

Disaster Recovery Planning in Irrigation Sector

STANDARD OPERATING PROCEDURES

MARCH 2023



Acknowledgment

This publication was produced as part of the Building Disaster-Resilient Infrastructure through Enhanced Knowledge initiative of the Asian Development Bank (ADB). The project received grant funding from the Japan Fund for Prosperous and Resilient Asia and the Pacific (JFPR), which was funded by the Japanese government through ADB.

The United Nations Development Programme delivered output 3 of this Project with the objective of enhancing technical capacities for recovery planning and implementation, including the adaptation of Disaster Recovery Framework (DRF), Standard Operating Procedures (SOPs), and Post Disaster Needs Assessment (PDNA) guidelines for the Irrigation sector in Sri Lanka.

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Abbreviation

| | |
|-------------|--|
| ADB | Asian Development Bank |
| CBSL | Central Bank of Sri Lanka |
| CS | Chief Secretary |
| CS | Chief Secretary |
| CSO | Civil Society Organizations |
| DAD | Department of Agrarian Development |
| DG | Director General |
| DM | Disaster Management |
| DMC | Disaster Management Center |
| DRF | Disaster Recovery Framework |
| DRP | Disaster Recovery Planning |
| DRT | Disaster Recovery Team |
| EU | European Union |
| FAO | Food and Agriculture Organization |
| IATF | Inter-Agency Task Force |
| ICRC | International Red Cross and Red Crescent |
| ID | Irrigation Department |
| ILO | International Labour Organization |
| JICA | Japanese International Cooperation Agency |
| ICRC | International Red Cross and Red Crescent |
| NBD | National Budget Department |
| NCT | National Coordination Team |
| NCDM | National Council on Disaster Management |
| NGO | Non-Governmental Organization |
| NPD | National Planning Department |
| MASL | Mahaweli Authority of Sri Lanka |
| MDM | Ministry of Disaster Management |
| PDNA | Post Disaster Needs Assessment |

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| PrDRP | Pre-Disaster Recovery Planning |
| PoDRP | Post Disaster recovery Planning |
| SOP | Standard Operating Procedures |
| UN | United Nations |
| UNDG | United National Development Group |
| WB | World Bank |
| WFP | World Food Programme |

Standard Operating Procedures (SOP)

Introduction

The irrigation sector in Sri Lanka is keen to pursue disaster recovery planning to strengthen its capacity for planning for sustainable development. The Disaster Management Centre (DMC) Sri Lanka, with the facilitation of the ADB-UNDP project on Building Disaster-Resilient Infrastructure through Enhanced Knowledge, worked with the key irrigation sector institutions such as the Irrigation Department (ID), Mahaweli Authority of Sri Lanka (MASL), Department of Agrarian Development (DA), and the nine Provincial Irrigation Departments (PIDs) and recommended including disaster considerations into strengthening irrigation sector planning¹. Post-Crisis Assessments and Recovery Planning methodologies such as Post Disaster Needs Assessment (PDNA) and Disaster Recovery Framework (DRF) were introduced, and the tripartite agreement of September 25, 2008, by the European Commission, the United Nations Development Group, and the World Bank guided this work.

Purpose

This document recommends procedures for the disaster recovery of irrigation infrastructure, taking policy and institutional context and practices in Sri Lanka into account. It describes processes and activities necessary to complete recovery tasks in accordance with national requirements while aligning with international disaster recovery guidelines.

Irrigation sector institutions are required to plan for recovery after (a) a nationally declared disaster event or (b) annual floods. This document proposes procedures for engaging in disaster recovery planning for each of these scenarios, taking into consideration their differences.

Scope

This document concentrates on the duties and responsibilities of various institutions and actors based on their legal mandates in the disaster recovery process, including the institutions of Sri Lanka's irrigation sector.

The SOPs shall focus on the assessment of damages incurred to the irrigation infrastructure due to natural disasters (i.e., floods), the analysis of consequent impacts on local people and economies, and corresponding recovery (rehabilitation and rebuilding) needs. This document considers two key scenarios:

- Planning and implementing the recovery of irrigation infrastructure after a national-level disaster event

¹Annex 1 details out roles of irrigation institutions in Sri Lanka

- Planning and implementing the recovery of irrigation infrastructure after a localized disaster event or regularly expected hazard events (i.e., annual monsoonal floods)

The SOPs are developed as a standalone document that describes steps and key actions required for post-disaster recovery planning and implementation, indicating responsible parties for each key action, while taking current legal, functional, and practical aspects of institutional management of the irrigation sector in Sri Lanka into account.

Separate documents titled Disaster Recovery Framework for Irrigation Sector Sri Lanka and Guidelines for Developing Disaster Recovery Framework for Irrigation Sector Sri Lanka are available to supplement this document and detail conceptual and practical guidance to engage in internationally accepted disaster recovery planning.

Target Group

The Standard Operating Procedures (SOPs) outlined in this document are intended to serve as a guide for officials of the institutions responsible for managing irrigation infrastructure and services in Sri Lanka, namely the Irrigation Department, the Mahaweli Authority of Sri Lanka, the Department of Agrarian Development, and the nine Provincial Departments of Irrigation in Sri Lanka. Officials of the relevant ministries (i.e., the Ministry of Irrigation and the Ministry of Agriculture) and other government institutions such as the National Planning and Budget Departments and the Disaster Management Center, as well as development partners and civil society organizations that partner with and assist in disaster recovery processes, are also expected to refer to this document.

Depending on the magnitude and scope of the disaster's effects, the Post-Disaster Needs Assessment (PDNA) should be finished within four weeks, including report production. The PDNA is followed by the development of a detailed recovery plan based on the disaster recovery framework (DRF), with the timing varying depending on the post-disaster situation

01. Recovery Planning in Response to Nationally Declared Disaster Event

When the consequences of a disaster (or an impending catastrophe) are likely to be severe and affect multiple districts, provinces, or the entire nation, a national-level process is initiated to mobilize the necessary support for emergency and recovery. To coordinate and implement recuperation, the government may employ international best practices (PDNA and DRF methodologies) and internal institutional capacities. Multi-stakeholders are involved in a multi-sectoral and multidisciplinary structured assessment of disaster damages, losses, and impacts. Depending on the circumstances, the irrigation sector and its institutions, such as ID, MASL, DAD, and PIDs, would also be required to participate in this process.

If the post-disaster situation is severe and response needs are likely to exceed national capacity, the government may contemplate requesting assistance from overseas development partners. The typical multisector planning and implementation process for post-disaster recovery driven by the national government is outlined in Table 1.

Table 1: Post Disaster Recovery Planning and Implementation Process

| No | Activities | Outputs | Persons and agency responsible | Reference |
|----|--|---|--|--|
| 01 | <p>Declare status of disaster up to 2 months applicable to a specific area or for the whole country. The declared status of disaster could be extended for a further period of not exceeding two (2) months at a time depending on the necessity.</p> <p>Timing: After receiving reliable early warning messages about an impending disaster or soon after a catastrophic event.</p> | The declaration needs to be presented for the approval of Parliament. | The President, either independently or based on the advice of the National Council for Disaster Management (NCDM), | National Disaster Management Act No 13 of 2005, section 11 (1) |
| 02 | <p>Approval of the status of disaster.</p> <p>Timing: During the first sitting after the declaration of emergency by the parliament</p> | Parliament resolution Gazette notification | Minister of Disaster Management with NCDM support | National Disaster Management Act 2005 section 11 (3) |

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| 03 | Issue directives for immediate actions using available and additional resources | Activation of National Emergency Operational Plans (NEOP) National Disaster Management Plan (NDMP) and Sectoral Disaster Management Plans as appropriate. | The President | National Disaster Management Act 2005 section 12 |
| 04 | <p>Convene to assess national capacity to conduct recovery planning (PDNA and DRF formulation)</p> <p>Timing: In response to receiving early warning communications about an imminent disaster or During the phase of emergency rescue on the advice of NCDM</p> | <p>Depending on the severity of the calamity, a decision is made to conduct PDNA and produce DRF within a specified time frame.</p> <p>Assess national capacity and determine how to manage the recovery process, whether to rely solely on national institutions or on the support of development partners.</p> <p>A decision is made to conduct PDNA and produce DRF within a specified timeframe based on the severity of the disaster.</p> <p>Assess national capacity and decide how to manage the recovery process, deciding whether to rely solely on national institutions or development partners.</p> | Minister of DM assisted by DMC | The extra ordinary gazette no 1933/13 of 21st Sept 2015 |
| 05 | Obtain assistance from non-governmental organizations if deemed necessary. | Enhanced mobilization of resources to meet rising demand during emergency and rehabilitation phases | NCDM/DG Disaster Management Centre (DMC) | National Disaster Management Act 2005 section 13 |
| Optional Actions (6-9) If the government decision is to invite Development Partners: | | | | |
| 06 | | A letter of request from GoSL to UN, WB or EU requesting recovery assistance | Minister of DM | The extra ordinary gazette no 1933/13 of 21st Sept 2015 |
| 07 | <p>In country communication between EU, WB, UN on the request for a DRF.</p> <p>Timing: during the post-disaster phase, primarily after rescue operations are complete, and based on NCDM recommendations.</p> | A letter of request from the government to the country Head of UN, WB or EU to requesting assistance with disaster recovery planning. | Government of Sri Lanka | Joint Declaration (UN, EU and WB) on Post-Crisis Assessments and Recovery Planning of 25th September 2008. |

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| 08 | Mobilize support immediately using the respective institutional systems of EU, UNDP and WB to reach out to coordinated mechanisms | Confirm support for the government and specify the type and conditions of that support. | UNDP, WB and EU | The coordinated inter-institutional platform comprising of UN agencies, EU, WB, other key international donors, financial institutions such as ADB, JAICA etc., private sector, NGOs, etc., in support of governments' international collaboration.. |
| 09 | Convene meeting among development partners to notify request by the government. Timing; Upon receipt of letter of request by the government | Agree on coordination structure, input from and role of each stakeholder including development partners, private sector, and NGOs in the recovery planning. | EU, WB, EU, ADB, JAICA, ICRC, bilateral NGOs, Private Sector etc. | National Disaster Management Act 2005 section 13 |
| 10 | Appoint required teams to coordinate Post Disaster Recovery Planning; to conduct PDNA and formulate of DRF. Timing: When the emergency phase ends (roughly within about 45 days or 6 weeks) | High Level Coordination Team (HLCT), National Coordination Team (NCT), Sectoral Teams | NCDM NPD/DMC | Revised National Disaster Management Policy in 2018 (to be approved by the cabinet) |
| 11 | Develop ToR for Disaster Recovery Planning (Please Refer to Annex 2 for a sample format) ² | The ToR | Prepared by NCT Approved by HLCT | PDNA and Recovery planning methodology |
| 12 | Mobilize resources | Resources allocated to conduct PDNA and develop DRF | NCDM | National DM Act No 13 of 2005 section 12, and 13 |

² Copied from the Source: (GFDRR, 2013)
<https://www.gfdr.org/sites/default/files/publication/pdna-guidelines-vol-a.pdf>

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| 13 | Inform sectoral agencies to initiate PDRP (PDNA/DRF) processes | Activation of sectoral teams | Secretaries of the relevant sectoral ministries | PDNA & DRF methodology |
| 14 | Convene planning meetings /workshops | Establish sectoral scopes, inter-sectoral coordination mechanisms for data collection, information and data sharing, and communication etc. | National Coordination Team (NCT) assisted by national sectoral leaders | PDNA/DRF methodologies |
| 15 | Sectoral damage and loss data collection | Appointment of sectoral data collection teams | Sectoral data collection team assisted by local stakeholders and Sectoral Leaders | PDNA methodology |
| 16 | Analysis of data in comparison with the pre-disaster situation using pre-disaster baseline database | Identify sectoral damage and loss and impact on society, economy and environment. | Sectoral Leaders assisted by NCT | Use of the DaLA tools as appropriate |
| 17 | Validation with relevant sectoral stakeholders | Establish sectoral damage and loss and impact on society, economy and environment | Sectoral Leaders assisted by NCT, Stakeholders including community representation | PDNA methodology |
| 18 | Analysis of disaster impacts on cross cutting sectors | Social impact of disaster: effects on people, particularly deteriorating status of economically disadvantaged, marginalized and vulnerable groups, who have greater difficulty to recover; livelihood and employment issues and challenges posed by the disaster to all productive sectors, impact on environment etc. Impact on the nation's disaster management capacity Impact on the nation's disaster management capability | Sectoral Leaders assisted by NCT, Stakeholders including community representation | PDNA methodology |

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| 19 | Study of human impact and macroeconomic impacts | Damages to physical assets and losses in production flows; impact on inflation, impact on (likely decreased) exports and (increased) expenditures on fiscal management, in turn (increased?) public liabilities. | NCT assisted by NPD/ led by focal point for NPD? | PDNA guide |
| 20 | Identification of social, economic, and environmental recovery needs and priority areas for recovery | Vision and objectives for recovery | NCT, sectoral teams/Leaders, specialists, stakeholders | DRF formulation methodology |
| 21 | Outline the policy and financial mechanisms and the capacities institutional arrangements for recovery, needed to implement | Recovery strategy | NCT/sector Leaders, National Planning (NPD) and Budget (NBD) Departments | Financial preparedness commendations/ plans |
| 22 | Develop implementation arrangement and M&E plan | Recovery Plan | NCT, sector Leaders, NPD, NBD | Recovery planning methodology |
| 23 | Work out resource mobilization | Financial plan for disaster recovery | NPD/NBD | Financial preparedness plans |
| 24 | Produce the Report (Please refer to Annex 3) ³ | PDNA and DRF | NCT | PDNA and DRF planning methodologies |
| 25 | Validation | Validated PDNA and DRF | NCT with key stakeholders | PDNA and DRF planning methodologies |

³ Source: (GFDRR, 2013)
<https://www.gfdr.org/sites/default/files/publication/pdna-guidelines-vol-a.pdf>

Role of the Government

Recovery planning, including the formulation of the PDNA and the DRF, is an inclusive process led and owned by the government. The government of Sri Lanka must initiate and lead the process, utilizing the capacity and expertise of national institutions, appoint a High-Level Coordination Team and sectoral Leaders, and review, endorse, and publish the final report, among other responsibilities. The government may contemplate inviting Development Partners to participate, assist, and augment national capabilities. The Secretary of MDM should lead the High-Level Coordination Team, which consists of prominent officials from NPD, NBD, CBSL, and ERD. If Development Partners are invited and agree to participate, the heads of the Development Partner agencies will join the HLCT. Principal responsibilities of the HLCT include providing strategic direction, making key management decisions, and ensuring the necessary resources for conducting the PDNA and achieving its objectives.

The National Coordination Teams (NCT) will be comprised of senior officials appointed by the Secretaries of Ministries or Heads of Agencies of all key sectors affected by the disaster. The NCT is responsible for managing and administering the PDNA process so that it will be conducted as intended. The daily planning, implementation, coordination, and review of the progress of assessments are the responsibility of the NCT, while they also have to ensure the development of the Recovery Strategy. The NCT provides guidance and ensures consistency across different institutional and sectoral approaches while emphasizing inter-sectoral and cross-cutting themes. Development partner agencies and CSOs may assist sectoral agencies with their relevant functional interests. i.e., WB, UNDP, EU, ADB, FAO, WFP, ILO, ICRC, World Vision, etc. Therefore, NCT, with the guidance of HLCT, must ensure the participation and coordination of external actors, which are essential to the assessment process and the development of a Recovery Strategy.

The National Coordination Teams (NCT) will consist of senior officials appointed by the Secretaries of Ministries or the Heads of Agencies of all major sectors impacted by the disaster. The NCT is accountable for managing and administering the PDNA process so that it proceeds as intended. The NCT is responsible for the daily planning, implementation, coordination, and review of the progress of assessments, as well as the development of the Recovery Strategy. The NCT provides guidance and assures consistency across various institutional and sectoral approaches, with a focus on intersectoral and cross-cutting topics. Development partner agencies and CSOs may assist sectoral agencies with functional interests pertinent to their missions, i.e., the World Bank, UNDP, EU, ADB, FAO, WFP, ILO, ICRC, etc. Therefore, the NCT, under the direction of the HLCT, must guarantee the participation and coordination of external factors that are essential to the assessment process and the development of a Recovery Strategy.

Sectoral Teams comprise representatives of institutions of sectors affected by the disaster, i.e., the irrigation sector team would comprise representatives of ID, MASL, DAD, and 09 PIDs, while the electricity sector would comprise representatives of the Ceylon Electricity Board, Lanka Electricity Company, Sri Lanka Sustainable Energy Authority, and a few state-owned entities in the energy sector. Sectors are tasked with conducting sectoral-level assessments using the given methodology and to the required standards to contribute to the overall PDNA, under the guidance of the NCT.

i.e., The irrigation sector team consists of representatives from ID, MASL, DAD, and nine PIDs, while the electricity sector team would include representatives from the Ceylon Electricity Board, Lanka Electricity Company, Sri Lanka Sustainable Energy Authority, and a few state-owned entities in the energy sector. Sectoral teams are tasked with conducting sectoral-level assessments using the provided methodology and to the required standards in order to contribute to the overall PDNA under the supervision of the NCT.

Role of Development Partners

The Government of Sri Lanka determines the role of development partners in supporting national PDNA efforts, drawing on the Tripartite Agreement or seeking the support of partners, such as ADB, bilaterally. The EU engages in a high-level Coordination Team at the invitation of the government, together with the UN and World Bank, and supplements government technical capacity with international technical expertise in assessments of social and governance impacts.

The World Bank offers technical expertise to the government on assessing infrastructure sectors and the impacts of the disaster event on the macroeconomics of the country.

The United Nations Development Programme (UNDP) acts as the technical lead on behalf of the UN. UNDP facilitates the engagement of all UN agencies to work together with the respective government technical lead agencies and personnel, i.e., UNICEF (education), WHO (health), and FAO (agriculture). In addition, UNDP runs the technical secretariat, conducts orientation for team members involved in recovery planning, undertakes quality assurance, and is responsible for overall report drafting while

02. Recovery Planning in Irrigation Sector in Response to Annual Floods

The most significant natural occurrence that can affect the repair and maintenance of irrigation infrastructure, as determined by irrigation sector institutions, is routine flooding caused by predictable annual rainfall seasons. Once effective, this conventional planning system is now ineffective for restoring the devastation caused by increasing annual flooding and irrigation infrastructure-related challenges.

The recommended process of incorporating PDNA and DRF methodologies into irrigation sector institutions to strengthen their planning and improve their ability to recover from disasters (i.e., annual floods) is given in Table 2. It helps individual institutions in the irrigation sector in Sri Lanka shift from conventional to risk-based planning and implementation processes.

Table 2: Strengthening Annual Recovery Planning and Implementation of Irrigation Sector

| No | Activity | Output | Responsibility | Reference |
|----|---|--|---|---|
| 01 | Convene an institutional level meeting soon after a disaster event, that is expected to have an impact on irrigation recovery | Decision to initiate post disaster recovery planning. | DG of ID, DAD, MASL, and Chief Secretaries of PIDs | Relevant sections of institutional Emergency Operational Plans, Contingency Plans and Institutional Disaster Management Plans produced to fulfil requirement of Section 12 of the Disaster Management Act of 2005 |
| 02 | Meet relevant staff and stakeholders to plan for post disaster recovery | Agreement on the recovery process. | Focal point (FP) and institutional disaster recovery teams (IDRT) of each institution | Appointment letter/ circular or internal memo |
| 03 | Hold a refresher or a training program on PDNA and DRF formulation (Depending on the need) | Conduct training program on DRP (disaster recovery planning) IDRT with required skills | Institutional FP and IDRT | Recovery Plan, Training manual, Trained Trainers |
| 04 | Hold IDRT meeting to agree on plan for recovery planning | Clear roles responsibilities, coordination, schedules | FP and IDRT | PDNA guidelines |
| 05 | Deploy staff assigned by the respective institution for data collection | Agreements based on actual circumstances: Specific training for field staff prior to deployment, locations, formats, coordination, roles and responsibilities of each member of data collection team, engagement of farmers and CBOs, resource allocation for data collection and logistical arrangements etc. | FP/ data collection lead | Data collection formats, Institutional policies and systems |

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|----|--|---|---|---|
| 06 | Data and information collection | Data on: damage and loss, increased risks, affects local irrigation management (governance) on people's lives, local economy etc. | Members of the data collection team | Updated data collection formats |
| 07 | Analysis of collected data comparing with the pre-disaster baseline status | Disaster effects and impacts | FP, relevant members of IDRT and data collection team | PDNA methodology, Institutional data and information management systems with updated pre-disaster data |
| 08 | Identify and prioritize recovery needs | Prioritization criteria, Recovery priorities | FP, relevant members of IDRT | PDNA methodology |
| 09 | Implement short term (early) recovery actions | Continued losses are minimized | DG assisted by FP, IDRT | Institutional irrigation works implementation protocols, special protocols for emergency if available |
| 10 | Develop recovery framework (or review draft pre-disaster recovery framework produced during pre-disaster phase; please refer to Table 3) | DRF: recovery vision, objectives, guiding principles, strategies with short-, medium- and long-term strategies policy guidance and institutional arrangement resource requirement and monitoring and evaluation | DG assisted by FP, IDRT | DRF planning methodology, Sectoral institutional vision and planned programs, institutional policy and capacity |
| 11 | Mobilize resources | Enactment of pre-agreed resource mobilization plans Proposal submitted to NPD for additional requirements | DG/NPD | Financial preparedness plans |
| 12 | Formulate the implementation arrangement of recovery | Develop and revise implementation schedules, priorities, roles and responsibilities, M&E plans etc., based on available resources | DG | DRF/DRP methodology Institutional implementation protocols |
| 13 | Recovery implementation and M&E | Activating recovery implementation arrangements | FP and IDRT | Institutional implementation protocols |

Pre-Disaster Recovery Planning of Irrigation Institutions

Pre-disaster recovery planning is recommended for the irrigation sector. By incorporating DRP (PDNA and DRF formulation methodologies), irrigation institutions may expand on and enhance their existing planning procedures. It is recommended that irrigation institutions participate as much as possible in the process indicated in Table 3 so that they may begin to move toward risk-based planning.

Engaging in DRR and disaster preparedness activities identified through pre-disaster recovery planning will reduce disaster impacts while increasing the effectiveness of post-disaster planning and implementation, respectively. It will also assist in creating intra-sector coordination within institutions (ID, MASL, DAD, and PIDs), which currently lacks and has been recognized as a critical gap by the agencies themselves

Table 3: Key pre disaster recovery actions recommended for irrigation institutions:

| No | Activity | Output | Responsibility | Reference |
|----|---|---|--|---|
| 01 | Appoint Focal /Lead Officer and a team for DRP | DRP is key planning criteria and an assigned responsibility in irrigation institutes | DG (ID and MASL) CG (DAD) Provincial Chief Secretary (CS) PID | Institutional policies and Acts |
| 02 | Conduct training on DRP. PDNA, data management for good baseline, DRF formulation and recovery implementation | Irrigation institutes have the required capacity to engage in DRP (PDNA, DRF formulation) | DG/ CG/CS with assistance of the FP | Institutional training policy and plans |
| 03 | Consider including training on PDNA, data management for good baseline, DRF formulation and recovery implementation within institutional training protocols and schedules | Irrigation institutes have sustainable capacity to engage in DRP (PDNA, DRF formulation) | Training Director /Head of Training of relevant irrigation institute | Institutional training policy (revised if necessary) |
| 04 | Review and strengthen or redesign institutional inventories and data management systems | Identified and addressed data and information gaps to capture data and information required for post disaster recovery analysis | DG/CG/CS assisted by the FP | Institutional policy (revisions included as required) |

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|----|---|---|--|---|
| 05 | Data collection and update information in data management system | Accurate and current information on institutional irrigation assets, locations, costs etc., and development goals and programs | DG/CG/CS assisted by FP | PDNA methodology |
| 06 | Utilization of data to create a collective image of future disaster or for disaster scenario planning | Future loss, damage and impacts are depicted and estimated based on the following: | Planning division assisted by FP and DRT | PDNA methodology |
| 07 | Agree on key components and possible content should be considered in DRF | Recovery vision, goals objectives, guiding principles, recovery strategies, pre-disaster DRR measures, institutional arrangement, and financial requirements for recovery | FP, DRT | DRF formulation methodologies |
| 08 | Attend to DRR activities identified during recovery planning | Reduced disaster risk on irrigation infrastructure | DG/CG/CS, Division Heads and Relevant implementation teams | Institutional policies |
| 09 | Investigate and identify financial sources | Options and priorities for financing identified risk reduction and potential recovery actions | DG/CG/CS assisted by FP | PDNA/DRF methodology, institutional policy, |
| 10 | Actions and negotiations to mobilize financing | Availability of funds for emergency risk reduction and financial preparedness for recovery implementation | Guidance by NPD | institutional policy |
| 11 | Review draft DRF during annual planning cycles | Updated draft DRF | FP | institutional policy |

Coordinated Disaster Recovery Planning (DRP) in

In Sri Lanka, the twelve distinct Irrigation institutions carry out their irrigation management tasks independently, despite instances of ambiguity and overlap. While the processes outlined in Tables 2 and 3 will be performed by individual institutions, it is clearly evident that disaster recovery planning will be more effective when all institutions and actors in the irrigation sector collaborate.

Also strongly recommended is pre-disaster recovery planning for the irrigation sector as a whole. Currently, this does not occur unless there is a new development, but coordination ends there because institutions implement development and manage services independently. For the consideration of decision-makers and individual institutions, this section explains key aspects of sectoral coordination for recovery planning.

Sectoral Coordination

The Ministry of Irrigation (MoI) is in the best position to oversee the development of the Irrigation Sector Disaster Preparedness Plan (PrDRP) as a strategic disaster preparedness measure. The Ministry of Irrigation needs to summon relevant Secretaries from other ministries with irrigation responsibilities and monitor irrigation institutions. It is recommended that the MoI appoint a Focal Point at the level of Additional Secretary to ensure that effective ministry-level sectoral appoint their respective Focal Points. The Institutional Focal Points will form the Inter Agency Task Force (IATF), which will ensure inter-agency coordination and select and appoint a main agency to lead the IATF with the assistance of the Focal Point of the Ministry of the Interior. Individual institutions will be assisted by the IATF in pre-disaster recovery preparations such as:

- At each institution, the institution's heads must lead or facilitate a review of organizational policies and procedures with the assistance of the respective Focal Point and the input of planning and operational units. Through the respective Focal Point, the IATF can assist with the assessment by helping to understand how to align the PrDRP process with institutional systems and making any necessary adjustments.
- Each institution must identify the specific personnel required at various levels for PrDRP, assign them to tasks, clarify their responsibilities and roles, and assess their capacity to engage in DRP. The respective Focal Point may assist in this regard by facilitating the sharing of information and experience between institutions.
- Each institution's training and capacity building units have the responsibility of planning and implementing capacity building on DRP (PDNA and developing DRF) and determining who should be trained on what, when, etc. The IATF is able to communicate with external specialists, such as DMCs and development partners, in order to coordinate common training in coordination with respective training departments and tailor it as required by getting access to required internal (within sector) and external assistance.
- Each irrigation institute should consider establishing appropriate communication channels (i.e.,

PrDRP as an agenda item in operational and review meetings), which will help intra-agency communication and coordination as well as the motivation to work across various teams (i.e., planning, finance, technical) and at national and sub-national levels. The IATF can assist by disseminating common messages and coordinating cross-agency personnel working on comparable tasks so that they can learn from one another, etc.

- IATF can help obtain stakeholder inputs without duplicating effort from stakeholders such as the agriculture sector, Ceylon Electricity Board, National Water Supply and Drainage Board (NWS&DB), Rural Water Supply Division of NWS&DB, Officials of Inland Fisheries, private construction agencies engaged in irrigation infrastructure development, etc. In addition, technical entities such as DMC, NBRO, the National Geological and Survey Department, IWMI, Universities engaged in research on hazards, vulnerability, and risks, irrigation, water, etc. are also stakeholders who can provide valuable inputs. At the local level, farmer organizations, Local Authorities, women and women's rural development institutions, youth and youth organizations, etc., NGOs (Plan Foundation, Sarvodaya, Sewa Lanka, World Vision, etc.), CSOs (IUCN, ICRC), the private sector (HHSBC) and donors and development partners (i.e., UNDP, FAO) who have previously supported or are newly interested in supporting irrigation infrastructure development may also be involved at the local level. These various parties with a stake or interest in irrigation services should be invited to participate in discussions regarding the recovery of irrigation infrastructure in the event of a serious disaster. In lieu of individual-level discussions, they can review sectoral recovery strategies agreed upon by irrigation institutions, ideally aligning with the irrigation sector's sustainable development objectives and targets. Recovery will also be viewed as an opportunity to build back better (BBB); to construct or modify irrigation infrastructure to make it structurally, technically (using modern and appropriate technologies), safer, and more resilient than before.

IATF may also promote nominating cross-institutional and individual institutional-level teams during the pre-disaster phase for improved coordination. In addition, it will be advantageous for members of these teams to acquire the relevant recovery-related skills required by their respective teams and to be able to immediately engage in recovery actions in the event of a disaster. Such teams might include:

Data Management

Baseline data and information required for DRP broadly fall into two categories:

1. data and information related to the context in which irrigation infrastructure exists and functions;
2. the status and function of irrigation systems and associated infrastructure with accurate and up-to-date information about the pre-disaster status, disaster effects and impacts can be estimated with greater speed and accuracy.

The KSTA project helped each irrigation institution design a data management system that is specific to the institution and captures and updates the status of all assets. As a result of the project's facilitation of the design of all institutional data systems on a common platform, sectoral data compilation will be facilitated. Each irrigation institute must designate specific officials' responsibilities for functions such

as collecting, verifying, updating, consolidating, and sharing at specific times or events and monitor their effective implementation.

The majority of the contextual data required for analysis in the DRP will be common to the irrigation sector. It is more beneficial to disseminate such data at the sectoral level and share it with the respective agencies. The IATF will also help with this. Such information would include:

- Role and contribution of irrigation services and infrastructure to the country's development, as well as service delivery areas. Main focus (agriculture sector), additional uses (i.e., fisheries, drinking water), and special functions (constriction of bridges for local mobility, construction of saltwater bunds for DRR, etc.).
- Legal and institutional systems and processes are used in the irrigation sector to develop and maintain irrigation infrastructure and services. Roles and responsibilities of each key organization in relation to their specific systems and operations, Role of other key government, private sector, and local-level stakeholders
- Financial information such as past, present, and future public spending information on irrigation, information on calamity budget allocations, priority post-disaster recovery allocations for the irrigation sector after a disaster, other potential sources of post-disaster recovery funding, untapped or unexplored financing opportunities, etc.
- Data and information on the context of disasters, including hazard trends and forecasts, vulnerability and risk maps, and historical disaster data
- In addition, baseline data should also include specific institutional information, such as the pre-disaster status of specific irrigation schemes and related infrastructure.

Table 4: Type of data available in different institutions

| Data and information repositories | Coordination | Type of data and information collected |
|-----------------------------------|--------------|--|
| ID | IATF | Historical disaster (flood) events and related data, historical rainfall data, Land use and Soil data, Policies, laws, standards for irrigation infrastructure, and strategic futuristic vision for irrigation sector and potential water resources developments, Contribution to national development, economic, disaggregated socio-economic and demographic special data. |
| MASL | | Farmer priorities based on processes of engagement with Farmer Organizations. Policies, laws, standards, and strategic futuristic vision for irrigation and agriculture development in Mahaweli areas, water management and allocation policies, systems and strategies, institutional level development strategies and plans including recommended upgrade in technology standards etc. Socio-economic information of communities in Mahaweli areas |
| DAD | | Historical disaster events and related data, information about cascade systems and small irrigation systems etc. Hazards and trends, vulnerabilities, risks, spread in local areas Farmer organization farmer profiles vulnerabilities capacities etc. |
| PID | | Provincial development priorities Irrigation infrastructure and, related resources and assets in provinces Local vulnerabilities and gaps Financial data and information Provincial post disaster outstanding recovery information. |
| NPD/NBD | | Expenditure on irrigation development, rehabilitation and rebuilding Plans for future irrigation development (public investment plan) |
| DMC | | Hazard profiles for some hazards, access to vulnerability profile for some areas. |

Pre-Disaster Financial Preparedness for Post Disaster Recovery

To reduce the budgetary impact of disasters caused by natural hazards, the government must identify sources of recovery funds or contingency funding, including external sources of donor funding. The Ministry of Finance should lead the development of a financial preparedness strategy with the policy objective of identifying post-disaster expenditure priorities, prioritizing them in advance, and considering potential solutions based on the optimal local combination of financial tools.

The Disaster Management Act allows the government to negotiate with key donors to support and develop the capacity of the 12 key agencies in the irrigation sector in order to receive contributions from donors. This may involve negotiations and the drafting of agreements with potential donors or bilateral funding sources, as well as the establishment of systems and procedures to receive and manage funding (disburse and account for funds to and with local implementers).

Flexibility of SOPs

The institutional DRT team at head office or central level, including the field-level team led by the institutional Focal points, should determine the appropriate timing and duration for initiating and completing the DRP, recognizing that multiple disasters may cause different effects in different locations depending on the type (major, medium, or minor) and type of headworks or distributor system of irrigation infrastructure they manage.

Individual irrigation agencies are responsible for implementing the DRP for irrigation infrastructure under their preview. Depending on the situation, representatives from other irrigation institutes, other government offices (i.e., DMC, NBRO), development partners (ADB, JAICA), community organizations, and concerned private groups as deemed appropriate by the DG (in consultation with NPD/DMC as required) could be included in the event of a major disaster.

In the event of a national disaster, the NPD/DMC-led national DRP process will notify the respective irrigation institute's DG, CG, or CS to initiate DRP for the irrigation sector. The DG must ensure that an appropriate system of coordination exists between its own and other irrigation institutions, as well as other relevant institutions.

Annex I. Roles and Responsibilities of Irrigation Institutions in Sri Lanka

The routine operations, maintenance, construction, and developments, as well as disaster management, of the irrigation sector are managed by twelve (12) state sector agencies: the Irrigation Department (ID), the Mahaweli Authority of Sri Lanka (MASL), the Department of Agrarian Development (DAD), and nine (9) Provincial Irrigation Departments (PIDs) representing nine provinces of the country. Sri Lanka's irrigation projects or schemes cannot be managed by the private sector. Below are depicted the primary functions of twelve (12) irrigation institutions.

| Irrigation Institution | Major Role |
|--|--|
| Irrigation Department (ID) | Manages nearly 100 major irrigation schemes and nearly 250 medium irrigation schemes, providing irrigation facilities to more than 235,000 ha. Further, ID manages saltwater exclusion schemes and Flood Protection schemes. |
| | Manages the Mahaweli River Diversion Scheme and Uda-Walawe Irrigation Scheme, which include irrigation tanks and regulators (like Anicuts) to provide irrigation facilities to more than 101,000 ha |
| Provincial Irrigation Department - PID (Northern Province) | Manages 10 major irrigation schemes and 43 medium irrigation schemes, providing irrigation facilities to nearly 28,000 ha. Further, PID (Northern Province) manages saltwater exclusion schemes |
| Provincial Irrigation Department - PID (Eastern Province) | Manages seven major irrigation schemes and 36 medium irrigation schemes, providing irrigation facilities for nearly 14,000 ha. Further, PID (Eastern Province) manages saltwater exclusion schemes. |
| Other Provincial Irrigation Departments - PIDs | Manages more than 25,000 minor irrigation schemes (tanks and anicuts), including drainage schemes that are separately managed by the DAD and the PIDs, to provide irrigation facilities to more than 260,000 ha. |
| Department of Agrarian Development (DAD_ | |

Annex 2⁴ : A Sample Format for ToR for conducting PDNA and Developing a Recovery Plan

1. Background

- The disaster effects using available preliminary impact figures
- A description of the affected area and the disaster risk
- May include information about recent disaster events.

2. Objectives of the Assessment

Objective is to assess the impact of the disaster event and define a strategy for recovery and its financial costs.

May include specific objectives such as:

- Estimate the impact of the disaster on the socio-economic development of Sri Lanka (at the national level and in affected areas and communities).
- Assess the effects and impacts of the disaster to develop a Recovery strategy. Identify the early, medium-, and long-term recovery and reconstruction needs with associated costs and a timeline in one consolidated report.
- Develop recovery strategies that reflect the requirements and priorities of the affected communities, integrating concepts of disaster risk reduction, building back better, gender equality, and environmental sustainability.
- Recommend any improvements to the National Disaster Management Plan.
- Recommend institutional mechanisms and policy options for recovery and reconstruction.
- To promote long-term disaster resilience.

3. Deliverables of the PDNA

A Report consisting of:

- Sectoral disaster effects and impacts
- recovery strategy with early medium- and long-term needs
- Recovery costs and timelines for each sector
- disaster risk management strategy

4. Coordination of the PDNA

Explain the government coordination mechanism: which ministry or ministries lead (disaster management), supporting ministries (i.e., environment, planning, and finance), assistance extended by the Development partners, etc. Explain the structure of the high-level management team and the supporting duties of technical experts in addition to providing daily guidance and technical oversight for the PDNA process.

⁴ Source: (GFDRR, 2013)
<https://www.gfdr.org/sites/default/files/publication/pdna-guidelines-vol-a.pdf>

5. Methodology for the Assessment

Explain the methodologies for data collection and analysis and the development of a recovery strategy, as well as the integration with WB/EU and UN methodologies for assessment, analysis, and strategy formulation. Define participation and methods for obtaining input from stakeholders and the affected community, such as surveys, focused group discussions, and other data collection and validation techniques.

Explain the phases of the assessment: training, preparatory or desk review, field-level data collection, data analysis, producing sectoral reports, validation, and report production.

6. Sectors and geographic areas to be assessed

Determined by the government of Sri Lanka, enumerate the sectors and geographic regions that are to be assessed. The sector teams should be led by government officials from Line ministries and supported by relevant UN agencies, the World Bank, and other development partners such as ADB, JICA, etc.

7. Schedule of Activities

Timeline for completing each phase.

8. Estimated Cost of Activities

The following expenses are considered:

- Local Staff (sector specialists, technical staff, and support staff)
- Report-writing and editing staff
- Coordination team (PDNA manager, specialist)
- International Technical expertise
- Coordination
- Transport arrangements (field visits)
- Office infrastructure to accommodate PDNA staff and management
- Office supplies and computer equipment, IT, and telecommunications (internet, mobile phones, etc.) Special logistical arrangements (e.g., to facilitate humanitarian access) Staff travel (in-country and international)

Accommodation arrangements

- Training of the PDNA Team (venue, facilitators, materials) Coordination workshops and meetings Donor conference (venue, facilitators, materials, printing) Utilities (electricity, etc.) Admin support Miscellaneous and contingency provisions
- Information management requirements (software, data, maps, equipment)
- Support services for the Humanitarian Coordinator,
- high-level management team
- Coordination and Capacity Building
- Office management and administration

Annex 3: Instructions for Producing a Report on PDNA And Recovery Strategy

1. Introduction

Include the purpose of the sector in the PDNA and Recovery Strategy.

The purpose should include:

- 1.1 Statement on the desired long-term recovery outcome in the sector (vision);
- 1.2 Recovery strategies that may be derived from the recovery outcome statement, including measures to reduce future risks;

2. Pre-disaster baseline information/sector overview

This section describes the sector's Overview and pre-disaster Baseline information. In addition, it contains details on the sources and essential documents used to ascertain pre-disaster conditions. It should contain information on the following:

- 2.1 The state of the human, natural, cultural, financial, social, and physical capital within the sector
- 2.2 Description of the Infrastructure and physical assets
- 2.3 Description of the Production and delivery of goods and services and access to goods and services;
- 2.4 Description of Governance and Decision-Making Processes (Incl. people's ability to exercise their citizenship and priority development policy objectives, etc.)
- 2.5 Risks and vulnerabilities, including existing preparedness plans

3. Assessment of Disaster Effect

This section defines and describes the effects as well as the direct responses to mitigate these effects. Disaster effects are defined as the destruction of infrastructure and assets, disruption of service delivery and production, disruption of governance, and influences on previous and emerging risks and vulnerabilities.

NB: Effects can be described as both tangible and intangible.

These effects must be presented in accordance with the country's geographical divisions as outlined in the Census as well as other pertinent sociological characteristics where relevant (gender, age, ethnicity, religion, ability, and disability of the given population, as applicable). The effects can be expressed in quantitative or qualitative terms.

- Introduction: general description of the disaster event, its geographical scope, affected population, evolution up to this point, etc.;
- Effects on Infrastructure and Physical Assets;
- Effects on Production and delivery of goods and services; access to services and goods;
- Effects on Governance and decision-making processes;
- Effects on Risks and Vulnerabilities;

It also addresses cross-cutting issues such as gender, environment, and risk reduction across the description of the effects or in a separate paragraph.

4. Calculating the Value of the Effects of Disaster

This section should give an estimate of the value of Damage and Loss, extracted from the section on effects, for those elements that have financial implications, either in terms of damage to infrastructure and assets or loss due to changes in financial flows as linked to service, / production, governance, and risks. This section presents the economic value of the event.

Damage:

Value of total or partial destruction of infrastructure and assets

Loss:

- Value of changes in production of goods and services, delivery of services, and access to services and goods
- Value of changes to governance
- Value of changes to risks

5. Assessment of Disaster Impact

This section provides a report on the aggregated economic and human development impact.

It also provides an analysis of the expected trend for the sector after the disaster and what could be the worst-case scenario if policy and programming measures are not considered. It identifies major challenges for the sector. This impact analysis is based on the assessment of the disaster effects, the sector development plans, lessons from past experiences, and the emerging concerns that derive from the events. The analysis of the impact of the disaster provides a medium- and long-term projection of the effects on the sector. The impact analysis forms the basis of the recovery strategy.”

6. Cross-Sector Linkages, Including Cross-Cutting Issues

This section reports on the inter-sectoral linkages inherent in the functioning of society and links across sectors.

7. Sector Recovery Strategy

7.1 Sector Recovery Vision and Rationale for the sector.

This section presents the recovery vision and expected outcome for the sector. This should be based on the country's existing sector development plan, aligning, where possible, recovery objectives with existing national development plans and strategies.

7.2 Stakeholders' consultation

This section reports on the stakeholders consulted in the development of the recovery strategy and the recovery needs and priorities.

7.3 Reconstruction and Recovery Needs, including Building Back Better

7.4 The Sector Recovery Strategy

7.4.1 Prioritization and sequencing:

This section presents the reconstruction and recovery needs prioritized in short-, medium-, and long-term terms. It identifies the key interventions, outputs, and outcomes and distinguishes those interventions that are related to restoration or resume from BBB interventions.

7.5 Implementation Arrangements

7.5.1 This section describes and elaborates on partnerships, coordination, and management arrangements to implement recovery.

7.5.2 This Section proposes mechanisms for Monitoring and Evaluation. It also reports on existing coordination mechanisms for Development and Humanitarian Assistance. It also outlines possible resource mobilization mechanisms.

7.5.3 This section provides a short description of the recovery challenges that might be expected in the implementation process for the sector and should be supported with key assumptions and constraints.

8. Assessment Methods

This section gives a brief description of the methods and sources used (primary and secondary data collection) and the methodology for analysis. It also explains the basis and assumptions for estimating reconstruction and recovery needs.