

USING SOIL AND WATER RESOURCES WITHOUT A PLAN AND THE PROBLEMS THIS CAUSES IN PAZAR

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Abstract

Conservation and management of soil and water resources are the most important subjects in watershed management. In addition, fast-growing technology and accelerated population growth has put an increasing demand on these resources, suggesting that planning is the key to ensure the sustainability of these resources. But, there is no current plan for preserving and using of natural resources in Pazar watershed creek, which is located in the northeast of blacksea region in Turkey. Lack of plan many environmental problems in Pazar. In this paper, it was tried to determined so environmental problems (e.g: erosion, water pollution, household churn, and garbage, etc...) which appear unplanned using of water and soil resources in Pazar.

Key Words: Pazar Creek, Unplanned using of natural resources, environmental problems.

1. Introduction

Both soil and water resources play a vital role for every living organism's life. In addition, fast-growing technology and accelerated population growth has put an increasing demand on these resources, suggesting that planning is the key to ensure the sustainability of these resources. Modern techniques such as mechanization, better crop varieties, and the scientific use of fertilizers can transform agriculture, but before they can be effective the use of land has to be right. No techniques will make it possible to grow a good crop if the soil conditions are unsuitable for that crop, and no conservation works can prevent erosion when the basic cause is trying to grow crops on land which is really unsuitable for arable farming (Hudson, 1995). Currently, it is not quite possible to say that efforts to protect, improve, and sustain soil and water resources are in affect at a desirable level in Pazar area. The main reason for that is the lack of governmental establishments and laws/regulations. Moreover, there is no watershed-based natural resources plan and management model, primarily caused by the land ownership problem at the watershed level, which has not been solved until today. Such problems are believed to lead many perturbations in natural resources including soil and water resources in both urban and rural areas of Pazar.

2. Definition of Study Area

The study area, Pazar, which is town of Rize city, is located on the blacksea coast of northern Turkey (Figure 1).

It is between 40° 52' N latitude and 40° 46' longitude. The long-term annual precipitation of Pazar is 1953 mm and average annual temperature is 13.89 °C. The climate is very humid with short cold winters (Yüksek 2001).



Figure 1: The location map of Pazar

3. Land Use Problems

Even though land suitable for agricultural use is very limited in Pazar area (Table 1), agricultural activities are still being practiced because most people are socially and economically dependent on such activities in the area. Total land area classified as available for agriculture is about 1,033.00 ha, but approximately 300.00 ha of this is used as settlement areas while tea (725.00 ha) and corn (8.00 ha) cultivations cover the rest (Table 1). Total land coverage in Pazar is about 34,732.00 ha and only % 2.97 is suitable for cultivation (Yüksek, 2003). However, % 25.40 (8,820.00 ha) of the total coverage is used for agricultural activities (Table 1). (Anonim, 2002)

Table 1: Land use types according to land use classes

| Land Use Types | Land Use Classes (ha) | | | | | | | Total (ha) |
|-------------------|-----------------------|----|-----|-----|-------|------|------|------------|
| | I | II | III | IV | Total | VI | VII | |
| Tea Cultivation | 400 | 27 | 247 | 359 | 1033 | 5889 | 1898 | 7887 |
| Maize Cultivation | | | 3 | | 3 | | 5 | 5 |

Using inappropriate agricultural regulations and inflation are the main causes for reduction in income out of tea cultivation over the years (Figure 1), causing an increase in deforestation to gain new lands for tea cultivation. In order to expect products at a desired amount and quality from a certain piece of land for a long time, addition to the physical, chemical, and biological characteristics of soil, general topographic feature, aspect, and climate of that land should also be taken under consideration. A land may be misused when it is used without studying these features in detail. Such misuse may create problems including erosion, land slide, over-use of soil, loss of nutrients, loss of soil productivity, loss of production, pollution of water and other natural resources, increase in unemployment rate and migration to larger cities (Yüksek, 2001). Misuse of land and deforestation are also important environmental issues in Pazar area (Figure 2-B).

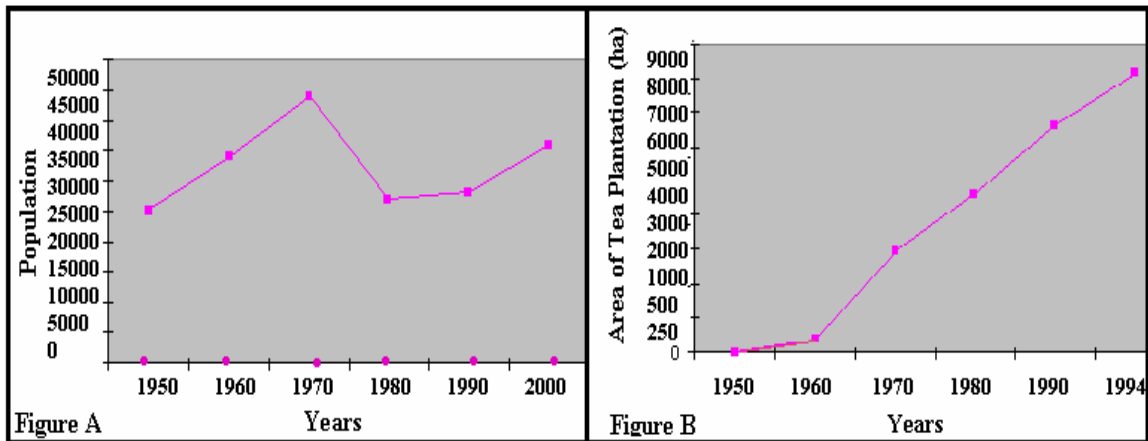


Figure 2: Population of Pazar from 1950 to 2000 (Figure A), The amount of tea plantation from 1950 to 1994 (Figure B)



Figure 3: Pazar in 1950 (left side) and Pazar in 2004 (right side)



Figure 4: Deforestation and new tea plantation in Kesikköprü village



Figure 5: Landslide in Kesikköprü village



Figure 6: Unplanned settling and garbage problem in Pazar

Yüksek and Kalay (2001) studied the effects of transforming alder (*Alnus glutinosa*) forests to tea plantations on possible changes in soil characteristics and erosion rate and found that the risk of soil erosion actually doubled after the transformation. Since tea plants do not protect soil against erosion as forested areas do, relative increase in soil erosion and flooding is expected. Similar results have been reported in Pazar area where increase in tea plantation through deforestation has lead to more frequent and larger flood events, causing more damage in life and property. Personal communication with older people (65 and over) of the area have also confirmed as they remembered less damage to life and property by the flood events occurred before 1950s. Between 1950 and 2000 there has been 8 large flood events recorded in the area killing total of 23 people and damaging 17 bridges (three of which were historical bridges) and 2 schools to the extend that they can not be used anymore (Yüksek 2003). These floods have also damaged roads connecting Pazar to Hemsin and other smaller towns and villages that they either needed repairing or new roads to be built. According to Yüksek (2001), settlements within watersheds is one of the main reasons for higher number of lives lost during such natural disasters as flooding in the area. Unplanned settlement in Pazar is another important issue in that all kind of waste produced is thrown out in nature without much control, polluting soil and water resources.

Considering that there is no watershed isolated only for drinking water usage in the area, this issue becomes more important and seriously dangerous to human health as it is highly possible drinking water reservoirs may also be polluted by this waste.

4. Discussion

Even though the total land cover stays the same, there is a steady increase in population benefited from this area in Pazar. Thus, it is a must to plan soil and water usage in order to provide people with their increasing demands continuously and at the most optimum way. To plan sustainability of these natural resources, it is vitally important to solve the problem of unplanned settlements especially in and around watersheds. Without solving this issue, a manager may face many difficulties during watershed planning efforts. Also, while working on watershed planning assessments, distribution of population over the watershed should be taken under consideration. For example, when choosing a basin only for drinking water purpose, a manager must look for certain features and one of the most important one is the issue of unorganized settlements. If it is possible, borders of drinking water basins should be away from such settlements as it is likely that waste produced by such development areas will pollute soil and water resources in the area. It is also more challenging and costly to bring basic services such as building roads, electricity, and drinking water to those unplanned settlement areas. Such difficulties may be avoided by combining those settlements, especially small villages with population of 250 and less, into larger settlements at more suitable places where services mentioned above can be brought easily and economically. If we continue use our soil and water resources without a proper planning strategy, in the future, it will not be surprising to see more problems with much more costly solutions than today.

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