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Disaster Management and Rural Vulnerability (Case Study Urmia County)

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Abstract: ***The major objective of this paper is document the vulnerability of villages situated near disaster prone in District lake urmia. The study was framed on the lines of Pressure model. We can therefore see that vulnerability - a pressure that is rooted in socio-economic and political processes - is built up and has to be addressed, or released, to reduce the risk of a disaster. Notwithstanding the urgency of the need to find solutions, nor of the magnitude of the problem, there may be an alternative perspective through which to view the crisis: it could be viewed as an opportunity for all people to come together and solve the crisis, and in the process everyone involved will be elevated in terms of their physical, emotional, economic and spiritual status. By joining together to solve this huge crisis all people involved, whether they are local farmers, biologists, geologists, politicians, social workers, health care professionals, professors, students, construction workers, laborers, secretaries, drivers, or simply local people who care, all of them can contribute in a significant manner and in the process extract great meaning and value out of their efforts and their lives.***

Keywords: lake urmia, vulnerability, development plan, PAR model

1. Introduction

Urmia Lake in northwest of Iran is the second great saline lake in the world.This lake forms a rare and important ecologic, economic and geo tourism zone in the world and country. In addition, Urmia Lake moderates temperature and humidity of the region and provides a suitable place for agricultural activities. but recent decade, Lake Urmia's water level has rapidly declined and farmer, population living in the vicinity of the lake urmia are the most vulnerable segments of population. Distinct example here is Aral Lake which salt and transformed chemicals caused respiratory diseases, malnutrition, anaemia and leber. Furthermore, increasing death rate of infants, decreasing IQ of children and psychic disorders are other problems. Along with them water pollution led to outbreak of epidemic disease like typhoid, A hepatitis and diarrhoea. Relying on these evidences it may be predictable that if Urmia Lake dries, the entire region will affected by health problems for several generations. And ultimately all these problems influence livings of near by people. Extensive devastate of farms and garden by contaminators and salt and distraction of harbours will result in immeasurable loss of work which means poverty will extended and people will have to migrate to other places and this may cause even more critical social and economic problems(M. Hoseinpour et al).

The concept of vulnerability originated in 1970's in the field of social sciences from the view point of disaster risk. Vulnerability is the degree of loss to an element or set of elements from any natural or man-made phenomena. The concept of vulnerability has been described by different authors like Susman (1984), Dow (1992), Blaikie et al. (1994) and Pelling (2003). Vulnerability is the degree to which different classes of society are differently at risk (Susman, et al,1984: 264-283). Vulnerability is the differential capacity of groups and individuals to deal with hazards, based on their positions within physical and social worlds (Dow et al,1992:417-436). Blaikie et al. (1994) point out that vulnerability refers to the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from impacts of a hazard (Blaikie et al, 1994). Vulnerability is also defined as the exposure to risk and inability to avoid or absorb potential harm (pelling, 2003).

Vulnerability differs from place to place and from hazard to hazard. It can be categorized into physical, social and economic vulnerability. Physical vulnerability includes who and what may be damaged or destroyed by any natural or manmade hazard and socio-economic vulnerability is the extent to which a population is affected by a hazard. The socio-economic conditions of the people also determine the intensity of the impact. So it can be inferred that vulnerability is the community's capacity to cope up with the adverse affects of a disaster to prevent potential damage.

2. Aim and Methodology

The objective of the present research is to document the vulnerability of villages situated near disaster prone in District lake urmia(15 kilometer of lake urmia). In these areas, any disaster induce lake urmia can result in intense loss of human life, livestock, social, economy and environment. The paper has been written by obtaining data from both primary as well as secondary sources. The primary data was collected through observation method and through informal interviews with the concerned officials (agriculture sector, disaster management, water

management), and local people. Secondary data was obtained from the concerned village near lake urmia.

The study was framed on the lines of Pressure and Release (PAR) model developed by Blaikie et al. (1994). The "Disaster Pressure and Release Model" also known as the disaster "Crunch Model", helps practitioners to understand and react to people's vulnerability to disasters. This model shows that vulnerability (pressure), which is rooted in socio-economic and political processes, has to be addressed (released) to reduce the risk of disaster The disaster Crunch Model states that a disaster happens only when a hazard affects vulnerable people. A disaster happens when these two elements come together. A natural phenomenon by itself is not a disaster; similarly, a population maybe vulnerable for many years, yet without the "trigger event", there is no disaster. We can therefore see that vulnerability - a pressure that is rooted in socio-economic and political processes - is built up and has to be addressed, or released, to reduce the risk of a disaster. These processes may include poverty, age-related discrimination, exclusion or exploitation based on gender, ethnic or religious factors. The outcome will be "safe" as opposed to "unsafe conditions", "resilient or capable communities" as opposed to "vulnerable communities" and "sustainable livelihoods" as opposed to "unsustainable livelihoods".

The "progression of vulnerability", provides an explanation for the interrelationships between different elements that cause vulnerability. This model was the first attempt to bring the "human factor" into the disaster management picture. Disaster risk management practitioners have used the model since then to examine the causes of vulnerability during disaster risk assessment

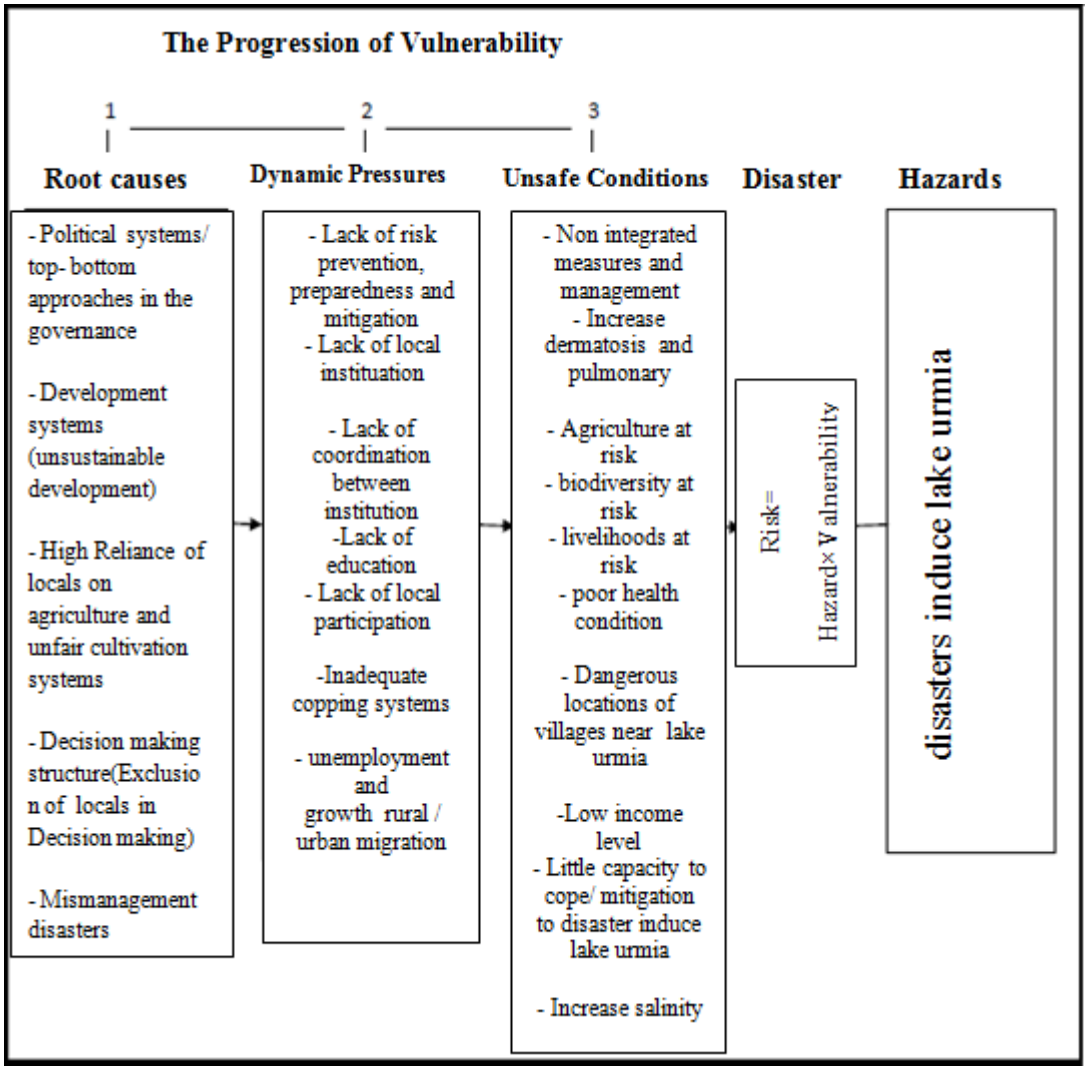

Figure 1: Pressure and Release Model - Progression of Vulnerability to Hazards in District lake urmia

The Pressure and Release (PAR) model depicts disaster as a product of physical exposure and socio-economic pressure. The model distinguishes between three components on the social side: root causes, dynamic pressures and unsafe conditions, and one component on the natural side, the natural hazards themselves. Principal root causes include economic, demographic and political processes, which affect the allocation and distribution of resources between different groups of people. Dynamic Pressures translate economic and political processes in local circumstances. Unsafe conditions are the specific forms in which vulnerability is expressed in time and space, such as those induced by the physical environment, local economy or social relations (Blaikie et al., 1994). This model has been used to study the progression of vulnerability to industrial hazards in the three selected villages (as shown in Fig. 1).

3. Study Area

The vulnerable villages from district lake urmia of urmia conty have been selected for this research work, due to their close proximity dependence on agriculture Activities related to lake urmia (Fig2).

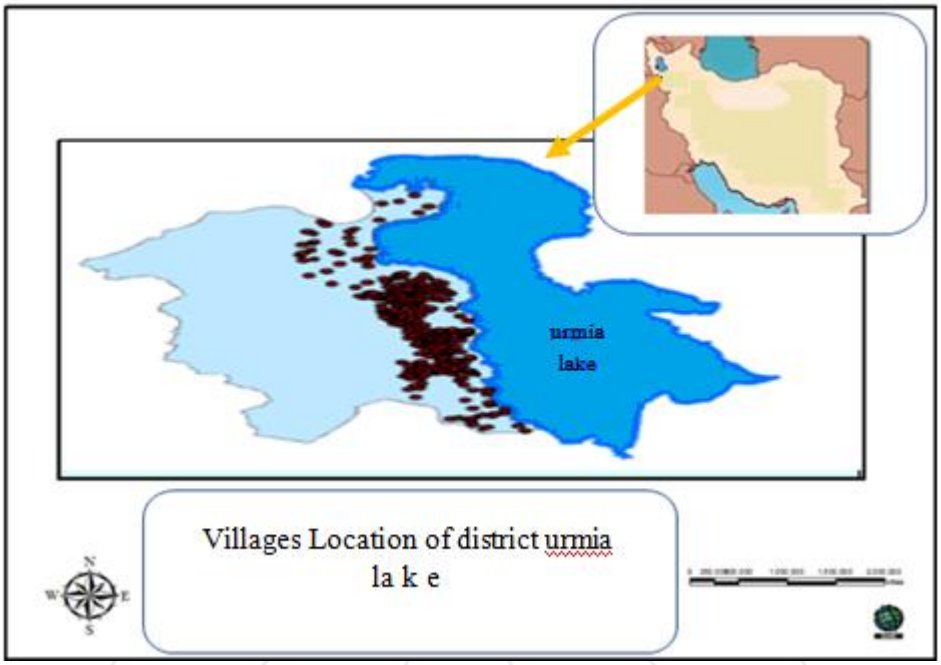

Figure 2: Villages location of lake urmia

4. Root Causes of Vulnerability

In pressure and release model root causes are the most distant processes embedded in the concerned social, economic and political scenario and portray the distribution of power in an area. The root causes that make the people of these villages vulnerable are mismanagement by industries, regulatory gaps and deficiencies on part of the government, exclusion of locals in decision making and high reliance of locals on agriculture.

5. Consequences resulting from Implementation of Development Plans in the Urmia Lake Environment

There exists a logical, clear relationship between development programs and policies and theoretical perspectives and schools. In any case, the modern concept of development was adopted by the Third World as a way of attaining the historical experience of the First World that they needed to achieve development. Therefore, in the beginning, development was synonymous with national economic growth and was considered the route to achieving those economic developments. Given the purely economic goal of development, economists were entrusted with planning for it and nature was considered as the required source of wealth.

Gradually, this traditional approach to development that was mainly rooted in classical and neoclassical economics (Potter & Conway, 2011, 599) led to the emergence of many environmental problems in the world and to changes in the natural systems of the planet that could threaten the economic and political systems of countries.

On the other hand, considering the theoretical views, there are two general theoretical traditions regarding rural communities; a tradition and view that considers rural community as a homogeneous community, and a tradition that considers rural community as a heterogeneous one. The first interpretation is older and more traditional and has somehow fascinated all classical sociologists who have considered non-urban communities as static. The static view of rural communities has reinforced this idea that some external forces from modern sections of society shall undertake to foster change and development in villages and therefore, the rural communities must be receptors of elements of change. This view has given rise to expansion of modernization approach and designing extrinsic, top-down development strategies and plans (Beats, 2000:198).

The modernization theories are inspired by Evolutionary and Functionalist Theories and the researchers of this school, consider modernization a process with several stages. In each historical period, societies pass through one of these stages. Furthermore, they consider modernization as a process that breeds consistency and increases the tendency to homogeneity among societies, In addition, they consider modernization as a European process which is formed in that region, is disseminated among its different societies, and is irreversible (Sue, 2001: 49-50). Therefore, many researchers believe that the new nations shall take the same route that nations of West Europe had taken. Thus, many developing countries have tried to use extrinsic development strategy within the framework of modernization, experience technocratic, reformist models for rural development, and have focused on increasing agricultural products through utilizing technology and agricultural inputs and commercialization of agriculture through directing it towards production of cash and export crops, breaking

chains of traditions, promoting appropriate western developmental theories, and realization of Green Revolution. On the other end of this spectrum, there stands the strategy which believes in creating fundamental changes in rural communities. Within the framework of this approach, it is not possible to eradicate poverty and attain to real development without fundamental changes in social and economical structures which are attributable to those types of structural changes that are similar to full-fledged revolution in society (Azkia, 2005: 226).

The majority of developing countries have implemented technocratic strategy for rural development. The main objective of this strategy is to increase agricultural products, which is achieved either through encouraging peasants to accept advanced technologies, or through integrating lands. The economic system is principally based on the ideology of liberal capitalism. Focusing on competition, free markets, and diverse private ownership is considered as the necessary requirement for obtaining the goals of rural development plans. However, in practice, the ownership of land and other means of production are, to a great extent, centralized. The reformist strategy of rural development, too, considers distribution of income among some parts of society, especially medium peasants and therefore, attaches less importance to increasing the productivity of agricultural products. In this system, there have been some efforts for creating a balance between more equality in the society and growth of agricultural products through changing methods of supplying agricultural inputs. The result of such actions is emergence of a type of duality in agriculture sector. The ideology that accompanies this rural development usually belongs to nationalist and sometimes populist school. In this type of strategy, distribution of revenues flows from high income groups to medium groups. The lower- income groups may enjoy more revenues due to the job opportunities that were created. But it is highly improbable that they enjoy a change in their overall conditions of life or their political influence is increased (azkia et al,2011:2)

Too much focus on agriculture led to pressure on natural resources. So the pressure on nature as well as climate change leads to drying up of wetlands. Causing damage to the entire community, especially rural setelments.

Effects of Urmia Lake drought could be classified in ecological, health, social and economic problems. Unique ecosystem of the lake will be destroyed completely parallel with salt increase. other main problems that will be presented below:

i. Disruption of the biodiversity in the region
The drying of Urmia Lake has led to the loss of sweet water wetland habitats south of the Lake; habitats that play a key role in supporting native and migratory wild life in the Lake. The serious disruption in the migration cycle of migratory birds (which has changed the natural, and one of the most important, flight corridors of migratory birds in the world) is another consequence. So is the destruction of the only living organism in the salty water of Urmia Lake (i.e., Artemia) that, besides having unique economic values, is the main food for migratory birds (DOE, 2013).

ii. Increased salinity
Salinity has sharply increased in Urmia Lake in past years and reached 400 grams perliter (supersaturated salt water) from 160 grams per liter in high water years resulting in the appearance of salt crystals in the supersaturated salt water (DOE, 2012).

iii. Soil erosion
Close to 50 percent of the Basin area (i.e., about 2.5 million hectares) is subjected to severe erosion, and erosion intensity (and sedimentation) in the whole Basin has been classified from moderate to high (DOE, 2013).

iv. Pollution of water sources
Excessive utilization of groundwater sources has led to saline intrusion into the underground aquifers and not only does this threaten the continuation of activities in large parts of farmlands but it has also turned into a serious threat fort the quality of groundwater sources (Iranian Community Consulting Engineers, 2011). Intensification of farming activities in the Basin has resulted in increased consumption of agricultural chemicals. It is estimated that a million liters of pesticides and about 92000 tons of fertilizers are used in the regions around the Lake every year (Yekom Consulting Engineers, 2002). In general, about six million cubic meters of industrial wastewater, 138.4 million cubic meters of wastewater containing excess fertilizers and pesticides, and an unknown quantity of domestic wastewater are discharged in the Urmia Lake Basin every year (DOE, 2013).

v. Salt dust
When the salt marshes of Urmia Lake expand, a mass of elements and various compounds will be dispersed in the air with every wind. This will lead to soil, crop, and orchard destruction (Iranian Community Consulting Engineers, 2011), cause respiratory diseases and eye diseases and problems, various kinds of cancer, and will seriously threaten the health of the society too.

vi. Weather changes in the region
Normally, the extensive area of Urmia Lake greatly helps to modify the microclimate (temperature and humidity) in the region and turn it into a suitable place for agriculture. Relative humidity also prevents the production and dispersion of dust in the region (DOE, 2010). The vast expanse of the Lake, and the feature of latent heat of evaporation resulting from it, has always had balancing effects on the micro -(local) climate of the Urmia Lake basin. These effects mainly include increasing relative humidity in the dry season, reducing temperature during the warm season, and raising the temperature during the cold season. These effects, especially up to the altitude of 2000 meters where major population centers are located and agricultural and other activities take place, are observed more ((Iranian Community Consulting Engineers, 2011). Evidently, reduction in the area of the Lake will increase differences between the day and night temperatures and between seasons of the year, will reduce relative humidity, and will change the annual precipitation regime (Bagherzadeh Karimi, 2014).

6. Conclusion

Consequences resulting from implementation of Development Plans in the Urmia Lake environment are mainly include disruption of the biodiversity in the region, increased salinity, soil erosion, pollution of water sources, salt dust, weather changes in the region that can threaten the sustainability of development. Then, sustainable development will be faced with serious doubts because environmental aspects are ignored(Ghalibaf et al ,2014).The villages under study are facing serious health ,economic, social and environment problems due to their close proximity to urmia lake. several measures have been taken by the concerned authorities to solve this problemes. The root causes that make the people of these villages vulnerable are faulty management disasters, development plan(unsustainable plans) and exclusion of locals in decision-making. The dynamic pressures like lack of cooperation institutional, risk prevention, preparedness and mitigation ,local participation , unemployment, low income level, non integrated measure are increasing the vulnerability of the villagers and making their living conditions unsafe. The sensitivity of agriculture to climate condition and depending of these villages to farming make them more vulnerable. The government should provide them disaster risk management associate local participation to cope disasters induce drying lake urmia. The vulnerable people of these villages must be trained through campaigns and mock-drills to prepare them to face any kind of disaster and to reduce their vulnerability to hazards.

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