

**The 12th Five-Year Plan for the Environmental
Health Work of National Environmental Protection**

**Ministry of Environmental Protection of the People's Republic of
China**

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With the rapid development of China's industrialization and urbanization, the problem of environmental pollution impacting on public health is getting more and more outstanding, and become one of the important factors affecting China's sustainable development, the construction of well-off society and the harmony of the society. Protecting the environment and guaranteeing public health become the most urgent demand of the public. In order to solve the serious environmental problems threatening public health, make comprehensive arrangements with a clear emphasis, and systematically promote environmental health work, we have drawn up this work plan in the spirit and requirements of the State Council Decision on Implementing Scientific Development and Strengthening Environmental Protection, the National Environmental Health Action Plan (2007-2015), and the Outline of the 12th Five Year Plan of the People's Republic of China for Economic and Social Development.

I. Status and Problems in the Development of Environment and Health Work

1. Progress in Environment and Health Work during the 11th Five-Year Plan

Firstly, cooperating with Ministry of Health, we jointly collaborate with sixteen relevant ministries and agencies to formulate and publish the first programmatic document to guide the scientific development of environmental health work in China — the National Environmental Health Action Plan (2007-2015) (NEHAP). Moreover, we have set up a national leading group and coordination mechanism for the work on environment and health. Secondly, we have organized and launched investigations on environment and health problems in Huaihe River Basin and other key areas, which accumulated a large amount of basic information regarding environmental pollution and public health in China. Thirdly, we have strengthened scientific research on environmental health and provided strong scientific bases to identify the relationship between environmental pollution and public health, screen and evaluate the key factors, regions and sectors for environmental pollution control. Fourthly, we have explored environmental health risk management and published the first National Pollutant Environmental Health Risk Directory (Chemical [Risks] Volume 1). We have completed the Chemical Risks Volume 2 and begun the preparations for editing of volumes on biological and physical risks, which can provide technical support to emergency response to sudden environmental health incidents. Fifthly, we have strengthened propaganda and education on environmental health, established high level publicity platforms including the “National Forum on Environmental Health” and “National Environmental Health Publicity Week”, and provided various information channels to promote public participation, raised public awareness, and guided public supervision.

2. Frequent occurrence of environment and health problems with grave situation

With more than 30 years of extremely rapid development since the reform and opening up to the outside world, China has already entered into the middle stage of industrialization. The environmental problems occurred in different development

stages in the developed countries' industrialization process in the past hundreds of years have appeared in China in a focused way.. The problem of the damage of public health caused by environmental pollution occurred frequently in recent years. According to the statistics, there are 232 relatively large (grade III and above) environmental incidents occurred during the period of the 11th Five-Year Plan ; Of which, 56 environmental incidents lead to the damage of public health; while 37 environmental incidents developed into public event, 19 of them relating to health problems. Thirty-one extremely serious heavy metals pollution incidents including those happened in Fengxiang County in Shaanxi Province, Jiyuan City in Henan Province, and Wugang City in Hunan Province, have caused serious threat to public health and social stability with negative impacts both domestically and internationally.

Current environment and health problems in our country have the following characteristics: Firstly, the pollution type is complex, the scope is extensive and the exposure population is large; Secondly, people's exposure to the pollution is long, the exposure level of the pollutants is high, the impact of the pollution accumulated historically to the health can not be eliminated in a short period of time. Thirdly, the difference between urban and rural areas is distinct. Air pollution is the main environmental health problem in urban areas, while water and soil pollution are the main problems in rural areas. Fourthly, while the traditional environment and health problems caused by the inadequate sanitation infrastructure have not been properly solved, the environmental pollution and health risks brought by the industrialization and urbanization process are gradually increasing. . From the perspective of development trend, the problems of the above four aspects can not be solved in a short period of time, the health risks caused by the future environmental pollution will gradually increase, the environment and health work faces severe situation.

3. Current Environment and Health Work Cannot Meet the Development Demand

Firstly, lack of baseline data became a bottleneck in addressing environment and health problems. Since the 1990s, no nationwide or regional large scale environment and health investigation has been carried out. Basic and continuous investigations and monitoring have not been included in the routine work. Lack of basic investigation and survey data lead to un-clear baseline information on geographic distribution of the health impacts caused by environmental pollution, the degree of health damage, and the development trend. This not only brought difficulties to identify main hazardous environmental factors and put forward effective measures; but also made it hard to conduct assessment on health risks related to environmental pollution, adjust relevant policies in time and present countermeasures.

Secondly, effective management instruments and methods to deal with environment and health problems are lacking. First, the contents of current environmental laws and regulations for environment and health work remain too

general. There is no legal system or set of standards that can meet the actual needs for environment and health work. There is almost no baseline studies. Second, the management instruments for environment and health are insufficient, and most existing environmental management systems and objectives are not connected to health problems. The important environmental management systems closely related to environment and health problems have not been set up.

Thirdly, urgent need for strengthen basic capacity in environmental health work.

In terms of institutions, a special organization on environmental health has been established only at the national level with limited number of staff. At local level, there are neither special organizations nor special staff, this has seriously affected the development of environmental health work. In terms of personnel, the field of environmental health currently lacks outstanding leaders and a strong support team. In terms of scientific research, there is a lack of long term systematic research and standard technical methods to conduct environmental health investigations. There is clearly insufficient research in some important fields such as the mechanisms through which environmental pollution causes damage to health, exposure pathways, the identification of biological markers of exposure, the indicators to assess health damages by hazardous pollutants, the analysis and test techniques, and the environmental health risk assessment. Insufficient research findings do not provide sufficient support to the management and decision making, and could not provide technical support to effective responses to environmental health accidents or the management of environmental health risk. In terms of providing public services, sharing environmental health resources and disclosure of relevant information have not yet to be realized, current laws and regulations are poor in operation to protect the public rights and interests in health, and ppublicity and education on environmental health cannot meet the needs of society.

4. Risk-based Management is the Core Task for Environmental Health Work

Many factors can affect environmental health issues. From the history of environmental health, similar cases like the Minimata disease in Japan are extremely rare in reality, which clearly shows the clear cause-effect relationship. In most cases, the relationship between environmental pollution and health are not clear. In view of the characteristics of impacts of environmental pollution on health such as low exposure levels, long latency periods, multiple influencing factors, and the difficulties in establishing causality, environmental protection departments should focus on strengthening environmental health risk management and try to control the impact of pollution on health at an acceptable level.

The Outline of the People's Republic of China on the 12th Five Year Plan for Economic and Social Development clearly states that we should strengthen environmental protection, focus on solving serious environmental problems that affect public health such as unsafe drinking water and air and soil pollution; prevent any

environmental risks, and increasing our capacity in environmental health risk assessment. The experience of developed countries such as the United States and Japan shows that the best approach for environmental agencies to achieve risk management is to integrate the environmental health risk assessment into environmental monitoring, early warning systems, environmental supervision and management, environmental impact assessment, pollution prevention and control, environmental publicity and education. If we carry out the policy of “multiple agency cooperation, prevention first and comprehensive control”, environmental health problems will be effectively prevented and controlled.

Environmental health work is a complicated social project and a long term task. It is an important public issue concerning the development of a harmonious socialist society, public health and safety. It is of great significance to the transformation of economic development mode, promotion of environmental management from a quantitative to a qualitative approach, and final achievement of a leap-frog development that prevents the risk.

II. Guiding Ideology and Basic Principles

1. Guiding Ideology

Under the guidance of Deng Xiaoping Theory and important thought of “Three Representatives”, we should thoroughly carry out the Scientific Outlook on Development, adhere to people-oriented policy, closely combine environmental health work with key work on environmental protection, conduct in-depth survey on environmental health issues, facilitate the development of comprehensive monitoring network of environmental health, enhance the capacity in environmental health management and basic work, intensify publicity and guidance of public opinions and provide scientific guarantee for solving preeminent environmental problems threatening public health, building a harmonious society and achieving sustainable development.

2. Basic Principles

Put prevention first and implement comprehensive prevention and control.

Based on the policy and concept of prevention first, we will focus on strengthening the management of environmental health risk, deepen scientific research, keep on improvement of relevant policies and measures, adopt multiple approaches and measures including laws, administration and economic policy in a comprehensive way to improve the health risk prevention level and achieve source control.

Provide a solid foundation and make a comprehensive arrangement. We should focus on basic survey and study, identify environmental health issues and understand the development trend. In view of the characteristics of environmental health issues in different areas and that between city and countryside, we should make appropriate arrangements with classified guidance based on the local conditions.

Strengthen cooperation and ensure effective implementation. Targeting key issues, we will strengthen the coordination, communication and cooperation with relevant departments of the Ministry of Health and various departments within Ministry of Environmental Protection, develop scientific and appropriate policy measures, make careful arrangement, ensure effective implementation of plans and strive for breakthrough in key issues.

III Plan Objectives

By 2015, we will primarily establish a management team for environmental health work, complete survey on environmental health issues in national key areas and understand the basic status of the impacts of major environmental problems on human health in key areas. We will carry out trial work on comprehensive monitoring on environmental health and primarily set up a comprehensive monitoring network of environmental health in key areas; further improve environmental health standards system and release relevant standards and technical specifications; we will establish a database and information system serving the management of environmental health risk with effective improvement of the capacity in assessing environmental health risk and emergency response to environmental accidents.

IV. Key Areas and Major Tasks

1. Survey on Environmental Health Problems

In some key areas with preeminent environmental health problems or strong public complaints, we will carry out special survey on environmental health to understand the category, degree, nature, distribution and urban-rural difference of the impacts of major pollutants (heavy metal contamination, organic pollutant contamination, compound contamination) on public health, identify the source of major pollutants and main approaches and types of pollutants affecting public health, high risk groups and their health effect spectrum. We will primarily determine the environmental health risk type and grade and put forward policy measures for prevention and control of typical pollutants and health protection in the region based on investigation

findings.

2. Environmental Health Risk Management

1) Release new “National Catalogue on Pollutant Environmental Health Risk”

In view of environmental pollution features in our country at the present stage, we will make full advantage of domestic and international findings on environmental health research; consider specific conditions of users such as the management, scientists, engineers and the public at various levels; publish Chemistry (Volume II), Volume of Physics and Volume of Biology of “National Catalogue on Pollutant Environmental Health Risk” so as to provide reference for environmental monitoring, development of environmental emergency preparedness plan and emergency response to environmental pollution accidents.

2) Release of the “Handbook on Human Exposure Factors in China”

Choosing typical areas and groups according to economic development level, geographical distribution and residents’ habits of life, we will establish the exposure factors database which can reflect the characteristics of Chinese population based on the elements such as investigation on human body characteristic parameters, characteristic parameters of human exposure to the environment via inhalation, ingestion and skin, activity patterns and residential characteristics to build, develop and release the “Handbook on Human Exposure Factors in China”; identify the principle for employing the exposure factors under different scenarios and improve the accuracy in environmental health risk assessment in our country.

3) Carry Out Trial on Comprehensive Monitoring on Environmental Health

Based on investigations on environmental health of the Huaihe River basin, we will strengthen the communication with the health department; increase typical pollutant monitoring indicators based on existing monitoring network, expand environmental monitoring points, explore a set of monitoring indicators, evaluating methods and information exchange feedback mechanism which can serve the management of environmental health risks, perform regular risk assessment of the impact of environmental pollution on public health for popularization and application in other high environmental health risk areas or sectors.

4) Implement Risk Assessment of Environmental Pollution in Key Areas and

River Basins

Based on the data from investigations on environmental health issue of key areas, we will carry out health risk assessment of environmental pollution in key areas, key river basins and typical pollution sites in order to find out the health risk level of environmental pollution in the country and provide technical support to the targeted prevention and control measures.

3. Environmental Health Scientific Research

1) Environmental Health Survey and Risk Assessment Techniques and Methods

We will carry out studies on areas such as typical pollutants of key areas and river basins, investigation and screening techniques for priority pollutants; methods for assessing multipath human exposure to multimedia, or compound pollutants at regional/river basin level; impact mechanism and dose-response relation of impact to human health from heavy metals, toxic and hazardous organic pollutants and radioactive substances. Focusing on atmospheric pollution, we will conduct prospective cohort study, and explore the key techniques of risk assessment and methods of impacts of air pollution on human health. Focusing on prevention and control of heavy metal pollution, we will study health risk assessment technique, national environmental health risk zoning and classification techniques and methods in environmental impact assessment.

2) Monitoring, Early Warning and Emergency Response Techniques and Methods on Environmental Health

We will study comprehensive monitoring, data acquisition and data standardization techniques on environmental health; biological monitoring technique of environmental pollutant related group in typical areas; treatment and disposal methods of chronic cumulative and sudden environmental health events, rapid identifying technique of health hazard caused by environmental pollution, and different techniques and methods for blocking, controlling, preventing and pre-warning environmental health risks of various types and in different areas.

3) Policies, Laws, Regulations and Standard Systems on Environmental Health

We will study relevant standard system framework concerning environmental health, particularly including technical specification on environmental health risk assessment, environmental health risk prevention and control zoning and technical specification

on classification and human exposure limit of pollutants. We will study basic system on environmental health management, including environmental health risk management system, access permission system for chemicals with high risk, system of compensation for human health damage caused by environmental pollution and information disclosure system for environmental health.

4. Capacity Building in Environmental Health

1) Strengthen the development of Technical Supporting Institutions

We will continuously strengthen the construction of “National Environmental Protection of Environmental Health Key Laboratory” and “National Environmental Protection of Environment-Inheritance Interaction and Human Health Key Laboratory”; enhance scientific research institutions with adequate conditions to establish “Human Exposure Assessment Laboratory”, “Environmental Criteria, Standards and Risk Assessment Laboratory”. We will strengthen the building of local environmental health capacity; encourage areas with adequate conditions to set up local environmental health laboratories; and support local departments in terms of environmental health monitoring, investigation and scientific research. Working together with relevant agencies, we will establish a national environmental health advisory committee of experts and academic committee in order to improve scientific and technological supporting capacity of China in decision making during the administration of environmental health.

2) Intensify the Cultivation of Talents

We will improve the system and mechanism, attract first-class talents to be actively involved in scientific support and management on environmental health; cultivate interdisciplinary and composite talents in scientific research and management; regularly organize environmental health management and scientific researchers at all levels to conduct special survey, training or international exchange to enhance the capacity of environmental protection agencies at all levels in conducting environmental health survey, risk assessment and emergency response. Making use of higher education platform, we will gain reserved force for environmental health management; coordinate with relevant departments to establish trans-departmental environmental health emergency response expert team and form a united front for evaluating, responding and solving acute and cumulative environmental health issues.

3) Strengthen Information Infrastructure and Sharing Capacity

We will establish an information service system for environmental health risk management, including environmental pollutant toxicity database, database for domestic and overseas cases of health damage caused by environmental pollution, and database for environmental health basic survey. Based on the coordination mechanism of national leading group on environmental health, Ministry of Environmental Protection together with the Ministry of Health and relevant agencies will establish a national environmental health information sharing mechanism. We will strengthen the exchange, release and public service of environmental health data.

4) Intensify International Exchange and Cooperation

Ministry of Environmental Protection will actively take part in relevant work of Environment and Health Ministerial Forum for Southeast Asian and East Asian Countries and Thematic Working Group jointly launched by World Health Organization (WHO) and United Nations Environment Programme (UNEP). Ministry of Environmental Protection will intensify international exchange and cooperation in environmental health areas with various countries in the world. It will vigorously conduct relevant work on the international conventions and agreements involving environmental health issues, which have been signed by our country; and improve the capacity in the implementation and international exchange.

5. Environmental Health Publicity and Education

We will organize and launch environmental health publicity and education activities by relying on publicity and education agencies of environmental protection departments at all levels and relevant departments, hold a variety of activities such as popular science lectures, exhibitions, visits and competitions, and encourage printing and distribution of pamphlets on environmental health knowledge. Taking “National Forum on Environmental Health”, “National Environmental Health Publicity Week” and “Thousands of Villages Environment Popular Science Project” as the platform, we will promote the exchange and collaboration among various circles of society, attach importance to improving the public consciousness of environmental health in rural areas, western part and ethnic minority areas. In order to enhance public awareness of environmental health and the public’s ability to participate, we will establish special columns, issues and channels on the popularization of environmental and health sciences, develop a variety of high-quality columns and other products relating to environmental health education with full use of public media including general newspapers, periodicals, television, radio and the internet.

V Safeguarding Measures

1. Strengthen the Organization and Leadership over Environmental Health Work

Ministry of Environmental Protection will strengthen the organization and leadership over environmental health work in all environmental institutions across the country, facilitate the implementation of various tasks of NEHAP, and promote gradual establishment and improvement of special administration agencies concerning environmental health at provincial-level environmental protection agencies. The municipal and county-level environmental protection agencies should also designate full-time workers in charge of environmental health work. Departmental budget should include environmental health expense item in a bid to improve the environmental health administration capacity in terms of manpower and finance. Ministry of Environmental Protection will help local environmental protection agency at all levels to actively carry out local comprehensive monitoring and scientific research on environmental health, give full play to the signal role of environmental health, take survey result as an important reference to pollution control and policy making and accelerate addressing the outstanding environmental issues impairing public's health.

2. Improve Coordination Mechanism on Environmental Health Work

Ministry of Environmental Protection will further improve and enhance coordination mechanism in accordance with the requirements of NEHAP. Working with the health department, it will facilitate local governments to set up leading group on environmental health work and gradually establish an inter-department coordination mechanism with monitoring network interconnection, information sharing and crisis handling responsibility sharing as the core. Ministry of Environmental Protection will intensify the coordination and collaboration among environmental protection agencies and institutions, combine environmental health survey with “The Twelfth Five-Year Plan for Comprehensive Prevention and Control of Heavy Metal Pollution” as well as comprehensive prevention and control of rural environmental pollution and integrate environmental health management into the core management policies and approaches of environmental protection.

3. Enhance the Capital Input to Environmental Health Work

Based on plan, environmental health work must depend on projects and be guaranteed by investment. The planned target should be met by carrying out plans, putting in place the funds and implementing projects. Ministry of Environmental Protection designs 10 key projects with total investment of about 2.532 billion yuan.

1) Survey on Environmental Health Issues

Ministry of Environmental Protection will launch special survey on environmental health in key areas of the country, China group exposure parameter survey, major environmental health event survey and so on. Meanwhile it will further perform the survey on environmental health issues in the Huaihe River basin to a deep extent, which will need an investment of 1.85 billion yuan.

2) Trial on Comprehensive Monitoring on Environmental Health

Ministry of Environmental Protection will carry out trial work of comprehensive monitoring on environmental health in major areas for the prevention and control of heavy metal pollution in the Huaihe River basin on the basis of environmental health survey. Based on existing environmental monitoring network, it will perform special monitoring of environmental health, which can reflect group exposure features, which will need about 210 million yuan.

3) Development of Environmental Health Database and Information Management System

Ministry of Environmental Protection will develop environmental pollutant toxicity database, exposure approach and health effect database, database for domestic and overseas cases of health damage caused by environmental pollution, environmental health information management system, information exchange and publishing platform with follow-up maintenance, which will need an input of 100 million yuan.

4) Development of Technical Supporting System for Environmental Health Investigation

Ministry of Environmental Protection will develop various application techniques for survey on environmental health issues, including the technology on investigating the pollution sources affecting regional environmental health, technology on screening the pollutants under priority control for regional environmental health, technology on investigating group exposure to major pollutants at regional level, which will need 92

million yuan of investment.

5) Development of Technical Supporting System for Environmental Health Risk Assessment

Ministry of Environmental Protection will develop technical specifications and various application techniques for assessment of environmental health risk, including formulation of group exposure parameter manual, series technical specifications for exposure assessment and technical specifications for health risk assessment. It will carry out studies on pollutant exposure and risk assessment, develop relevant determination techniques and assessment methods, which will need about 60 million yuan.

6) Build Up a Technical System for Addressing Environmental Health Risk

Ministry of Environmental Protection will develop application techniques that are employed in monitoring and early warning of environmental health risks, as well as emergency response to environmental health accidents, which include comprehensive monitoring techniques and techniques for emergency response to environmental health accidents and develop relevant technical specifications, which will need about 30 million yuan.

7) Development of Laws and Regulations on Environmental Health

Ministry of Environmental Protection will carry out studies on environmental health risk management system, environmental health standard system, health compensation system for health damage caused by environmental pollution, which will need about 30 million yuan.

8) Development of Environmental Health Key Laboratory

It will include upgrading of existing environmental health key laboratory and construction of new key laboratory in the field of environmental health, which will need about 40 million yuan.

9) Building Basic Capacity in Environmental Health

Ministry of Environmental Protection will strengthen the software and hardware of environmental health risk assessment and the capacity in emergency response to sudden environmental health accidents and beef up personnel training and the

development of talents, which will need about 70 million yuan.

10) Environmental Health Publicity and Education Plan

Ministry of Environmental Protection will carry out environmental health publicity and education activities to all orders of society, including organizing national environmental health forum, establishing a number of environmental health education bases, publishing series of environmental health popular science works, opening excellent columns on environmental health and initiating environmental health education in rural areas, which will need about 50 million yuan.