities affected by the disaster must be consulted at the stage when recovery needs are being prioritized. Their familiarity with local conditions and people's needs and capacities could provide useful insights that would not be available elsewhere. In addition, those with previous experience in overall disaster recovery can also contribute significantly by sharing instances of what good practices in earlier processes of recovery.

- The implementation of interventions to address recovery needs requires financial, material and human resources. Hence it is important to include existing and potential donors in the determination of recovery priorities.
- Gender and other relevant issues such as existing and underlying conflict must be taken into consideration to ensure that consultations with affected communities are inclusive and able to voice the needs and priorities of women and men as well as the vulnerable and the excluded.

Step 10 – Plan Stakeholder Consultation for Recovery Strategy

Active support and participation from all relevant stakeholders is critical for the successful implementation of the recovery plan.

- i. Develop a plan to consult with stakeholders through
 - a. Individual interviews,
 - b. Small group discussions,
 - c. Joint seminars with civil society representatives (communities, women's associations, private sector organizations, etc.), or
 - d. National workshops.
- ii. Hold a workshop with all PDNA team members to discuss and agree the prioritisation criteria, cost/benefit decision processes etc to be used for developing the Recovery Strategy.

The notes below provide additional guidance for the formulation of the Recovery Strategy elements.

7.2. The Post Disaster Vision

Prior to prioritizing recovery needs, it is necessary to have consensus on what the impacted region and sectors will look like after the recovery process. The post disaster recovery vision is developed jointly during the consultative process, which ensures the support of key stakeholders for the Recovery Strategy. It provides the overall direction and "end state" that the stakeholders desire to achieve through the recovery process.

- The vision statement should be clear and should broadly capture the aspirations of Fiji and the affected population including the change they expect because of the recovery interventions. Ultimately, the recovery vision should be a guide for the return path to development.

The recovery vision statement should be anchored in Fiji’s 5-Year and 20-Year National Development Plan (Ministry of Economy, 2017) and poverty-reduction strategy. It should be guided by global sustainable development goals and international human rights commitments. It should also be in tune with the goals of risk reduction and building back better.

7.3. The Guiding Principles

Guiding principles for recovery are established to enhance the effectiveness of recovery, increase transparency and accountability of the various actors, and promote coordination among stakeholders. The principles inform the overall Recovery Strategy and are applied during planning and implementation of the recovery interventions. The principles should be agreed upon prior to the conduct of the PDNA so that they are applied in the Recovery Strategy and programmatic response.

Examples of guiding principles for recovery include the following:

- Focus on the most vulnerable and most affected.
- Restore capacities and capabilities.
- Rebuild people’s livelihoods.
- Support spontaneous recovery processes.
- Support local networks and volunteerism.
- Ensure equity and accessibility and promote gender equality in decision making, service delivery and recovery.
- Be inclusive, conflict-sensitive and participatory, and consult equally with women and men of all ages in order to understand and take into account their distinct experiences of the disaster, as well as their specific needs and priorities for reconstruction and recovery.
- Secure development gains.
- Reduce disaster risk.
- Engage the civil society and private sector.
- Encourage self-sufficiency.
- Be transparent and accountable.
- Implement using subsidiarity and decentralization.
- Ensure strong coordination.
- Establish partnerships aimed at gains in efficiency and effectiveness.

Step 11 – Document the Recovery Vision and Guiding Principles

1. During the stakeholder consultation process, or in the consultation summary stage, determine the overall vision for the Recovery Strategy.
2. Record and re-confirm the Guiding Principles for the Post-Disaster Recovery

7.4. Defining The Intended Sector Results – The Recovery Plan

The WaSH Sector Recovery Plan within the overall Recovery Strategy should address the following Questions:

- a) What are the priority recovery needs of the affected population?
- b) What measures and capacities are required to revitalise people’s abilities to achieve their full potential to lead productive, creative lives in accordance with their needs and interests, including protection against risk?

- c) What recovery interventions will address these requirements, and what are their broad resource requirements?
- d) Given the above, what are the broad intended results and the necessary staging/timing to address them?

Illustrative examples of priority needs, interventions, outputs, costs, and outcomes are provided on Page 40 of the PDNA Guidelines Volume A.

Figure 5 below expands on the content of the Sectoral Recovery Plan.

Recovery Needs	Vision & Guiding Principles	Recovery Plan	Implementation Arrangements
Outline of recovery needs based on results of the PDNA → For reconstruction of physical assets and compensation of economic loss; → To restore service delivery and access to goods & service; → To restore governance and social processes; → To reduce risks and build back better.	The agreed vision aligned with National development goals and guiding principles for the overall recovery process	Outline of results-based recovery plan: → Priority needs; → Intervention required; → Expected outputs; → Recovery Costs; → Intended outcomes	Outline of the arrangements for successful implementation of the Recovery Roadmap; → Partnerships, coordination and management; → Cross-cutting themes; → Links to development; → Resource mobilization; → Key assumption and constraints

Figure 5: Sector Results For The Recovery Strategy - World Bank (2013a)

7.5. Recovery Needs and Priority

Q: What are the priority recovery needs of the affected population?

Step 12 – Determine the Recovery Needs

To determine the recovery needs, the quantitative data for the costs of effects and impacts (damage and loss) needs to be analysed.

- i. Analyse and present the assessment data (costs) by sector (sub-sector) and geographic area. This allows for comparison between sectors and locations for to allow the greatest needs to be objectively prioritised. The data should be presented tables and charts in:
 - Aggregate at the national level; and
 - A disaggregated manner by the Division, Province, Tikina and community or municipality affected.

Only with this level of disaggregation is it possible to obtain a comprehensive view of the disaster impacts and effects for a given geographic area and plan a multi-sector recovery response. It also facilitates comparative analysis between geographic areas.

Priority setting should always reflect the unique conditions and needs of the local context and be based on prioritisation criteria specific to Fiji. Below are some key considerations to help facilitate prioritisation:

- The most urgent needs expressed by the affected population.
- Population sub-groups in vulnerable situations or those who are at particular risk.
- Sequencing of needs, from the short-term to the medium and long term.
- Restoring to pre-disaster levels, followed by improvements.
- Actions that can yield early results effectively (within 18 months).
- Comparative advantages.
- Opportunities for greater impact.
- Institutional and technical capacity.
- Geographic areas with urgent needs.
- Current or near future milestones (e.g. elections).
- Addressing key obstacles associated with sectors.
- Recovery initiatives that contribute to peace where relevant.

7.6. Determine the Required Interventions

To address the identified recovery needs, multiple interventions will be required. These will include priority interventions aimed at restoring drainage, water services and solid waste disposal to mitigate the health hazards in the affected community. Planning for any post-disaster intervention should include a systematic consideration of the cultural environment in which such interventions are to take place. Religion, gender, ethnicity and socio-economic status are just a few considerations to keep in mind when planning interventions.

Step 13 – Decide on the necessary interventions

- ii. Prepare a list of the proposed interventions and how they will be delivered. They must be clearly linked to the recovery needs and have desired outputs and outcomes (see below). Be sure to include cultural, social and gender considerations and consultation in your intervention planning.

7.7. Recovery Costs

The recovery costs are derived from the sectoral and sub-sectoral analysis results and interventions planned above. (See PDNA Guidelines Volume A for more detail).

Step 14 – Calculate the Recovery Costs

When calculating the Recovery Costs be sure to include:

- i. **The cost of reconstruction of infrastructure and physical assets.** This is calculated as Value of Damage + Cost of (Quality improvement (BBB) + Technological modernization + Relocation, when needed + Disaster risk reduction features + Multi-annual inflation).
- ii. **The costs for resumption of services** are calculated as:
 - a. The additional costs to service providers to restore basic services.
 - b. The additional costs to consumers due to alternate sourcing of services
 - c. Costs to provide Build Back Better (BBB) and equitable and affordable services to vulnerable groups and affected population to access services.

- iii. **The costs for restoration of governance and social processes** are calculated as:
 - a. Costs for additional human resources with improved technical skills and of capacities of service providers to undertake the recovery.
 - b. Costs for replacing lost records and upgrading documents of the various public services.
 - c. Costs for addressing governance and social cohesion issues if disrupted.
- iv. **The cost of risk integrating risk reduction measures** in addition to BBB approaches in reconstruction.
 - a. To address immediate risks.
 - b. Initiatives to reduce risks and vulnerabilities to future disasters such as safer
 - c. infrastructure with considerations of spatial/territorial or land-use planning, hazard and risk maps, technical expertise, technologies and practices which build resilience.
 - d. Preparedness capacities of the various sectors to manage the impact of future disasters
 - e. Provide equitable and affordable services to vulnerable groups.
 - f. Initiatives to promote resilience of individuals and communities.
- v. **The additional costs to Build Back Better (BBB) for reducing risks and increasing preparedness** is calculated as follows:
 - a. Costs for addressing immediate risks
 - b. Costs for upgrading preparedness measures in each sector.
 - c. Costs for further studies or assessments, technologies and practices, technical expertise, etc. required to facilitate implementation of building back better approaches.
 - d. Cost for specific measures to strengthen disaster risk reduction.

7.8. Expected Outputs

The expected outputs from the interventions link the Needs and the Expected outcomes.

Step 15 – Decide on the Expected Outputs from Recovery

- i. Document the expected output(s) and timeframes for each of the planned interventions.

7.9. Intended Outcomes

The intended outcomes are the ultimate objective of the Recovery Strategy. They should embody the Vision & Guiding Principles, the Needs and Priorities and link to the outputs from the interventions.

Step 16 – Determine the Intended Outcomes

- ii. Document the intended Outcomes(s) for each of the planned interventions.

8. Sector Implementation Arrangements

Once the consultations and the overall Recovery Strategy are completed, organise a meeting or workshop with government authorities, UN agencies, donors, IFIs, NGOs, civil society, and other key stakeholders to validate the strategy. Use that meeting or workshop to present the Recovery Strategy and receive feedback and validation, as well as to safeguard the ownership of the Recovery Strategy and results.

The Recovery Strategy includes a description of the implementation arrangements, particularly in terms of the following key elements:

1. Partnerships, coordination, and management.
2. Cross-cutting themes
3. Links to development.
4. Resource mobilization.
5. Key assumptions and constraints.

Step 17 – Document the Implementation Arrangements

- i. Following the Recovery Strategy meeting with donors and partners mentioned above, document the proposed Implementation Arrangements based on at least the 5 headings listed above.

9. PDNA Report Writing and Presentation

The PDNA report is now compiled using the information prepared during the consultation, assessment and analysis process discussed above.

Step 18 – Prepare the PDNA Report & Present Findings

1. Draft the Sector PDNA report, based on the template provided in Volume A of the PDNA Guidelines.
2. Submit it to the central writing team which prepares and finalises the overall PDNA Report. The team moderates and edits the sector reports, producing a summary version capturing the most important aspects of the assessment. Government representative(s) should be included on the report writing team.
3. Prepare a presentation of the PDNA for delivery to the Government. The presentation would include a summary of damages, losses and recovery needs in all sectors. It would also convey the financial resources and technical skills required for implementing recovery. All government ministries/ departments as well as sector teams should attend the presentation, providing any clarification sought by government representatives.
4. Once the draft PDNA Report is submitted, it is for the Government to circulate the report to various ministries/departments for their comments. The review needs to be conducted and comments returned in a time-bound manner.
5. Incorporate comments from the Government to finalise the PDNA Report section then re-issue it.

Once approved, the PDNA Report becomes an official report, which forms the basis for recovery planning and implementation. The Government may subsequently request further support from the tripartite partners to formulate the Recovery Framework which constitutes a detailed, sector-wise implementation plan.

Appendix

Damage Assessment Template and Test Data: Damage Part 2

Joins Left	PRIF Asset Condition Assessment										Joins Right			
Asset Classification		Select PDNA Classification Grouping	Select The Class of the Damaged Asset	SELECT PRIF Water or WW class of asset component	Asset Condition Weighting	Asset Performance Weighting	Max Score	SELECT Asset Component Condition	Physical Condition Rating	Interpretation	SELECT Asset Functional Performance Rating	Performance Score	Condition Interpretation	Calculated Asset Condition Index (%)
Is the Asset Public (shared) or Private	Private	Water_Source_ or_ Treatment	Rainwater_ Harvesting_ and_ Storage	Water Storage Tank or Rain Harvesting system	5	5	50	Asset component with major degradation, deterioration, damage or defects and serious impairment in condition, and it is not possible to restore the component condition through economically efficient rehabilitation/refurbishment.	1	Very Poor	Asset's functional performance does not meet the lower limit of the service level requirements, and it is not possible to restore the performance to acceptable levels through renewal/refurbishment.	1	Very Poor	20%
Private	Private	Water_Source_ or_ Treatment	Water_ Treatment	Water Storage Tank or Rain Harvesting system	5	5	50	Asset component in "like new" condition, with minor wear and no damage, no defects, no deformation, no deterioration, and no impairment.	4	Good	Asset's functional performance meets the lower limit of the desired service levels	3	Fair	70%
Private	Private	Water_Source_ or_ Treatment	Water_ Storage_ Tank	Water Storage Tank or Rain Harvesting system	5	5	50	Asset component with major deterioration, damage or defects and serious impairment in condition however component condition can be restored through economically efficient rehabilitation or refurbishment of degraded or faulty component.	2	Poor	Asset's functional performance meets the lower limit of the desired service levels	3	Fair	50%
Private	Private	Water_Source_ or_ Treatment	Groundwater_ Bore_ and_ Pump	Water Treatment Plant, Desalination or Pumping Station	3	6	45	Asset component with major degradation, deterioration, damage or defects and serious impairment in condition, and it is not possible to restore the component condition through economically efficient rehabilitation/refurbishment.	1	Very Poor	Asset's functional performance does not meet the lower limit of the service level requirements, however through refurbishment/renewal it is possible to restore the performance to acceptable levels.	2	Poor	33%
Public	Public	Water_Source_ or_ Treatment	Water_ Treatment	Water Treatment Plant, Desalination or Pumping Station	3	6	45	Asset component in "like new" condition, with minor wear and no damage, no defects, no deformation, no deterioration, and no impairment.	4	Good	Asset's functional performance meets the upper limit of the desired service levels	4	Good	80%

Damage Assessment Template and Test Data: Damage Part 3

Joins Left													Total Damage Cost Estimate	Joins right to loss summary
Select The Damaged Component2	Describe Component or System if not listed (Other Assets)	Write the description of damage and repairs required	Asset Qty	UOM	Unit Cost	Estimated Full Replacement Cost of Item	Disaster Related Cost %	Estimated PDNA Damage Repair / Replace Cost	Lead Time					
Disaster Damage Repair / Replace Cost Summary														
Trash screen 50mm 1.2mSQ		Water drums destroyed or contaminated. Must be replaced	2	ea	FJD 1.00	FJD 2	50%	FJD 1	20 months				FJD 282,376	
EPS AUTO Control		Tanks crushed or knocked from stand and split by fallen tree	3	ea	FJD 42,000.00	FJD 126,000	100%	FJD 126,000	4 Months					
Tank HDPE 10,000L		Tanks burst	20	ea	FJD 3,500.00	FJD 70,000	100%	FJD 70,000	3 Months					
Bore Pump Grundfos SQ/ SQE SS 0.75KW		Pump destroyed by gravel washed into bore	1	ea	FJD 2,375.00	FJD 2,375	100%	FJD 2,375	7 months					
EPS AUTO Control		Tanks and pipes smashed by tree	2	ea	FJD 42,000.00	FJD 84,000	100%	FJD 84,000	4 Months					

Damage Assessment Template and example data: Loss Summary on Damages Sheet

Joins Left		End of Template
1 Year Total Losses Summary from Loss Assessment Template		
		FJD 3,523,560
Annualised Losses	Fixed Losses	Fixed Losses
FJD 128,400	FJD 6,150	FJD 134,550
FJD 9,240	FJD -	FJD 9,240
FJD 4,200	FJD 50	FJD 4,250
FJD 3,600	FJD -	FJD 3,600
FJD 2,400	FJD 500	FJD 2,900

Loss Assessment Template and example data: Loss Part 1

PDNA Loss Survey		Joins Right									
Note - not all columns required - can be limited entry if desired											
Village / Settlement / Town / Facility Name	Location Type	Location Zone	Old Tikina	New Tikina	GPS Latitude (WGS1984 Decimal Degrees) -DD. dddddd	GPS Longitude (WGS1984 Decimal Degrees East/West) +/-DDD. dddddd	Date of Interview	Contact person Name	Contact Person Phone	1. Has your access to WaSH Services been affected by the disaster (Water, Wastewater, Solid Waste)?	Q1 Comment
Abaca	Household	Rural	Magodro	Magodro	N/A	N/A	19/12/2017				
Bukuya	Village	Rural	Malomalo	Malomalo	-17.772861	177.756489	17/02/2020			No	
Buyabuya	Village	Rural	Vaturu	Nawaka	N/A	N/A	28/02/2018			Yes	
Gunu	Village	Rural	Baravi	Baravi	-17.087107	177.2440733	7/04/2021			Yes	
Kese	Village	Rural	Rara	Lomaivuna	-17.129992	177.2411267	6/04/2021			Yes	

Loss Assessment Template and example data: Loss Part 2

Joins Left		Joins Right											
2. If yes, how have you been affected? [multiple response]													
Type X in the columns or use the dropdown	Damage to WASH structure (eg water intake)	Damage to equipment/machinery (eg tanks, pump etc)	Damage to produce / goods	Shortage/lack of electricity	Shortage/lack of clean water	Shortage / lack of access to cleaning services	Shortage/WaSH products (soap, hygiene kits etc)	Insect / vector issues	Poor drainage / flooding	Other (specify)	3. Did your income stop at all due to the disaster?	How much in come did you lose per month? (FJD)	4. Do you have an income now?
	X				X	X					Yes	FJD 500	Yes
											Yes	FJD 750	Yes
		X									No		Yes
			X	X	X						Yes	FJD 300	Yes
			X	X	X						Yes	FJD 150	Yes

Appendix B – Template for Estimated in-country Costs to Conduct the PDNA

Sample template adapted from PDNA Guidelines Volume A

Template also provided in spreadsheet form

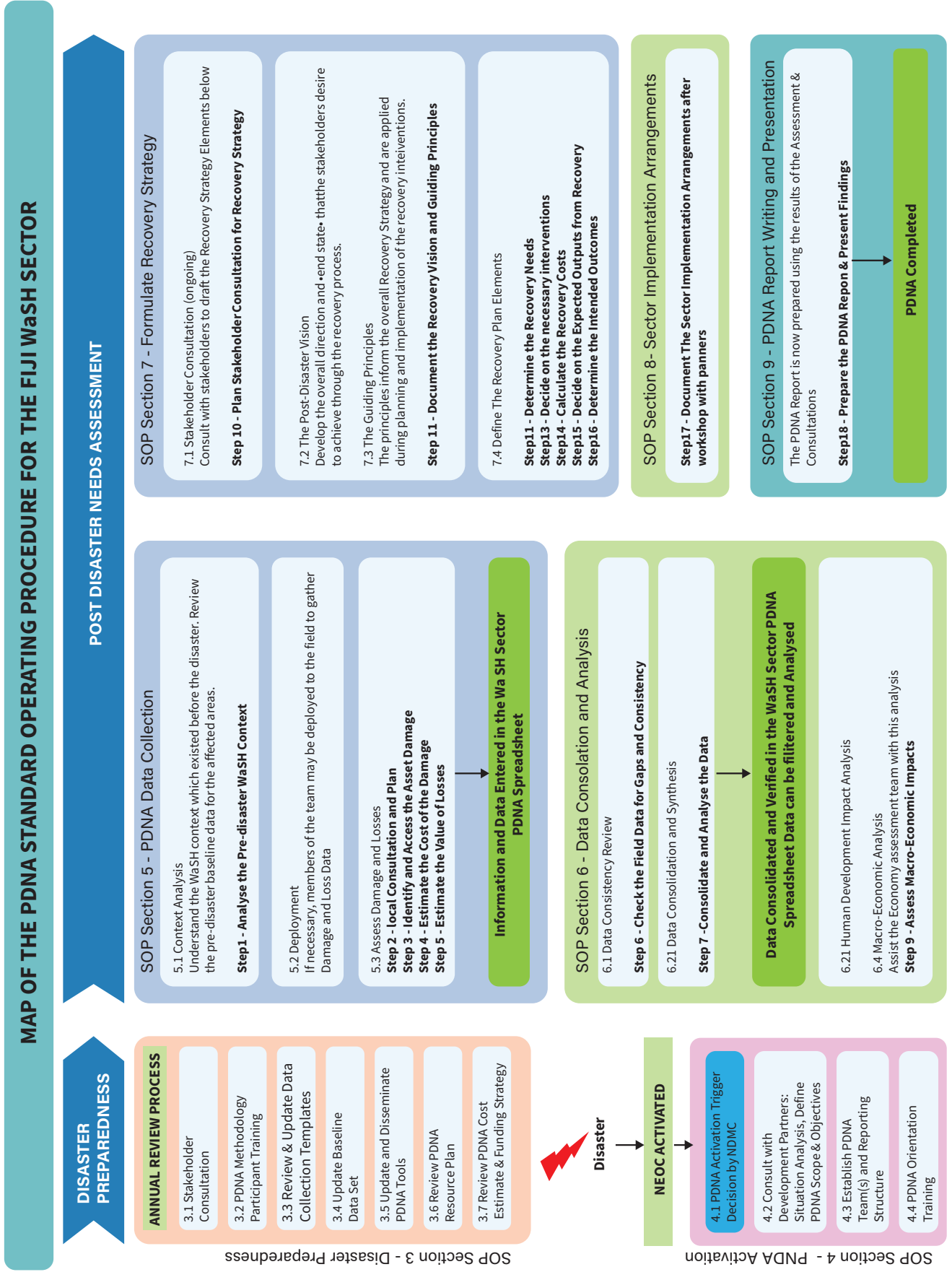
PDNA Cost Estimate Template – General* *Insert or delete lines as necessary

Adapted From PDNA Guidelines Volume A

Defined Event: _____						
Agency Name: _____						
Approving Officer Name and Signature: _____						
Date: _____						
Budget Item	Unit of Measure	Rate (FJD)	Qty	Estimated Total (FJD)	Contribution from International Agencies (FJD)	Contribution from GoFiji (FJD)
Staff (In Country)						
Sector Specialists (Fees)						
For all sectors						
Cross-cutting sectors						
Technical Support						
Information and communications technology (ICT)						
Information Management						
GIS / Mapping specialists						
Logisticians						
Interpretation / translation						
Report Secretariat						
Writer						
Editor						
Coordination Team						
PDNA Manager						
PDNA Specialist						

Staff – Agency HQ’s						
PDNA Coordination						
Technical experts						
Other Staff time allocation (including field visits)						
Logistics						
Transport and travel arrangements (air, land, sea)						
Office infrastructure						
Office supplies and computer equipment						
IT and telecommunications equipment (Phones, PC tablets for data collection, Handheld GPS, internet access etc.)						
Information management – software, data, maps,						
Special logistics access (eg to facilitate humanitarian access)						
Staff travel (in-country and from HQ)						
Accommodation and living arrangements for PDNA team						
Support services to Humanitarian Coordinator, High Level Management Team						
Coordination and Capacity Building						
Training of PDNA team (Venue, facilitators, training materials)						
Coordination workshops and meetings						
Donor conference / briefings (Venue, facilitators, materials)						
Office management and administration						
Printing						
Utilities (electricity, water etc)						
Admin support						
Sundries and contingency funds						
Estimated Total					FJD 0	

Appendix C – PDNA SOP Process Map



References

- Government of Fiji. (1995). *Fiji National Disaster Management Plan*. https://www.ndmo.gov.fj/images/Legislature/NDMO_PLAN.pdf
- Government of Fiji. (1998). *Natural Disaster Management Act*. Suva, Fiji: Government of Fiji Retrieved from https://www.ndmo.gov.fj/images/Legislature/NDMO_ACT.pdf
- Government of Fiji. (2012). *Fiji's National Emergency Operations Centre Standard Operating Procedures 2010*. Suva, Fiji Retrieved from <https://www.humanitarianresponse.info/en/operations/fiji/document/fijis-national-emergency-operations-centre-sop-2010>
- Government of Fiji. (2018). *The Republic of Fiji National Disaster Risk Reduction Policy 2018-2030*. Suva: Ministry of Disaster Management and Meteorological Services, Retrieved from <https://www.preventionweb.net/publication/fiji-national-disaster-risk-reduction-policy-2018-2030>
- Ministry of Economy. (2017). *5-Year and 20-Year National Development Plan*. <https://www.fiji.gov.fj/About-Fiji/National-Development-Plan>
- The International Bank for Reconstruction and Development/The World Bank. (2010). *Volume 2: Conducting damage and loss assessments after disasters* (Damage, loss and needs assessment guidance notes, Issue 80886 V2). <https://recovery.preventionweb.net/publication/damage-loss-and-needs-assessment-guidance-notes-volume-2-conducting-damage-and-loss>
- World Bank, U. N. D. G., European Commission,. (2013a). *Post Disaster Needs Assessments Guidelines, Volume A*. <https://www.recoveryplatform.org/pdna>
- World Bank, U. N. D. G., European Commission,. (2013b). *Post Disaster Needs Assessments Guidelines, Volume B, Water and Sanitation* (Infrastructure Sector, Issue Final). <https://www.recoveryplatform.org/pdna>

