Network Planning of Regional Environmental Monitoring System in Modern City

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Abstract: Based on the network planning of urban regional environmental monitoring system, the network of urban regional environmental monitoring is established. Through data collection and data analysis of regional environmental system, the network framework of urban regional environmental system is formed and analyzed from multiple perspectives. Through comprehensive and perfect environmental monitoring analysis methods, the effectiveness of urban regional environmental system network is improved, the urban regional environmental management and environmental assessment are discussed, and the network planning and layout of environmental monitoring and environmental management system are realized. This paper analyzes the relevant environmental monitoring data from many aspects, and gives the urban regional environmental monitoring system and reasonable structure.

1. Layout of urban regional environmental monitoring network

With the rapid development of China's society and economy, the process of urbanization is gradually accelerating, which promotes the rapid development of modern cities. In the process of its development, the overall energy consumption and pollution of the city are gradually increasing. Urban environmental monitoring is a problem that we must solve, which has a very important impact on the ecological environment of the city. Environmental monitoring is a compulsory measure of environmental control and management in China. Relevant departments can add low-carbon concept into the current environmental impact assessment system, this paper mainly discusses the problems of urban environmental monitoring and environmental impact assessment, so as to promote the green environmental protection development of urban regional monitoring projects and protect the urban ecological environment.

Environmental monitoring is an essential basic work of environmental protection. After experiencing the process of understanding that environmental monitoring is the basis of environmental protection, it is clearly proposed that environmental monitoring is a social behavior, which reflects the deepening of the understanding of the importance of environmental monitoring. Environmental monitoring plays an important role in correctly understanding environmental quality, solving existing or potential environmental problems, improving living environment and ecological environment, coordinating the relationship between human and environment, and finally realizing sustainable development of human beings. The core goal of environmental monitoring is to provide the data representing the current situation and changing trend of environmental quality, judge the environmental quality, evaluate the current major environmental problems, and serve the environmental management. Through environmental monitoring, we can find out the types and...
distribution of pollutants, identify the pollution routes, predict the trend of pollution, and early warn the possible environmental problems.

This paper lists an administrative region of City G as an example, and discusses the problem of environmental monitoring in urban sub regions.

![Layout of urban regional environmental monitoring planning](image)

**Figure 1 layout of urban regional environmental monitoring planning**

2. Basic process of environmental monitoring

The detection targets can be divided into public welfare environmental monitoring and public affairs environmental monitoring. Public environmental monitoring is the main responsibility of environmental monitoring stations at all levels to complete monitoring, purposeful monitoring and research monitoring. Environmental monitoring of public affairs mainly includes engineering monitoring, consulting monitoring and service monitoring.

Routine monitoring or routine monitoring, including pollutant concentration, total emission and pollution trend. Environmental quality monitoring includes the monitoring of air, water quality, soil and noise, which is the main body of monitoring work and the main work of monitoring center. The purpose is to master the environmental quality status and pollutant sources, evaluate the effect of control measures, judge the implementation of environmental standards and the progress of environmental improvement.

Environmental monitoring is a process with multiple links, which is mainly composed of sampling, analysis and testing, data processing, quality control and comprehensive evaluation. Its procedures are generally as follows: according to the monitoring purpose, conduct on-site investigation, collect relevant information and data, such as hydrology, climate, geology, landform, meteorology, topography, emission of pollution sources, urban population distribution, etc. According to the monitoring technical route, the monitoring scheme is designed and formulated, including monitoring items, monitoring network, monitoring time and frequency, monitoring methods, etc. The implementation plan includes spot sampling, sample pretreatment, sample analysis and testing, etc. Develop quality assurance system, data processing, environmental quality assessment, and submit test reports.
3. Analysis method of environmental monitoring data

Environmental monitoring is the basis of scientific environmental management and environmental law enforcement supervision. Environmental monitoring measures, obtains, interprets and uses data according to the needs of environmental management. Environmental monitoring can also be used as the technical basis and arbitration of environmental law enforcement and supervision, and serve for environmental management decision-making, implementation of total amount control, pollution charge, environmental index assessment, environmental engineering, monitoring pollution source discharge, evaluation of treatment measures and effect acceptance.

There are four main methods for the determination of environmental pollutants: chemical analysis, instrumental analysis, biological monitoring and molecular biological monitoring.

Chemical analysis methods mainly include gravimetric method and volumetric method. This method has high accuracy, simple equipment and is suitable for the determination of high content components. Instrumental analysis is called physicochemical analysis, which is based on the physical or physicochemical properties of substances. It is used for the initial analysis of organic pollutants screening stage to determine environmental priority pollutants and priority monitoring items, and for the monitoring of organic pollutants in air, water, homogeneous waste, soil, organism and other samples. The common characteristics of instrumental analysis method are high sensitivity, accuracy, resolution and selectivity. It is suitable for the determination of multi-component, micro and trace components, with fast response and continuous automatic analysis.

Among the standard analysis methods of environmental monitoring, instrumental analysis plays a leading role. Biological monitoring method is the most direct method to judge the environmental quality by using all kinds of reflection information produced by plants and animals in the polluted environment. The advantage of biological monitoring method is that it can directly reflect the environmental quality and the comprehensive impact on the ecosystem. The cost of analysis is low. It can be densely distributed in a large range. Molecular biological monitoring methods include enzyme analysis, immunoassay, molecular biological technology, biosensor and biochip.

In the urban regional environmental monitoring, on the basis of comprehensive consideration of various factors, the analysis method is selected according to the following.
Standard analytical methods or unified analytical methods were used. Standardization of analytical methods is a common practice in many countries. If the non-standard analysis method is adopted, the standard method shall be used for comparison to ensure the reliability of the results.

Instrumental analysis method can avoid large error caused by environmental monitoring data analysis. Prediction analysis method can predict the trend of environmental monitoring indicators. Optimize the analysis method, select the single special analyzer as far as possible, and optimize the analysis operation process. Statistical analysis method, the separation and determination method at the same time, to avoid the operation error caused by sample pretreatment. Rapid analysis method. In emergency monitoring and field monitoring, simple and rapid analysis method should be selected as far as possible. Continuous automatic monitoring technology and instruments should be selected as far as possible.

4. Conclusion
For the progress of science and technology and the development of environmental protection, environmental monitoring personnel use correct monitoring points, sampling methods and analysis methods to meet the needs of the situation, all control monitoring, regional monitoring and random online monitoring of pollution sources, and use reasonable monitoring methods and technologies. Complete the division and layout of urban regional environmental monitoring system. It is necessary to set up the distribution of sampling points in urban areas, use the technical methods and routes of environmental monitoring, arrange reasonable monitoring process and use advanced analysis methods.

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