Development of Information Industry and Environmental Problems

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The great leader Comrade **Kim Il Sung** said as follows.

"Environmental protection is an undertaking that maintains and preserves such natural environments as are favourable to the existence and activity of people, and transforms unfavourable natural environment into favourable." ("**KIM IL SUNG** WORKS" Vol. 39 P. 346)

With the development of society and economy, the environmental problems become more and more important ones. It is due to direct impact of the economic construction on natural environment.

Today information industry is one of the most rapidly developing cutting edge industries and plays a pivotal role in the overall economic development. Like other industrial sectors, information industry develops in close relation with natural environment and has an important influence on the protection of the environment.

Information industry includes information facilities manufacture industry, software industry, information communications and service industries. The impact of the development of the internal sectors of such information industry on the environment varies.

Development of Information industry has positive effect on the improvement of the environmental protection.

The positive influence of the development of information industry on the environmental protection is that, above all, the use of IT and computers helps to reduce the resource investment in the economic life.

Massive mining and use of natural resources, increase of energy consumption are one of the important factors destroying the natural environment. Therefore, the effective use of natural resources is of great importance in the environmental protection.

The development of information industry enables us to put the overall economic sectors on an information basis, which contributes to reducing the resource investment in the production process and consumption life.

In order to put the production and management activities on an information basis, one needs upgraded IT facilities and means, and all kinds of programmes needed for its control. Machinery performs its function as intelligent equipment only when it is combined with information facilities. CNC facilities and processes are to be controlled and operated by means of computers and programmes.

According to data, when flexible production system is introduced to machinery production process, one can save 13-15% of building materials, 20-50% of machine tools and by enhancing actual production rate and can do away with rejects and reduce the amount of wastes to the minimum. When management activities are put on an information basis, material expenditure for the purchase of raw and building materials and storage, product sales, materials circulation and energy consumption can be substantially reduced.

In reality of today different countries regard sustainable development as the economic development strategies in the new century. They define energy economization, the environmental

protection, biology industry, new energy industry, new energy auto industry, manufacture of cutting-edge facilities and new materials industry as core technology and strategic industry sectors and put nationwide focus on them.

Such latest technology industrial sectors include those which can develop and utilize newly the undeveloped resources, as well as current already-developed natural resources rationally, comprehensively and with high efficiency. New materials industry, nano, bioengineering, space industries and other latest technology industries are all new natural resources and can play a great role in protecting the environment instead of the insufficient natural resources which have been almost depleted.

This is one of the reasons why investment in the information industry development is on the steady increase and the development of this industry is given priority. The development of information industry plays an important role in converting the overall economic structure from resources intensive industry into knowledge intensive, technology intensive industry structure.

This means that the development of information industry makes a positive contribution to the environmental protection by putting the manufacture and management activities on an economic basis in industry, agriculture and other overall economic sectors and increasing the ratio of latest technology industry to save resources and reduce fossil energy consumption.

Then the positive impact of the development of information industry on the environmental protection is that it positively stimulates the development of the environmental protection technology and environmental industry.

Today the issue of the environmental deterioration occurring due to human economic activities is not simple, the environmental elements are very complicated and they interact with a variety of correlations and length. And the factors acting on the environment are closely related to modern economic structure and economic development.

Starting from these characteristics of the environmental issue, it is of importance in the environmental protection to readily collect, analyse, process and predict vast amount of environmental information from different fields and to take scientific measures.

Information technology and means developed through the rapid progress of information industry are positively available in the collection, analysis and processing of different information affecting the environment and the development and use of the environmental protection technology means.

To cope with the recent climatic change and resources depletion and other environmental crises, different countries reduce greenhouse gas and environmental pollution, while adopting and promoting the low-carbon and green technology and industry for economic development as national strategies.

Information industry itself is a science and technology intensive industry, which plays a basic role in developing energy-saving technology and the development of new renewable energy development and other low-carbon and green technology and industry.

For example, intelligent electricity management system, Smart Grid, one of the next –generation green technologies is a system which is designed to increase the operation efficiency to the maximum by combining the previous efficient electric system with information technology facilities and means and through real-time monitoring, controlling and inter-direction communications. Its development is

also closely associated with the development of information technology and industry.

These days, information industry plays an increasingly great role in the analysis of soil, atmosphere and water quality, examination and measurement of various pollutants, environmental prediction, green technology and industry development and other environmental protection.

Software industry, one of the important components of information industry is a knowledge intensive industry and differs from traditional industries concerning exploitation, processing and use of natural resources in that it regards information as an important productive resource and has direct relation with development and use of information.

Software industry rarely expends raw materials and building materials, has low power spending and does not need much foundation of basic industries. The products of this industrial sector are invisible information products; it doesn't have any effect on natural environment.

In this sense, software industry is said to be a pollution-free industry beneficial to the environmental protection.

But this does not mean that the development of information industry has no effect on the environmental protection at all. With the rapid development of science and technology and constant establishment of new economic sectors based on it, the risk of the destruction of the natural environment can be great. It is important for the environmental protection and the development of information industry itself to rightly grasp and thoroughly overcome some problems which may affect the environmental protection during the development of information industry when the development tempo of information industry gets faster and its production scale rapidly increases.

That the development of information industry would give some negative effects to environmental protection can be found in the production and disuse of information devices including computer, main products of information industry.

Because resources resulting in environmental problems including not a little heavy metal, fossil fuel and so on, can be used in production of some kinds of IT devices including computer and portable communication terminals.

According to data, it is said that manufacture of a personal computer(PC) needs total 1.8t of fuel, water and chemical materials. It is also said that manufacture of a PC with 17 inches of monitor needs 240kg of fossil fuel, 1500kg of water and 22kg of chemical materials and the weight is 10 times as heavy as the final finished products (2 times compared with automobiles and fridges). It depends on the fact that production of IT devices including computers needs high-purity and complex materials, and several steps of complicated technical processes with so high requirements.

It is said that heavy metals including lead, cadmium, mercury, arsenic, etc. which are harmful to human's health and make a pollution of environment and harmful materials of halogen and brome system are involved in production of IC, many kinds of circuit board needed in computer and fuel battery used as power of most portable IT devices.

According to data, about 50% of several tens of kinds of metals and organic chemical compounds needed for manufacture of a PC are harmful materials and lead among them contains more than 1.8kg in electronic tube display, and 5 ~ 10kg in the circuit board. It is said that 58.5kg of lead only is involved in 1MT of accessories of a computer.

It shows that the production of IT devices including computer uses a lot of fossil fuel, and by-product and waste from property of its technical process and disused things from its use involve many kinds of harmful materials, so that the environment can be affected, to some extent, by pollution of soil, quality of water, atmosphere, etc.

The production of IT devices including computers involves some kinds of harmful materials, therefore, if they are produced and disused in large scale, probability of environmental pollution is increased.

Environmental pollution occurs because pollutants are over-emitted in nature to destroy material circulation and the balance of nature and accumulated enough to obstruct people's lives and economic activities.

Since some harmful materials are involved in the production of computers and other information technology products, the possibility of the occurrence of the environmental pollution becomes great when they are mass-produced and disused.

Today, to be correlated with it, serious problems of environmental pollution are raised due to increase, recovery and processing of electronic disused things in the world.

In general, amount of disused things is defined by the scale of production and spending of corresponding products as well as their life-time made an account of their moral and physical abrasions.

Today, the electronic disused things are "wastes" with the highest increase rate, and the scale of production and spending of IT devices including computer is larger than other products and has higher increase rate, whereas with rapid development of IT, its updating cycle gets shorter and shorter.

Furthermore, constant reduction of updating cycle of IT and its products is one of factors to promote its moral abrasion and makes rapid increase of quantity of disused things.

In the world, it is said that the number of PC sold was totally a billion by April of 2002 and 2 billion by early 2008. On the other hand, it is said that its number of users was 575 million in 2004 and nearly 1 300 million in 2010. Compared with both data, we can find how many computers are discarded every year. In today's global reality, it is said that 130 million mobile phones are disused in a year and 250 million PCs in 5 years.

Like this, the harmful materials generated beyond natural and artificial clean ability can result in environmental pollution, because of enormous store of the electric disused things as well as typical one-time massive production and disuse of them. If measure should not be taken to overcome them, serious environmental issue can occur due to the increase of the manufacture of the information technology products and the scale of its disuse.

The development of information industry should be directed to protect the environment and overcome negative effects on it anyhow.

We should reduce the spending of the heavy metals including lead, cadmium, mercury, hexad chrome, and pollutants including polybromobivinyl, which cause environmental pollution and find and use their substitutes if possible.

In addition, we should develop the detector of harmful materials of IT devices and establish the detect-system and take a positive introduction of advanced technology concerning it. It can make

enhanced control of the production and import of IT products according to environmental criteria.

Today, when the environmental destruction and pollution phenomena are an global problem, the imperialists distort the problem of the environmental protection and advance the reactionary sophistry including “technology-caused theory”.

The abstraction of the “technology-caused theory” is that development of technology causes the environmental damage and there is only a restricted way to prevent it with current technology, and the cause of the environmental crisis is not in social relationship, but in development of technology.

The fundamental reason why the treatment of the electronic wastes is raised as a very serious problem in the world and they have a great effect on the environment is that the giant monopolies in the capitalist countries are recklessly increasing the production of computers and other IT products without any consideration of environmental protection in order to make more profits and are intentionally “transferring” the environmental crisis caused by electronic wastes to other countries, developing countries in particular.

Today, the imperialists are violating plainly the “Basel Commitments” of 1989 for restriction of export of poisonous materials and transferring enormous amount of poisonous electronic disused things to developing countries.

This leads to the destruction of the global natural environment and aggravates environmental pollution as well as having great negative effects on the economic construction.

We should also maintain thoroughly the Juche-oriented stand in foreign trade and technical transactions relating to IT and its devices and provide the prospective and well-balanced development of IT and environmental protection technology in order to positively protect our country’s environment.