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Research Article

To promote traditional methods of protection of soil and water resources for sustainable development a major step forward in Iran

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ABSTRACT:

Iran shows Iranian farmers in the agricultural history of indigenous water harvesting techniques, development of agriculture and desertification have received a great deal of experience, which dates back to about 3000 years. Construction more than 40 thousand aqueducts, terracing steep mountainous terrain, construction of dams and water dams and irrigation and flood reflects the rich experience of local technology pots Iranian farmers to protect water resources and soil. Local technology resources of soil and water conservation methods and skills set Natural environment and social conditions of communities to manage their land and water resources they use.Each local technology community, the national resources of the community that The result of thousands of years of experience and trial and error is a community with its environment It suggests the climate and the characteristics of nature and human interaction with the environment. Which includes a range of native life including the environment, way of life, livelihood and agriculture. In this article to revive and promote traditional methods of protection of soil and water resources sustainable development provides a major step forward will be discussed. In this article to revive and promote traditional methods of protection of soil and water resources for sustainable development of the resources available to Iran.

Key words: Management, soil and water resources, protecting traditional methods.

INTRODUCTION:

The erosion of soil resources is one of the major problems in countries that has been heavily affected by the degradation of pastures and forests. Between 1980 and 1990, annual losses of 15.5 million hectares of global forest cover were lost (FAO 1993). This figure has been estimated in a country like Iran over the past 70 years over the past 700 years and over the past seven years, over the past 70 years.In general, soil losses are estimated to be around 1.5 billion tons throughout the country, with an estimated economic value of wastewater estimated at 3750 billion USD per year (Hosseini Abri, 1994).Native technology for water and soil conservation largely shows the indigenous peoples' commitment to protecting these resources. In addition to soil conservation, indigenous people use certain techniques to control their water penetration into the earth and feed the underground aquifers.

Water extraction has long been used in different parts of the world. In northern Yemen, there is a water extraction system dating back to 1000 BC that has deviated water from flood watering 20,000 hectares of land. In West Rajasthan, with

only 167 millimeters annual precipitation, large dams of the 15th century have been constructed for rainwater harvesting, which is called Khadin. The FAO has proposed ways to extract water in arid areas, including these semi-circular embankments. These embankments are very similar to traditional Iranian ribs and are used to improve and rehabilitate pastures at a gradient of 2 to 5 percent. The German Federal Delegation for Economic Development and Sustainable Agricultural Management in Chad, Niger and Burkina Faso, the region's enrichment and fermentation of the flood spreading system, which is similar to the bayonets, has grown 2.9 times more than three years before enrichment and increased cultivation Rainfall was 90 percent(lancaster.2013).

In many countries, native flood extraction systems continue to be used. Due to the fact that these systems are of interest to landlords and increase the soil moisture and artificial nutrition of groundwater, studying their structure and performance can serve as a model for the sustainable development of soil and water resources.

MATERIALS AND METHODS:

For "Indigenous Knowledge," there are other names such as Local Knowledge, "Technical Knowledge" or "Technical Indigenous" and "Traditional Indigenous." But the term native knowledge is most commonly used. Indigenous knowledge is based on experience and has often been tested over time and adapted to local culture and the environment, and has thus obtained the necessary dynamism and efficiency.(IIRR,1996:7).In other words, native knowledge is the sum of the experience and knowledge that a community gains in dealing with well-known and unfamiliar problems and makes it the basis for its decisions and challenges. Indigenous knowledge is rooted in the experiences of centuries and, as long as the community goes, it evolves as its cultural and technological base (penny Andersen, 2001).In fact, indigenous knowledge is the knowledge of human groups in relation to the different backgrounds of being, life and livelihood, which are formed from interaction with the natural and social environment through trial and error over time, mostly oral and written (AmiriArdakani and Shahvali2003). Indigenous knowledge relates to the entire culture of a community's people. While some scholars and planners of thought consider indigenous knowledge as a means to solve some developmental problems and problems, the indigenous people themselves see it as part of their entire culture, which is its existence for survival and Their life is essential. (KOLAWOLE, 2001).Since indigenous knowledge is part of the national capital of each nation, it embraces their beliefs, values, methods, tools and local knowledge. Experience shows that indigenous knowledge not only does not conflict with formal knowledge, but that different characteristics of indigenous knowledge make it a good complement to formal knowledge.Indigenous knowledge is accessible, understandable, simple, efficient, and inexpensive, indigenous knowledge of the issues in general, and the way it is transmitted verbally. This knowledge is dynamic and over time, as it has evolved locally in the natural and social environment, it is fully compatible with indigenous and regional conditions.

In this context, the meaning and concept of indigenous knowledge in the Persian language can be expressed by the information collection of the people, the knowledge of the masses and the knowledge of the mass of people's culture. In Technology Transfer, he talks about traditional knowledge and points out that traditional knowledge about agriculture is a knowledge that farmers have learned from their own experience and from one generation to another.Traditional knowledge is gathering very slowly, but what remains is tested over time. Such knowledge includes accurate observations on plants, animals, climate, soil, plant pests and systems that are classified according to local conditions, and because the farmers and their families have lived with them generations, they are precise and

predictable. It is a nose and, in terms of volume, is wider and wider than the knowledge created at research stations. One of the examples of indigenous knowledge is the conservation of Iranian water resources by Iranian farmers in the central areas of the Straits, which are created by the formation of a ditch in the waterway and flooded and kept in it and gradually penetrating into the soilThe components of a straw are: dry river or shallow river with temporary flow, pond detachment made of river materials, hull or main wall of the embankment, parallel and vertical adjacent walls for distribution of flood and corners of the site The surplus water surge. This native technology has many benefits, including increasing soil moisture, feeding groundwater and erosion control. Given that low cost native technology can provide the sustainability and sustainability of land and water resource development programs.

DISCUSS:

Due to the growing importance of recognizing local priorities and attracting public participation in the design and implementation of development plans and the need to mainstream knowledge and skills of several thousand years, exploiting soil and water resources, two types of indigenous knowledge known as BandSar (in the south of Khorasan) ,Khoshab and Hotak (in Sistan and Baluchestan) , are commonly used:

A. Bandsar:

An example of adaptation to nature in the southern and central parts of Khorasan province is the extensive surface area of the so-called "Bandsar" flood plains, which have long been built to provide agricultural water. In fact, the bandsar is a Crete or pond that is formed by a fine soil structure in the water path and the flood is guided and kept inward to penetrate it gradually.The extraction of the flood with this method can increase the soil moisture and artificial nutrition of groundwater aquifers. The construction of Bondsar and the use of flood in the rainy areas of Khorasan Province, where cultivation of grain crops is unsuccessful, is common in Birjand, Nehbandan, Qa'in, Gonabad and Sabzevar. The average annual rainfall in these areas is less than about 200 mm and in Nehbandan it is about 50-100 mm.

There is no precise information on the age of the bands. Since there are no specific studies on this, the volcanic quality of the buildings does not allow them to be accurately assessed from their earliest days. Many years ago, dating back to 3000 years ago, groundwater was used in Iran. Knows and notes that the northeast inhabitants of Iran fed their groundwater by flood irrigation of conifers (AmiriArdakani and Shahvali, 2003: 69).

In fact, the control of surface water from the ancient times in eastern Iran, especially in the southern Khorasan, has been customary. In the lower Birjand, there are fewer villages in which there are not several soil basins or reservoirs in order to store water. These bands are located next to the river of the season, and if they are filled with water, they will benefit from two points:First, the soil is absorbed by fertile deposits, and secondly, a column of water at an altitude of 1-2 meters in its crater is accumulated, which gradually drops in the soil floor of the gravity, in which case it is necessary It is not a summer irrigation. In the late spring, after the full meeting of water and cows, the land is coming to plant. In summer, cultivated plants (usually foliar crops) use groundwater, which is approaching the surface of the soil through poetry tubes and under osmosis law. The above sections are constructed with non-compact soil walls, which, in the absence of care and intensity of flow of water, the efforts of their owners may be lost within a few minutes. The construction of these sections indicates the consciousness of the people of eastern Iran, which by doing so compensates for the shortage of rainfall and increases the level of their own land. The set of sections of a district is called "Bandsar". Physiographical, the bandsar in the hills, the plateaus (eroded conifers), the frenzy lands of the pancake (cones) and the plains of the skirt are observed. In most cases, the primary bedding site of the bandsar is made up of large grain alluvia’s.

Image1-A picture of a bandsar

Components of the Bandsar:
1- Dry river: shallow river with temporary flow
2- Wing: Detachable strap made of riverine material
3. Hull: The main soil is the fine soil
4. Sub wall and parallel wall for flat flood spreading
5. An earring or corner of the place where excess water is spillway (Arab Khadri, 1995).

The current flood in the river is guided by a twist-strip, which is actually a kind of barrier constructed of flowing rivers against the flow. The floods accumulate in the back of the hull, which is generally built on the alignment line. In order to remove excess water and avoid the bursting of the strap, the end of the strap is used as a bell to call it a corner or an earring.To prevent erosion in this place, rock fragments and plant plants are laid. The area of a strap may vary from about 100 square meters in the valleys to more than 30 hectares in the lowland area. Sometimes it is used in large gangways to distribute evenly the water at its surface, from adjoining portions parallel or perpendicular to the main strap. The method of constructing bandsars is not complicated, and they are made using a bottom soil with a climb on the alignment lines.

In the past, for the purpose of constructing these gravestones, primary means were used, but now, bulldozers or tractors that are attached to the bulldozer blade are used today. Before the rainy season and the flood flow of care, in particular for the consolidation of weak, blocked areas It is necessary to dig a nest of animals and draw the damage of the past year. On the floating lands of a pebble shaped or coniferous form, the way of constructing the bandsar is different.These lands are composed of coarse-grained sediments (alluvial and quaternary), and on this there is a five-dimensional network of waterways. This pattern of drains indicates the natural location of the flood spread. The land at the interface between the two waterways is a good place to build the Bandsar. For this purpose, apart from the general method, plots have been planted in three directions. They construct flood flows into them. If the drainage is carried out only from a river bed, the front entrance will have the role of an earring (overflow). If drainage is carried out on both sides, the design is such that, after filling the strap, the water is repulsed and the flood is stopped.

B- khoshab:

The construction of Khoshab in the Sistan and Baluchestan region. The construction of Khoshab is a kind of aquatic-earth activity that is carried out in various parts of the riverbeds in different ways, and in addition to collecting and penetrating water to create agricultural lands. In fact, the construction of Khoshab has two main objectives:

-Collecting sediment and water spray for agriculture
- Feeding groundwater aquifers and qanats

As it was mentioned in the definition of indigenous knowledge, its transmission to the breast and generation to generation, and based on the research, it is believed that about 10 generations ago, but the oldest clown in the Bam area of the city of Saravan was at the time of the presence The Mongols in Iran, around 660-660 AH, are known as the famous MOGHOL B AN. Depending on the type of material used and the ratio used, it is divided into four types.

1-KHOSHAB stone
2-KHOSHAB soil
3-KHOSHAB rocky-earthy
4-KHOSHAB Semi-rocky semi-earth

Image2-A picture of aKHOSHAB in postal areas

Image3-A picture of aKHOSHAB in steep areas

- Characteristic KHOSHAB

1- Drainage or water outlet:

In order to prevent the flooding of crops at the beginning of growth, as the amount of sediment increases, the drainage or drainage of the water increases. The method of creating drainage is that at the time of the construction of stone and limestone heaths from a 1-meter level, they produce a stone outlet in the center of the city, with a distance of 0.5 m. Its internal boundary. There are two or more outlets in each clay or rocky-earth, which increases the height of this outlet as the altitude increases. Cover the surface of each outlet with a flat stone, and when the product is flooded or excessive, it will remove the volume of water in the drain and drain excess water.

2. Observe the location of overflow:

Due to the strength of rocky, earthy and limestone soil and on the basis of experience, the most appropriate location and overflow regime is considered. In austerities of the soil, usually at the end of the clay, which leads to the bedrock, a sure rate is constructed and according to the slope and The thickness of the bark is determined by its location. In the clay heaps, the stone bed is also used for the purpose of the bed. For this purpose, several layers of relatively large limestone are formed, with a width of 1-3 m and a height of about 1.5 m.

3. How toConstruction

In order to achieve such goals, human resources were used in the past, and their only cost was the acceptance of them, which usually involve members of one or more families, but nowadays it is being used by machines.

4- Construction time

Whenever there is feasibility of fewer floods and fewer people have opportunities to be available throughout the year, but if the goal is to be blunted, it should be completed and ended once, but the clay can be constructed over time (Haqqani, 2006).

C-Hotak:

In the villages of Sistan and Baluchestan, in the region of DashtYari and around it, they collect rainwater in a pond and collect holes called Hotek, which resembles large torkinsets. TheHotaks are usually from 1 to 3 meters and their volume is from 1000 to 3000 cubic meters. Hotak is a structure designed to collect seasonal floods for a variety of uses, including supplying drinking water and helping to irrigate seasonal cultivation and increasing the productivity of agricultural and livestock production. The recent drought has caused villagers to pay more attention to restoring hutches to meet their needs. People use about 240 Hotak villages for irrigation and drinking purposes. The height of these hutches is lower than the surface of the ground, and they are constructed by lifting one place at a lower elevation and raising the walls around them from the ground. Many of these hutches are unique water resources of each region and they are drying They are forced to migrate by local residents.

Image4-A picture of a Hotak

CONCLUSION:

In fact, some of the necessities of using indigenous knowledge, especially in the central regions of Iran, can be attributed to the following reasons due to their low cost and their part in sustaining the conservation of water resources:

1. By restoring and promoting the traditional and traditional methods of protecting water and soil resources, especially water and sanitation, a suitable model for the management of natural resources in sustainable development will be.

2. Successful implementation of various natural resource projects depends on the participation of local people in all stages, including the design, planning, implementation and evaluation of designs. Therefore, the participation of local people will be better achieved if natural resources are used in the definition and implementation of indigenous knowledge.

3. The development of the needs and the level of people's lives and the increase in population has changed the way of damage to natural resources. Therefore, there must be an interaction between indigenous knowledge and formal knowledge. Because in such a situation, none of the two knowledge alone can answer the needs.

4. One of the best ways to find problems and issues of natural resources is to use the views of local people.

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