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Water induced hazard in Nepal

“Dear lord, please save my home this time, I have expended everything I had from the last flood to build it.” Yes you’re right; it’s what most people living in landslide or flood-prone zones of Nepal say every year as the monsoon begins. Poor Nepalese! Aren’t we? Living in a country full of rugged topography, one has to face some calamities. Isn’t it? If you agreed to the previous questions then that’s one of the very reasons behind the death of hundreds of Nepalese every year. Confused? Let me explain you the most prone, most destructive and bizarre yet combatable hazards -water hazards; in context with Nepal.

To begin with, let me play with some data. Starting with this very year, more than 132 people lost their lives with more than 50 gone missing due to the heavy rain triggered landslides and flash floods as said on the Kathmandu Post following the incident. Similarly, more than 128 were injured affecting nearly a thousand families as of July 23rd according to Nepal Disaster Risk Reduction and Management Authority. This is more than double the death toll caused by Corona-Pandemic in Nepal for a period of seven months as of now.

Digging more, looking at some research works done by tkp reporter - Chandan Kumar Mandal (2019-sep) a good mapping of a brief history on



landslide and sunkoshi blokade (2014) [source: TKP 2019-sep]

landslides and floods can be drawn. In the 2010s from the water hazards. Floods in Terai and Landslides in Hills such as -Koshi barrage collapsing (2008), affecting nearly 54 thousand Nepalese and the landslide with Sunkoshi river blockade (2014) killing more than 156 people with huge property damage. Between April 2016 and April 2017, 282 lives were claimed by floods and landslides alone. The devastating flood of 2017 in Terai claimed more than 150 lives which add to 171 in total all over Nepal. Between 2018 and 2019 more than 100 died and between 115 lives were claimed as of July 2019 due to water hazards including flood, landslide and lightning These data sums up to an average of way more than hundred deaths every year.

Now, let me introduce two major causes to these hazards. Going through the facts collected on Wikipedia and some legit weather report sites. Firstly, 80 percent of the total rainfall in Nepal occurs within four Monsoon months –June (mid Jetha) to September (mid Aswin). And everyone knows the ‘more-than-six-thousand-river’ fact of Nepal. Every single river of the six-thousand links to a larger river flowing towards their ultimate terminus –the south; home of more than half (50.3 %) of Nepalese which proves how hazardous our country is, considering the flow of water. Secondly, Marsh; a global community of leader in insurance broking and risk management has claimed that Nepal comes under below fifty (<50) rating on ‘political risk zone’ whereas the Fund For Peace organization (FFP) has claimed that under ‘fragile countries’ Nepal comes in ‘High warning’ category on forty- ninth position which proves how unstable our systems are.

These factors along with other minor causes such as deforestation, road constructions, changes in

land use etc. play a parent role in the annual occurrence of floods and landslides in Nepal. With the growing population, the pricings and demands for land has heightened which has forced people below poverty line to settle on cheap and advantageous but high risk areas. The unstable governance with seemingly low progress in land and town planning has apparently let us construct buildings and constructions the way we want at the location of our own choice. Due to the lack of budgets of the government separated for the combat of this behavior along with the impartial executions of law, people are more into the financial safety instead of their own. This has ultimately brought in us a desperate sense of hopelessness and despair towards the never ending hazard. And, this is the very reason why you might have agreed to my questions on the beginning, remember? Yes, this particular act of ours combined with of government's is the root cause of prolonged and reoccurring calamity.

Now, jumping towards how bad a water hazard can be, it is found to be one of the major Natural calamities in Nepal. Due to its reoccurrence and limitlessness, this particular calamity is feared the most all over the nation. Like any other disasters,



adverse impacts are felt all over the sector receiving the calamity. Most common degradations caused are loss of lives, damage of property and loss of crops. This also affects arable land with huge deposition of debris and unwanted

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materials. Not only during the disaster but also in its aftermath, terrible problems may occur. Unavailability of clean drinking water, food materials and safe settlement with a high risk in outbreak of several infectious diseases cause the suffering to worsen more. Taking the Nation as a whole, during the period of April 2016 to April 2017 the total loss due to water hazard was summed up to be about Rs. 84.1 Crore. There was a decrease in the next year -April 2018 to April 2019 which had an expenditure of about Rs. 8.8 Crore which again rose to Rs. 16.8 Crore in the following year based on the report published on e-paper of The Kathmandu Post (sep-2019) .This is a huge loss of property every year.

So, should we blame ourselves? Blaming ourselves only doesn't make sense as the misconduct from the government weighs way more than our little delinquency. Then comes a question of what the government is doing all these years. The act of our government has often been more active towards the aftermath rather than its prevention. The government organizations focus more in providing rescue and rehabilitating the victims. On top of it all due to the probable road blockade and communication disconnections during the calamities, the aid processes are never entirely helpful. Although, the Disaster Risk Reduction and Management Act 2017 clearly demonstrate the necessary roles of all three levels of government, in reality the problems faced by victims are neither properly addressed nor communicated by the respective bodies. Politicization of relief materials and corruption has also made the process more sluggish and ineffective.

Linking the hazard with the field of Engineering, it is found that this field is observed to be highly helpful. Civil Engineers are faced to design different constructions like water dams, barrages, bridges, sewer channel, irrigation canals, reservoirs and tanks, water tunnel, hydraulic monitoring and analysis, etc. With the advancement in technology the Modern Methods of Construction (MMC) aids various technical constructions including pipeline CCTV inspection, precast flat panel system, 3D volumetric modules, precast cladding panels, Twin wall technology, concrete

formwork insulations and so on. These

well tested set of construction modules contribute the most for the scientific constructions of well researched and studied designs having reasonable safety with



pipeline CCTV inspection [source: pipevision corporation]

minimized cost, time and labor. It helps in combating a bundle of problems caused by water hazards. Proper allocation of manpower and budget in the sector of Engineering is one of the acts to counter water hazards.

Jumping into more data, there have been several laws, regulations and strategies made to battle and combat the probable causes of the hazard. One of the major strategies was passed out by the Department of Water Induced Disaster Prevention (DWIDP). The Water Resources Strategy 2002 (WRS-2002) pinpointed 25 year target and plan consisting of several high researched strategies to achieve the targets. These included plans were purposed to be done by the year 2007, 2017 and 2027. It was planned to have the social and economic losses due to water hazards reduced to the levels experienced in other developed countries. Ranging from awareness to risk mapping and zoning, several strategies were preplanned. Furthermore, co-operating with well renowned organizations such as United Nations Development Program (UNDP), United Nations Disaster Relief Organization (UNDRO) and United Nations Department of Technical Co-operation for Development (UNDTCD); Nepal prepared several comprehensive plans on disaster management. These plans focused in hazard mapping, risk management, vulnerability analysis and so on. Similarly, in co-operation with Food and Agricultural organization (FAO), Ministry of Agriculture and Cooperatives (MOAC) prepared a District Disaster Risk Management Plan (DDRMP) for some districts which focused on aftermath relief rather than preventions. Now, summing up all, though an adequate set of proposals and planning are prepared, they are only limited on pages but not in practices. Implementation of proper planning had, has and will be one of the most difficult tasks to be carried out in Nepal. This directly depends on the stability and productivity of government and thus should be given the highest priority possible.

Lastly, as a general conclusion on water induced hazard in Nepal where I've focused more in the two vital calamities –landslide, and flood; it is observed that the paths we have taken for its combat are entirely ineffective and impractical. Though several strategies are planned, their delayed execution has added more insecurity and unproductiveness in the field. So, it is most vital to have a well monitored and precise set of actions carried out as soon as possible if the hazard is planned to be terminated before it journeys into more demolitions with more loss of lives and property.

-The End-