

## **Computer and Environmental Protection**

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**Abstract:**-Application of computer can show the developmental level of the country on the field of the environment protection. Now the application of computer is universal and it penetrates into every fields of the environmental protection in our country. On the other hand, with its rapid development, some negative effects are noticed by people. It is the problem of the IT pollution which are brought by information technology.

**Keywords:**-technology of computer, problem of the environmental protection, IT pollution

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### **I. INTRODUCTION**

The development of science and technology, promote the application of the computer, and the computer application and promoted the development of science and technology. Computer application in environmental protection system to improve the overall level of environmental protection work. In recent years, along with our country government on environmental protection fund and monitoring strength increase, the computer application has gradually infiltrated into all areas of environmental protection system. And the application of our country computer has been very popular, how to give full play to the function of the computer, is a topic worthy of study.

On the other hand, the information industry in our country develop very quickly, promote the process of our country modernization, but the high speed development of its negative effect also should cause people height to take seriously, this is the computer industry development brought about environmental problems. Concerned expert points out: "environmental' as an eternal theme, on the IT industry in particular need to cause height to take seriously, not to sacrifice the environment at the expense of 'information' outcomes." [1].

### **II. THE COMPUTER APPLICATION IN ENVIRONMENTAL PROTECTION**

A. computer application in environmental analysis

Modern production of environmental analysis instruments are mostly with microprocessor [2]. In some conventional instruments. As of COD automatic analyzer, water quality analyzer, on-line monitor, chemical oxygen demand meter, conductivity, dissolved oxygen meter, gas chromatography, liquid chromatography, atomic absorption in the microprocessor can automatically sample correction, temperature compensation, fault diagnosis, the majority of instrument can be used in data processing, data storage, and output through the RS232 interface in two, the instrument as an example.

COD water quality continuous automatic monitor: continuous and automatic monitoring of CODcr in waters, apparatus built in suction water sampling system, a few seconds to complete a series of work. A variety of data through the RS232 interface timing transmission to the PC, with sampling system can get water samples by CODcr emissions, and the measurement results will be through the network, communications lines and transmission to PC analysis, storage, printing. Pesticide residue fast detecting instrument: using ultrasonic extraction technology, sample training, biochemical and chemical reactions, color and determination of integration, automatic measurement and display the results of the analysis, modular technology, solid light source, monochromator and the detector, the service life can reach 10 years. Apparatus has to judge the operation error and reagents whether failure to function, direct display of the measured sample inhibition rates and absorbance value, real time display temperature reactor temperature, set culture, color temperature and time, drug residue fast detecting instrument with large screen liquid crystal display fully in Chinese, can choose different combination measurement method and printing method, interactive operation, visualization interface, and executing the menu function into fast, powerful memory function, and a RS-232 interface, can be equipped with PC machine communication online using.

B. computer application in environmental management work

Environmental data is the government department to make environmental decision-making important basis, statistical data aggregation is done manually, reported, not only the heavy workload, and the data statistics is not standard, the error is large. In recent years, the environmental protection agency has developed the unified standard database management software, including the "environmental monitoring, enterprise's environmental quality, pollution incident monitoring" and other subsystems, a number of business function module, in the environmental protection agency established within the local area network environment data sharing of resources, and the environmental protection agency to use the data for communication line internet access remote communication, and the area of polluting enterprises distribution compiled map, and the electronic government affairs system to realize a butt joint, so that environmental protection departments in the past with each other using a set of software information system "information isolated" phenomenon, realizing resource sharing. As long as the user clicks the mouse, the map in computer immediately mounted on the screen, covered with all kinds of polluting enterprises. The mouse to point to enterprise name, the enterprise quickly zoom in on the map appeared at the same time, enterprise's basic information, the sewage situation, influence scope and vividly charts, easily polluting enterprises location, outfall sewage flow, information, affect the regional situation. In addition the LAN,

man, Wan Unicom, paperless office provides conditions. Paperless office savings in the use of printing paper is to save energy, protect environment in a way, we should be advocated energetically.

C. Computer application in Environmental Engineering

In recent years, some domestic manufacturers to adopt the microcomputer to electrostatic precipitator power supply control, the control function has the highest average voltage control, intermittent power supply, pulse power supply, through the on-line turbidimeter and computer to form a closed loop control system for electrostatic precipitator, high, low-voltage power supply centralized management and control can also be carried out data. Acquisition, processing, alarm, electric current and turbidity curve drawing, accurately record the various operation parameters of electric dust remover. In the management of water and wastewater treatment process, keep the drug injection on the appropriate status is very important, at present this kind of dosing device is composed of a microprocessor automatic control. Full automatic dosing device can be applied to a variety of water treatment chemical dosing. According to a detection signal of different instruments, equipment can be classified by the winding current control automatic coagulant dosing system, by the PH instrument control pH automatic control equipment and electrical conductivity control full automatic dosing system for circulating cooling water.

D. the application of computer in Environmental Education

The application of computer in environmental education mainly refers to the use of pollution control simulation software to simulate actual problem, to enable students to have a kind of feeling of be personally on the scene, which can improve the quality of teaching; simulation experiment of large-scale laboratory equipment, thereby reducing the equipment investment, reduce the risk coefficient experiment. Practical problems such as simulation, simulation control system of sewage treatment, noise pollution control system, the abolition of the system. These systems can be used in the student's mind, vivid, lifelike image of left the impression, this perceptual knowledge so that students can work in the future benefit. Large scale experiment equipment investment is high, the maintenance cost is high, and for some experiments also the existence of flammable and explosive danger, some drugs toxic to adverse health, and these problems can make use of experiment equipment simulation software to solve. So the computer in environmental protection education also plays an important role.

E. Environmental protection industry and the Internet

Information industry in China's development is extremely rapid, environmentally friendly high-tech development change rapidly, as the environmental protection enterprise management departments, should know the organic combination of environmental protection and the Internet, so we should make full use of the Internet for the environmental protection the job service. Network can realize the sharing of resources, local environmental protection agency information collected can be conveniently together, statistics, sorting, analysis, mutual between can expedite communication. The development of Web site to promote the importance of environmental protection and significance, to popularize environmental protection knowledge, enhance people's awareness of environmental protection. Can also use the network to achieve online consultation, timely solutions to businesses or individuals related environmental problems. These are the use of network services in the environmental good method.

### **III. ENVIRONMENTAL ISSUES IN THE DEVELOPMENT OF CHINA'S COMPUTER INDUSTRY**

Although the application of computers in the environmental protection of the computer industry to promote the rapid development, and the computer is widely popular, but technological progress has brought a decline in the price of increasing the number of computers to be eliminated, and its harm to the environment will be intensified. Computer most of the raw material containing harmful toxins, some of the materials consumed in the process of computer use, such as: a floppy disk, CD-ROM, ribbons, ink cartridges, toner cartridges, printing paper, inkjet printers and laser printers hidden 'Murder', one of the cartridges and cartridge thrown away infinite harm, we should correctly understand the harm of the computer industry on the environment.

Computer software and hardware upgrades greatly shorten the cycle of product updates: a high-configured personal computers a few years, facing upgrade; technological progress has brought the price down so that most consumers will go purchase price of the increasingly popular new computer, so the number of discarded computer growing of waste separation and recovery system and is quite healthy addition to the metal chassis of recyclable discarded be eliminated computer, monitor, floppy drive, CD-ROM drive Manifold on the hard drive and motherboard, cuttings and garbage incineration or landfill. Because these devices are non-degradable materials, toxicity, incineration will produce dioxin, contaminated air; without any filtration treatment the direct landfill underground, harmful substances will penetrate the soil, groundwater caused a great deal of pollution.

Its own manufacturing materials, manufacturing need a computer with about 700 kinds of chemical raw materials, which is about half of the raw materials contain harmful toxins. For making a computer on the chassis are coated with a layer of fireproof toxic agents; Kam and harmful heavy metals such as mercury is contained in the computer's battery and the circuit board; containing lead oxide and barium oxide in the cathode ray tube; contain harmful elements in the glass of the display was manufactured lead. Computer use consumed in the process of some materials such as nylon ribbons, printer cartridges and cartridge. China Electronic Information Industry Development Research Institute in 2004 February published statistical report shows, 2003, market of our country personal computer sales of 12948000 units, of which 35% is equipped with a printer. Printer number leads to the growth of the corresponding printer consumption of material consumption increase substantially. Ink jet printer using ink cartridges and laser printers use toner cartridges are disposable, and are made

of metal and plastics, waste of ink and toner cartridges are remnants of toxic ink and toner. If discarded, these poisonous modern garbage will be great harm to the environment. In the printer supplies environmental problem we should learn to some European and American countries, attaches great importance to environmental protection in the USA, 1994 has the ink cartridge of ink-jet printer and laser printer toner cartridge recycling write "environmental protection law", the provisions of the federal government agencies must use renewable cartridges and toner cartridge. But in our country to the printer as an example, China each year as a result of the printer are generated using solid waste amounted to one million tons, more than 200000 cubic meters, which can be filled with train 3500, the landfill in the underground waste even in 1000 also failed to break down.

At present, China should take some measures to reduce the corresponding computer industry environmental hazards, such as establish and improve various rules and regulations, make the computer from production to recycle all law, compulsory computer production enterprises to maximize the use of non-toxic, biodegradable materials for the production of computers and ancillary equipment. Specification for computer scrap pieces of the recovery system, strengthening of the computer scrap parts classification recycling, as much as possible to make computer scrap resources are renewable, advocate energetically printing supplies recycling and reuse.

#### **IV. CONCLUSION**

Computer application in environmental protection system has manifested a national industry overall level, in the future, with the State Environmental Protection Administration of the standardization and implementation of strength increase, the enterprise sewage monitoring, the installation of automatic flowmeter and environmental protection "black box", key polluting enterprises to install COD on-line monitoring instrument, and gradually realize the network monitor, will inevitably involve the application of computer. In addition, with the deepening of education reform, the computer will give the school the teaching and experimental work to bring greater convenience, the computer technology application in education, so the experimental environment is more close to the social reality, shortens the students social adaptation period. In short, the computer in the environmental protection system in a very broad application prospects. But the people to pay close attention to industrial pollution control and waste pollution at the same time, the information age, born with the development of information technology increasingly contaminated with IT, must cause the attention, corresponding to take some measures to reduce the harm to the environment of computer industry.

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