

**Persistent Organic Pollutants Control
in China
(2004-2024)**

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Ministries and Commissions

engaged in preparation of the present document

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	National Development and Reform Commission
	Ministry of Science and Technology
	Ministry of Industry and Information Technology
	Ministry of Finance
	Ministry of Housing and Urban-Rural Development
	Ministry of Agriculture and Rural Affairs
	Ministry of Commerce
	National Health Commission
	Ministry of Emergency Management
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	National Energy Administration
	National Disease Control and Prevention Administration

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Preface

Persistent organic pollutants (hereinafter referred to as POPs) refer to those organic pollutants that are persistent and bio-accumulative, have the potential for long-range environmental transport and have adverse effects to human health or to the ecological environment. POPs pollution is a common challenge for all mankind, which is related to the construction of the community with a shared future for mankind and to the sustainable development of human civilization. The Stockholm Convention on Persistent Organic Pollutants (hereinafter referred to as the Convention) was adopted at a Conference of Plenipotentiaries on 22 May 2001 in Stockholm, Sweden and entered into force on 17 May 2004.

As one of the countries that formulated the instrument of the Convention and one of the first signatories, China attaches great importance to the control of POPs. China is committed to joining hands with the international community to address this challenge and protect human health and the environment from the adverse effects of POPs. Approved by the 10th Session of the 10th Standing Committee of the National People's Congress, the Convention has been in force for China since 11 November 2004. After twenty years of persistence and unremitting efforts, POPs control in China has achieved remarkable results. The quality of the ecological environment continues to improve, the level of green development continues to increase, and the ability to control POPs has been significantly strengthened, providing experience for the management of POPs and other new pollutants, and stepping out of the road of POPs control in line with China's national conditions.

Since the 18th National Congress of the Communist Party of China (CPC),

China has taken the construction of ecological civilization as a fundamental plan for the sustainable development of the Chinese nation, and has carried out a series of pioneering work, with unprecedented determination, strength and effectiveness, which has led to historic, transformative and overall changes in the construction of ecological civilization from theory to practice. China has taken major steps toward building a beautiful China. The report of the 20th National Congress of the CPC deploys the development of new pollutant management as an important task to further promote the prevention and control of environmental pollution. The CPC Central Committee and the State Council have issued guidelines to comprehensively promote the development of a "Beautiful China", in which it is clearly stated the objective that by 2035, the environmental risks of new pollutants will be effectively controlled. This indicates that the control of POPs has been fully integrated into the blueprint for the construction of a beautiful China, and has gradually entered a new stage of major transformation from passive response to proactive action, from focusing on major problems to systematic governance, and from a participant to a leader in global environmental governance. POPs control has undergone profound changes in the height of understanding, depth of practice, and intensity of innovation.

In order to comprehensively introduce China's concepts, practices and effectiveness on POPs control, and share China's experience in this regard, Persistent Organic Pollutants Control in China (2004-2024) is hereby published.

I. Uphold the idea of man and nature living in harmony

China has always responded to the people's new expectations for a better life, stood at the height of harmonious coexistence between man and nature in planning for development, took the construction of a beautiful China as the goal, and taken the control of POPs as an important means in guaranteeing ecological and environmental safety and people's health, as well as in realizing high levels of protection and promoting high-quality development. China follows and adheres to the road of development which is ecology-prioritized, green and low-carbon, promoting POPs control to continue to achieve new results, making its contributions to global efforts in tackling POPs pollution challenge.

1. Adhere to the people-centered approach

The control of POPs is an urgent need to effectively safeguard people's health and an important prerequisite for providing people with a higher quality, more sustainable and safer development. It concerns the sustainable development of the Chinese nation and the fundamental interests of the broadest possible number of people. China has applied a people-centered development philosophy, given strategic priority to ensuring the people's health, focused on the new situation, new tasks and new requirements for the construction of a beautiful China, placed emphasis on serious environmental problems that pose health hazards to the people, and taken firm steps toward building a healthy China. China has coordinated the control of POPs and the management of other new pollutants, continued to promote the improvement of ecological environment quality from quantitative to qualitative change, and continuously met the people's expectations for a beautiful ecological environment, let the people use safe products, eat healthy foods and live comfortably, and constantly enhanced the people's sense of fulfillment,

happiness and security, leaving a beautiful homeland with blue sky, green earth and clear water for future generations.

2. Adhere to overall coordination and take a systematic approach for governance

The control of POPs involves many industry sectors and is a long-term, complex and arduous systematic project. China has applied system thinking, taken an integrated approach, followed the laws of science, and seized the main contradiction and the main aspect of the contradiction in POPs control. Taking prevention and control of environmental and health risks as the core, China has intensified the whole-process regulation of POPs control and the prevention and control of environmental risks in the whole life cycle, and strengthened the synergy of targets, policies, sectors and regions between POPs control and the management of other new pollutants. The relationship between focusing on tough problems and coordinated governance has been integrated, and the realization of a high standard, high quality and high level of governance has been promoted.

3. Adhere to promoting high-quality development with high-level conservation

China adheres to prioritizing ecology and green development, focuses on the research, development and application of green substitution and whole-process pollution control technologies for POPs, coordinates industrial structural adjustment, leads green production and manufacturing, promotes industrial transformation and upgrading, advances the prevention and control of environmental risks of POPs, saves and intensifies the utilization of resources, disseminates and applies green technologies, and pushes forward the formation of a green production and lifestyle. During the process of POPs control, China continues to shape the development of new momentum, new

advantages, accelerate the formation of new quality productive forces, promote high-quality development and create a high quality of life with a high level of protection, achieving the unity of ecological, economic, and social benefits.

4. Adhere to jointly building a clean and beautiful world

Building a beautiful homeland is the shared aspiration of mankind. Facing global ecological challenges such as POPs pollution, all countries are in a community with destinies linked, and no country can stay immune. Given the characteristics of POPs, which have the potential for long-range environmental transport and which can spread globally, only through the unity, cooperation and joint efforts of all countries in the world can we guard the only home on which all mankind depends from the pollution and threat of POPs. For POPs control, we must uphold the concept of a human community with a shared future, jointly build a shared future for all life on Earth and a clean and beautiful world, and realize harmonious coexistence between human and nature.

II. Improve the effectiveness of POPs control in China

China has resolutely declared war against POPs pollution, anchored itself in the goal of protecting human health and the environment from the harms of POPs, coordinated high-level protection and high-quality development, implemented precise measures, improved POPs control system, promoted green substitution at source, strengthened synergistic reduction of emissions in the process, deepened the management and disposal of wastes, and vigorously pushed forward the action of POPs control, thus effectively reducing the environmental emissions of POPs and continuously improving the level of environmental health. China has achieved remarkable results in POPs control.

1. Improve POPs control system

Implement national strategic actions on POPs control. China attaches great importance to the control of POPs. In accordance with the process of the entry into force of the Convention and its amendment on listing new POPs, China has formulated a national implementation plan and its enlarged editions, developed a national systematic plan on POPs control in the aspects of the elimination of pesticides POPs and industrial POPs, reduction of dioxin emissions, the removal and disposal of polychlorinated biphenyls (PCBs), and environmentally sound management of wastes and contaminated sites. It has also identified the time schedule, roadmap and working plan in stages and by region, industry and area, strengthened top-level design and guidance, pushed forward POPs control actions in all sectors, industries and regions in a lawful, targeted, and science-based way, and vigorously advanced the implementation of tasks at all stages. China has incorporated POPs control in major national strategic plans. The 12th Five-Year Plan for POPs Pollution Prevention and Control was formulated to deploy POPs control actions in major industries. The 13th Five-Year Plan for National Ecological Environmental Protection proposed the objective of eliminating a batch of POPs. The Outline of the 14th Five-Year Plan for National Economic and Social Development and the Long-Range Objectives through the Year 2035 clearly requested to attach importance to the governance on new pollutants including POPs. In 2022, China issued an action plan on controlling new pollutants, making comprehensive and systematic deployment on the management of new pollutants including POPs.

Establish mechanisms for advancing POPs control. POPs control involves various industry sectors and covers a wide range of work. In order to strengthen coordination and form synergies, the National Coordination Group for the Implementation of the Stockholm Convention (hereinafter referred to

as the Coordination Group) was established in 2005, comprising the former State Environmental Protection Administration, the Ministry of Foreign Affairs, the National Development and Reform Commission and other ministries and commissions. With the institutional reform and the progress of POPs control efforts, the Coordination Group has been enriched in a timely manner to compose 15 relevant ministries and commissions, which have worked together to formulate the National Implementation Plan, jointly issued policy documents on Convention implementation, cooperated in joint law enforcement actions, and comprehensively pushed forward the implementation of the various work on Convention implementation. The Expert Committee for the Coordination Group was set up to provide comprehensive decision-making advice and technical support for POPs control. Local mechanisms for advancing POPs control at the provincial level were established to formulate provincial implementation plans, incorporate POPs control tasks into relevant policies, plans and actions of various sectors and fields at all levels of departments within the province, and coordinate and promote POPs control within the province. Therefore, a mechanism for advancing POPs control has been formed, with the central government responsible for coordination, provinces for the overall responsibility, cities and counties for the implementation. Within this mechanism, each department has its own responsibility, and all parties are involved in an orderly and articulated manner.

Strengthen the rule of law on POPs control. Over the past 20 years, China has issued or revised multiple related laws and regulations, including the laws on pollution prevention and control of water, air, soil, and solid wastes, on the protection of marine, the Yangtse River and the Yellow River, on cleaner production, product quality, foreign trade, management on pesticides, and pollutants discharge permit. The Standing Committee of the

National People's Congress ratified the Convention and its amendments, providing a solid legal guarantee for crucial actions including advancing POPs pollution prevention and control, cleaner production, banning and restricting from the source, and management and control on the import and export of POPs. China has included actions of severe pollution of the environment such as illegal discharge, dumping and disposal of toxic substances containing POPs in the scope of criminal offenses, and unswervingly intensified its efforts against illegal acts involving POPs control.

Improve policy and standard system. China has improved economic policies for green and low-carbon development, incorporated POPs into the environmental labeling product certification system and the comprehensive catalogue for environmental protection, supported enterprises to create more competitive "POPs-free" green products, and encouraged the research and development of alternatives and alternative technologies by abolishing export tax rebates and other measures; included POPs in the list of taxable pollutants and required enterprises that directly discharge POPs into the environment to pay environmental protection taxes. Focusing on POPs production, processing and use, consumption and disposal, China has formulated and revised over 200 national and industrial standards for product quality, pollutant emission, environmental quality, food residue and drinking water hygiene related to POPs control, covering a wide range of fields such as prohibition, use, and restriction, pollutant emission control and prevention of environmental health risks, taking first steps in constructing the policy and standard system in POPs control in China.

Stick to the precautionary approach in POPs control. Based on the precautionary approach in Principle 15 of the Rio Declaration on Environment and Development, China sticks to the precautionary principle set in the Convention, and has established a registration system for the environmental

management of new chemical substances and a registration and management system for pesticides, including new chemical substances and pesticides with the characteristics of POPs in the negative list for market access, carrying out rigorous review and approval, and exercising control over their production, importation and processing and use, in order to vigorously prevent against the entry of potential POPs into the production, people's life and ecological environment. For pesticides POPs, China has prohibited the registration of 58 pesticides with high toxicity and risk.

2. Advance green substitution from the source

Systematically construct access system at the source. China has issued five batches of policy announcements successively, clarifying POPs control requirements; strengthened the convergence with industrial policies, specified the prohibition and restriction requirements for backward processes and equipment and backward products involving POPs in the guidance catalogue for industrial restructuring; set strict environmental access to construction projects, and disapproved, in accordance with the law, the environmental impact assessment of construction projects involving the prohibited or restricted POPs; implemented precise environmental management on import and export and continuously published lists of POPs that are banned or strictly restricted from import and export. China has established a long-term mechanism to consolidate the results of POPs elimination and substitution through the coordinated formulation of a series of environmental risk control measures, such as banning new projects, prohibiting production and use, restricting the use of applications, and strictly controlling the import and export.

Push forward the green substitution of POPs pesticides in a precise way. POPs pesticides such as endosulfan, chlordane, mirex, DDT and dicofol have been widely used in pest control in the field of agricultural production. China has developed and implemented a number of demonstration projects for the elimination and substitution of POPs pesticides in a project-oriented manner, used “one policy for one chemical” approach, systematically planned substitution plans, accurately screened and demonstrated alternative technologies, vigorously promoted the demonstration and application of green alternative technologies, compiled guidance manuals on green alternative technologies for integrated pest control and organized professional technical training for practitioners. In view of the fact that the users of POPs pesticides are mainly scattered farmers, farmers' field schools have been set up to guide users in the scientific use of alternative technologies according to the characteristics of plant diseases and insect pests. It has also innovatively provided certification for environmental labeling product for green alternatives to incentivize the production and use of environmentally friendly alternatives; promoted the production and use of environmentally friendly anti-fouling paints for ships, for example, promoting pops-free environmentally friendly anti-fouling paints on hundreds of thousands of marine vessels nationwide, to protect the health of fishermen and the marine ecosystem. Through nationwide large-scale demonstration of alternatives, a number of green alternatives and alternative technologies such as pheromone trapping technology, insecticide lamps, and predatory mites have been widely applied, and the registration of more than a dozen POPs pesticides such as dicofol has been progressively withdrawn, and their sale and use have been banned. All POPs pesticides under control of the Convention are fully phased out by 100%, with a win-win situation for green substitution and agricultural production in terms of quality and efficiency.

Special Column 1

Phase out POPs for agricultural use and promote green agricultural production mode

Endosulfan can be widely used in pest control in tobacco, cotton, coffee fruit, wheat, corn, peanuts, peppers, potatoes and other crops. Dicofol is mainly used for mite control in citrus, apple and cotton. Through the implementation of integrated biological control and demonstration of alternative technologies, China has screened out a total of 19 integrated biological alternative technologies, 18 environmentally friendly pharmaceutical alternative varieties, such as releasing predatory mites, setting up natural enemy trapping bands, hanging yellow sticky traps and installing insecticidal lamps, and has carried out public outreach and guidance on alternative technologies in various forms, such as through opening field schools for farmers, broadcasting to villagers, mobile loudspeakers and easy-to-read brochures. The alternative technology has covered over 2.7 million hectares of cotton, 2.6 million hectares of citrus and 2 million hectares of apples, completely phasing out the production and use of endosulfan and dicofol, avoiding the production of nearly 700 tonnes of endosulfan and 2,800 tonnes of dicofol per year, promoting the green prevention and control of pests and diseases in related crops, and assisting in the formation of a green agricultural production mode.

Advance the safe substitution of POPs for industrial use throughout the chain. Industrial POPs such as perfluorooctane sulfonic acid (PFOS) and its salts, and hexabromocyclododecane (HBCD) involve a long industry chain and a wide range of industry sectors, and the task of elimination and substitution is arduous. China has developed and implemented projects to phase out and substitute a series of industrial POPs, conducted in-depth surveys on the production and use of the whole industrial chain in many sectors such as chemical engineering, fire-fighting, electronics, construction, textile, electroplating, and machinery, mapped out the situation of alternative technologies upstream and downstream of the industrial chain of each kind of POPs one by one. It has taken multiple measures to strengthen the policy guidance and clarify the requirements for elimination, promoted the adoption of green design by industrial enterprises, optimized the layout of the supply

chain, stimulated the endogenous motivation of enterprises, carried out research and development and demonstration of alternative technologies, and promote the safe substitution of industrial POPs under control of the Convention in the whole chain in an integrated manner. Meanwhile, China has strengthened supervision and law enforcement, tightened external constraints, and gradually replaced the addition of these POPs in a wide range of products such as electrical and electronic products, building insulation materials, textile materials, medical devices, waterproof coatings, automobile interiors, fire-fighting extinguishing agents, as well as the application in production processes such as electroplating and plastics manufacturing. All industrial POPs, which have entered into force for China, have been eliminated by 100%, thus promoting the green and high-quality development of related industrial chains and supply chains.

Remarkable effects in green substitution at the source. Over the past two decades, China's actions have completely phased out the production, use, import and export of 29 kinds of POPs, reducing the production and environmental emissions of hundreds of thousands of tons of POPs each year and effectively eliminating the health risks of POPs in related agricultural and consumer products.

Table 1. 29 POPs China has fully eliminated

POPs	Uses
Aldrin, dieldrin, endrin, heptachlor, toxaphene, chlordane, mirex, chlordecone, dicofol, technical endosulfan and its related isomers	✧ Pesticide, once used for pest control of fruits, vegetables, rice, coffee fruits, cotton, peanuts and tobacco.
Lindane, alpha-hexachlorocyclohexane, beta-hexachlorocyclohexane	✧ Pesticide, once used for pest control of fruit trees and vegetables. ✧ Lindane was once used for human health pharmaceutical for control of head lice and scabies.

POPs	Uses
DDT	<ul style="list-style-type: none"> ✧ Pesticide, once used for pest control of fruit trees and vegetables. ✧ Once used for disease vector control to reduce malaria transmission. ✧ Chemical raw material, once used in the production of dicofol.
Pentachlorobenzene, hexachlorobenzene, pentachlorophenol and its salts and esters, hexachlorobutadiene	<ul style="list-style-type: none"> ✧ Fungicide, once used for wood and plant preservation. ✧ Chemical raw material, once used in the production of other chemicals.
Polychlorinated biphenyls, polychlorinated naphthalenes	<ul style="list-style-type: none"> ✧ Insulating oil, once used for power capacitors, and transformers.
Hexabromobiphenyl, tetrabromodiphenyl ether and pentabromodiphenyl ether, decabromodiphenyl ether present in commercial decabromodiphenyl ether, hexabromocyclododecane, Dechlorane Plus and its syn-isomer and its anti- isomer	<ul style="list-style-type: none"> ✧ Flame retardant, once added to plastics and textiles, and widely used in electrical and electronic products, wires and cables, exterior insulation building materials, furniture, sofas and automobile interiors.
Perfluorooctane sulfonic acid (PFOS like) and perfluorooctane sulfonyl fluoride, perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds (PFHxS like)	<ul style="list-style-type: none"> ✧ Surfactants and industrial additives, once used in electrics and semiconductor production, fire-fighting foams, metal plating, textiles, leather and apparel, and pesticides.
Short-chain chlorinated paraffins	<ul style="list-style-type: none"> ✧ Plasticizer or flame retardant, once used in caulking, waterproofing paints, school bags, plastic runways, automobile interiors, soft door curtains, floor mats, rubber conveyor belts, and metalworking fluids.

3. Strengthen synergetic reduction of emissions in the process

Improve management system on dioxin pollution. China has developed emission limits for dioxin-like POPs in key industry such as steelmaking, iron and steel sintering, secondary non-ferrous metals, pulp and paper, petrochemicals, hazardous waste incineration, and household waste incineration and incorporated them into the management of pollutants discharge permit, strictly controlling the environmental emissions of POPs; issued technical policies to strengthen the prevention and control of dioxin pollution and guided enterprises on the application of best available techniques and best environmental practices for the control of dioxin pollution; paid close attention to the phase-out of outdated production processes and equipment involving POPs to promote industrial restructuring; eliminated backward production processes and equipment involving POPs emissions that do not meet the requirements of the national ecological and environmental access list, the national mandatory standards for ecological and environmental protection, and the requirements of international environmental conventions; implemented cleaner production audits and implemented mandatory cleaner production audits for enterprises emitting POPs to enhance the level of cleaner production in the industry.

Table 2. POPs discharge standards in major industrial sectors

No.	Pollutants discharge standards	POPs
1	Discharge standard of water pollutants for pulp and paper industry (GB 3544-2008)	Dioxins
2	Emission standard of air pollutants for sintering and pelletizing of iron and steel industry (GB 28662-2012)	Dioxins
3	Emission standard of air pollutants for steel smelt industry (GB 28664-2012)	Dioxins (electric furnace)
4	Standard for pollution control on co-processing of solid wastes in cement kiln (GB30485-2013)	Dioxins
5	Standard for pollution control the municipal solid waste incineration(GB 18485-2014 to replace (GB 18485-2001)	Dioxins

No.	Pollutants discharge standards	POPs
6	Emission standard of pollutants for petroleum chemistry industry (GB 31571-2015)	Dioxins, hexachlorobutadiene, polychlorinated biphenyls
7	Emission standards of pollutants for secondary copper, aluminum, lead and Zinc industry (GB 31574-2015)	Dioxins
8	Emission standard of pollutants for synthetic resin industry (GB 31572-2015)	Dioxins
9	Emission standard of air pollutants for crematory (GB 13801-2015)	Dioxins
10	Emission standard of pollutants for caustic alkali and polyvinyl chloride industry (GB 15581-2016)	Dioxins
11	Standard for pollution control on Polychlorinated Biphenyls (PCBs)-contaminated wastes (GB 13015-2017 to replace GB 13015-91)	Dioxins, polychlorinated biphenyls
12	Emission standard of air pollutants for paint, ink and adhesive industry (GB 37824-2019)	Dioxins
13	Emission standard of air pollutants for pharmaceutical industry (GB 37823-2019)	Dioxins
14	Standard for pollution control on hazardous waste incineration(GB 18484-2020 to replace GB 18484-2020)	Dioxins
15	Emission standard of air pollutants for pesticide industry (GB39727-2020)	Dioxins
16	Standard for pollution control on medical waste treatment and disposal (GB 39707-2020)	Dioxins

Implement projects on the management of dioxin pollution. China has carried out a series of dioxin-like reduction projects in key sectors such as iron and steel smelting, secondary non-ferrous metal smelting, medical waste disposal, household waste disposal and pulp and paper production, followed the principle of whole-process control, and strengthened the research and development and application of treatment facilities. The relevant industries are promoted to use alternative technologies to avoid the generation of dioxins, implement pre-treatment technologies such as raw material sorting, apply advanced, complete and reliable automatic control systems to maintain continuous and stable operation of the system, adopt pollution control technologies such as catalytic oxidation technology and optimized dust

removal process to achieve stable compliance with the standards and reduce the emission of dioxins.

Advance synergistic emission reduction of air pollutants in dioxin-related industries. China continues to carry out synergistic management of coal-fired power plants, iron and steel industries, focusing on eliminating outdated processes and equipment, steadily advancing ultra-low emission transformation, encouraging the implementation of flue gas treatment technologies such as flue gas recirculation, high-efficiency desulphurization and denitrification, and advanced dust removal facilities, and promoting synergistic emission reduction of dioxins. By the end of 2023, China has completed the ultra-low emission transformation of 1.07 billion kilowatts of coal-fired power units, and has completed the ultra-low emission transformation of the entire process of 430 million tons of crude steel production capacity, significantly reducing the emissions of major air pollutants, further lowering the environmental emissions of dioxins, and continuing to improve ambient air quality.

Achieve remarkable effects on dioxin-like emission reduction. Compared with 2004, the intensity of flue gas dioxin emissions from key industries has decreased significantly, and the total amount of dioxins emitted to the atmosphere has been on a downward trend after reaching its peak, in the face of a significant increase in the production or disposal volume of the relevant industries. Among them, the intensity of flue gas dioxin emissions from the household waste incineration and treatment industry has decreased by about 97%, and atmospheric dioxin emissions have been reduced. The intensity of dioxin emissions from the flue gas of the iron ore sintering process in the iron and steel industry has been reduced by about 70%, with an overall reduction in atmospheric dioxin emissions by about 20%.

4. Deepen the management and disposal of wastes

Fully push forward the inspection and disposal of POPs wastes. In the national catalogue of hazardous wastes and the method standard for identification of hazardous wastes, the categories and identification methods of POPs wastes under control of the Convention have been clearly stated. Strategies on the identification of POPs wastes have been formulated, with focus on the areas of production, circulation, and use of POPs including DDT, hexachlorobenzene, chlordane, mirex, heptachlor, toxaphene, endosulfan, HBCD to have a full inspection on the conditions in these industries involving POPs. China has also intensified its efforts on POPs waste disposal, taken the holistic approach with regards to the relevant international rules and domestic standards, guidance and requirements, completed the cleaning and disposal of over 100,000 tons of legacy POPs wastes from over 100 storage sites, thus realizing the environmentally sound management and disposal of identified POPs by 100% and eliminating environmental risks and hazards.

Achieve the Convention's targets on PCBs ahead of schedule. China has gradually phased out the production and use of PCBs-containing power equipment since the 1970s, and some of the PCBs-containing power equipment that is still in use online and has been removed for storage poses a relatively great risk to the surrounding ecological environment and human health. Since 2004, China has increased its efforts to investigate and dispose of PCBs-containing electrical equipment, carried out carpet mapping to identify situations on online use and removal to storage, formulated standards for PCBs-containing pollution control, constructed a center for environmentally sound treatment and disposal of PCBs wastes, upgraded disposal capacity, and promoted the removal and centralized disposal of PCBs-containing electrical equipment. In 2015, 100% use of PCBs-containing electrical equipment was removed, and in 2021, 100% of PCBs-containing waste power equipment was

disposed of in an environmentally sound manner, thus achieving the Convention's targets for 2025 and 2028 ahead of schedule.

Effectively manage the environmental risks of contaminated sites involving POPs. China has developed strategies for identifying sites contaminated with POPs; incorporated POPs such as hexachlorocyclohexane and DDT into the soil pollution risk control standards for agricultural and construction land, and clarified soil pollution risk screening and control requirements; carried out soil pollution risk identification, investigation, assessment, control and remediation, and incorporate POPs with high concern into the soil pollution risk control and remediation framework to ensure the safe use of construction land. China has achieved 100% of environmentally sound management of contaminated sites with identified high-risk POPs pesticides.

5. Improve environmental health

A downward trend in the atmosphere environment and in food. After 20 years of unremitting efforts to control POPs, the concentrations of organochlorine pesticides, dioxins, PCBs and other POPs in China's atmosphere environment have shown a downward trend and are now at a relatively low level globally. The content levels of organochlorine POPs in biological samples are generally decreasing. The average dietary intake of dioxins in the general population is lower than the World Health Organization's health guideline value and is on a decreasing trend, and the health risk of dietary intake of dioxins is low.

Push forward the green transformation and upgrade of the relevant industries. China has incorporated POPs elimination and substitution and emission control requirements into the green manufacturing standard system, which continues to guide and force the industries to protect the ecological

environment and optimize their green transformation; issued guidance for the construction of green manufacturing standard system, general rules for green product evaluation, general rules for green factory evaluation, general rules for green industrial park evaluation, and has developed more than 5,000 green factories, constructed more than 300 green industrial parks, over 600 green supply chain management enterprises, and more than 400 demonstration enterprises for green design of industrial products. Thus, pushing the relevant industrial sectors to develop in the direction of greening, decarbonization, and recycling. The green transformation and upgrading of industrial structure has achieved obvious results.

<p style="text-align: center;">Special Column 2</p> <p style="text-align: center;">Guide the structural adjustment of the pulp and paper industry and realize the industry's green development</p>
<p>The chlorine bleaching process of pulp and paper produces dioxins, which may be discharged to the environment through water bodies, products and residues, and the pulp and paper industry is listed as one of the key industries for the prevention and control of dioxin pollution. In 2015, the State Council issued the Action Plan for Prevention and Control of Water Pollution, which requires that by the end of 2017, the paper industry strives to complete the transformation to achieve elemental chlorine free bleaching or adopt other low-pollution pulping technologies. In 2019, the Guidance Catalogue for Industrial Structure Adjustment lists the elemental chlorine bleaching pulping process as a phase-out category and implements a complete elimination. Through a series of technology demonstration and application dissemination, the pulp and paper industry has been comprehensively transformed and upgraded, eliminating the elemental chlorine bleaching pulping process that produces dioxin emissions, and promoting the green and sustainable development of the industry.</p>

III. Improve China's capability in POPs control

To realize the goal of controlling POPs, it is necessary to coordinate resources in all fields, gather strength from all sides in a holistic approach. China continues to intensify law enforcement and supervision, strengthen its scientific and technological support capacity, focus on diversified publicity and guidance, and promote a green lifestyle, so as to continuously improve its ability to control POPs.

1. Intensify law enforcement and supervision

China has incorporated law enforcement into the list of administrative enforcement matters in accordance with responsibilities of the relevant departmental, carried out regulation on key enterprises in the mode that randomly selected law enforcement inspectors are requested to carry out inspection on randomly selected objects in the regulatory process, and the situation of random inspection and investigation results are published in a timely manner to the public, so that an information sharing and notification mechanism has been established and daily supervision and law enforcement has been strengthened. For the production and use of POPs, law enforcement manuals for on-site inspections of enterprises are formulated combining the production characteristics of the industry, and systematical on-site inspections are carried out. For the import and export of POPs, the categorization of import and export goods of POPs are refined, the supervision of prohibited and restricted POPs at ports is effectively strengthened, intelligence collection is intensified, assessment of the illegal situation is timely carried out, and a high-pressure situation in combating the smuggling of POPs is maintained. In the area of environmental emissions, law enforcement and monitoring of dioxin-emitting sectors such as waste incineration and secondary non-ferrous metal smelting are strengthened, and industrial enterprises are urged to comply

with emissions. Law enforcement methods have been innovated, by installing automatic monitoring equipment, setting up electronic screens at facility entrances to release data, and networking with ecological and environmental departments, thus promoting monitoring information disclosure and strengthening monitoring data connectivity.

2. Strengthen scientific and technological support capacity

Based on science and technology support programs such as National High-tech R&D Program (the 863 Program), National Basic Research Program (the 973 Program), National Key Research and Development Program of China and National Natural Science Foundation, China has carried out basic research on POPs, technology development and industrialization and application of the technology, and the relevant research results have won awards such as the State Natural Science Award, the State Scientific and Technology Progress Award, the State Technology Invention Award. China has implemented a series of demonstration projects and demonstrated and promoted more than 240 advanced alternative technologies. It has utilized the advantages of universities and research institutes, promoted the integration of science and education, and continuously strengthened the construction of discipline system and talent team. The POPs Committee of the Chinese Society for Environmental Sciences has been established to build a high-level exchange platform on POPs for the government, industry, academia and research, and a POPs Forum is held annually on the day of the global entry into force of the Convention, which has been successfully held for 17 sessions, with nearly 10,000 participants exchanging views on academic research, Convention implementation management and industrial progress on POPs.

3. Focus on diversified publicity and guidance

China has continued to strengthen public outreach and education on POPs control, initially forming a new pattern of government guidance, positive response from industry and enterprises, and extensive public participation. On the official website of the Ministry of Ecology and Environment, a column on China's efforts on Convention implementation has been set to provide the public with information on POPs. A series of activities were organized during the Conference of the Parties to the Convention, the World Environment Day, the date of entry into force of the Convention and other important time nodes to innovate the mode of publicity. China's efforts on POPs control and its effectiveness was displayed to the public through TV programs such as Today's Concern and Focus Interview. Through the opening of the WeChat public account, the release of the POPs song, the production of a mobile game on POPs control, the publication of popular science books, the holding of exhibitions on the results of the implementation of the Convention, the launching of a POPs knowledge contest, as well as the organization of online classes, field schools for farmers, and on-site exchanges with enterprises, the public outreach and education targeting the government administrators, practitioners in industry and enterprises, farmers, women, and children, among other groups, are widely carried out to create a good atmosphere.

4. Promote a green lifestyle

China has promoted the classification of household waste, realized that the coverage rate of household waste classification in residential areas of cities at the prefecture level and above has reached 90.2%, raised the proportion of household waste reused, and effectively reduced the dioxins produced in the process of waste incineration at the source; established green product

standards, carried out green product certification, guided consumers to choose green products such as POPs-free food contact materials, outdoor sports apparel, and natural-color paper, forced the industrial chain to reduce the production and use of POPs, and promoted the development of green materials; promoted green alternative technologies for building for termite prevention and control, taking monitoring and control technologies as the core, innovated green alternative technologies for integrated termite treatment, phased out POPs such as chlordane and mirex, avoided environmental exposure to POPs of residents in residential communities, and promoted the formation of a green lifestyle.

Special Column 3

Phase-out of POPs agents for termite control for a healthy and safe human settlement environment

Chlordane and mirex, as highly effective and inexpensive termite control agents, were once mainly used for termite control in housing construction. China actively researches and develops green alternative technologies for integrated treatment of termite with monitoring and control technology as the core and biological control technology, physical control technology and drug barrier technology as auxiliary means, and has promoted the formation of a market of alternatives that are diversified, widely applicable, safe and environmentally friendly, which involves more than 90 products from over 40 manufacturers of termite preventive and control agent in China and has reduced the use of chemical agents by more than 99%, realizing green transformation and upgrading of termite prevention and control technology.

At the same time, efforts have been made to promote termite prevention and control in traditional villages, historical and cultural cities, towns, villages, cultural relic protection sites, and educational bases of CPC. The installation and application of 690,000 sets of underground-type bait systems, 150,000 sets of above-ground-type bait systems, and 40,000 sets of monitoring and control devices have been implemented, with remarkable results, adding a green undertone to the protection of ancient buildings.

IV. Demonstrate China's approach on POPs control to the world

In the face of the global challenge of POPs pollution, China adheres to the concept of a human community with a shared future, firmly practices multilateralism, promotes the construction of an equitable, balanced and win-win global environmental management system for chemicals, actively participates in the control of POPs globally, pragmatically carries out international exchanges and cooperation, and displays its commitment as a major country, thus contributing to the enhancement of global POPs control.

1. Take active part in global POPs control

Implement the obligations of the Convention. China attaches great importance to Convention implementation and has taken a series of actions and measures to effectively reduce or eliminate environmental emissions of POPs and to protect human health and the environment from the hazards of POPs. Meanwhile, China has made continuous efforts in carrying out statistical surveys as well as effectiveness evaluation and monitoring on Convention implementation, formulated and transmitted every national report, national implementation plan, and effectiveness evaluation report with high quality. Since 2019, China has been the Party which provides the largest amount of contributions to the core budget of the Convention, giving strong backing to the operation and implementation of the Convention. China has made continuous contributions to the Global Environment Facility and has always been the largest development country contributor, supporting global POPs control in a strong way.

Participate in rulemaking. China has successively participated in the intergovernmental negotiations and meetings of the Conference of the Parties to the Convention and its subsidiary bodies, has been deeply involved in the formulation of international rules, and has constructively promoted the

reaching of a number of important consensuses such as the compliance mechanism. China has actively sent representatives to participate in a number of specialized bodies or working groups under the Convention, such as on the POPs review, monitoring, effectiveness evaluation, waste guidelines, best available techniques and best environmental practices, and has taken the lead in or participated in the completion of the preparation of more than 30 technical documents, thus providing China's experience and wisdom for the promotion of global implementation of the Convention.

Promote synergy. POPs pollution has a close linkage with other global environmental issues in the chemicals and waste cluster. China supports and promotes synergy among conventions including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal and the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, so as to play an important role in improving the global management system on chemicals and waste.

2. Conduct pragmatic international exchanges and cooperation

China has built an international exchange and cooperation platform with POPs control as a traction, promoted global scientific and technological cooperation, South-South cooperation, as well as the construction of the Belt and Road Initiative. China has provided support for the control of POPs in more than 20 countries, including Vietnam, Laos, Cambodia, Bangladesh, Democratic People's Republic of Korea, and Iran, and organized over 100 training courses related to the Belt and Road Initiative, South-South cooperation and other regional meetings and special training, with the participation of more than 5,000 government officials or scholars from 60 countries and nearly 10,000 person-times of training. China has organized

several side events on POPs actions in China at the margin of the Conference of the Parties to share technical achievements and experience in POPs control. It has also supported the Secretariat in establishing the Stockholm Convention Regional Centre for Capacity-building and the Transfer of Technology in the Asia-Pacific Region, carried out extensive technical exchanges on POPs control and shared experience. China has contributed positively to the global control of POPs and has been widely praised by the international community.

Special Column 4

China's efforts on POPs control are widely praised by the international community

Mr. Rolph Payet, Executive Secretary of the Basel, Rotterdam, Stockholm Convention praised, "China has played and continues to play a key role in the success of the Stockholm Convention in achieving the global sound management of chemicals". "China has identified, removed and disposed of, all the PCB-containing power equipment online or temporarily stored above-ground nationwide and thus meeting ahead of time the 2025 and 2028 goals under the Stockholm Convention. This is indeed a remarkable achievement".

Ms. Beate Trankmann, United Nations Development Programme Resident Representative in China, reckons China's efforts for the implementation of the Convention have made critical contributions to environmental protection, and helped to drive forward and accelerate China's green transformation. And "it is encouraging to see how China has become a knowledge hub for exchanging POPs-related technologies, policies, and practices with other countries".

Mr. Giovanni Ruta, lead environmental economist of the World Bank, stressed the fundamental role China plays in the Stockholm Convention. He said "China's strong commitment and active participation has proved to be key to its success. In many aspects, China has been a front-runner among peers, and has trailed well ahead in developing and implementing projects to pilot and demonstrate implementation of the convention in key sectors". He believes the publication of the Action Plan for Controlling Emerging Pollutants by the State Council in May 2022 will call for elevated efforts, more systematic approach, and greater inter-agency collaboration toward emerging pollutants control including the control of POPs.

Concluding remarks

The Earth is the only home on which human beings depend for survival. In the face of the global challenge of POPs pollution, all mankind is a community with a shared future, and it is the common responsibility of all countries in the world to maintain ecological and environmental safety and human health.

At present, China has embarked on a new journey to comprehensively promote the construction of a strong nation and national rejuvenation through a Chinese path to modernization, and the construction of a beautiful China is an important goal in the comprehensive construction of a modern socialist country. On this new journey, taking the management of new pollutants as a mean, China will effectively manage the environmental risks of POPs and other new pollutants, fulfil its international commitment to POPs control, unswervingly push forward the construction of an ecological civilization, realize a beautiful and healthy ecological environment, make greater efforts and contributions to the building of a community of a shared future for mankind, and push for the realization of a stronger, greener and healthier global development.

China is willing to work with all countries in the world to build the foundation of ecological civilization, follow the same path of green development, seek the way of harmonious coexistence between man and nature, jointly build a clean and beautiful world, and join hands to create a POPs-free future.