

Damage, Loss and Needs Assessment Guidance Notes



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Volume 1

Design and Execution of a Damage, Loss and Needs Assessment

Guidance Note for Task Managers

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Preface

Over the past years, both frequency and impact of disasters have been increasing worldwide. In the first decade of the new millennium a string of severe disasters hit countries on all continents. Most notable were the 2004 Indian Ocean earthquake and tsunami which claimed over 250,000 lives, the Haiti Earthquake which killed over 220,000 people and caused an economic impact equivalent to 120% of GDP, floods in Pakistan affecting 20 million people, but also additional earthquakes in Indonesia, floods and droughts throughout Africa, heat waves and fires in Europe, hurricanes in Central America, the Caribbean and the United States, and landslides triggered by typhoons in South East Asia.

The social impact of disasters is highest in developing countries, where poor populations are most vulnerable and least resilient. Economic impact of disasters amounted to 63 billion USD in 2009. By the turn of the century, damages from weather-related hazards can triple to \$185 billion annually, without taking climate change effects into account. Factoring in climate change could then add another \$28–\$68 billion from tropical cyclones alone, according to *Natural Hazards, Unnatural Disasters: The Economics of Effective Prevention*, a joint World Bank–United Nations publication, released in November 2010.

In order to reduce vulnerabilities of the natural and built environment, the understanding of the social, economic and financial implications of disasters is becoming a priority for governments. The Damage, Loss and Needs Assessment (DaLA) methodology, developed by the Economic Commission for Latin America and the Caribbean (ECLAC) in the 1970s, has evolved as a globally recognized and applied tool to quantify the impacts of disasters, and to determine the necessary financial resources to achieve full reconstruction and recovery. Consistently using this methodology identifies the socio-economic impact of any given disaster, as well as the exposure of sector assets. It also reinforces resilience by promoting the “Build Back Better” principles in reconstruction and recovery efforts.

The DaLA guidance notes presented here build on ECLAC's methodology. They aim at operationalizing the concepts for practitioners at government agencies, the World Bank and other national and international organizations, responsible for assessing the impact of disasters, and for developing recovery and reconstruction plans. Furthermore, the DaLA guidance notes expand the original ECLAC methodology by describing how to estimate recovery and reconstruction needs.

The guidance notes comprise three volumes i) Guideline for Task Team Leaders (TTL) in the Design and Execution of a Damage, Loss and Needs Assessment, ii) Conducting Damage and Loss Assessments after Disasters, and iii) Estimation of Post-Disaster Needs for Recovery and Reconstruction. Volume I, the guideline for Task Team Leaders, aims to facilitate the work of TTLs by providing the framework for conducting the assessment. It offers templates for sectoral TORs, survey questionnaires and other useful tools, and it describes in details how to plan, organize and carry out an assessment. Volume II guides the sectoral assessment team through the steps of conducting a Damage and Loss Assessment, and includes sample templates for determining damage and losses in each sector. It describes simplified procedures for estimating the value of destroyed physical assets and of changes or losses in the flows of the affected economy. Volume III illustrates how to derive the financial needs for recovery and reconstruction. This is done following a sector by sector damage and loss assessment, which itemizes distribution and priority setting based on geopolitical divisions, sectors of the economy, and different population groupings in the affected area. It also explains how to formulate a calendar of investments and to identify distribution channels for funding.

The guidance notes were commissioned by the Global Facility for Disaster Reduction and Recovery (GFDRR) of the World Bank. Building national capacities in disaster risk management and in post disaster impact assessment is a high priority for GFDRR, reflected in the cooperation agreement of the UN, EU and World Bank for conducting post-disaster needs assessments. Since 2006, GFDRR (a partnership of 36 countries and six international organizations committed to helping developing countries reduce their vulnerability to natural hazards and adapt to climate change) has been instrumental in assisting countries to incorporate risk reduction in development strategies, and in providing ex post disaster response through three financing tracks: (a) Track I, which promotes partnerships for advocacy and awareness-building; (b) Track II, which mainstreams DRR into country strategies, and finances analytical work and project preparation for disaster prevention and risk financing; and (c) Track III, which provides post-disaster needs assessments at governments' request, in collaboration with the UN, the European Union, and other partners.

GFDRR has conducted over 20 post-disaster assessments in the last three years, in countries such as Bangladesh, Myanmar, Burkina Faso, Senegal, Central African Republic, El Salvador, Samoa, Indonesia, Philippines, Lao PDR, Bhutan, Yemen, Cambodia, Bolivia, Namibia, Moldova, Haiti and Pakistan, and others. In these assessments, GFDRR particularly promotes self-reliance through capacity building in high-risk countries, which includes DaLA methodology training and sensitization for governments and other functionaries. To further strengthen capacities and adapt the methodology to country-specific circumstances, the experiences of these assessments are reflected in the three volumes at hand and will continue to be incorporated into future versions of these guidance notes.

Acknowledgements

These guidelines were developed as part of GFDRR's effort to increase the capacity of professionals and sector specialists in conducting post disaster damage, loss and needs assessments while applying the DaLA methodology for evaluating the social and economic consequences of disasters. The intention of GFDRR is to operationalize the Damage, Loss and Needs Assessment Methodology by building on the original ECLAC *Handbook for Estimating the Socio-economic and Environmental Effects of Disasters*. The guidance notes intend to contribute to the broad and consistent application of the DaLA methodology. They were prepared by Roberto Jovel, DaLA specialist with substantive country assessment experience. Mohinder Mudahar contributed to the development of guidance for the agriculture sector.

We are grateful for the inputs and comments of external and internal experts and practitioners, whose contribution was instrumental in completing these guidance notes. Based on their experience in damage and loss assessment and recovery planning, the guidance notes have been refined to ensure their applicability.

Special thanks go to Alicia Barcena, Executive Secretary of ECLAC, Ricardo Zapata and numerous other ECLAC colleagues for their continued support and collaboration throughout the process. ECLAC's deep institutional and practical expertise has been invaluable for the review of the guidance notes. We are also grateful to our colleagues at the World Bank who provided helpful comments on various aspects of these documents. We would like to highlight the contribution of Sofia Bettencourt, Lead Operations Officer and Wolfgang Fengler, Lead Economist, who served as peer reviewers, along with colleagues from ECLAC.

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Acronyms

BOP	Balance of Payments
CIF	Cost, Insurance and Freight
DaLA	Damage, Loss and Needs Assessment
DRR	Disaster Risk Reduction
ECLAC	Economic Commission for Latin America and the Caribbean
ERL	Emergency Recovery Loan
EC	European Commission
EU	European Union
FOB	Free-on-board
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
MDG	Millennium Development Goals
MIC	Middle Income Countries
NGO	Non-governmental Organization
PDNA	Post Disaster Needs Assessment
SIC	Sector Investment Credit
SIL	Sector Investment Loan
SME	Small and Medium Enterprises
ToR	Terms of Reference
TTL	Task Team Leader
UN	United Nations
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WB	World Bank

I. General Comments

1. Introduction

This is a guideline for World Bank Task Team Leaders (TTLs) entrusted with the design and execution of assessments to determine disaster impacts as well as post-disaster needs for recovery, reconstruction and disaster risk reduction or management. It is based on experience in recent years when the World Bank has led or participated in similar exercises to assist member states affected by disasters. It is intended to facilitate the work of TTLs and to provide a framework for the identification of post-disaster needs.

A Guide to Multi-Stakeholder Post-Disaster Needs Assessment and the Recovery Framework (PDNA) is under development for cases where other international agencies (such as the United Nations, the EC, and other multi-lateral development partners) are requested to undertake assessments of disaster impact and estimations of needs jointly with the World Bank. The present TTL guideline has been prepared to orient the selected TTL in conducting the assessment either on its own, or to lead the part of the PDNA that is entrusted to the World Bank.

The Global Facility for Disaster Recovery and Reduction (GFDRR) intends to develop this guideline continuously by adding more experiences over time. After completing their work, TTLs are requested to provide feedback and suggestions for use as subsequent additions to this guideline.

2. Purpose of the Assessment

Assessments estimate, first, the short-term government interventions required to initiate recovery and, second, the financial requirements to achieve overall post-disaster recovery, reconstruction and disaster risk management or reduction. The end product of the assessment is a comprehensive

program of recovery, reconstruction and risk management that will guide all actions in a developing country following a disaster.

The post-disaster program should define, quantify and prioritize all activities required to achieve full recovery of social and economic conditions, reconstruction of destroyed assets and the undertaking of measures to reduce or manage future risk for the entire affected area or country. A calendar of all such activities, including sufficient details about their implementation, the distribution by geographical areas and targeted population groups, is considered part of the assessment.

The governments of affected countries normally use this type of assessment and post-disaster programs, first, to define their short-term interventions to lessen and shorten immediate disaster impacts and to initiate economic recovery and, second, to define and obtain the required international assistance that goes beyond their domestic capacities, thus ensuring successful implementation of recovery, reconstruction and management of risk.

Note that the assessment of disaster impact and estimation of needs is done to define a comprehensive program of recovery, reconstruction and disaster risk management that will likely be funded by many international actors, not just by the World Bank. The financing formula for such a comprehensive program is a combination of domestic government funding and interventions, private sector savings and contributions, insurance proceeds when available, and concessional credit lines from the National Development Bank and private banks for use by private sector entities and individuals. This financing formula will also contain grants and loans from the international donor community, as well as loans from the financial institutions (including re-oriented existing loans, as well as fresh reconstruction loans). Usually both the World Bank and regional development banks participate in such financing.

The TTL should note that the assessment may lead to:

- a. Financing recovery, reconstruction and disaster risk management/reduction activities through the World Bank, using either existing operations (that may be restructured and/or providing additional financing for on-going operations) and/or processing new operations. The latter can be either an emergency operation (such as an ERL) under OP/BP 8.0, or a regular sector investment loan (SIL), or credit (SIC). Financing of such operations may come from either an IDA grant or credit (for IDA countries or blend countries) or an IBRD loan (for blend countries or for MICs).

- b. Establishing special, in-country multilateral trust funds for recovery, reconstruction and risk reduction following a disaster, for which the assessment is a pre-requisite, under Track III of the GFDRR.

3. How is the Assessment Done?

The assessment uses the application of a methodology which was originally developed in the early 1970s by the United Nations Economic Commission for Latin America and the Caribbean (UN-ECLAC) in cooperation with several UN agencies. It has since been adopted and refined by the World Bank and other international financial institutions.¹

The methodology first estimates the value of the destruction of assets (damages) and of the changes (or losses) in the flows of the economy as a result of the disaster. This is done at the level of each sector of the economy as defined in the affected country's system of national accounts. Then, the aggregation of such damage and losses—ensuring that no double accounting or gaps are incurred—provides an estimation of overall effects of the disaster on the affected society and economy. This subsequently enables the estimation of disaster impact at different levels, including the potential, temporary consequences on the growth of the national economy, the external sector and the fiscal balances, as well as the impact of the temporary decline in income and livelihoods of households and individuals. It also facilitates the analysis of disaster impact on enterprises—from micro to large—and that of increased poverty in the affected areas.²

Once a preliminary definition of the overall strategy for recovery and reconstruction is available, the methodology enables a comprehensive calculation of financial requirements (or needs) for post-disaster short and long term activities. This takes into account the existing domestic capacities and the possibility of “building back better” which would increase resilience against future disasters. The programs of recovery/reconstruction/risk management then provide a calendar of activities which define geographical and sectoral priorities, population targets, as well as respective financial requirements and their preliminary source identification. A calendar to achieve full

¹ *Handbook for estimating the socio-economic impact and environmental impact of disasters*, United Nations Economic Commission for Latin America and the Caribbean, second edition, 2003.

² It should be emphasized here that application of the DaLA methodology enables the estimation of disaster impact alone, without any post-disaster interventions for recovery and reconstruction, which—with whatever delays may occur—can be superimposed at a later time.

recovery and reconstruction that takes into account existing domestic capacities and availability of financial resources, from the early stages of recovery to the longer-term stage of reconstruction and disaster risk management, is also included.

The Damage and Loss Assessment (DaLA) methodology uses objective, quantitative information on the value of destroyed assets and temporary production losses to estimate, first, government interventions for the short term and, second, post-disaster financing needs. It avoids use of qualitative, subjective interpretations. The amount of required financing and its characteristics (depending on the relative capacity of each affected sector or individuals and enterprises) may include cash grants, in-kind contributions, public work schemes for rehabilitation of lifeline services, soft-term and commercial lines of credit and temporary fiscal relief schemes for enterprises and individuals, as well as recovery, and reconstruction and technical cooperation.

Since the DaLA methodology uses the country's system of national accounts, it can be (and has been) applied with ease in nearly all countries of the world, regardless of their level of socio-economic development. Its application produces results for as small geographical area as the affected country's national accounts permit; usually from the national level, to provincial and, in some cases, district level. The results can be supplemented with detailed assessments of disaster effects at the community level—the United Nations is presently developing such a standard methodology that would piggy back on the DaLA.

The DaLA method ensures that the affected government, the United Nations and other international and domestic agencies jointly develop properly estimated and prioritized financial requirements and an accompanying formula that identifies all possible financial sources and modalities. In addition, the estimation of the needs can be used as a basis to monitor post-disaster recovery and reconstruction progress.

II. Planning the Assessment

The TTL must bear in mind that the planning is as important as the actual execution of the assessment, since the quality of its results will depend on the activities being carried out in the best possible manner.

1. Triggering Mechanism for the Assessment

The triggering mechanism for an assessment is a formal request from the appropriate authorities of the affected government, addressed to the Country Director or Manager. This written request should promptly be forwarded to the Bank headquarters in Washington DC, with copies to the Manager of the Global Facility for Disaster Reduction and Recovery (GFDRR). The latter has funds available to finance the assessment and the means to mobilize additional resources for recovery and reconstruction. The Manager of GFDRR is also able to assist in the definition of terms of reference for the assessment, and can provide a roster of trained staff and consultants that could possibly participate in the work. Furthermore, GFDRR can provide the services of experienced advisors to train and advise the assessment team.

The formal government request may be a fully independent initiative and/or the Bank Director or Manager may recommend it to the government through formal or informal channels. Similarly, the government request may also be the result of the intervention and recommendation of the United Nations Resident Coordinator or EU ambassador as foreseen by the recent tripartite agreement between the UN, the World Bank and the EC.³

³ *Joint Declaration on Post-Crisis Assessments and Recovery Planning*, signed by the European Commission, the United Nations Development Group, and the World Bank, on 25 September 2008.

2. Preliminary Contacts

The first step after receiving the official government request should be to hold an initial meeting—possibly by the country Bank Manager and other local experts—with the designated counterpart organization in the government. The purpose of this meeting is to define and agree on the most essential features and objectives of the assessment and its results. This may entail a first visit by the TTL to the affected country or areas in question.

During this first meeting, a formal agreement reached with the government ensures that it will lead the assessment and conduct it with the substantive support of the Bank and other international actors, such as the United Nations 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 participation.

Another component of these preliminary contacts is to approach the other partners in the assessment: the Resident Coordinator and other heads of UN agencies that are active in the country, and who would be involved in the assessment of humanitarian relief activities. 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.

Similar approaches need to be made to the main offices or the headquarters of the UN agencies that are involved in the work, to ensure their full support to the assessment.

3. General Baseline Data Definition and Gathering

Two types of baseline information are required for an assessment: general information on the demographic, social and economic characteristics of the country, and more detailed information on the functioning of each sector of economic activity.

While making the preliminary contacts described above, the TTL should delegate the work of gathering general baseline data to his/her assistant. This data will be required for the assessment and will be distributed to the assessment team members as they travel to the affected country. The assessment team will be responsible for collecting the detailed sectoral baseline information in the affected country.

Annex A presents a comprehensive list of baseline information. It is essential that at least information on the cartography, population, production and overall economic performance and other socio-economic information be collected from different reliable sources, including the affected government itself, as well as the World Bank, the IMF and various UN sources.

The baseline information should provide an overall framework for the assessment of disaster impact and should allow the necessary extrapolations to cover the entire affected areas of the country, also when the assessment team can not cover them all during its field visits.

The assessment team members should receive electronic versions of the tables and data to use during the assessment. Once on-site, they will build on this data by gathering more detailed baseline information for each and all sectors in the affected country.

4. Collection of Existing Assessment Reports

The TTL should also ensure that all existing reports on the disaster and its effects and impacts are obtained *in situ*, no matter how preliminary or partial they may be. The World Bank office in the affected country is in charge of gathering this information. It should ensure that all reports are available in electronic form and distributed to the assessment team members, even before they travel to the country.

Reports typically available include the OCHA humanitarian relief needs assessment, the documents used by the UN and its agencies for flash appeals for relief cooperation, any preliminary assessment reports made by the affected government itself, and reports by non-governmental organizations (national or international, including the Federation of Red Cross and Red Crescent, etc.). All reports should be included, regardless of their degree of accuracy or completeness, as they provide valuable input for the assessment team members.

5. Definition of Sectors to be Included in the Assessment

The list of sectors to be included in the assessment is not defined on the basis of institutional preferences. Rather, the thematic coverage of the assessment is defined by the type, extent and characteristics of the natural phenomena that caused the disaster, in combination with the existing human and economic activities of the affected area. No sector or activity of importance for the society and economy should be left out.

The TTL should first look into the system of national accounts of the affected country to have a preliminary idea of what sectors to include in the assessment⁴ and should then discuss these with the counterpart government organizations. There may be sectors that at first seem unaffected, but that may be so indirectly in view of the hidden inter-relations between sectors of the economy and society. Thus, *all sectors of economic activity should be included*, even if some of them may be discarded later on during the assessment.

The following table shows the list of sectors of economic activity from the national accounts of Namibia, as an example of what is to be included in an assessment for that country.

The TTL should avoid the trap of assessing only the sectors where it is easy to obtain experts, whether from the country in question, from the UN agencies, or from other potential partners in the assessment. Keep in mind that no sector should be left unattended in the assessment as that may result in entire sectors or subjects not receiving proper attention and financing for recovery and reconstruction.⁵

**Box 2.1 List of Sectors,
Republic of Namibia**

Agriculture
Mining and quarrying
Manufacturing
Electricity, gas and water
Construction
Trade, hotels and restaurants
Finance, insurance and banking
Transport and communications
Public administration and defense
Other services

6. Assessment Team Composition

The composition of the assessment team depends on the sectors included in the assessment. Since it makes estimations of destruction of physical assets and of changes in the flow of socio-economic activities, the team should include architects and engineers, sociologists and economists. It should also include other professionals that are well acquainted with the assessment methodology and, hopefully, with the socio-economic conditions of the affected areas.

⁴ The website of the UN Statistics Division (<http://unstats.un.org/unsd>) provides such information. Similar information may be obtained from the World Bank and the IMF websites, as well as from regional and national statistical institutions.

⁵ Sadly, in some recent cases of disaster, certain sectors of economic activity have not been included in assessment due to unavailability of assessment experts. Affected citizens have seen their needs go unidentified and uncounted, with a result of increased vulnerabilities during reconstruction or recovery—and the population is now more at risk than it was before the disaster happened.

Annex B describes a comprehensive list of different disciplines that are essential to include on the assessment team, for each sector of economic activity. Depending on the sector, certain specialties and sub-specialties are required, such as epidemiologists, agronomists, etc.

Note that each assessment specialist should be able to devote sufficient time to participate fully during all stages of the assessment. As indicated below, this usually requires full dedication for two to four weeks; otherwise, the quality and reliability of the assessment could suffer substantially.

The GFDRR can provide the services of experienced advisors who can participate in the assessment. In addition to putting their long experience of conducting similar assessments in different areas of the world at the service of the TTL, the advisors train the assessment team members on the theory and practice of the methodology. They also provide advice to all sector assessment teams on specific applications and situations that may develop during the field visits, and they assist in the aggregation of total disaster effects (analyzing the impact at the macro and micro levels). They assist in the identification of needs and possible post-disaster interventions under different conditions, as well as in the formulation of the actual assessment report. If required, GFDRR may also provide the services of sectoral experts to guide the assessment in specific complex subjects, such as agriculture and livelihoods.

From the government side, officials belonging to the line ministries covering all sectors of economic activity should participate in the assessment (including representatives from the statistical agency, as well as from finance, economic and social planning and other key ministries—see section on Definition of Sectors above). As an example, the following table shows a list of government ministries and agencies that would be required for an assessment of flood disasters in Namibia.

7. Consultations with the National Government and Other Assessment Partners

The TTL, through the World Bank Country Manager or Country Director, should promptly establish direct contact with the most senior official of the government organization that has requested the assessment. Together they will define how the assessment will be carried out, and the leadership, participation and support required from the government, including the list of ministries and sectors of economic activity. Some issues to discuss and agree upon are the particulars about the timing and duration of the assessment, participation of government counterpart personnel on the assessment team, field visits, and definition of the scope of the assessment.

Box 2.2 List of Government Agencies for Assessment, Republic of Namibia

Agriculture, Water and Forestry	Information and Communication Technology
Environment & Tourism	Labor & Social Welfare
Education	Mines & Energy
Finance	Regional, Local Government & Housing & Rural Development
Fisheries & Marine Resources	Trade & Industry
Gender Equality & Child Welfare	Works and Transport
Health and Social Services	Central Bureau of Statistics
Youth, National Services, Sport and Culture	Center of Agricultural Statistics
National Planning Commission	

The TTL, again with the support of the World Bank Country Manager or Director, should also contact the United Nations Resident Coordinator to define the manner in which the UN agencies and programs should participate in the assessment. They should agree on a division of labor that will ensure complementation and avoid duplication of efforts.

8. Terms of Reference for Assessment

The result of these consultations is a fully agreed upon terms of reference (TOR) for the assessment, including a detailed calendar of activities and definition of responsibilities and tasks from each assessment partner. Examples of typical terms of reference for assessments are included under Annex C to serve as a guide for the TTL.

The TTL has to be aware that governments usually need and request that an assessment be started and completed as early as possible, since it urgently needs the results to plan post-disaster activities, interventions, recovery and reconstruction.

However, to start the assessment and conduct it properly and efficiently, certain preconditions must be met: (i) the activities of the emergency stage (i.e. search, rescue and relief) must be completed or nearly completed; (ii) the natural event that caused the disaster must be over (flood waters must have receded so that it will be possible to see the effects on agricultural soils and

crops), and there must be adequate road access to affected areas; (iii) government counterpart staff must be available and emotionally ready to participate in the assessment.

On average, one to two weeks should elapse after the disaster before an assessment is initiated. This time can be used to gather baseline data and to provide necessary training.

9. Local Facilities for Assessment

The TTL must also make arrangements for local facilities to ensure the fluid execution of the assessment. The TTL should ensure that required assessment specialists (from the government, the UN, the World Bank, and other partners) are available full-time, and that detailed plans are made to collect baseline data, to train the assessment team, and to conduct field visits and surveys of the affected areas. It is also necessary to have all office, communications, computer and printing facilities established for the assessment team to conduct its estimates and prepare the assessment report.

Usually, the general type of baseline data can be collected by the World Bank office in the affected country with the assistance of the line ministries and the statistical agency, prior to the arrival of the entire team. The sector-specific baseline information, however, is normally collected only after the sector specialists have arrived in the country. A hands-on training workshop is held at the start of the assessment to acquaint assessment team specialists, especially those of the government, UN and other partners, with the methodology used for the assessment. Also, the physical facilities required for this training must be available.

Under typical conditions, special arrangements need to be made early to select and engage a qualified private firm that specializes in conducting sample surveys. Possibly, a group of university students could instead gather data on the damage and losses sustained by the industry and commerce sectors of the affected country. This data is collected according to a pre-designed format (included as Annex D). Usually there are hundreds or thousands of small to large enterprises in these sectors, and this prevents making individual disaster effect assessments on each one. The firm handling the investigation should be selected and engaged promptly to start the sample survey. This way it can present results to coincide with the completion of the assessment teams' field survey, usually within no more than 10 to 15 days. World Bank procurement limitations for such services require that the contract is awarded promptly under special circumstances. The alternative of engaging university students to collect the data is sometimes considered impractical due to the necessary training period needed before the survey can be started. In recent assessments it has been

possible to engage private firms and to produce the required information on time, provided the TTL has made the necessary arrangements prior (with effective assistance from the World Bank office in the affected country). Sample terms of reference for contracts are enclosed in Annex D.

The assessment team's field visits to the affected areas should be planned in detail. It is usually impossible to visit all geographical areas that have been affected. If so, visits should be made to representative locations, where each assessment team can make relevant observations and interact with owners and operators of affected sectors and enterprises to obtain information on disaster effects. Each sectoral assessment team may decide to visit different areas, depending on their relative importance. Visits by smaller, sectoral teams are more useful than a single visit by everyone to the same place. Since the field visits may last several days, arrangements for overnight accommodations and for communications need to be made ahead of time. The assessment team members will need an adequate work environment and also proper rest at night before continuing the following day. In some cases, it has paid off to send out an advance team to organize and test facilities, and to plan the schedule of the field visits.

It's also essential to explore office, equipment and communications facilities for the assessment team after its return from field visits. While the team members will likely carry their own notebooks, it is essential to have an adequate office, fast internet, local telephone connections, and a printer that can be shared for the preparation of the draft report. Working in a hotel is feasible, but not optimal; so, setting up a temporary office is crucial to ensure adequate working conditions. While this may sound trivial, past experiences have shown the importance of these facilities for a successful completion of the assessment.

Language is an additional important issue; all material should preferably be in English, or qualified translators should be hired to assist in the translation of all documents and information. This is especially necessary for the training of government personnel on the assessment methodology, and simultaneous translators need to be hired to ensure fluidity. In previous cases of assessments, it's been good practice to hire simultaneous translators who are normally used by the finance ministry or central bank, since they are usually well acquainted with the relevant terminology.

Transportation is also an important matter, both for the field visits and also for the subsequent mobilization of staff in the preparation of the assessment report. Each assessment team needs sufficient and suitable vehicles to visit the affected areas.

These arrangements should be completed before the assessment team arrives in the affected country.

III. Execution of the Assessment

At the top of priorities for the assessment team is to organize an initial meeting for all assessment specialists to guide their work. This briefing by appropriate government officials, supplemented by local representatives of the UN or NGOs who are familiar with the disaster and the areas, should describe the affected area, the immediate effects of the disaster and the emergency activities undertaken.

For the benefit of the TTL who leads the assessment, advice and suggestions are given here, including tips on how to carry out certain activities.

The following is a list of typical activities, in the order in which they are usually carried out, including a brief description of each.

1. Training on the Assessment Methodology

At the very start of the assessment, a GFDRR specialist should conduct a two-day workshop to train all assessment team members on the theory and practice of the damage and loss assessment (DaLA) methodology, with special reference to the disaster at hand. While World Bank staff on the team is likely to have received this training previously, and may also have had experience in the application of the DaLA tool, government officials and representatives from other international and national agencies may not have been exposed to the methodology.

The training is the first formal activity during the assessment. It is preferably already tailored to the specific case under study: i.e. describing what must be done for the particular assessment, and providing the general guidelines of the work ahead. Depending on the circumstances, it is possible that only a refresher-type workshop is required. It's important that each trainee is present and participates during the entire training workshop. This is because of the inter-linkages among sectors, and the fact that results from one sector may be used as input for other sectors

(and certainly for the analysis of disaster impacts on overall economic development and also on personal or household income decline).

Once the damage and loss assessments have been completed, a second one-day or half-day training session is required to acquaint the entire assessment team with the procedure for the quantitative estimation of post-disaster recovery and reconstruction needs, for which damage and losses are used as the starting point.

The TTL should be aware of the importance to conduct the two separate training sessions. To avoid confusing terms, and to ensure that needs estimation is not tainted by inadequate or manipulated estimations of damage and losses, the procedure to quantify needs must be presented only after damage and losses have been estimated.

A typical agenda for the DaLA training is enclosed in Annex E. A suitable conference room with computer and projection facilities is required, large enough to accommodate the entire assessment team. In addition, it's ideal to have additional computer facilities to enable the simultaneous work of three to four small working groups. Handouts of the training materials should be prepared ahead of time and distributed among participants. Simultaneous translation should be provided in case the training is attended by those who are not fully familiar with the English language.

2. Sectoral Baseline Data Collection

Immediately after the conclusion of the training workshop, each sectoral assessment team begins gathering the detailed sector baseline data. With guidance of government representatives, and after detailed discussions with the appropriate authorities and private institutions, the team will visit any and all places where relevant baseline data can be collected. Whenever privately owned enterprises are approached for information, written communications from the local authorities must be prepared ahead of time to facilitate cooperation.⁶

The entire baseline information must be available to the assessment team before initiating field visits to the affected areas. It provides the image of what existed before the disaster struck, and will constitute the quantitative base for comparing the effects and impacts of the disaster.

⁶ Recall that in most cases of privately owned utilities—such as electricity, communications or water and sanitation sectors—nearly all baseline data required for the assessment can be obtained from annual reports to shareholders. Studying annual reports is an easy way to overcome the common reticence of private enterprises to provide what may be perceived as confidential information.

Baseline data requirements for each sector are described in Annex A.

3. Industry and Commerce Sample Survey

The assessment of damage and losses in these two sectors is complex because of the hundreds or thousands of establishments that are scattered in the affected areas, and it's impossible to make individual estimates of disaster effect for each one. A good advice is to contact any private sector associations in the affected area or country to enlist their wholehearted cooperation in collecting baseline and damage and loss information from their associates.

It's also important to early identify and select qualified firms that can carry out the special sample survey of industries and commerce establishments. Very often World Bank offices and projects engage similar firms to collect other quantitative information. Knowledge about such activities is very valuable for the assessment and could lead to a faster signing of a contract with the firm selected.

Annex D describes the terms of reference and the forms to be filled out by the sample survey team members. Recall that the time frame for conducting this data collection and processing must not exceed an average of 10 days in order for the results to be included in the assessment. To be precise, the sample survey should occur at the same time as field visits by the entire assessment team. The analysis of damage and losses sustained by the sampled enterprises must be readily available for use in the extrapolation of results for the entire affected area when the assessment team returns to the capital city.

4. Field Visit to Affected Areas

No assessment of disaster effects and impacts can be conducted without a field visit to the affected areas. Arrangements for such a visit, including transportation and accommodation facilities for the assessment team, must be made ahead of time. The sectoral assessment teams determine which areas to visit to gain an adequate representation of disaster effects and impact. In order make that decision, special consideration is given to already completed assessments from the emergency stage, as well as to discussions with the officials who compiled those reports.

Another issue to consider is the state of disrepair of roads to and within the affected areas. It's essential to make preliminary contacts with relief personnel and with government and private officials that have already visited those areas.

When, for any reason, it is not feasible to visit all affected areas, the DaLA methodology enables the extrapolation of results to cover the entire geographical area, provided that sufficiently solid baseline data is available at the time of the assessment.

To avoid having different sectoral assessment teams make numerous visits to the same area, resulting in fatigue of local officials, consider the possibility of coordinated visits by assessment teams from related sectors. For instance, it's quite possible for assessment teams of education and health to undertake joint visits to school and hospitals (the same for industry and commerce). However, the areas visited by infrastructure sectors assessment teams may not coincide with those visited by the agricultural sector. In brief, each sector's needs are to be addressed and met separately, unless there are grounds for doing it jointly with other sectors.

5. Standard Forms for Presentation of Assessment Estimates

To facilitate the consolidation of assessment results, standard forms have been designed and included in Annex F. During the training workshop, distribute this set of standard forms to the participants for presentation of sectoral assessment estimates, and include detailed explanations of their contents and instructions on how to fill them out.

All sector assessment teams are required to use these standard forms, as this process facilitates the consolidation of total disaster damage and losses.

6. Timetable for Assessment

The typical calendar of an assessment is shown in the following chart, describing the sequence and timing of each main activity. Needless to say, the timing must be adjusted depending on the complexity, extent and structure of the affected area and of economic activities, but under average conditions it is feasible to carry out an assessment fully within a period of two to four weeks.

The sequence of activities described below cannot be modified, since the sector-by-sector assessment must be fully completed before it is possible to estimate disaster impact at the macro-economic level and income decline at the personal or household level. It is also important to recognize that needs cannot be estimated before effects (damage and losses) and impact analyses have been completed.

Table 3.1 Time Requirement of DaLA

Activities	Month 1				Month 2			
	W1	W2	W3	W4	W1	W2	W3	W4
Emergency State	█							
Damage and Loss Assessment	█		█					
• Training on Damage and Loss Assessment	█							
• Baseline data collection	█							
• Field Survey for primary data collection in affected area				█				
• Extrapolation of results to entire affected area				█				
• Sector-by-Sector assessment				█				
• Aggregation of damage and losses					█			
Disaster Impact Analysis					█			
• Macro-economic impact analysis					█	█		
• Analysis of disaster impact at personal or household level					█	█		
Estimation of Recovery and Reconstruction Needs							█	█
Final Report Writing							█	

The duration of activities listed in the calendar above should be based on preparatory and planning work, and subject to slight modifications as required by the actual fieldwork. However, a target date should be defined ahead of time in each assessment, after which no changes in estimations can be made on sectoral damage and losses, since this may have a negative impact on the subsequent stages of the assessment. Nevertheless, refinements of initial estimates should always be allowed whenever additional information becomes available.

The TTL will usually have a specialist on damage and loss assessments from GFDRR who provides the training of the assessment team and also provides advice on how to tackle unexpected or more difficult estimations. This GFDRR specialist is available to interact with each and all sector assessment teams during the field visits and also in the subsequent estimates on damage, losses and needs. From consultations between this GFDRR specialist and the TTL, it will be possible to establish the target dates for different stages of the assessment, and to modify them as needed.

7. Sector by Sector Assessment and Estimation of Total Disaster Effects

The DaLA methodology requires the assessment of the value of destroyed physical assets (damage) and resulting changes in economic flows (losses) for each sector of economic activity in the area affected by the disaster. It also requires a subsequent aggregation of sector results to ascertain the total values of damage and losses ensuring that no double accounting or gaps exist.

Only in this fashion will it be possible to obtain the total effects of the disaster, where both direct and indirect effects are considered.

8. Analysis of Disaster Impact

As pointed out before, once total disaster effects have been estimated, an analysis is made to estimate the likely impact of the disaster on the national economy and also to estimate the expected, temporary decline in personal or family income. A distinction is made of the resulting negative impact of the natural event that caused the disaster and the subsequent positive impact of government interventions and parallel private sector investments to achieve recovery and reconstruction.

The first step of the analysis of disaster impact at the macro-economic level is made assuming no post-disaster interventions would be made. To do that, the estimated production losses and higher costs of production arising from the disaster are superimposed on the forecast of economic performance prevailing before the disaster occurred. This analysis is done to predict possible negative impacts on the gross domestic product (GDP), the external sector (balance of payments) and the fiscal budget, if no post-disaster interventions were to be made.

As a second step in the analysis, the value of estimated recovery and reconstruction interventions and investments is superimposed on the same variables to ascertain the effectiveness of post-disaster activities, including any possible delays in their starting point.

The first step of the analysis described above enables the determination of whether the disaster is of limited or large magnitude, and whether the capacity of the government is sufficient to meet post-disaster recovery and reconstruction on its own; conversely, whether the situation exceeds government capacity and therefore demands international assistance.

Using the estimated losses in sector production, in combination with baseline information on the existing labor force and the imputed or average income and wages per sector, estimates can

be made of the temporary decline in personal or household income that will arise from the disaster in the absence of any government interventions. Furthermore, analysis can be made on the likely temporary impact on poverty levels from the disaster.

9. Estimation of Financial Needs for Recovery and Reconstruction

The financial needs for all recovery interventions and for reconstruction and disaster risk reduction or management are estimated after the previous steps of the assessment have been completed. Quantitative data on damage and losses are used in combination with a preliminary outline of the strategy adopted by the government (after consultations with all stakeholders) for the recovery and reconstruction of the affected areas.

9.1 Recovery Needs

Two different sets of recovery activities are carried out; first, the short term government interventions designed to kick start all affected economic functions, and second, those that will be required in the medium and long term to ensure that economic performance returns to normal or pre-disaster levels.

Based on the analysis of likely disaster impact at the macro level, in view of the losses in production for each sector, short-term government interventions can be identified and estimated. Sector economists are able to estimate needs for recovery based on the amount and value of inputs required to re-initiate production activities, and macro-economists can consolidate the partial estimates to produce a list of required government interventions.

Lists of possible government interventions are included in the separate GFDRR Guidance Notes for the Estimation of Post-Disaster Needs for Recovery and Reconstruction. This also includes a description on how they may be quantified. Many possible interventions can be implemented, including initiatives to undertake activities that would, for example: (i) provide minimum food to affected families that may have lost their food stocks while unable to be economically self sufficient; (ii) assist individuals to temporarily earning income, while their normal activities are resumed, through cash-for-work programs to rehabilitate public or collective infrastructure and services; (iii) provide materials for rehabilitation of housing and restocking of household goods for the poor; (iv) establish special lines of soft-term financing for rehabilitation and reconstruction of housing owned by credit worthy individuals; (v) allow direct import of food stocks by

the government to replenish those that have been destroyed in the disaster, or provision of government incentives for private individuals to undertake such imports (and thereby ensure food security); (vi) establish special-term credit lines through development and commercial banks and/or temporary tax relief measures to facilitate recovery of production and reconstruction of small to large enterprises in productive sectors; (vii) assist the tourism sector in conducting promotion campaigns abroad to inform potential tourists about the recovery of affected tourist areas; and (viii) establish other tax-related incentives for recovery.

In many instances, international agencies assume that the affected government is not able to take actions for short term recovery, but practice has shown that—far from being observers only—governments can and should shoulder large amounts of responsibility to accelerate recovery through interventions or public policy changes. The assessment of damage and losses and the analysis of disaster impact at the macro and micro levels provide information to define such government interventions in the short term. And experience has shown that governments are very grateful for the inputs they receive since they facilitate much needed post-disaster actions.

Medium and long-term recovery needs are also estimated based on values of losses in each sector. Any self-respecting sectoral economist is able to estimate the value of required inputs to achieve normal or non-disaster levels of production. As an example, an agriculture economist may estimate the amounts and value of seeds, fertilizer and pesticides (as well as of financing) required to re-activate normal crop production. An industrial economist can make similar estimates to calculate the financing of working capital required to put industrial enterprises back to pre-disaster levels of production. Likewise, a labor economist is able to estimate the financial requirements to assist workers from different sectors to recover from temporary income decline.

It should be noted here that, by definition, the estimated value of recovery needs is usually equivalent to a fraction of the estimated losses in each sector.

9.2 Reconstruction Needs

The estimated value of damage in each sector of economic activity provides the basis for the estimation of the amounts of financing required for the reconstruction of assets that were totally or partially destroyed by the disaster. The estimated damage figures need to be complemented with the defined standards of reconstruction.

Normally, a disaster provides an opportunity to build back better some of the destroyed assets (especially housing) through introduction of quality standards and also of measures to increase resilience against future disasters. Often entire buildings, or even villages, need to be relocated to geographical areas with lower vulnerability. In such cases, the financial requirements will be higher than the value of damage to account for the additional cost of the land to be acquired, and the basic services to be installed in the new locations. Lastly, whenever reconstruction will take place over a relatively long time, involving more than a year, the effect of inflation must be accounted for in the estimation of needs.

In brief, the estimation of reconstruction needs is made through the use of the following formula:

$$\text{Needs} = \text{Value of damage} + \text{quality/technological improvement} + \text{mitigation measures} \\ + \text{multi-annual inflation}$$

A reconstruction strategy may not be available at the time of the assessment, but needs may be estimated based on very preliminary decisions on how reconstruction will be undertaken. As soon as the strategy is agreed upon among the different stakeholders, the financial requirements may be refined.

It is evident that the value of reconstruction needs will normally be higher than the estimated value of damage.

IV. Assessment Report

Under normal conditions the final report of the assessment will include three main sections: (i) a description of the disaster and of the emergency activities undertaken; (ii) the estimation of disaster effects and impacts; and (iii) the description of financial needs for recovery, reconstruction and disaster risk reduction or management. Annexes containing detailed information on the baseline and sectoral assessments may also be added. Another possibility is to divide the report into two main parts: the first being a description of the situation that existed prior to the disaster, including the estimation of disaster effects and impacts, and the second being a description of future needs for post-disaster recovery, reconstruction and disaster risk reduction.

When UN agencies, the government, the international financial institutions and other development partners participate in the assessment, agreements must be reached on their respective contribution to the final assessment report. Usually, the participation of UN agencies and programs is focused on the estimation of community level disaster effects and post-disaster human recovery needs, while the international financial institutions normally concentrate on the higher geographical or geopolitical levels of disaster effects, impact and needs.

Annexes

Annex A. Baseline Information Requirements for Assessment

A. General Information

Most recent population census

Most recent household survey

General maps for country and affected areas

Annual economic and social surveys

Poverty maps

Millennium Development Goals

Annual production statistics

Production forecasts

Annual reports for utilities

Other economic and financial reports

B. Sector Specific Information

1. Productive Sectors

a. Agriculture

a.1 Crops

Calendar of production activities for permanent and seasonal crops

- Cropped areas for different products (seasonal, annual and permanent crops)
- Gross output for each product, for the past five years
- Unit yields for each product, for the past five years
- Unit prices paid for each product (at farmgate, wholesale and retail levels)
- Forecast of production for current and next two years
- Expected unit yields for each product
- Planting intentions by farmers, for each product
- Annual exports and imports of each product
- Most recent food balance

a.2 Livestock

- Animal stock
- Unit market prices paid to farmers for animals
- Annual or monthly production of milk, cheese, eggs, etc.
- Unit prices paid to producers for milk, cheese and eggs

a.3 Fisheries

- Number and capacity of boats and nets
- Annual or monthly production of fish
- Unit prices paid to fishermen (at dock prices)
- Number and capacity of aquaculture facilities
- Annual or monthly production in aquaculture
- Unit prices paid to aquaculturists

b. Industry

- Types and sizes of industry branches
- Most recent industrial census or survey
- Time series of industrial production and wholesale prices, for the past five years
- Information on SMEs

c. Commerce

- Types and sizes of commerce establishments
- Most recent commerce survey or census
- Time series of commerce and trade volume and retail prices, for the past five years
- Periodic surveys on commerce and trade enterprises

- d. Tourism
 - Most recent survey on tourism sector
 - Time series of tourist arrivals, seasonality and expenditures, for the past five years
 - Average length of stay and expenditures by foreign tourists
 - Comprehensive information on bed capacity and other assets in sector
 - Taxes on tourism and entry visas for foreigners

2. Social Sectors

- a. Education
 - Calendar of education activities
 - Number and size of education facilities at all levels, divided into public and private ownership, urban and rural location, and level of education (primary, secondary, technical and vocational, university, etc).
 - Number of students and classrooms—per shift or total—for each educational center
 - Typical furnishings, equipment and education materials available in each type of school
 - Unit construction costs per typical school center and unit costs of equipment and education materials, and typical delivery times
- b. Health
 - Location and characteristics of existing health facilities in affected and nearby unaffected areas
 - Existing human resources, equipment and medical supplies in each health facility
 - Amount of regular budget for health care in each and all sector facilities
 - Description of the health sector management, whether fully government financed and/or with private sector and medical insurance coverage
 - Prevailing socio-demographic situation and status of main epidemiological indicators, including morbidity rates and incidence of different diseases that are relevant to the type of disaster in affected or nearby unaffected areas.
 - Unit treatment costs for typical diseases, whether on ambulatory or in hospital basis
- c. Housing and human settlements
 - Most recent housing census
 - Most recent household survey
 - Value of monthly rentals
 - Typical types of housing units in the affected areas, with description of their size, construction materials, etc

- Main construction materials used in the affected areas
- Number of existing dwelling units in the affected areas, broken down by province, district, village, etc.
- Typical household goods and equipment in each type and size of housing units
- Construction costs for each type of housing, prevailing pre-disaster
- Unit costs of household goods and equipment
- Overall construction sector capacity, per month or per year

3. *Infrastructure Sectors*

- a. Water supply and sanitation
 - Managerial structure of the water supply, wastewater disposal and solid waste collection and disposal systems, rural and urban (including public or private utilities, municipalities, and regulatory and governing bodies)
 - Number of persons served by collective, family or individual systems of water supply, wastewater disposal and solid waste collection and disposal, in urban and rural areas
 - Number of connections, average levels of water consumption and of water disposal
 - Average rates for water supply and wastewater disposal, as well as for solid waste collection and disposal, subsidies by government, billing collection effectiveness, etc.
 - Description of typical materials and equipment used in these systems, and average costs for building and maintenance of systems
- b. Electricity supply
 - Description of system assets, including power plants, transmission facilities and distribution grids
 - Historical sales of electricity by sector-users and average rates (US\$/KWh), for the past five years
 - Forecast of electricity production and sales of electricity for the current and subsequent two years
 - Existing electricity surplus in nearby unaffected systems
- c. Transport (road, railway, air and water transport modes)
 - Types, quality and lengths of existing roads and railroads
 - Vehicular stock (including rolling stock) characteristics
 - Number and characteristics of bridges, tunnels, drainage structures
 - Number and characteristics of ports and airports
 - Traffic flow patterns under non-disaster conditions

- Marginal operating costs of vehicles in all modes and conditions of surface
- d. Communications
 - Postal and telecommunications systems installed capacities
 - Costs of buildings, equipment
 - Annual sales of communications services, by system

4. Cross-sectorial Activities

- a. Public administration
 - Number, type and size of public administration buildings (not included separately under each sector)
 - Number, type and size of vehicles and equipment in public administration (not included separately in each sector)
- b. Financial sector
 - Buildings and equipment of banks and other financial institutions
 - Outstanding loans per sector, according to type of clients (individuals, small, medium and large enterprises)
- c. Environment
 - Inventory of environmental assets and their corresponding environmental services, expressed in market values
 - Location and extent of important eco-systems
 - Location and characteristics of protected resources
 - Location and extent of hazardous product disposal sites

5. Macro-economic Information

- Data on gross domestic product, in current and constant values, for the past three to five years, broken down by sector of economic activity
- Most recent, pre-disaster forecast of gross domestic product for current year, ensuring that no effects from disaster have been included
- Most recent and reliable forecast of GDP for the next calendar or fiscal years, ensuring no effects of disaster have been included
- The same for the case of both the balance of trade (with breakdown of specific import and export products) and for fiscal budget (with details of revenues and expenditures)

- Record of exchange rate for the past three years, including for the most recent quarter prior to the disaster
- Record of consumer price indexes for the past three years, including for the most recent quarter prior to the disaster
- Set of most recent value-added coefficients for each sector of economic activity

6. Personal or Household Income Analysis

- Most recent available information on (wage and non wage) income and poverty levels of the population for the disaster-affected country and areas, by sex, sector of economic activity and broken down by the smaller possible geographical area

Annex B. Typical List of Specialists Required for Assessment

Table AB.1 List of Sector Specialists

Sectors	Sub-sectors	Discipline or specialty required	
		Essential	Desirable
Productive	Agriculture Crops	Agronomist	Agriculture extensionist
		Agriculture or rural engineer	Food balance specialist
		Agricultural economist	Nutritionist
	Livestock	Veterinarian	
		Livestock economist	
	Fishery	Biologist	
		Fishery economist	
	Industry	Civil or industrial engineer	
		Industrial economist	
	Commerce	Civil engineer or architect	
		Trade economist	
	Tourism	Architect or civil engineer	
		Tourism economist	
	Social	Education	Architect or civil engineer
Sociologist			
Health		Architect or civil engineer	Public health specialist
		Medical doctor	Nutritionist
		Epidemiologist	
Housing		Architect	Urban planner
		Civil engineer	Structural engineer

(continued on next page)

Table AB.1 List of Sector Specialists (continued)

Sectors	Sub-sectors	Discipline or specialty required		
		Essential	Desirable	
Infrastructure	Water and sanitation	Civil engineer	Public health specialist	
		Sanitary engineer		
		Economist		
	Electricity	Civil engineer		
		Electrical engineer		
		Economist		
	Transport	Civil engineer		
		Railway engineer		
		Transport economist		
	Communications	Civil engineer		
		Telecommunications engineer		
		Economist		
	Others	Macro analysis	Macro-economist	
			Development economist	
			Statisticians	
Income analysis		Labor economist		
Gender analysis		Gender specialist		
Environment		Environmental economist		
		Biologist		

Annex C. Sample Terms of Reference for Conducting Damage, Loss and Needs Assessments

ToR for Conducting Damage, Loss and Needs Assessment

Damage, Loss and Needs Assessment for <event and date>

Background

<Description of country, event and emergency information on impact>

<If possible, provide a table with people affected, fatalities, wounded, and other available information>

On <date>, the Government of <name country> requested assistance to conduct a Damage, Loss and Needs Assessment <attach letter>

Objectives

- Estimate the overall impact of the disaster on the socio-economic development of the country and the affected areas (**Damages, Losses, Macro-Economic Impact and Livelihoods**).
- Define a financial plan for **Recovery and Reconstruction** of the affected areas based on the needs in all key sectors of the economy.

- Include cost specific **Risk Management** activities associated with the recovery and reconstruction efforts proposed.
- Train a country team of government and international agencies to carry out the damage, loss, and needs assessment.

Methodology

The assessment is based on the comprehensive damage and loss assessment methodological tool presently used by the World Bank for the estimation of overall disaster impact, complemented by sector-wise assessment methodologies developed by specialized agencies of the UN. The process ensures information that can be used as input for the overall analysis of socio-economic disaster impact.

Activities and Work Plan

The assessment will be coordinated by the Government of <name country> in close cooperation with the World Bank, UN and other development partners, including the private sector.

The following activities will be carried out as part of the comprehensive assessment:

1. *Assessment preparations.* <describe>.
2. *Training of assessment team members in the damage and loss assessment methodology.* <describe>
3. *Assessment of overall damage and losses caused by the disaster in the entire affected areas.* Affected sectors of the economy will be analyzed to ascertain disaster effects and results of ongoing surveys will be used as inputs. All affected sectors of the economy are to be covered. The pre-existing social and poverty conditions in the area will be given due consideration in the analysis. Existing inter-linkages between sectors will be taken into consideration to ensure that overall losses to the economy are analyzed. <attach detailed list of sectors covered>.
4. *Estimation of overall impact of the disaster on development in the affected area and the country.* On the basis of the overall damage and losses, an analysis will be made to ascertain the impact of the disaster on the economy and society. At the macro-economic level, the analysis will determine the impact on overall economic growth, on the fiscal sector and on the external sector of the economy. Estimated at the micro level is the impact on personal or family income, expenditures and livelihood in the informal

sector. This analysis should also include an estimation of the Government's capacity to meet the financial needs of medium and long-term recovery and reconstruction, and a corresponding estimation of international assistance, if required.

5. *Estimation of medium and long term financial needs for recovery and reconstruction.* Financial needs for recovery and reconstruction after the disaster will be estimated, with detailed breakdowns considering the distribution and priority of geopolitical divisions, sectors of the economy, and different population groupings in the affected area. A calendar of investments will be formulated with identified channels for funding distribution.
6. *Compilation and Report Writing.* With the inputs mentioned under points 3 to 5, the coordinating support team will compile all sector information into the final report. It will be complemented with information on the nature of the disaster, geographical and population characteristics of the affected areas and disaster risk management analysis. All stakeholders will discuss the final report before it is published.
7. *Presentation of the assessment result.* The results of the DaLA will be presented and discussed at a high-level forum to <identify>

Composition of the Assessment Team

The Government of <name country> will lead the assessment, with substantive support from the World Bank, UN and other international institutions. The composition of the assessment team will reflect all affected sectors of the economy and therefore be multi-disciplinary in nature with different institutions and agencies involved.

This multi-agency approach will not only assure that all relevant sectors are covered, it will also establish a more coordinated approach to recovery and reconstruction assistance following the assessment. This will in turn enhance the targeting and quality of the investments.

A **Coordination Support Team** will consist of Government and representation of the assisting donor institution (i) to coordinate the entire assessment process, including safeguarding timelines, methodology, etc; (ii) to compile the sector analysis for the final report, and (iii) to consult with all stakeholders on the results of the assessment.

Sector Teams will consist of technical staff from the relevant line ministries, supported by experts of participating organizations.

<Attach a detailed list of the assessment team composition>.

Expected Outputs

The DaLA will result in a joint comprehensive report that will include an estimate of the effects of the disaster; the impact on the economy, livelihoods and income of families and individuals; and a needs assessment that defines recovery and reconstruction requirements including comprehensive disaster risk management measures.

The Report will include:

1. Replacement cost estimation of destroyed assets for each sector of the economy (for physical assets that may have been totally or partially destroyed).
2. Estimation of changes in the flows of the economy (losses) in each sector of the economy.
3. Estimated Government expenditures for humanitarian assistance during the emergency stage after the floods.
4. Estimation of GDP, balance of payment and trade, and fiscal budget performance for the entire country without the occurrence of disaster, as well as projections for future years in both current and constant prices.
5. Estimation of financial needs for reconstruction and recovery for each sector.

This comprehensive analysis will provide a solid basis to estimate medium and long term financial needs and implementation strategies for recovery and reconstruction that will strengthen coping mechanisms of the affected population and resilience against future disasters.

This report will provide guidance for the Government, private sector and the donor community to plan recovery and reconstruction investments that are well coordinated, targeted and of good standards.

Budget

The cost of the entire exercise will be supported by <identify sources>, which includes a grant from the Global Facility for Disaster Reduction and recovery <attach budget reflecting total costs and breakdown per contributor>.

Annex D. Standard Questionnaire and TOR for Conducting Sample Survey of Industrial and Trade Enterprises

A. Standard Questionnaire for Conducting Sample Survey of Industrial and Trade Enterprises in Areas Affected by Disasters

Country:

Conducted by:

**Table AD.1 Survey of Damage and Losses in Commerce and Industry
Section 1: Identification**

Date of interview: [day/month/year]		1. Province
2. District:		3. Village:
4. Village/road:		5. Name of the company (processing or manufacturing unit):
6. Identification number:		
7. Address: _____ _____ _____		8. Contact phone number (if any)
9. Type of business	Manufacturing 1 Processing 2 Cottage Industry 3 Wholesale/retail sales 4	10. What do you process or produce (use code1)?

(continued on next page)

Section 2: Questions related to your business

No.	Questions	Response	Response option
	Business operation		
1	Has the business been affected by the disaster?		Yes 1 No 2 – skip to Q 3
2	If yes, in what way has the business been affected? [multiple response]		Damage to premises 1 Damage to equipment/machinery 2 Damage to finished products 3 Shortage of labor 4 Shortage/lack of electricity 5 Shortage/lack of water 6 Shortage/lack of raw materials 7 Productivity decline 8 Stoppage of operations 9 Demand decline for products 10 Other (specify) 11
3	Had the business stopped due (indicate name of disaster)		Yes 1 No 2 – skip to Q 7
4	Is the business currently in operation?		Yes 1 No 2– skip to Q 6
5	If yes, after what time period were business operations resumed?		Within a week 1 Within two weeks 2 Within a month 3 Within two months 4 I don't know 5
6	If no, when do you anticipate being able to start operation again?		Within a week 1 Within two weeks 2 Within a month 3 Within three months 4 I don't know 5
	Number of employees		
7	Total number of employees in the business currently		Number of current employees
8	Total number of employees pre-disaster		Number of employees before the disaster
9	If different from now, how many of your employees perished?		Number of employees perished in the disaster

(continued on next page)

Section 2: Questions related to your business *(continued)*

No.	Questions	Response	Response option
10	If different from now, how many of your employees were injured due to disaster and are not attending the job anymore?		Number of employees injured due to the disaster
11	If different from now, how many of your employees left because they need to attend their home due to this disaster?		Number of employees left due to disaster
12	If different from now, how many of your employees have you let go because the business is reduced due to disaster?		Number of reduced employees due to disaster
	Business output/revenue level		
13	What is the level of average output/revenue per month currently?		Value in (indicate local currency)
14	Has output/revenue been reduced?		Yes 1 No 2 – skip to Q 18
15	What was the level of average out-put/revenue per month before the disaster?		Value in (local currency)
16	If different, how much has it been reduced in percentage (base value is pre-disaster time)		In percentage
17	When do you anticipate output/revenue back to its pre-disaster level?		Within a week 1 Within two weeks 2 Within a month 3 Within three months 4 I don't know 5
	Destruction of building structure, asset and stock		
18	Was the building structure damaged by the disaster?		Yes 1 No 2 – skip to Q 20
19	If yes, how much money it would take to repair/restore the damaged building structure?		Value in local currency
20	Were other assets damaged by the disaster?		Yes 1 No 2 – skip to Q 22
21	If yes, what was the value of other assets that were damaged by the disaster?		Value in local currency

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Section 2: Questions related to your business *(continued)*

No.	Questions	Response	Response option
22	Was the stock of finished goods destroyed or damaged by the disaster?		Yes 1 No 2 – skip to Q 24
23	If yes, what was the value of the stock, destroyed or damaged by the disaster?		Value in local currency
	Impact on supply chain, market and financial support		
24	How have your customers been affected? [multiple response]		No problem with customers 1 Deliveries have been delayed 2 Delivery cannot be made 3 Order cancelled by customer due to delays 4 Other (specify) 5
25	What sort of difficulties are you experiencing getting your goods/services to the market? [multiple response]		No problems 1 Lack and increased cost of transport 2 Lower demand for our products 3 Lack /insufficiency of working capital 4 Other (specify) 5
26	How have your suppliers been affected? [multiple response]		Suppliers not affected 1 Raw materials scarce/not available 2 Higher price for raw materials 3 Other (specify) 4
27	How has your access to finance been affected? [multiple response]		No problems 1 Difficulty in paying outstanding loans 2 Need to renegotiate existing loans 3 Need soft term fresh loans 4 Other (specify) 5
28	Have you or the bank lost records?		Yes 1 No 2
29	Is your business insured for disaster (in terms of assets? and of revenue losses?)		Yes 1 No 2
	Respondent's suggestion on how government can help to restore the business		

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Section 2: Questions related to your business *(continued)*

No.	Questions	Response	Response option
30.	<p>What are the most important steps that the government can take to help your business to get back on its feet again? Give a maximum of three (3) suggestions.</p> <p>1. _____ _____ _____</p> <p>2. _____ _____ _____</p> <p>3. _____ _____ _____</p>		<p>This is an open-ended question, it will be coded later</p>

B. Draft ToR for Engaging a Private Consulting Firm to Conduct the Sample Survey of Industrial and Trade Enterprises in Areas Affected by Disasters

Terms of Reference

Support to joint evaluation for the industry and commerce sector

1. Context

<provide some information on the disaster, context of the evaluation, actors involved, timeframe and objectives etc>

To complete the preliminary evaluation in the industrial and commercial field, the support of the national consultant is needed to gather information concerning damages and losses in this sector.

2. Objective

The consultant will support the team in the joint evaluation. He will be responsible for collecting information for the industrial and commercial sector. This information will serve for the global analysis of sectoral needs.

3. Consultant Responsibilities

The consultant will work along the following two axes:

- Distributing the questionnaires within the intermediate units (such as chambers of commerce, professional associations)
- Collecting information and building a data bank on damages and losses in the industrial and commercial sector.

4. Activities

- Identification of partners, preparation of meetings agenda, and identification of mechanisms for the gathering of information in the industrial and commercial field.
- Elaborate the retro-planning for the implementation of the activity.
- Spreading, between the identified partners, and in collaboration with the World Bank in <country>, all the questionnaires set up to obtain information on damages and losses, as well as information on the enterprises pre-disaster, and their projection for the immediate future without disaster.
- Conduct the process of gathering information at the national level in the industrial and commercial field (< number of> enterprises comprising all of the territory).
- Constant monitoring of identified partners in information gathering.
- Create a daily report monitoring works, and coordinate with other mission members, especially on technical coordination.

5. Expected Deliverables

- Listings and contact information of principal partners
- Agenda of meetings, and create an address book to begin cooperation
- Oral monitoring reports to team in coordination meetings during the evaluation mission.

- Data base based on the matrix provided by joint evaluation, showing the status of enterprises and tendency before the disaster as well as the sum of damages and losses caused by the disaster.
- Written report on sector for the joint evaluation report.
- End of mission brief report.

6. Length and Location

The consultancy is planned for <number> working days, between <months, year>. The consultant will be based in xxx, with possible deployment in provinces.

7. Institutional Arrangements

The consultant will work under the general responsibility of the World Bank office, and under the direct supervision of <name, title of supervisor>. He/She will work in tight collaboration with the consultants in charge of the joint evaluation, and will benefit from logistical support provided under the project.

8. Qualifications

The person in charge of this consultancy will have the following profile:

- Experience in project leadership and methodological and procedural support
- Good knowledge of the issue, as well as private sector networks
- Good knowledge of state and private institutions working in <country>
- Significant experience with <country> institutions.

9. Payment

The consultant will be paid <dollar amount> daily. All expenditures incurred by the consultant relative to the mission will be taken in charge by the World Bank.

The consultant will be paid through submission of request for payment form and will be reimbursed for incurred expenses through the submission of a statement of expense with supporting documentation. <if firm is hired, this section needs to be adjusted>

Annex E. DaLA Training on Damage and Loss Assessment after Disasters

Table AE.1 Agenda for DaLA Training

Day	Time	Training subject and activity
1	am	<ol style="list-style-type: none"> 1. General Introduction 2. Conceptual Framework of the DaLA Methodology 3. Generic Assessment Procedure
	pm	Productive Sectors <ol style="list-style-type: none"> 4. Agriculture, Livestock and Fishery 5. Industry 6. Commerce 7. Tourism
2	am	Social Sectors <ol style="list-style-type: none"> 8. Housing 9. Education 10. Health
	pm	Infrastructure <ol style="list-style-type: none"> 11. Electricity 12. Water and Sanitation 13. Transport and Communications
3	am	<ol style="list-style-type: none"> 14. Summary of Damage and Losses 15. Analysis of Macro-Economic Impact <ul style="list-style-type: none"> • Gross Domestic Product • Balance of Payments • Fiscal Sector 16. Analysis of Disaster Impact at Personal/Household Level

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Table AE.1 Typical DaLA Training Agenda *(continued)*

Day	Time	Training subject and activity
4	am	17. Estimation of Recovery and Reconstruction Needs on the Basis of Estimated Damage and Losses by Sector

Annex F. Typical Damage and Loss Output Tables

Country:

Sector:

A. Summary Table

Table AF.1 Estimation of Damage and Losses after Disaster
(Million US\$)

	Disaster effects			Ownership by sector		Effects on:	
	Damage	Losses	Total	Public	Private	BOP ¹	Fiscal sector ²
Subsector, component							

¹ Lower exports; higher imports

² Lower tax revenues; unexpected expenditures

B. Sector Tables

Table AF.2 Housing Sector

Estimation of damage	Type of housing unit ¹					Disaster effects		
	A	B	C	D	E	Damage	Losses	Total
a) Houses Fully Destroyed								
Number of houses								
Average replacement cost								
Estimated value of damage								
b) Houses Partially Destroyed								
Number of houses								
Average replacement cost								
Estimated value of damage								
c) Household Goods								
Estimation of losses								
Duration of reconstruction period, months								
Cost of demolition and rubble removal								
Cost of temporary housing scheme								

Other relevant estimates (For Needs Estimation)

Higher unit value of house quality improvement

- Land acquisition
- Water and sanitation
- Electricity

Cost of relocation to safer areas

Cost of structural retrofitting for increased disaster resistance

Additional information for Macro-Economic Impact Estimation

Loss of rental income by home owners

Per cent value of imported component for house reconstruction

¹ Housing unit types to be classified by sector specialist. These are comprised of different combinations of wall, roofing, and framing materials such as stone/brick masonry, wood, CGI sheets, thatch, RCC etc.

Table AF.3 Education Sector

	Type of school ¹					Disaster effects		
	A	B	C	D	E	Damage	Losses	Total
Estimation of damage								
a) Schools Fully Destroyed								
b) Schools Partially Destroyed								
c) Household Goods								
d) Furniture destroyed								
e) Education materials								
Estimation of losses								
Duration of reconstruction period, months								
Cost of demolition and rubble removal								
Cost of repair to schools used as temporary shelters								
Temporary rental of premises								
Payment of overtime to teachers								
Accelerated training of teachers								
Loss of revenues in private sector schools								

Other relevant estimates (For Needs Estimation)

- Cost of structure retrofitting
- Cost of relocation to safer areas
- Land acquisition
- Water and sanitation
- Electricity

¹ Example of school types: Elementary, Secondary, and Tertiary.

Table AF.4 Health Sector

	Affected regions			Disaster effects		
	A	B	C	Damage	Losses	Total
Estimation of damage						
Facilities fully destroyed						
Hospitals						
Health Centers						
Others						
Facilities partially destroyed						
Hospitals						
Health Centers						
Others						
Equipment						
Furniture						
Medications and supplies destroyed						
Estimation of losses						
Duration of reconstruction period, months						
Cost of demolition and rubble removal						
Higher expenditures for treatment of injured ¹						
Higher expenditures on patients referred to other facilities ²						
Lower revenues for attending lower number of patients						
Pre-Disaster number of patients						

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Table AF.4 Health Sector (continued)

	Affected regions			Disaster effects		
	A	B	C	Damage	Losses	Total
Post-disaster number of patients						
Difference						
Average cost of treatment per patient						
Loss of revenue						
Outbreaks						
Duration of outbreaks						
Cost of surveillance						
Cost of information campaigns						
Cost of vector control						
Cost of prevention (vaccination, etc)						
Higher expenditures for control of outbreaks						
Pre-disaster morbidity, #						
Post-Disaster morbidity, #						
Increased morbidity, #						
Treatment cost per person						
Total estimated cost						

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Table AF.4 Health Sector (continued)

	Affected regions			Disaster effects		
	A	B	C	Damage	Losses	Total
	<p>Other relevant estimates (For Needs Estimation) Cost of structure retrofitting Cost of relocation to safer areas</p> <p>Land acquisition Water and sanitation Electricity</p> <p>Additional information for Macro-Economic Impact Estimation Per cent value of imported component for hospital reconstruction Per cent value of imported component for equipment and materials</p>					

¹ Physical and psychological injuries; cost over and above normal budget assignments, including personnel overtime when necessary

² Cost of transport and of treatment of injured sent to undamaged facilities, whether privately or publicly owned

Table AF.5 Electrical Sector

	Affected regions					Disaster effects	
	A	B	C	D	E	Damage	Losses Total
Estimation of damage							
a) Power plants							
Hydropower plants							
Thermal power plants							
Other							
b) Transmission system							
Lines							
Sub-Stations							
c) Distribution grids							
Duration of reconstruction period, months							

	User sectors				
	Residential	Industry	Commerce	Agriculture	Others
Estimation of losses					
Duration and staged recovery of demand per user sector					
Estimation of lower revenue for electricity sales per sector					
Forecasted electricity demand, KWh					
Post-disaster electricity demand, KWh					

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Table AF.5 Electrical Sector (continued)

	User sectors			
	Residential	Industry	Commerce	Agriculture Others
Decline in demand, KWh				
Sales rate in sector, \$/KWh				
Estimated losses of revenue, \$				
Estimation of higher production costs				
Pre-disaster production costs, \$/KWh				
Post-Disaster production costs, \$/KWh				
Increase in unit production costs, \$/KWh				
Estimated losses over recovery period, \$				
Cost of demolition and rubble removal				

Other relevant estimates (For Needs Estimation)

- Value of investments to ensure supply during post-disaster period
- Relocation of system components when required
- Retrofitting of structures to ensure mitigation of future disasters

Additional information for Macro-Economic Impact Estimation

- Import of equipment and materials for recovery and reconstruction
- Possible losses in sales of electricity to other countries
- Revenue loss for government owned utilities
- Higher operational costs for government-owned utilities

Table AF.6 Water and Sanitation

Estimation of damage			Affected regions					
			A	B	C	D	E	
Water Supply								
		Urban areas						
			Water intake structures					
			Water potabilization plants					
			Conveyance systems					
			Storage systems					
			Distribution networks					
		Rural areas						
			Water wells (shallow)					
			Other					
Sanitation								
		Urban areas						
			Sewage network					
			Sewage treatment works					
			Sewage disposal system					
		Solid waste collection/disposal system						

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Table AF.6 Water and Sanitation (continued)

		Affected regions				
		A	B	C	D	E
	Rural areas					
	Latrines					
	Septic tanks					
Period of rehabilitation, months						
Period of reconstruction, months						
Estimation of losses						
Water supply						
	Urban areas					
	Lower revenues					
	Higher expenditures					
				Water potabilization		
				Water distribution		
				Other expenses		
	Rural areas					
				Cleaning/ deepening of wells		
				Chemicals for potabilization of water		

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Table AF.6 Water and Sanitation (continued)

		Affected regions				
		A	B	C	D	E
Sanitation						
	Urban areas					
	Lower revenues					
	Higher expenditures					
		Cleaning of sewage network				
		Increased use of chemicals				
		Higher transport costs for solid waste				
	Rural areas					

Other relevant estimates (For Needs Estimation)

- Higher unit value of quality improvement for system or services
- Cost of relocation to safer areas
- Cost of structural retrofitting for increased disaster resistance
- Other costs

Additional information for Macro-Economic Impact Estimation

- Per cent value of imported components

Table AF.7 Transport Sector

Estimation of damage	Type of road		
	Primary	Secondary	Tertiary
a) Roads			
Total length of road, kilometers			
Total length of affected road, kilometers			
		Fully destroyed	
		Partially destroyed	
b) Bridges			
Total number of bridges			
		Fully destroyed	
		Partially destroyed	
c) Vehicles (number and value)			
Light vehicles			
Buses and trucks			
Heavy vehicles			
d) Other structures			
e) Railroads			
Total length of railroads, kilometers			
Total length of affected railroad, kilometers			
		Fully destroyed	
		Partially destroyed	
f) Railroad bridges and structures			
Railroad stations			

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Table AF.7 Transport Sector (continued)

		Type of road		
		Primary	Secondary	Tertiary
		g) Rolling stock		
	Locomotives			
	Passenger cars			
	Cargo cars			
h) Airports				
	Terminal buildings			
	Runways			
	Lighting and other systems			
i) Airplanes				
j) Ports				
	Terminal buildings			
	Docks and other structures			
	Docking channels			
	Boats and ships			
Estimation of losses				
Estimated time over which traffic will be stopped, months				
Estimated time for rehabilitation (with slower traffic), months				
Traffic volume, number of cars per month				
	Light vehicles			
	Buses and trucks			
	Heavy vehicles			
Marginal operating cost of vehicles, US\$/vehicle-kilometer				

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Table AF.7 Transport Sector (continued)

	Type of road		
	Primary	Secondary	Tertiary
Light vehicles			
Buses and trucks			
Heavy vehicles			
a) Higher costs of transport			
b) Losses of revenues for government owned enterprises			
Road transport			
Railroad transport			
Ports and airports			

Other relevant estimates (For Needs Estimation)

- Higher cost for quality improvement
- Higher cost for technological improvement
- Relocation of system components when required
- Retrofitting of structures to ensure mitigation of future disasters

Additional information for Macro-Economic Impact Estimation

- Import of equipment and materials for recovery and reconstruction
- Import of vehicles and rolling stock

Table AF.8 Agriculture Sector

	Seasonal or annual crops ¹						Permanent plantations ²		
	A	B	C	D	E	F	X	Y	Z
Estimation of damage									
a) Destruction of agricultural lands									
Surface area, hectares									
Unit value of land, \$/Hectare									
Total damage, \$									
b) Irrigation and drainage systems									
c) Agricultural machinery and equipment									
d) Destruction of storage and other buildings									
e) Farm roads									
f) Value of plantations									
Estimation of losses									
a) Production forecast (pre-disaster)									
Area under cultivation, hectares									
Expected unit yield, Kg/Hectare									
Forecasted volume, tonnes									
b) Unit prices (pre-Disaster), \$/Kg									
Farmgate price, \$/Kg									
Wholesale price, \$/Kg									
Retail price, \$/Kg									
c) Production forecast (after disaster)									

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Table AF.8 Agriculture Sector (continued)

	Seasonal or annual crops ¹						Permanent plantations ²		
	A	B	C	D	E	F	X	Y	Z
Area under cultivation, hectares									
Expected unit yield, Kg/Hectare									
Forecasted volume, tonnes									
d) Production losses									
Volume losses (23–31), tonnes									
Adopted farmgate price, \$/Kg									
Value of losses (33 * 34), \$									
e) Higher production costs**									
Land preparation									
Seeds									
Fertilizer									
Pesticides									
Labor costs									

**Other relevant estimates
(For Needs Estimation)**

Food balance

Food demand

Food stock (pre-disaster)

Food production (post-disaster)

Food deficit (post-disaster)

Food imports required

Seeds and fertilizer imports

Pesticides imports

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Table AF.8 Agriculture Sector (continued)

	Seasonal or annual crops ¹						Permanent plantations ²		
	A	B	C	D	E	F	X	Y	Z
Additional information for Macro-Economic Impact Estimation									
Higher imports to be made									
Food									
Seeds									
Pesticides									
Fertilizers									
Lower exports of agricultural products									
Unexpected government expenditures									
Lower government revenues									
Food imports									
Other imports									
Lower taxes on production									
Lower taxes on exports									

¹ Examples of seasonal or annual crops are: rice, oil palm, banana, corn, sugarcane, and cotton.

² Examples of permanent plantations are: fruit trees, and forests.

Table AF.9 Industry

	Type of enterprise					Total for sector
	Agro-industrial	Micro	Small	Medium	Large	
Estimation of damage						
a) Premises						
b) Machinery and equipment						
c) Raw materials						
d) Others						
Period for rehabilitation/reconstruction, months						
Period for arrival of specialized machinery and equipment						
Period of unavailability of raw materials						
Period of unavailability of inputs (Electricity, water, etc)						
Estimation of losses						
a) Baseline data						
Normal production, volume per month						
Unit price per product, \$/Kg						
Normal production, \$/month						
b) Period of production stoppage, months						
Due to lack of inputs (power, water)						

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Table AF.9 Industry (continued)

	Type of enterprise					
	Agro-industrial	Micro	Small	Medium	Large	Total for sector
c) Production losses						
d) Higher production costs						

Other relevant estimates for Needs Estimation

Additional cost for technological improvement
 Cost of relocation to safer areas

Land acquisition
 Water and sanitation
 Electricity

Cost of structural retrofitting for increased disaster resistance

Additional information for Macro-Economic Impact Estimation

Value of imports for reconstruction
 Value of imported machinery and equipment
 Value of imported raw materials
 Value of exports that will not be made
 Value of taxes that Government will not collect due to production decline
 Same for export decline

Table AF.10 Commerce

	Type of commerce					Total for sector
	Micro-shops	Small shops	Medium shops	Large establishments	Others	
Estimation of damage						
a) Premises						
b) Furniture						
c) Stock of goods to sell						
d) Others						
Period for rehabilitation/reconstruction, months						
Period of unavailability of goods to sell						
Period of unavailability of goods to sell						
Period of unavailability of inputs (Electricity, water, etc)						
Estimation of losses						
a) Baseline data						
Normal sales volume per month						
Unit price per product, \$/Kg						
Normal sales \$/month						
b) Period of sales stoppage, months						
Due to lack of inputs (power, water						

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Table AF.10 Commerce (continued)

	Type of commerce					Total for sector
	Micro-shops	Small shops	Medium shops	Large establishments	Others	
Due to lack of goods to sell						
Due to period of reconstruction						
c) Sales losses						
d) Temporary rental of premises						
e) Higher cost of goods acquisition						

Other relevant estimates (For Needs Estimation)

Cost of relocation to safer areas
 Cost of structural retrofitting for increased disaster resistance

Additional information for Macro-Economic Impact Estimation

Value of exports that will not be made
 Value of imports to be made
 Value of taxes that Government will not collect due to sales decline
 Same for export decline



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