

# Disaster Waste Management Policy /Strategy Nepal

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## 1. Background:

Nepal is enlisted as one of the disaster prone country in the World. It ranks 4th, 11th and 30th in terms of climate change, earthquake and flood risk. Other major disasters in Nepal are landslide, fire, drought, epidemic, storm, hailstorm, avalanches and Glaciers Lake Out-burst Flood (GLOF). Nepal experienced a 7.8 Richter scale of earthquake in 2015 killed nearly 9000 people, injured 30,000 and destroyed 800000 buildings. Nearly 14 million tons of waste was generated within a couple of day, four million tons of waste alone from Kathmandu, which is equal to waste generation in 11 year in normal time (PDNA 2015). This large amount of disaster related waste mixed with hazardous wastes was observed exposed to various infections, resulting in adverse impact to human health and environment (REA, MoEST, 2015). So there is pressing need to the country to address the disaster waste management issues as it has been observed that the disaster waste generated during 2015 Earthquake is still deposited randomly on roadsides and public places around the public places and private lands in the 14 earthquake affected districts. According to PDNA, the waste produced from temporary shelters and the debris generated from destructed houses in 14 affected districts were not in priority of any Local governmental bodies for management despite of identifying the temporary disposal sites. Thus, it can be clearly envisioned that disaster waste management practice in Nepal is lagging behind, as off not having appropriate policies to mobilize the skilled manpower, equipment, institutional mechanism, and financial support pre and post disaster.

A review of last 45 years disaster data indicates that the incidences of disasters are growing every year in Nepal. Nepal recently experienced 2015 mega earthquake and 2016 flood events affecting several districts in the middle part of the country. Nepal has witnessed new type of disaster events named extreme windstorm as scientific community identified as tornado incidence on 31st March 2019 in the Bara-Parsa districts in the Southern plain taking lives of 28 people and destroying and damaging more than 1000 house. Such kind of disaster erodes about two percent of national GDP.

Disaster is an event and phenomena, which left behind devastating footprints with the death and destruction of lives and properties. The left out footprint consist of physical damages to the buildings and properties inside the damaged and destroyed buildings and the daily uses utilities. After disaster, the people and government need to put its effort to manage the disaster induced waste generated by the event. As the disaster, small to large in scale are common in Nepal, so there is also need to recognize the pattern of disaster and its generated waste for its management. As the frequency of disaster event is in increasing trend around the world and more intense in urban areas. Effective disaster waste management and its implementation will help in smooth recovery of the living environments and disaster risk reduction.

The Environment Convention 2075 (2018) is thus designed to provide opportunities for discussing and sharing lessons about various facets of the environment (air, water, and land),

to identify possible gaps, to improve legislative instrument at the federal level, and to guide provincial government in formulating provincial environment frameworks and policies.

The existing legislatives measures of Nepal such as the constitution of Nepal 2015, Solid waste management Act 2011, Natural Calamity Relief Act (1982), Demolition Guideline 2015, National Disaster Response Framework (NDRF) 2013, National Action plan for Disaster management 1996, National strategy for disaster risk management 2009, Disaster preparedness and response plan (DPRP) 2011, National adaptation program of action (NAPA) 2010 etc. either remained silent or have partially talk on disaster issues but does not completely address all necessary aspects of Disaster waste management (DWM).

Except above-mentioned legislative mechanism, Nepal governments also possess some institutional mechanism for addressing the disaster events and its issues. It includes National Planning Commission (NPC), Ministry of Home Affairs (MOHA), Central Natural Disaster Relief Committee (CDRC), and National Strategy for Disaster Risk Management (NSDRM), National Disaster Response (NDR) framework 2013 etc. All those institution centralize their focus on Disaster preparedness and Emergency response (Rescue and relief) then Rehabilitation and Reconstruction perspectives. On other hand, the remaining institutional process just as Ministry of Urban Development (MOUD), Ministry of Federal Affairs and Local Development (MoFALD), Ministry of Industry (MOI), Ministry of Health and Population, Solid waste management Technical Support Centre (SWMTSC) have emphasized on Solid waste management (SWM) and required infrastructural support for it.

Hence, it is the current demand of our Nation to develop Disaster waste management Policy and strategy based on the Baseline assessment conducted for various disaster events frequently occurred within the country in different time interval.

This Disaster waste management policy and Strategy is expected to contribute for Eco friendly reconstruction and new construction works via the reuse of disaster debris. Thus, the Nation would be capable to achieve Economic and Sustainable Development Goal (SDG) together with mitigating the negative effect of Climate Change. Furthermore, this strategy may be the nationally committed documents developed for conservation of natural resources and the physical infrastructures through proper management of the catastrophe introduced leftover.

## 2. Existing Practices

Nepal experienced a 7.8 Richter scale of earthquake in 2015 which killed nearly 9000 people, injured 30,000 and destroyed 800000 buildings. Solid waste management technical support center had conducted assessment and research on volume of disaster waste, type, and characteristic of disaster waste which had been reflected on PDNA 2015 report. This large amount of disaster related waste mixed with hazardous wastes was observed exposed to various infections, resulting in adverse impact to human health and environment (REA, MoEST, 2015).

Considering the last four years from 2015 to August 2019, there were four significant disaster events occurred in Nepal, which has impacts to the lives and properties of the people. These events are: Earthquake (15 April 2015); Flood (August 2016 and July 2019); Tornado/ Storm and rain (31st March 2019).

After the promulgation of the New Constitution of Nepal 2015, there has been restructuring of the country from centralized system to federal system in which the old acts and policies are not compatible to the present three tiers of Government as local bodies are empowered. Several existing acts and regulations are influencing in federal level and some are in local level.

There has been some awareness about the need of the disaster waste management, which is reflected in some of the legal documents of government of Nepal. Disaster Risk Reduction and Management Act 2017 is the one in which disaster waste is mentioned “removal of disaster generated waste” in the Clause#2 under the district disaster management committee’s roles and responsibilities. Similarly under the clause #20 under public and private commercial establishment roles and responsibility it was mentioned “ appropriate management of waste and pollution to minimize adverse impact to people”. This clause will greatly help in management of waste generated from the industrial and commercial establishment in the post disaster situation. There has also been absence of knowledge about the disaster waste management, which ,needs to be addressed in the legal framework of Nepal.

Legal framework and institutional back-ups in support of disaster risk reduction and/or management are evolving in Nepal but none of these legal provisions, including Solid Waste Management (SWM) Act 2011 spoke about disaster waste management (DWM). As the result quite often DWM practice involves either no action, in which the waste is left to accumulate and decompose, or improper action in which the waste is removed and dumped in an uncontrolled manner. Therefore, with the technical assistance of UNEP/IETC, Lead Nepal had prepared the DWM Policy recommendation in 2015 to Nepal Government for efficient management of disaster waste and to understand the pattern and amount of waste generated and its judicious reuse and reutilization using 3R(Reduce, Reuse & Recycle) principle.

To till date, the existing Environment Protection Act 2053 s(1997) and Environment Protection Regulation 2056 (1999) remain the major statutory and legislative provisions that guide the protection of Nepal’s environment. With the restructuring of state governance in the context of federalism, there is a need for an overall national policy on the waste management and disaster waste management, which will provide a guiding framework to provincial and local governments, while learning from the effectiveness of existing national laws and by-laws.

### 3. Need for Disaster Waste Management Strategy

Lack of resource, means and manpower to push aside huge amount of debris and waste in a short time period remains a big problem. Non-existence of unexpected critical incident policy in the state till now, lack of budget in implementing reuse policy, is equally problematic.

Immediate and distinct necessity of disaster waste management policy and strategy is felt to face all the challenges. This policy is expected to help in reconstruction, new construction and environment protection. The use of this policy can commit to modify government and private level construction into environment friendly manner and minimize the use of natural means and resources through the products produced from the reuse of ruins. This fact will modify the challenge of national disaster into financial gain and sustainable development to help uplift the less developed country. This policy will also help to protect from probable unfavorable impact on climate change through reuse of environmental resources and means.

#### 3.1 Challenges and opportunities:

##### Challenges:

- Environment protection act, Solid Waste management act, disaster risk reduction and management act and other acts related to environment and waste management not properly addressed.
- Unclear institutional structure and received no priority by Nepal Government's plan and policy.
- Lack of inter-government co-ordination and foreign aid mobilization policy.
- In the situation of lacking manpower to manage general type of waste, there is a lack of manpower, number, capacity and skill to manage unusual and huge amount of disaster waste produced in a short time.
- Lack of necessary resource and technology, plant to process and manage disaster waste.
- Subject of less concern due to less understanding in general public.

##### Opportunities:

- Included in the national 15<sup>th</sup> five year plan perceiving the problem of disaster waste management.
- Addressed to some extent in disaster risk and management act 2074.
- In the later days, disaster waste recognized as a problem and private sector is seen interested in investment to import new technology and plant for processing the waste.
- Master plans for secured settlement development being formulated.
- Being the concern of international donor agencies and ready to invest.

## 4. Vision:

Achieve the goals of sustainable development through the scientific management of disaster waste for the construction of clean, safe village and city.

## 5. : Mission

Long-term management of disaster waste will be made by ensuring re-cycling and safe disposal through the combined association, initiation, coordination and involvement of intergovernmental mechanism along with other concerned associations and institutions.

## 6. Objectives:

- Assimilating disaster waste management with the existing environment and disaster acts, law.
- Promoting the latest technology through private public partnership to minimize environmental, economic and social risks and process disaster waste.
- Minimization in the production of disaster waste.
- Develop necessary techniques and physical infrastructure for the disposal of the highly harmful waste produced by disaster.

## 7. Expected Achievements:

Level	Target Year	Expected outcomes
Initial Stage	From 2020 A.D to 2022 A.D.	<ul style="list-style-type: none"><li>• Policy and strategy will be formed.</li><li>• Disaster waste management will be assimilated in the policies of other related field's.</li><li>• Skill development program will be started by identifying probable concerned to work on disaster waste management</li><li>• Basic public awareness will be started to decrease the production of disaster waste and management after production.</li></ul>

<p><b>Second Stage</b></p>	<p>From 2020 A.D to 2027 A.D.</p>	<ul style="list-style-type: none"> <li>• Capacity of organizations related to disaster waste management will be enhanced.</li> <li>• Basic public awareness will be spread to decrease the production of disaster waste and management after production.</li> <li>• Awareness on building construction criteria along with physical infrastructure criteria will be provided to decrease the production of disaster waste and management after production.</li> <li>• Principle of unified waste management will be implemented in disaster waste management.</li> <li>• Initiations will be made for the allocation of budget for disaster waste management in all level of governments.</li> <li>• Prototype for invigilation and evaluation of disaster waste management will be formulated.</li> </ul>
<p><b>Final Stage</b></p>	<ul style="list-style-type: none"> <li>• Prototype for invigilation and evaluation of disaster waste management will be implemented.</li> <li>• There will be sustainable disaster waste management.</li> </ul>	

## 8. Policies

1. In coordination with the concerned government, non-government and donor agencies, mandatory consultation for new forming, acts under amendment, established act and laws.
2. To let Disaster Risk Reduction and Management National Counsel, State Disaster Management Committee and the Local Management Committee address disaster waste problem in their work-duties.
3. Management of the disaster waste management by adopting the principles of integrated waste management.
4. Study and research on various issues related to waste, and the waste generated of it for the sustainable management of disaster waste.
5. Use of environment friendly technology in refining and temporary disposal for sustainable management of disaster waste.



6. Make the disaster waste management task effective with the partnership and role of government, donor agencies, non-government, private sector and local community along with responsibility as per the need.
7. To reduce the production of disaster waste, promote the concept of disaster reduction and safe human settlement development.
8. Promotion of environment friendly construction materials to minimize harmful waste production and installation and management of environment friendly, integrated waste-processing center for highly hazardous waste management.
9. Construction of a common site for the disposal of hazardous waste adopting scientific technology through integrated scheme for the management of harmful waste generated from various sectors including disaster waste.

## 9. Disaster Waste Management Strategy:

### 9.1 Goal:

To conserve environment and natural resources by managing the disaster waste to achieve sustainable development goals.

### 9.2. Guiding Principles

- a) Reduce, reuse and recycle
- b) Green economy
- c) Cyclic system based economy

### 9.3. Objectives

- a) Formulation of the policies related to the disaster waste management.
- b) Enhancement of capacity of the organizations related with the disaster waste management.
- c) Reducing the production of disaster waste.
- d) Easy and scientific management of disaster waste following the principles of integrated waste management.
- e) Use necessary physical infrastructure and technology with necessary financial management for disaster waste management.
- f) To create a monitoring and evaluation framework for minimizing the negative effects of disaster waste and public health through hazardous waste management.

### 9.4. Strategies to achieve objectives

1. **Formulation of the policy for disaster waste management.**

1.1. Formation of a law review committee to amalgamate disaster waste management with environment and disaster related acts and laws.

1.1.1. Identifying and studying existing law and legislation related to the waste management and submit draft for necessary amendments with suggestions.

## **2. To enhance the capacity of organizations related to disaster waste management.**

2.1 Identify and analyze the organizations associated with waste.

2.1.1 Systematic tabulation of the organizations related to waste and disaster.

2.1.2 Study the rights, duties and responsibilities of the counsels/ organizations related to waste.

2.1.3 Preparation of necessary capacity enhancement programs studying the administrative and technical capacity of the organizations related to waste.

2.1.4 Enhance the necessary ability of the human resource involved in waste management to manage disaster waste.

## **3. Reducing the production of disaster waste.**

3.1 Establishment of well managed and secured settlement and physical infrastructure.

3.1.1 Promote settlement and physical infrastructure construction according to land-use classification.

3.1.2 Building construction according to building and physical infrastructure construction criteria.

3.1.3 Utilization of local construction material in construction of building and physical infrastructure.

3.1.4 To spread public awareness about disaster waste through information technology.

## **4. Manage disaster waste in a scientific way through the implementation of unified waste management principle.**

4.1. Reuse to deduct disaster waste.

- 4.1.1. Identify temporary collection space.
- 4.1.2. Classify waste
- 4.1.3. Selection of appropriate environment friendly technology for recycling.
- 4.1.4. Ensure the investment of private, community and donor organizations.
- 4.1.5. Creation of employment through management of waste produced from disaster.

## **5. Arrangement of necessary finance and financial system for disaster waste management.**

- 5.1. Utilize the disaster management fund allocated in central, provincial and local level government for disaster waste management as well.
  - 5.1.1. Conducting the public awareness program on the inter relationship between disaster waste and disaster management and also coordinate with the stakeholders.
  - 5.1.2. Mobilizing the disaster management fund available in all three levels to implement modern technology in waste reduction and re-cycling.
  - 5.1.3. Mobilizing to enhance the capacity of government, non-government, private and community sector.
  - 5.1.4. Carrying out study and research on disaster waste and disaster management.
- 5.2. Allocate budget for disaster waste management by federal, provincial and local government.
  - 5.2.1. Allocate budget for policy formulation, refinement and use of technology and repair and maintenance through central ministry and department of central level.
  - 5.2.2. Allocate budget to establish necessary physical infrastructure for disaster waste management processing center through state central ministry.
  - 5.2.3. Allocate budget for vehicles necessary for transportation and human resource mobilization for disaster waste management collection, establishment of disaster collection center for local levels.

**6. Form the prototype of beneficial invigilation and evaluation to minimize adverse effect due to disaster waste management in environment and public health.**

6.1. Form a committee by assembling related stakeholders for inspection and evaluation.

6.1.1. Inspection and evaluation committee will be formed in the central level in the coordination of joint secretary and participation of multiple stakeholders and experts.

6.1.2. Inspection and evaluation committee will be formed in the state level in the coordination of joint secretary and participation of multiple stakeholders and experts.

6.1.3. Inspection and evaluation committee will be formed in the local level in the coordination of municipal head and participation of multiple stakeholders and experts.

6.2. Create directory to simplify disaster waste management invigilation and implementation.

6.2.1. Study and research the disaster waste management element's index and submit in concerned committees assimilating the international exercise.

6.2.2. Prepare scientific criteria to minimize probable human and material damage by disaster waste.

6.2.3. Prepare criteria for final disposal area of extremely hazardous waste.

6.3. Regular invigilation and evaluation of disaster waste management.

6.3.1. Invigilation and evaluation at least twice a year (rainy and dry season) according to the nature of disaster.

6.4. Allocate budget for the act of invigilation and evaluation of disaster waste management.

6.4.1. Budge will be allocated for invigilation and evaluation in the central level by central ministry /department.

6.4.2. Budget will be allocated for the invigilation and evaluation by concerned ministry in the state level.

6.4. 3. Budge will be allocated for the invigilation and evaluation by the counsels in the local level.

## 10. Institutional Structure

### **Role of Federal, provincial and local governments in implementation of policy and strategy**

Province and local government may incorporate policy and program in their own plan and policy and implement staying in the domain of this policy and strategy. Role of Federal government, Provincial government and local government in implementation of policy and strategy is as follows:

#### **10.1 Federal Government**

- a. Prepare and implement laws and criteria conformable to this policy.
- b. Form and implement unified programs of Management of unified international and national standard programs related to waste with disaster waste.
- c. Develop the access to bilateral, multilateral and international financial sources related to disaster waste, identify and implement national resources as well.
- d. Update national statistic, also prepare and submit reports to the concerned national, international institutions.
- e. Participate and co-ordinate in the related international process concerned with disaster waste.

#### **10.2 Province Government**

- a. Prepare province level laws, regulations, criteria and plans conformable to this policy and implement.
- b. Incorporate disaster waste into the waste management and disaster risk management functioning in the province level and monitoring and evaluation process.
- c. Co-ordinate with the federal and local government to prepare and implement the plan and programs related to disaster waste.

#### **10.3 Local Government**

- a. Prepare local plans and implement for management of climate change conformable to this policy.
- b. Implement the plans and programs in coordination and cooperation with the related departments, non-government agencies, communities, private sectors, educational institutions and others under the federal and province government.
- c. Monitor, evaluate and maintain statistics of the programs and projects conducted in the region.
- d. Increase public awareness about general type of waste and disaster waste.

## 11. Monitoring, Evaluation and Review

- a. Transparency and accountability outline will be prepared to ensure the establishment of accountability, public awareness, increment of participation and reach over information for all the concern stakeholders.
- b. Collection of necessary data, statistics of investment and aid in waste management and disaster risk reduction, their periodical information flow and reports will be properly managed.
- c. As for the implementation of policy, regular monitoring and evaluation on implementation of policy will be done by a mechanism formed under the three tiers of government leadership including all stakeholders,
- d. An arrangement will be made to forward the monitoring and evaluation reports from local level via province= government of concerned ministry to the ministry of federal affairs and general administration which will prepare the national report.
- e. Review of this policy will be done every five years.

\*\*\*END\*\*\*