

Criminal Law Protection Based on Green Ecological Environment Protection

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Abstract: Environmental criminal law is one of the main methods of environmental protection. The main reason is that environmental criminal law is mandatory and normative and plays a vital role in environmental protection. In order to solve the shortcomings of the existing research on criminal law protection under the protection of green ecological environment, this paper discusses the composition of international environmental crimes and the principles of criminal law legislation on environmental crimes, as well as the binomial event flow and binomial distribution of data statistics, and investigates and discusses the time units in the national statistics of the number of major environmental pollution accident cases and the data statistics algorithm. Through the analysis of the regional distribution of criminal law crimes through the historical distribution data algorithm, it is found that compared with the other six provinces, Inner Mongolia has the highest number of environmental crime cases from January to April (2022) reaching 275. Finally, according to the survey data and the specific analysis of the criminal law protection under the protection of green ecological environment, this paper puts forward the corresponding legislative suggestions and improvement measures of criminal law protection.

1. Introduction

With the development of our country's social form and the constant change of economic structure, more and more contradictions have arisen between people and the ecological environment. The deterioration of the ecological environment has posed a huge threat to the national economy and people's lives. As a sharp weapon to protect national security and the interests of citizens, criminal law must take necessary countermeasures.

Nowadays, more and more scholars have conducted a lot of research on criminal law protection

under the protection of green ecological environment through various technologies and system tools, and have also made certain research achievements through practical research. Spindola adopts the connection standard of administrative law enforcement and criminal justice to protect environmental legal interests first through criminal law, which is mainly determined according to the following factors: the place where the act takes place, the number of criminal objects, the content of pollutants, the way of action, the cost of pollution prevention and control, the possibility of ecological restoration and the ability of resource regeneration. In evidence collection methods, the measurement of environmental data is the key to accountability. The judicial department should focus on the sampling inspection process and the condition analysis of environmental data [1]. Lucchesi M believes that in the requirements for reducing the results of environmental crimes, it does not mean that it should be stipulated as a behavior crime. When it stipulates the proposition of potential damage crime due to legislative negligence, it believes that the legislation of compound crimes has little effect on strict liability legislation. In order to further safeguard and improve China's environmental criminal law, it is necessary to plan and determine the dual track legislative system in a long term, establish penalties for crimes in administrative regulations, and even form the "Environmental Crime Law" when conditions are ripe [2]. In order to further improve the integration mechanism, Bolduc should devote more energy to the following work: First, establish and improve a scientific environmental criminal law crime assessment mechanism to ensure the transfer of cases; The second is to formulate the case transfer standard and improve the case transfer acceptance rate; The third is to further clarify the rules of evidence conversion to ensure the reliability of evidence; Fourth, improve the evidence inspection and verification mechanism to ensure the credibility of evidence and promote information resource sharing [3]. Although the existing research on criminal law protection under the protection of green ecological environment is very rich, there are still some limitations in its practical application.

This paper focuses on the criminal law crime information statistics algorithm under the urban green ecological environment protection. It focuses on the comprehensive trend of criminal law crimes under the protection of urban green ecological environment on the basis of the regional distribution of criminal law crimes. An algorithm based on historical distributed data is proposed. This algorithm is based on the specific characteristics of environmental crimes in the Criminal Code. Based on the distribution of characteristic components in historical statistics, Normalization equation is designed to unify all characteristic quantities. Combined with the expert attitude generated by different environmental criminal law crime evaluation indicators in a specific period, the overall urban environmental criminal law crime is evaluated. This algorithm can calculate the reference value of the current social environment criminal law in a relatively long time range, which is in line with the actual needs of China's green ecological environment protection in the transition period.

2. Research on Criminal Law Protection Design Based on Green Ecological Environment Protection

2.1. Composition of International Environmental Crimes

(1) Object of international environmental crimes: the four natural elements of international crimes are specifically divided. Therefore, this paper mainly points out that the main object of international environmental crimes is human environmental protection rights and interests, that is, these types of crimes pose a threat to the nature on which people rely for survival. Here, they mainly involve the natural elements of animals and plants such as oceans, forests, grasslands [4].

(2) The objects of international environmental crimes are mainly natural persons, legal persons and other institutions and enterprises. Among them, it has been widely recognized that natural

persons, legal persons and other institutions are the main subjects of international environmental crimes, but how to perform certain legal responsibilities in the main criminal responsibility of countries for international environmental crimes remains to be further clarified [5]. Therefore, we can propose that the country should be the main scope of international environmental crimes, so as to meet the practical needs of ecological environmental protection undertakings [6].

(3) The objective and subjective aspects of international ecological crimes are reflected in the violation of the prohibitive provisions of the criminal laws of various countries and the need to bear certain civil liability for criminal acts that seriously damage the world's ecological environment [7]. Subjective consciousness refers to whether the psychological state generated by the criminal act after the criminal act of ecological environment is intentional [8].

2.2. Principles of Criminal Law Legislation on Environmental Crimes

The legislative principles in China's current environmental criminal legislation are determined by the characteristics of environmental crime itself, and the following principles should also be followed:

(1) Precautionary principle: as environmental crime will cause great harm to the lives, health and property of unspecified people, mainly it will cause serious harm to the ecological environment and irreversible harm to human civilization and survival and development, environmental criminal legislation should follow the principle of prevention first [9].

(2) The principle of specificity: The law stipulates that in the legislation of macro environmental crimes, specific and clear provisions should be made on the constituent conditions and the number of crimes of various crimes. The focus is to be as detailed and clear as possible on the circumstances of crimes, and the provisions on sentencing should also be specific [10-11].

2.3. Data Statistics Binomial Event Flow and Binomial Distribution

Sequence formed by successive events at random time. It is called random event flow. If the time of long x is divided into equal parts of m , it is recorded as $\Delta x_u, u=1,2,\dots,r$. Assume that the occurrence rate of events in each Δx_u of S is f . The probability of non occurrence is $1-f$. It is called that the number of occurrences of event S $G(X)$ within the time length x is a binomial event flow. It can be seen that $G(X) \approx a(m, f)$.

For binomial distribution, is:

$$F\{\lambda=r\} = D_m^r F^r (1-F)^{m-r}, r=0,1,2,3,\dots,m \quad (1)$$

If $a(r, n, f) = f(\lambda=r)$ is recorded, it obviously meets the following requirements:

(1) Non negative:

$$a(r, m, f) \geq 0 \quad (2)$$

(2) Normative:

$$\sum_{r=0}^m a(r, m, f) = \sum_{r=0}^m D_m^r f^r (1-f)^{m-r} = [f + (1-f)]^m = 1 \quad (3)$$

If the probability of event occurrence in $A-$ statistics is very small, the event with f value is called a special event. When the m value will affect. The number of special events in

m -weighted A -statistics approximately obeys Poisson distribution. At this time. The integer part $[\gamma]$ of parameter γ is exactly the most likely number of special events [12].

3. Investigation and Research on Criminal Law Protection Based on Green Ecological Environment Protection

3.1. Statistics of National Major Environmental Pollution Accident Cases

Most cases of serious pollution of water resources end with administrative or civil penalties [13-14]. Professor Wang Shuyi has investigated the number of cases of major environmental pollution accident crimes (environmental pollution crimes) in China from 2010 to 2020 (Table 1) and environmental administrative penalties from 2010 to 2020 (Table 2). The statistical data are shown in Table 14.

Table 1. Statistics of the number of major environmental pollution accident crimes (environmental pollution crimes) in China from 2010 to 2020

Year	2010	2012	2013	2014	2015	2016	2017	(2018)	(2019)	2020
Number	4	5	8	15	8	4	12	17	20	28

Table 2. Statistics of the number of cases of environmental administrative punishment from 2010 to 2020

Year	2010	2012	2013	2014	2015	2016	2017	(2018)	(2019)	2020
Number	100020	92415	80142	92541	102451	92887	80147	78742	115872	129745

Table 1 shows that during 2010-2020, there were only 109 cases of major environmental pollution accident crimes (environmental pollution crimes) in China. In sharp contrast with Table 1, Table 2, the total number of environmental administrative punishment cases in China during 2002-2011 reached 1051427, and the total number of environmental criminal cases concluded reached 80152 [15]. Therefore, it is not difficult for us to find that our criminal justice has such characteristics in punishing crimes of environmental pollution: there are many actual cases of illegal crimes of polluting water resources, but few of them are investigated; Administrative organs deal with more, but judicial organs deal with less; There are many criminal cases of destroying resources, and few criminal cases of investigating water pollution [16].

3.2. Time Unit in Data Statistics Algorithm

Figure 1 shows the relationship between different durations in statistics. There are three types of durations in UCSAS:

(1) Detection duration: the detection duration is used to count the detected objects, such as the data of a certain day. It is generally set to 1 day.

(2) Statistics Duration: the time width used to calculate statistics. Generally set to 1 week, That is to say, 7 detection hours can be set as 3 days in case of high incidence of crime [17].

(3) Characteristic duration: Description duration includes several statistics duration. It is used to depict the comprehensive statistical characteristics of environmental pollution accident crimes.

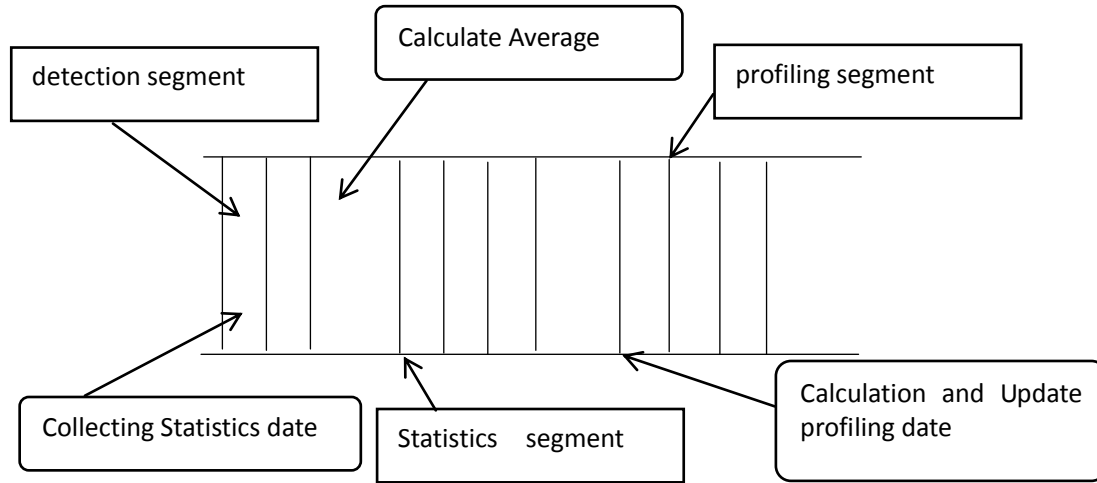


Figure 1. Different durations in statistics

4. Research on the Application of Criminal Law Protection Based on Green Ecological Environment Protection

4.1. Regional Distribution of Criminal Law Crimes under the Protection of Green Ecological Environment

Input the screening conditions of "environmental pollution" and "criminal cause of action" on the Chinese judicial documents online for retrieval, and it can be found that in the environmental pollution criminal cases around the country, this paper selects typical representatives of the first, second, third and fourth tier cities for case statistics, and the data from January to April (2022) are shown in Table 3.

Table 3. Case data of some provinces

Province	Beijing	Tianjin	Hebei	Shanxi	Inner Mongolia	Liaoning	Shanghai
1	215	124	205	189	268	214	145
2	210	156	224	210	275	209	162
3	198	146	215	237	256	219	185
4	205	174	226	224	260	220	190

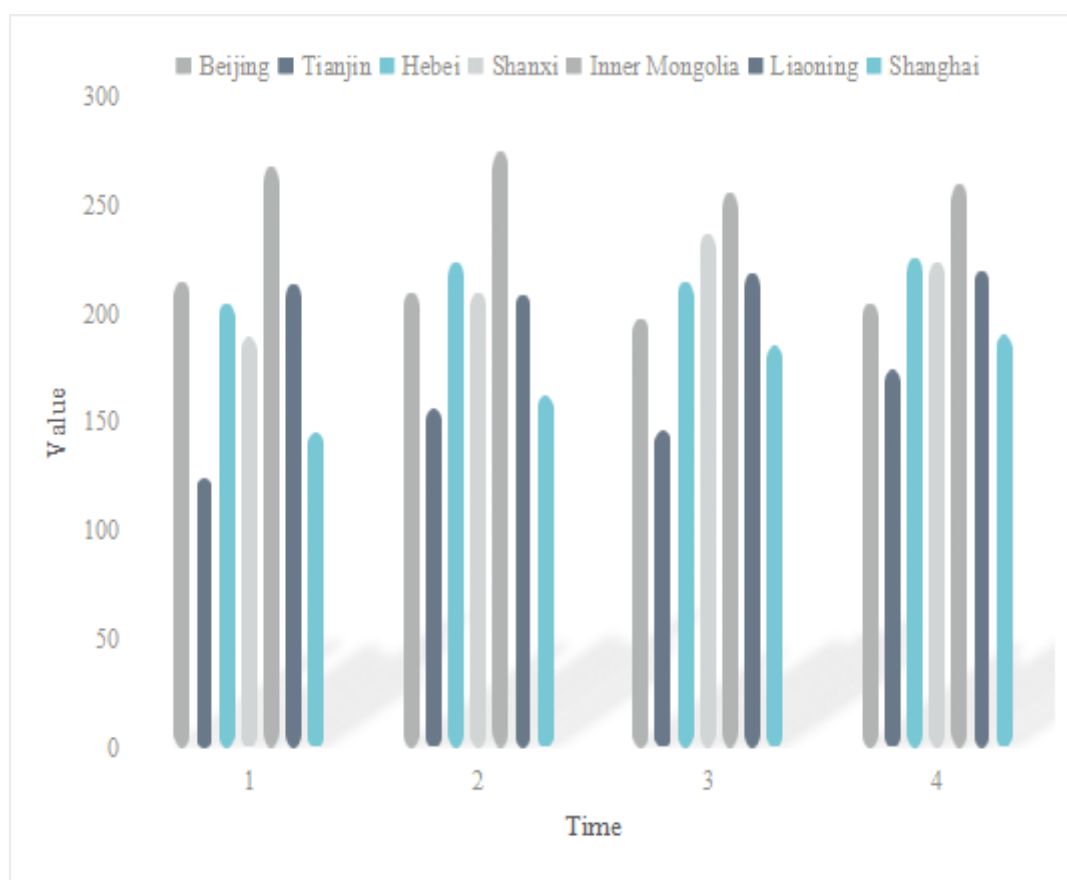


Figure 2. Distribution of cases in some provinces

It can be seen from Figure 2 that the highest number of environmental crimes in Beijing will reach 215 in January April (2022) and the average number of environmental crimes in Tianjin will reach 150 in January April (2022). The highest number of environmental crime cases in Hebei Province will reach 226 in January April (2022). The average number of environmental crimes in Shanxi Province will reach 215 from January to April (2022). In Inner Mongolia, the highest number of environmental crime cases will reach 275 from January to April (2022). The highest number of environmental crimes in Liaoning Province will reach 220 from January to April (2022). The highest number of environmental crimes in Shanghai will reach 190 from January to April (2022). It reflects the universality of environmental pollution crimes in the Yangtze River Delta.

4.2. Suggestions on Criminal Law Protection Legislation Based on Green Ecological Environment Protection

(1) Improve the level of crimes against environment and resources

The higher level of crimes reflects the legislators' high attention to environmental rights and interests, while the lower level of crimes reflects the legislators' indifference to environmental rights and interests. At present, the primary task is to improve the hierarchical status of the "crime of destroying the protection of environment and resources" and give it its due position in the criminal law system. Only in this way can we correctly reflect the characteristics of the nature of environmental crimes and help distinguish them from other general crimes against the order of social management and other types of crimes; It is helpful to enhance people's awareness of environmental responsibility and environmental protection laws.

(2) In the subjective aspect, it is set to distinguish intention from negligence

In the case of green ecological environmental crime, the strict liability principle of determining whether the suspect is intentionally or negligently impossible should be revised and clarified. In the case of determining the suspect as intentionally, the burden of proof should be reversed. In this way, we can avoid the difficulties in the identification of subjective and objective behaviors, and at the same time, it conforms to the principles of justice and efficiency of the trial.

(3) Determine the conviction and sentencing of environmental crimes from the ecological perspective.

The traditional legislation mainly considers economic interests, while in modern criminal law, both economic interests and ecological interests should be considered. When applied to the provisions of criminal law, it means that the criteria for conviction and sentencing should have the characteristics of ecology. When environmental crimes occur, we should not only consider the loss of economic value, but also consider the extension of the environment, scientific conviction and sentencing.

(4) Add new charges

This paper believes that at least the following crimes should be added and established:

1) Crime of destroying land resources

Extending the scope of criminal protection to all cultivated land and criminalizing the phenomenon that unreasonable reclamation or natural pollution causes the local people to lose their food sources, seriously interfere with the daily life of the local people or seriously interfere with the normal development of local work will further help protect the natural resources of cultivated land.

2) Crime of resisting environmental protection administrative supervision

It mainly involves the crime of refusing to execute the order of the environmental protection department to stop work or suspend business, violating the environmental protection regulations, and making false statements in the application for permission or environmental monitoring. The establishment of this crime can criminalize some preliminary activities that can cause serious environmental problems, so as to attract the attention of criminals as early as possible, urge them to regulate and correct their criminal acts, and thus achieve the effect of preventing environmental pollution crimes.

5. Conclusion

On the basis of explaining the basic concepts and characteristics of the principles of criminal law legislation of environmental crimes and the composition of environmental crimes, this paper discusses the regional distribution of criminal crimes under the protection of green ecological environment. Then, combined with the current situation of criminal law protection under the protection of green ecological environment in China, the existing problems in China are put forward. After a comprehensive review of the relevant legislation and practice of other countries, this paper puts forward suggestions on improving the criminal law protection under the protection of green ecological environment in China from the aspects of legislative ideas, principles of penalty application and specific measures. It has become the basic strategy of China's development to establish a firm belief in protecting the environment, take various practical measures to effectively protect the environment, safeguard environmental rights and interests, actively follow the path of civilized development with good ecology, and strive to build an environment-friendly society and achieve ecological civilization.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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