The Implementation Effect of Chinese Soil and Water Conservation Law in Pisha Stone Area Use SPSS Analyses Big Data

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Abstract. The soil and water loss is very serious in Pisha stone area of Yellow River basin, which is called the "ecological cancer of the Earth". The area covers only 1.67 × 103 km^2, but the coarse sediment produced by the area accounts for 25% of the silt deposited in the lower Yellow River. We used SPSS data analysis software to calculate the amount of soil and water loss in the Arsenic sandstone area of the Yellow River basin in the past few years, and found that the soil and water loss in this area is very serious. The data shows: the control plot compared with natural plot, the runoff decreased from 41% in the initial stage to more than 72%, and the sediment yield decreased from 61% to more than 90%. The runoff reduction benefit of the maximum rainfall on 13 August 2020 was 72%, and the sediment reduction benefit reached more than 89%. This paper can play a scientific and technological support role in further promoting the implementation of *Soil and Water Conservation Law of the People's Republic of China* in Pisha area.

Keywords: SPSS · Chinese Soil and Water Conservation Law · Pisha Stone Area

1 Introduction

The area of soil and water conservation of the Yellow River Basin in Inner Mongolia Autonomous Region is more than 150000 km^2, most of which are in serious soil erosion area. In addition, there is a Pisha Sandstone landform called "cancer of the earth" in this area, but it plays an important role in the regulation and development of the Yellow River. With the further implementation of the western development strategy, the comprehensive start-up of the development and construction projects of coal, oil, natural gas and other energy and chemical bases in the region has not only brought a new development opportunity to the ecological construction of soil and water conservation, but also

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put forward new requirements for the prevention, supervision and management of soil and water conservation [1]. In order to thoroughly implement the law on Soil and water conservation and accelerate the pace of regional ecological environment construction, in accordance with the unified arrangement and deployment of the Ministry of water resources [2, 3], the autonomous region has made gratifying achievements by taking a large number of effective management measures in the prevention, supervision and management of soil and water conservation in accordance with the unified arrangement and deployment of the Ministry of water resources (Fig. 1–2).

The first is to seriously carry out the pilot work of standardized construction of supervision and management of soil and water conservation. More than 90% of the pilot counties and banners have reached the standard of standardized construction of supervision and management of soil and water conservation organized and implemented by the river basin institutions and participated in the acceptance; the second is that the water administrative department of the autonomous region actively cooperates with the people's Congress of the autonomous region to carry out the water and soil conservation law [4–6].

The inspection of law enforcement has effectively promoted the implementation of laws and regulations on Soil and water conservation in the whole region, effectively curbed the illegal acts of soil erosion caused by human activities, not only promoted the healthy development of soil and water conservation work, but also further standardized the law enforcement procedures. In recent years, the people's Congress and the government of the autonomous region have organized and held several symposiums to commemorate the promulgation and implementation of the water and soil conservation law, which were attended by relevant leaders of the Planning Commission, economic and Trade Commission, Department of land and resources, Department of construction, Department of Communications, Department of agriculture, Department of forestry, environmental protection bureau, electric power, coal and other departments. The third is to actively carry out the dynamic monitoring of soil and water loss. On the basis of the original monitoring network planning, we revised and compiled the "monitoring network plan for soil and water conservation of the autonomous region" and its implementation plan, which were approved by the people's Government of the autonomous region. According to the requirements of the Ministry of water resources, the second and the third soil erosion survey of the whole region was completed, and the growth and decline of soil and water loss was carried out On the basis of remote sensing survey, GPS and other advanced scientific and technological means are also used to monitor the effect of soil and water conservation and the restoration of ecological environment.

In order to ensure the implementation of the prevention and supervision of soil and water conservation and constantly promote the ecological construction of soil and water conservation to a new level, the autonomous region mainly adopts the following measures for implementation.

Fig. 1. The Feldspathic Pisha stone area topography

2 Measurement

2.1 Actively Carry Out the Pilot Project of Standardized Construction of Supervision

According to the unified arrangement of the Ministry of water resources, the water administrative departments of the autonomous region put forward work requirements respectively according to the pilot situation in different regions, and strengthened the guidance of standardized construction of supervision and management of soil and water conservation. Through the formulation of practical work plan, the contiguous area of Shanxi, Shaanxi and Inner Mongolia, where there are many energy development and infrastructure construction projects and serious man-made soil erosion, is taken as the key prevention and supervision area. The new problems encountered in administrative law enforcement are discussed in the form of individual guidance and inspection and mutual inspection and exchange, and mutual learning and exchange activities are launched, which effectively promote the supervision of soil and water conservation. The process of management standardization construction. Through the pilot project, the leaders of each League City, banner and county are urged to attach great importance to the standardized construction of supervision and management of soil and water conservation ecological environment, timely adjust and enrich the "leading group for supervision and management of soil and water conservation ecological environment", formulate a detailed pilot implementation plan, and carry out the standardized construction work in an organized, planned, funded and measured way. At present, 60–70% of business personnel with a secondary school degree or above account for 60–70% of the total. These personnel have strong professional knowledge I can quickly understand and supervise the work.

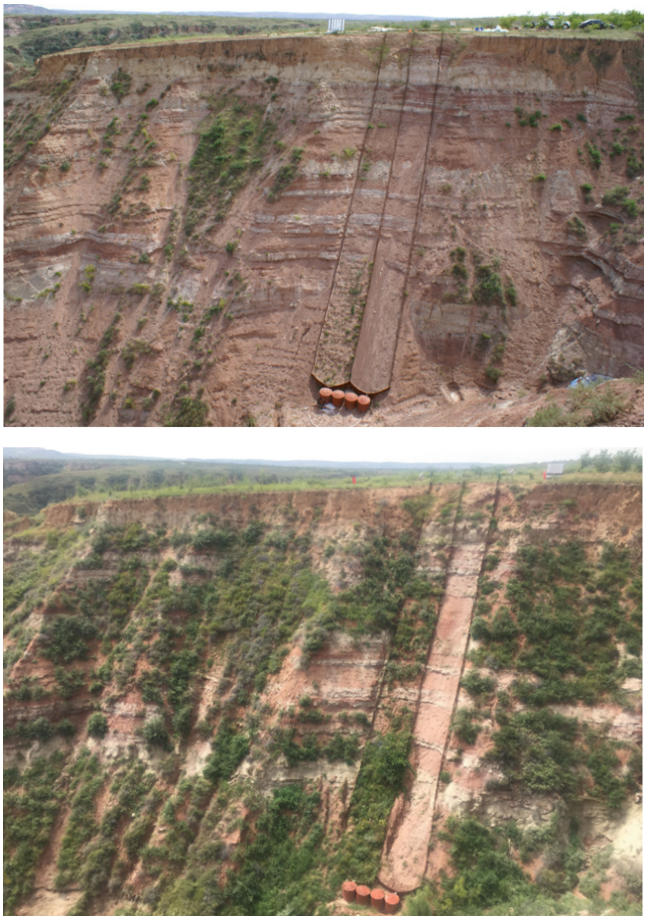

Fig. 2. The Geomorphology before and after treatment in Pisha stone area

2.2 Focus on Law Enforcement Inspection of Soil and Water Conservation

Since the promulgation and implementation of soil and water conservation, the people's Congress of the autonomous region has organized the competent departments of relevant industries to carry out the implementation of water and soil conservation law for many times in order to effectively protect and reasonably utilize water and soil resources, resolutely curb illegal acts of soil and water loss caused by human activities, and promote the healthy development of ecological construction of soil and water conservation in the whole region Law enforcement inspection. A leading group for law enforcement inspection, headed by the deputy director of the Standing Committee of the people's Congress of the autonomous region, has formulated a detailed work plan, clarified the guiding ideology, scope, content, methods and steps, organization and leadership of law enforcement inspection, and put forward specific requirements. Through listening to the report and discussion of the local government, the inspection team conducted in-depth

treatment, development and construction site, inspected the implementation of the water and soil conservation law, and exchanged views with the local government for existing problems. Through the inspection of law enforcement, the cadres and the masses have been greatly educated, and their understanding of the importance and urgency of soil and water conservation and ecological construction has been significantly improved. The governments at all levels have also put the work of soil and water conservation on the important agenda, adjusted the working ideas of ecological construction of soil and water conservation in time, and taken measures such as ideological mobilization, policy guidance and interest driving, which greatly mobilized the public The enthusiasm of the masses to control soil and water loss has accelerated the speed of soil erosion control in the whole region, and the effect of control has been gradually improved.

2.3 Pay Attention to Strengthen Dynamic Monitoring of Soil and Water Loss

According to the requirements of the Ministry of water resources on Soil and water conservation monitoring, in order to speed up the pace of prevention and control of soil erosion, scientifically evaluate the current situation of soil erosion, and provide reliable technical basis for superior decision-making, on the basis of remote sensing survey of soil erosion, the Autonomous Region has successively organized technical forces to compile the planning report of soil and water conservation ecological environment monitoring network in Inner Mongolia Autonomous Region The technical planning reports such as the feasibility study report on the construction of soil erosion dynamic monitoring database in Inner Mongolia Autonomous Region have been approved by experts and the people's Government of the autonomous region, which has laid a solid foundation for the comprehensive implementation of scientific monitoring.

2.4 Scientifically Monitor

In addition, in order to scientifically monitor the growth and decline of soil and water loss and the prevention and control effect, according to the monitoring plan of soil and water conservation, the distribution of water and soil conservation, development and construction projects and monitoring conditions, the Yellow River Basin is determined as the main area. Three small watersheds are selected in the Yellow River, Daling River and Haihe River Basin, three implementation areas of returning farmland to forest and grassland, and three development and construction project publicity A lot of important dynamic monitoring points have been obtained.

3 Monitoring and Evaluation of Benefits of Water and Sediment Reduction

According to the field observation of runoff plot and small watershed in the demonstration area from 2018 to 2020, more than 10 times of runoff production occurred. According to the analysis of the measured data of runoff and sediment, compared with the bare control area without measures, the vegetation in the control plot with anti-erosion and growth promotion measures in the bare area was not only well restored, but also the yield of sediment

Table 1. Monitoring and evaluation of benefits of water and sediment reduction

date	Rain amount (mm)	plot	Runoff		sediment	
			Runoff (m^3)	Reduce (%)	sediment (kg)	Reduce (%)
2018.7.19	15.6	natural	0.3	46.67	220	65.91
		control	0.16		75	
2019.8.8	82.8	natural	3.11	40.19	2680.6	61.62
		control	1.86		1028.8	
2019.8.17	49.36	natural	1.73	80.35	1613	86.30
		control	0.34		221	
2019.8.23	53.5	natural	3.37	43.03	2735.2	67.11
		control	1.92		899.6	
2020.8.4	99	natural	8.13	66.17	1948	89.12
		control	2.75		212	
2020.8.13	165	natural	12.31	72.22	4338	88.98
		control	3.42		478	

was significantly reduced. The runoff decreased from 41% in the initial stage to more than 72%, and the sediment yield decreased from 61% to more than 90% (Table 1). The runoff reduction benefit of the maximum rainfall on 13 August 2020 was 72%, and the sediment reduction benefit reached more than 89%.

4 Key Work of Prevention and Supervision of Soil and Water Conservation

Looking back on the past with joy and looking forward to the future, we have a long way to go. In order to fulfill the sacred responsibilities of water administrative departments entrusted by the law of soil and water conservation, the water conservancy department of the autonomous region has clearly put forward the idea of "seizing the historical opportunity of western development, conscientiously implementing the important thought of" Three Represents ", putting the ecological construction of soil and water conservation on the government's important agenda, strengthening the work of soil and water conservation, and strengthening the supervision, law enforcement and publicity of soil and water conservation To further strengthen the concept of legal system and act in accordance with the law, so as to improve the ecological environment of the autonomous region as soon as possible and realize the goal of beautiful mountains and rivers.

4.1 Strengthen Prevention and Protection and Administer According to Law

As soil and water conservation is closely related to the national economy and people's livelihood, it is an important foundation and prerequisite for the sustainable development

of agriculture, economy and society. Therefore, it is necessary to take soil and water conservation as a basic national policy and a long-term basic policy, and pay close attention to it. In order to effectively curb soil erosion and ecological deterioration, we must take effective measures to do a good job in prevention and protection, supervision and law enforcement, and put prevention and protection, supervision and law enforcement and management in the first place.

4.2 Further Improve the System of Laws and Regulations on Soil and Water Conservation

In view of the new situation and problems in the development and construction of the western region, we should further improve and establish a workable system of laws and regulations on Soil and water conservation to ensure the full implementation of the law. Through further improving the local soil and water conservation laws and regulations system at all levels, effectively standardize the development and construction behavior.

4.3 Strengthen Department Coordination and Implement the "THRee Simultaneity" System

With the gradual deepening of the western development strategy, there are more and more large-scale resource development and construction projects, especially the development of basic energy such as roads, railways, coal, mining, oil and natural gas, and the rapid development of urban construction, which easily causes serious man-made soil erosion. Therefore, we must conscientiously implement the "three Simultaneities" system in the "law of soil and water conservation", carry out the principle of "who develops, who protects, who causes soil erosion, who is responsible for governance" through joint law enforcement by departments.

5 Conclusion

This paper analyzes the practice process of *Law of the People's Republic of China on Soil and Water Conservation* in this region, and finds that the implementation of this law has made a great role in guiding the local work of soil and water conservation, and also provides a strong legal guidance for ecological protection and high-quality development of the Yellow River basin. This paper can play a scientific and technological support role in further promoting the implementation of *Soil and Water Conservation Law of the People's Republic of China* in the Pisha stone area.

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