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REVIEW

Causes and consequences of floods: flash floods, urban floods, river floods and coastal floods

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Abstract: Undoubtedly, the flood is known as a natural disaster. But in practice, the flood is considered the most terrible natural disaster in terms of mortality and financial losses. In this regard, a worrying trend is the increasing trend of mortality and flood damage in the world in recent decades. The increase in population and assets in the floodplain the changes in hydro systems and the destructive effects of human activities have been a major cause of this trend. In this chapter, due to the importance of this natural phenomenon in the ZayandehRud basin, the general study of flood and its effective factors in creating it, based on library studies and reports, and the collection of flood statistics in the basin during a 40-year period and the damage caused by this flood, has been attempted. With the causes and factors influencing the flooding and also the use of EXCEL software for various damages caused by these floods in high risk cities of this basin, has been identified. In general, the cause of many floods in the central parts of Iran, including ZayandehRud basin, is high rainfall. The causes of these rainfall are also related to the Elenino and Lenina phenomenon, as well as the passage of low pressure systems, which after affecting a large amount of steam from the Mediterranean, affect the western parts of the province that overlooks the Zagros mountains.

Keywords: flood, natural disaster, ZayandehRud basin, rainfall

1 Introduction

Flood is in fact the increase in the water level of the river and the outcrop of water from it and the occupation of a part of the plains of the river boundary that can lead to flooding of the area causing damages to public buildings and human and animal casualties [1]. In some cases flood may also be due to an increase in lake or sea water levels, in which case severe winds will be affected [2].

During rain and snow, some water is absorbed by soil and plants, a percentage evaporates, and the remainder is flowing and called runoff [3]. The flood occurs when the soil and plants cannot absorb precipitation and, as a result, the natural channel of the river does not have run-of-flow stretch [4]. On average, roughly 30% of precipitation is converted into runoff, which increases with snow melt. The floods that occur differently create a region called the flood in the vicinity of the river [5].

River floods are often due to heavy rainfall, which in some cases is associated with snow melting [6]. A flood that is flowing in the river without a preliminary warning or advance warning is called a flood [7]. The casualties of this rapid flood occurring in small areas are generally higher than the death tolls of large river floods.

In some previous researches the definition of flood is the abundance of water that flows at speed and flood a zone of land that is not under water under normal conditions. In other words, the flood is a relatively high rise of water in a river, this rise is a relative state, and is essentially measured against normal or normal regime [8]. Some hydrological experts refer to the flood as a phenomena that is equal to average annual discharge [9].

Main methods of flood control are used from time to time. These include the restoration of forests, the construction of flood sewers, dams, reservoirs and flood canals.

In the distant times in China, on the banks of the Yellow River, a flood of long lines was built [10]. The designers of this flood were the idea that by limiting the river, the construction of the flood would increase the velocity and erosion and deepen the bed, and as a result, the flow of the river increases. Contrary to the initial conception, the construction of the flooded seams led to the rise of the riverbed and instead of being broadly precipitated, this was done within the flood seams [11] . With the rise of the river bed, the height of the flood seams also increased, and after 4,000 years the river bed in some places reached a maximum of 21 meters above the plains. In 1887, one of the worst floods in history occurred in the river, and one million people died in the flood. The floods of medieval rivers in the Po, Danube, Rhine, Rhne and Volga rivers have been strengthened in the 20th century by the rehabilitation of forests and reservoirs [12]. Previous studies [13–15] did not consider all the flood causes. Therefore, this chapter try to fill this gap. So, there are various parameters which cause floods and the aim of this chapter is to analyze causes of the various floods such as flash floods, urban floods, river floods, coastal floods. Different types of floods are shown in Figure 1 to 4.

Figure 1 Urban flood

Figure 2 River flood

Figure 3 Flash flood

Figure 4 Coastal flood

2 Methods

The method of this chapter is based on library studies and reports, and the collection of flood statistics in the basin during a 40-year period and the damage caused by this flood, has been attempted.

3 The main causes of the flood

The flood factors can be divided into two groups, natural factors and human factors.

3.1 Natural factors

(1) Continuous and heavy rainfall

Some floods occur after a few days of mild rain and full saturation of the earth, followed by a severe rainfall. Such floods occur in Iran, especially in the central regions with a return to a few years, and extends to a large extent. The damage is relatively high and the duration of the operation is long.

(2) Kinetic energy due to rainfall intensity

Melting of snow and ice: Sudden warming of the air and rain from warm fronts, on the surface covered with snow and ice, melt them and intensify runoff. These floods in Iran are more likely to occur in the early spring and mainly affect the beaches and estuaries of the rivers: threatening them with pernicious damages to rivers.

(3) Soil gender and permeability level

The type and gender of soils change the soil permeability coefficient and increase or decrease the flow of surface runoff [16]. For example, marl and limestone soils, the quaternary heath cone and young sediments are very sensitive due to slackness and instability and have suitable conditions for the occurrence of floods [17].

(4) Geological factors

Tectonic factors that cause earth collapse or earthquakes or slopes, sometimes causes the river to change or close, and water is removed from the path and flood is created [18]. Recent droughts can provide suitable conditions for flood events.

(5) Vegetation

The presence of appropriate vegetation decreases surface runoff and prevents flooding damages.

3.2 Human factors

Research shows that the uncontrolled interference of humans in the environment plays a significant role in the emergence of floods, which can be mentioned in the following.

(1) Increasing population;
(2) Destroying forests and destroying vegetation;
(3) land use change;
(4) Inadequate latent flood structures in the branches of the rivers;
(5) Urbanization and urban development in flood plains;
(6) The imbalance between livestock and rangeland capacity (Khedrigharibvand et al. 2018);
(7) Intervention in ramps and manipulation of gullies;
(8) Occupation of the rivers and the final boundaries of the rivers.

4 Flood types

In general, flood-dependent areas relies on the potential of water in the atmosphere, the earth, and the air systems, which results in the depletion of atmospheric resources and the concentration of snow in the ground on the surface of the earth [19] . Considering that the primary source of floods is josamine and the flood potential depends on the volume of surface water and the duration of water drainage from the surface of the earth.

4.1 Highly severe short-range rainfall floods

This type of flood occurs when the seasonal flows or rivers of the area are blocked and the runoff from rainfall can not be timely out of the area.

4.2 Continuous rainstorms

These types of floods occur when the surface area of the area under the precipitation is absorbed by the rainfall in the previous days and is completely saturated and as a result, the runoff runs on the surface of the region and floods occur. Flooding caused by rainfalls on snow storms, especially when accompanied by rising temperatures.

4.3 Floodplain

The floodplain is a shallow land near the rivers, lakes and oceans. The floods of the plains are distinguished from each other in the flood flowing backwater that drains them under water. For example, a 10-year-old flood plain is the flood with a 10-year return period and after 10 years will be underwater totally.

5 Results

5.1 Undesirable flood effects

Flood on the global scale is the most devastating catastrophe and is the cause of the highest mortality and destruction [20]. As 32% of the natural disasters in recent years have been related to floods, and of the 50 cases, 26 were flood related. Investigations have shown that the number of floods in Iran increased from 1970 to 2000, in the year 2003, the total number of floods in the country was 460. In 2003 to 2005many cases has caused very severe floods and severe damage to property [21, 22] .

In general, the damaging effects of floods are as follows:
(1) Washing and degradation of formed and developing soils;
(2) Rapid erosion of the earth and its ruggedness;
(3) Land degradation due to the accumulation of large sediments;
(4) Destruction of qanats;
(5) Livestock and wildlife loss;
(6) Destruction of roads, bridges and houses;
(7) Rapid filling of lakes;
(8) Water spill and lack of sufficient opportunity for water productivity.

5.2 Flood geographic distribution in Iran

The Department of Watershed Management's Office of Planning and Surveillance during investigations that took place on floods and its damages in Iran between 1970 and 2010 has claimed that during the past forty years, 1439 destructive floods occurred in Iran. (see Table 1)

Table 1 Flood distribution and its relation with population growth in Iran

Decade	1970-1980	1980-1990	1990-2000	2000-2010
Number of flood	203	280	360	615
Number of population	20	28	38	60

The subject of attention is that as we approach the year 1970 to 2010, the number of floods has increased throughout the country. This increase in the number of floods does not have much to do with rainfall, but it should moreover be attributed to the increase in population.

Because, with increasing population, the land covered by the buildings and roads has increased, and the involvement of humans in disrupting the crust and natural texture of the earth has increased the volume of runoff. On the other hand, the pressure caused by the increase in population on the vegetation of the regions has led them to poverty and destruction, causing the resulting water to quickly reach the plain and cause flooding.

Based on calculation, correlation coefficient of flood and population is 99%, and correlation coefficient of flood and rainfall is 15%. This suggests that increasing the population and, consequently, the undue use of nature is a factor in the increase of floods (Figure 5 and 6).

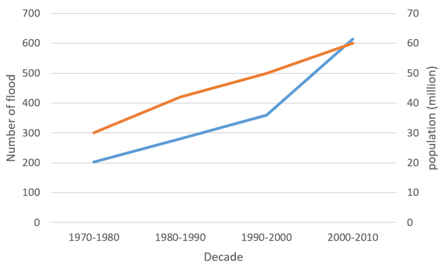

Figure 5 Relationship between number of flood and population in Iran

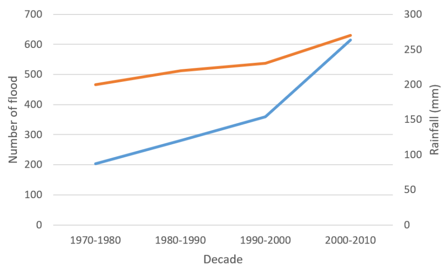

Figure 6 Relationship between number of flood and rainfall in Iran

5.3 Flood location distribution in Iran

In Iran, there is no complete and accurate statistics available to help investigate the spatial distribution of the flood. However, the 25-year report between 1985 and 2010 indicates that the location of most floods is consistent with the flood-plains. A 25-year report from 1985 to 2010 indicates that the location of most floods is consistent with the flood plain.

The central regions of Iran, which are more desirable in this article, although the average amount of annual rainfall is not high, but there are periodic floods in Isfahan, Yazd, Rafsanjan and Kerman areas. The reason most floods in these areas are due to long-term rainfall or short-term storms, and more important is the development of impenetrable land in urban areas and the change of surface coatings on the ground.

5.4 Flood in ZayandehRud river basin

Water is a valuable resource, but the lack of planning in operation, as well as its poor management, has caused flood and increasing damage caused by it in some parts of the country.ZayandehRud river basin due to climatic conditions - geomorphology and existence of Zayandehrood, Zar-Cheshmeh and Morghab rivers is one of the areas in the country that is subjected to flood hazard every year.

In a 70-year period, out of 52 severe floods in the country, 12 cases have been reported in Isfahan province. Considering that the area of ZayandehRud river basin is 6.5% of the country's surface, 23% of the severe flood occurred in this basin.

5.5 Geographic location of the study area

The area of ZayandehRud basin is 107044 square kilometers. This basin is located in the central mountains of Iran and the eastern slopes of Zagros and consists of several mountainous and plain areas. Also, the rivers of the province are Zayandehrood, Morghab, Vayer, Vankak, Hana, Darband and Zarcheshmeh [23, 24] .

5.6 Meteorological, hydrological study of the basin

In general, the extent of the basin and the heterogeneous distribution of atmospheric discharges and various climate conditions on the one hand, and unreasonable interference of individuals in land, vegetation, etc., on the other hand, have created conditions in this province. In some cases rainfall is intense [25–27].

It has caused severe floods, financial losses and deaths, as well as soil erosion and exacerbation of future floods. The lack of long-term and reliable hydrometric data is one of the problems of comprehensive flood analysis in the province with high confidence [28–30].

5.7 Rainfall regime

Due to its latitude, the basin is mostly affected by the tropical high pressure belt, which is why it has low rainfall, especially in the east and southeast of the basin, the average annual precipitation is about 81mm and in a 20-year period shows that the average rainfall is 35 mm. The main source of rainfall in this province is the passage of low-pressure systems, which after affecting a large amount of water vapor from the Mediterranean, affecting the western parts of the province, overlooking the Zagros Mountains, but the eastern cities of the province that surround the central desert of Iran , are less affected [31–34].

5.8 The changes in annual average of rainfall

The quality control of rainfall data at the provincial level in a 20-year statistical period has shown that the rainy year in this period was about 300 mm and reached 35 mm in the least rainy year [35, 36].

Investigations on the number of floods, the amount of damage, the number of deaths and injured people have shown that during the years 1971 to 2010, a total of 213 recorded floods with relatively high damages occurred in the basin. Also, among the provinces of the province, the highest number of floods occurred in the cities of Ardestan, Isfahan and Kashan.The highest number of casualties is in Kashan, then Natanz and BorkharMeymah.

Although the 1250 flood-related deaths in the city of Kashan are unrealistic, but the study of the flood damage of this city has shown that the location of this city in a plain without a passage for the transfer water can provide flood. Also, the location of this area in a dry and desert climate and the soil also exacerbate this phenomenon. 90% of the human casualties are due to the devastating flood of 2002. In this day, devastating floods occurred throughout the country, the most severe in the basin, was Kashan and the surrounding villages. (see Table 2)

Table 2 Flood distribution in the basin

Area	Number of flood	Number of death	Damage(million Rial)	Rainfall (mm/day)
Ardestan	29	201	3562	101
Khomeinishahr	5	0	600	
Khansar	17	37	16466	340
Semirom	20	3	2460	
Isfahan	22	30	19383	182
Golpayegan	12	15	6400	449
Falavarjan	1	0	1251	
Kashan	20	1512	2360	124
Natanz	14	260	4155	373
Borkhar	10	214	2500	108
Lenjan	20	38	1453	
Fereydan	6	20	30300	118
Fereydoon-shahr	13	40	82712	108
Najafabad	8	13	6000	118
Shahreza	5	0	601	911
Naein	18	37	401	326
Total	217	2419	167680	

With hydrological studies on this flood, runoff velocity has been calculated in accordance with the Mating formula of about 115.2 m3 / sec. In addition to runoff, the existence of houses made of mud and mud and non-resistant structures to surface water currents has been effective in increasing flood damage. Fortunately, in recent years, above-ground creeps have been retrofitted and soil dams have been constructed to prevent flooding from outside the residential area, which has been effective in preventing flood events and associated hazards.

The highest financial losses due to floods in the province are located in Fereydoun-Shahr and Fereydan, and are located in the next levels of Khansar and Isfahan. The cities of Fereydoun-Shahr and Fereydan are located in the highest part of the Zagros mountain range. The bedding in these areas is equivalent to the formations of Surmeh, Sarvak and Neyriz and mainly consists of shale and Marl alternations with interactions of thick layers of lime and provide suitable conditions Provides flood damage and the occurrence of secondary natural disasters caused by flood events such as landslides and the resulting malfunctions.

Other causes of flood damage in these areas are degradation of vegetation and rangelands. These areas are used as pasture land in the entire province during the warm season, so uncontrolled utilization of these rangelands as well as the advancement of settlements to sloping slopes helps to increase the damage caused by the flood.

5.9 Adaptation method to control flood

Natural flood is a natural phenomenon that the complete and definitive containment of the risks posed by it is impossible and absolute safety against flooding and flooding of rivers is not feasible. So here's how to deal with flood and its dangers.

5.10 Engineering actions or structural methods

(1) Structures based on the reduction of flood peak and damage management including the construction of reservoir dams, flow deviations, and soil conservation;

(2) Structures that operate on the basis of not reducing the peak of the flood and reducing the damage, including the construction of landslides, flood walls;

(3) Dredging of beltways and directing floods to less vulnerable and spreading areas.

5.11 Nonstructural or managerial techniques

These actions should be carried out in three different areas: preventing floods, preventing flooding, and rehabilitating and repairing damaged areas.

(1) Watershed management and management of basins;

(2) Planning and management of basins;

(3) Flood zoning and flood management in plain and flood areas;

(4) Prediction and Flood Alert;

(5) Preventive and supportive operations in flood areas.

The first one, which is to prevent flooding, is a continuous, but flood-relief ground, an emergency phase that must be done in full harmony with other institutions, and is the subject of a periodic rehabilitation. Obviously, these measures change according to spatial and temporal conditions and it is necessary to achieve a better result of integration of engineering and management measures in all three phases of prevention, coping and restoration.

Flow control structures such as dams, flood sewers, flood channels are designed in such a way that flood with a certain return period will protect the areas. This level of safety is determined on the basis of economic considerations, the interests of the relevant communities, environmental impacts and other factors. Engineers can design structures in a way that guarantees a high level of safety. Communities usually choose lower levels of safety. This is significant due to the initial cost. In the United States, the National Flood Insurance Program has selected a minimum return period of 100 years. With this return period of 30 years, there is a 26% chance of flood design or larger structures.

Flood seals may be designed or constructed without design. In the design flood, special considerations on soil condition, soil type used in excavation, proper soil compaction, high protection of flood strap against scour and other factors are considered.

Non-engineering non-engineering flood spans are in the long run along the river. The flooding of the designed bore holes has a much lower degree of degradation of non-engineered gutters. Damage to the flood is usually caused by a flood that is larger than the flood of design, inadequate maintenance, and flush drainage from below.

5.12 Frequency of flood

A reliable method is not available to predict when the next flood occurs and how large its extent is. Nonetheless, the flood of the past gains clues from what is possible. Engineers estimate the likelihood of floods with different dimensions by studying past floods and using science statistics.

For example, at 100 years in 33 years, a flood would be larger than a flood of 3 and 10 years older than the 10-year flood. This does not mean that there will be a 10-year flood just every 10 years. In a watery year, several floods may be flooding over a 10-year flood. Even a flood of 100 years or more may occur in a short distance. Percentage of the probability of an average flood occurring over a long period of time.

In one watery year, several floods that are larger than the 10-year-old floods may occur, with the occurrence of two large floods sequentially similar to milk and coin lining. Because, for example, 5 times consecutive milk is not the reason why the sixth load is not milk. The probability of occurrence is 50 to 50. There is no reliable method to predict when the next flood occurs and to what extent it is.

6 Discussion

6.1 How much risk is acceptable?

The probability of occurrence of flood in almost all areas depending on the situation. It is clear that in some areas floods are likely to be larger than other areas. For practical purposes, the acceptable risk depends on the particular case. For example, watering a park, farm, or golf course is acceptable every 10 years, but in the case of schools and hospitals that have a higher risk of life, the risk is 1 in 500 years. The rest of the cases are among these two extremes (1 in 10 years to 1 in 500 years). Allowed risk depends on the investments made, the risk of life threats, access to safe areas in the event of a flood and other factors. . Even with all the factors involved, there is no clear and straightforward answer.

Structural management of flood management is a subset of flood management that includes the role of the structure and its exploitation. Many of these methods have a history of several thousand years. For example, the Kafra dam in Egypt was erected 4600 years ago to control the flood that was destroyed by the flood. In structural methods, flood control is also referred to. Flood containment involves certain processes that, by providing and exploiting design structures, eliminate or reduce the damaging effects of flooding, which is accomplished by storing, limiting and flood diversion to the extent that it is economically justifiable and it is possible. In many countries, hundreds of millions of people are now vulnerable to flood dams, flood straits and flood diversion channels.

The degree of safety of the flood control structures is determined on the basis of economic considerations.

6.2 Reservoir dams

Many of the oldest dams in the world were built to control the flood. Reservoir dams are often multipurpose and are used for purposes such as irrigation, supply of drinking water, power generation, flood control and recreational purposes. The purpose of a flood retention tank is to save part of the flood flow in order to reduce its maximum.

River floods have seasonal characteristics, the efficiency of multi-purpose tanks for the reduction of flood peak significantly increases. Under ideal conditions of the reservoir is located right upstream of the protected area and exploitation to reduce the maximum flood to safe passage capacity Downstream is the flood stored according to its occurrence or idol Ridge is released or, if it is near the end of the flood season, is stored for irrigation and power generation. If there is an intermediate basin after the dam and the protected area, the purpose of reservoir management during the flood, flood minimization in the protected area In this case, it is not necessarily "the flood at the dam site will be minimal. In the case of river floods having seasonal characteristics, the efficiency of multi-purpose tanks for the reduction of flood peak significantly increases.

6.3 Levees and flood walls

Limiting the flow of a flood in a given width of the river is done by means of structures such as hollows and flood walls. These structures prevent the spreading and spread of flood in the surrounding area of the river, guiding it in a narrow path and narrow channel. The construction of gorges is the oldest, most common and one of the most important methods of flood control since long ago. Gore is a short, narrow, narrow section that runs along and along the river's edge to play the role of artificial beaches during the floodwaters that flood the river from its natural beaches, and the vast majority of the land around the river from the water Eclipse protects in the urban areas and other areas where the value of the land is high, instead of the gorge, the walls of the flood strap is used. Walls of flood strap made of different types of concrete, stone, brick and so on are made.

The construction of gorges (flood embankments) has been the oldest, the most common and one of the most important methods of flood control since open air. Generally, flood design and flood walls should be similar to common dams. The main advantage of the gates is the use of cheap local materials.

The graves are constructed of mortar mines, which are parallel to the grave. These materials should be poured into layers. The impenetrability of materials at the front of the river should be used. In general, suitable materials for the kernel are rarely available, and most of the gullies are homogeneous soils. Gravel sections should be designed according to local conditions and existing materials. In order to be able to pass the machinery, the minimum width of the flood is 3 m.

For beauty, gravel slopes can be milder than necessary. In this case, the flood is less pronounced and people travel more easily. Heel drainage is required to maintain the safety of the gutters against scouring and to prevent water from falling down the slope. Due to the wide width of the gutter at the bottom and the high value of the urban land, the walls of the flood are usually used in these areas. These walls are designed to withstand the hydrostatic pressure (high pressure on water).

One of the important issues in the design of the holes is the drainage of the inner regions, which are used in various ways as follows:

(1) Collecting pond and pumping station;
(2) The internal drainage of the gorges;
(3) Diversion drainage;
(4) Drainage canal;
(5) Evacuation of pressure pipes.

6.4 Storing flood seals

Building conditions and conditions are rarely completely satisfactory and therefore, due to the uncertainties of water engineering, even with the best construction techniques, there is a risk of destruction. Due to the uncertainties of water engineering, even with the best construction techniques, there is a risk of destruction In the event of flood damage, the consequences can be greatly deteriorated from situations where no "filtration" has been constructed.

6.5 Tanks late

Flood containment has a direct and rapid effect on the flood using delayed reservoirs. If the topography makes it possible to create an appropriate reservoir of delay and the resources of the loan are available at a short distance from the project site, it can be used due to its faster effect in comparison with the watershed management methods for flood relief.

The output of a lag dam is usually a large overflow or non-valve outlet. The Pinary in France includes an open barrier. The type of output that is used depends on the nature of the flood and the reservoir's collective profile. Generally, the stomatal outlet It is preferred that this $\sqrt{}$ h Q $\approx$ results in a higher delay in flow and a lower melting of the outflow due to the output formula of the stomp. A simple surface spill is usually not desirable for delayed dams because the volume of the sub-crown of the overflow is used to reduce the flood. However, in order to maintain its safety, the dam is a large overflow with a capacity of several times the output capacity always. The output capacity of a delayed dam with a tank should be equal to the maximum capacity that can be reached from the river downstream. When the flood begins, the delay reservoir is filled up and the outlet increases so much that it is equal to the flood enters. The stored volume itself is removed from the tank.

Delayed dams have the most efficiency in small areas with a high slope. A typical example of the efficiency of dams is the dams constructed in Ohio, USA. Because of the low concentration of small flood floods, the efficient operation of hard storage tanks is possible. In addition, the use of delayed reservoirs ensures the spontaneous discharge of tanks after the flood and prevents the loss of the benefits of flood control for the benefit of the storage. Delayed dams have the most efficiency in small areas with a high slope.

Most of the downstream ditches in Ohio are used for agriculture and rarely do watering, and no permit to build facilities is provided on these land. In designing the dams, it should be noted that the construction of these dams does not cause simultaneous flooding of different branches and increase the flood in the downstream. For small basins, it is highly unlikely that floods will increase due to delayed dams, but this increase will increase in large basins with different shafts. Therefore, lagging dams are mainly used for small basins and reservoir dams for large basins.

As mentioned in earlier there are various methods to control floods, however, previous studies [37–45] did not consider all adaptation methods to control floods. So, this chapter filled this gaps.

7 Conclusion

This chapter analyzed the different causes of different floods and the main finding is the causes of floods are various in each region. Also both natural and human aspects can effect on the flood causes and these two aspects are analyzed in this study. Another finding of this study is analyzes of adaptation actions against different types of floods. What is clear from the overall analysis of these statistics is that the cause of many floods in central areas of Iran, including

Isfahan, is high rainfall, while 25% of these rainfall are directly related to the Elenino and Lanina phenomenon. Other factors can be referred to as low-pressure systems, which, after obtaining a large amount of steam from the Mediterranean, affect the western parts of the province that overlooks the Zagros Mountains. Changes in the discharge of rivers in the province including Zayandehrood, Plassjan, Zarakhshmeh and riders have been effective in creating some of these floods. The reason for the intensification of many of these floods, the increase in population and the advance of residential areas in the rivers and the development of impenetrable lands in urban areas and destruction of vegetation, especially degradation of rangelands in the western waters of this basin. In some central and northeastern parts of the basin, due to the presence of plains and lack of channels for flood guidance to other areas, the risks of flood have increased. Therefore, it is necessary to use the technology and the new sciences to flood hazard zonation in different areas of this province. Also, the lack of prevention of degradation of vegetation is also one of the suitable strategies for fighting, preventing and controlling the flood. The limitation to analyze the causes of floods is financial limitation. Financial sources that need for understanding, analyzing and controlling floods are limited especially in developing countries. Future researches should consider the limitations and also should provide more adaptation plans to control the different types of floods.

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