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2. Telecommunications History in the Crown Dependencies: A Case Study of the Channel Islands and the Isle of Man (Japanese), Nihon Tosho Center, Tokyo, 2003.

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4. 'A Historical Study on the Telecommunications' Policy and the Corporation Telephones in the United Kingdom' (Japanese), INTERNATIONAL PUBLIC ECONOMY STUDIES (Japan Society of Research and Information on Public and Cooperative Economy), /11, 2000.

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# **Taking a Fresh Look at Community-based Economy from the Standpoint of Sustainability**

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## **I. Environment Deteriorated**

The surroundings in which an organism lives are vulnerable to the changes affected by physical and chemical factors as well as by the activities of other organisms. The damage to the earth caused by human activities is the contamination of the environment by dirty or harmful substances, and the fact has been a major concern during the last 50 years.

Increasing populations, higher standards of living, the widespread use of packaging, and the growth of throwaway consumer products have created enormous problems in waste disposal in the 20th century, especially in Western societies. Current problems include the disposal of radioactive waste; atmospheric pollution by heavy metals (such as lead), carbon dioxide (greenhouse effect), and sulphur dioxide and nitrogen oxides (acid rain); the disposal of human refuse and sewage (waste disposal); noise pollution; damage to the ozone layer; and orbiting debris from spacecraft.

Household, agricultural, and some industrial waste is disposed of by incineration, burial in landfill sites, dumping at sea, or briquetting into a refuse-derived fuel (RDF). In addition, the burning of felled trees releases large amounts of carbon dioxide, which many scientists believe has contributed to the greenhouse effect and consequent global warming. So-called acid rain is the rain that contains sulphuric and nitric acids as a result of the absorption of sulphur dioxide and nitrogen oxides, mostly from industrial and vehicle emission, in the atmosphere. It is argued that the effect of acid rain can include destruction of fish, crops, and trees, as well as damage to buildings.

In some conventional idea of economics, pollution problems such as smoke from factory chimneys, hazardous chemical waste and the dumping of waste materials and products are treated as externalities. Pollution is considered likely to be a cost of economic growth and a negative input into the measure of economic welfare.

## **II. Greenhouse Effect**

What is called greenhouse effect is an atmospheric effect, in which some of the energy of ultraviolet radiation and light from the sun is trapped in the earth as heat. The radiation is transmitted through the atmosphere to the earth's surface, where it is reradiated as longer wave length infrared radiation. This is only partially transmitted back into space as some of

it is absorbed by atmospheric gases, especially carbon dioxide and methane, causing a heating effect which leads to the global warming as the result. It is said that, in the past century, the world's average temperature has risen by 0.6%, 1998 and 2001 being the warmest years since records began in 1860.

Modern industrial and agricultural activities have led to the pollution of land, rivers, seas, and the atmosphere by either man-made toxic substances (such as pesticides and fertilizers) or by the overproduction of naturally occurring substances (such as carbon dioxide gas). Most countries at present rely heavily on fossil fuels (oil, coal, and natural gas) and nuclear power for their energy needs.

However, reserves of fossil fuels are declining and they, also, further contribute to the greenhouse effect by emitting carbon dioxide into the atmosphere on combustion. Going from bad to worse thereafter, additional forms of pollution may have long-term effects on the health of living things, including humans.

### **III. Regulations by Governments**

The main measures to cope with cracking this hard nut are environmental protection. Increasingly, governments of many industrialised countries have passed more onerous regulations covering the use and disposal of industrial materials and production methods. Firms that do not comply with the regulation should be and can be subject to unlimited fines in many ways. As a consequence, industry itself is being forced to invest in appropriate pollution control and limitation systems and to take a more proactive approach to the production and making of products that are environment-friendly.

Politicians and inspectorates of pollution should be charged with the task of reminding businesses to use the best available technology and techniques to minimize pollution. It is the polluter pays principle (PPP) that polluters should pay the social costs of any pollution that they cause. Adoption of this principle as part of government policy towards the environment involves intervening in markets to protect the environment by placing the onus of responsibility for dealing with pollution on polluters.

The most widely used of the waste options is landfill burial, because it is usually the most economical, although the scarcity of suitable sites in urban areas has tended to increase costs. Conservationists, such as friends of the Earth, advocate greater use of recycling of waste materials (mainly glass, paper, and aluminium), although in practice it has been hard to set up and maintain such schemes on a sufficiently large scale.

### **IV. World Conferences on Climatic Change**

International recognitions of, and concerns at, the harmful impact on the ozone layer

of toxic industrial emissions began to build up in the 1970s and 1980s, leading to the Montreal Protocol in 1987. A target for the developed countries to ban chlorofluorocarbon (CFC) gases by 2020 was somehow achieved by 1995, further attempts being undergoing although more intractable. In 1997 a world conference on climatic change was held in Kyoto, Japan; this eventually resulted in the Kyoto agreement, under which a number of nations agreed to reduce greenhouse gases by 2013.

The Kyoto Protocol and the Bonn Accord (2000) committed countries to make substantial cuts in other greenhouses gases (particularly carbon dioxide emissions from coal, gas and oil fuels). Although some 180 countries have signed the Bonn Accord, the biggest polluter, the USA, opted out of the agreement before it was finalized in July 2001. In many cases a technical solution to these problems is available but cannot be implemented because the cost is too high or because of conflict with minority interests.

## V. Renewable Sources

The combustion is process which chemical energy is converted into thermal energy. The first fuel was wood, but fossil fuels (asphalt, coal, oil, natural gas) have been in use for about 8000 years. However, it was the industrial revolution and the later advent of motorized transport that brought explosive increase in the demand for energy and fossil fuels. These demands have increased during the 20th century, especially with the spread of technology. The total world energy consumption is reportedly some  $4 \times 10^{20}$  joules per year, nearly 88% of which is provided by fossil fuels.

It is true that coal is still an important resource but environmentally damaging, while gas is cheaper and cleaner but the continuity of supply is uncertain. On the other hand, waste products are beginning to make useful contribution to energy conservation. Some incineration of waste material makes use of the energy released for power generation, often in district heating schemes, while combustible materials are increasingly being used as RDF in power stations. The decay of organic wastes in landfill sites produces considerable volumes of methane and other combustible gases, which can be recovered as landfill gas and used as a commercial energy source.

Power based on natural energy flows in the environment and renewable sources (i.e. those that do not use up finite mineral resources). For example, solar power and wind power supply energy intermittently, and not always when it is most needed. A substantial part of the investment being made to comply with these regulations is going into wind power and the extensive development of wind farms, together with intensified research into wave-power machinery. Pumped storage is the only practical means of storing electrical energy on a large scale.

Estimates of reserves of recoverable uranium are also uncertain and the cost of nuclear-generated electricity is extremely complicated by decommissioning and processing costs. Although it produces no CO<sub>2</sub>, there is opposition to the development of nuclear reactors, mainly on the grounds of safety and environmental hazard from radioactive waste disposal. Fusion reactors are still very much in the experimental stage.

Known collectively as biofuel, renewable energy can be obtained from the methane (biogas) generated by sewage or farm, industrial, and household organic waste, from specially cultivated organisms, or from crops, such as trees (in so-called energy forests) and sugar cane, grown for their energy potential. These alternative energy sources already supply some 4% of USA's primary fuel requirements. Some claim that up to 85% of the waste collected by UK local authorities could be turned into biofuels with an energy content 60% that of coal.

## **VI. Afforestation**

The rational use of the earth's resources is one of main concerns of conservation of worldwide scale so that life can be sustained indefinitely. Pressure on both mineral and natural resources, resulting from increased agricultural and industrial activity, has required urgent examination of the consequent effects on the world ecosystem. The destruction of many natural habitats has led to the creation of nature reserves and national parks where wildlife can be protected. The prudent use of fossil fuels and minerals and the search for alternatives are becoming both political and economic necessities.

The species of trees growing depends mainly on climate. They also provide habitats for wildlife and are widely used for recreation. Over 20% of world land area is forest, both natural and artificially planted, making forests a vital part of the global ecosystem as major suppliers of oxygen as well as timber. Tree roots can bind soil and limit soil erosion by increasing interception and reducing run-off, to lessen flooding through the reduction of silting, by binding the soil and help to trap rainwater, which percolates into the soil and thence into rivers. Thus, deep-rooted trees can trap new nutrient sources, leguminous trees can fix atmospheric nitrogen and improve soil fertility, and leaf litter can add organic matter as well.

Removal of these trees in upland areas increases the surface run-off of rainwater, which washes away the exposed soil. This results in landslides, soil erosion, and the silting-up of rivers (causing flooding), reservoirs, and oceans (destroying coral reefs and consequently disrupting marine ecosystems). Not only has this deprived the world of many rare and potentially useful species of plants and animals but it also has serious ecological consequences. The major tropical rain forests are in the Amazon and Orinoco river basins, with others in Africa and SE Asia. The clearing of tropical rain forests in South America

and S and SE Asia has accelerated rapidly in the 20th century. The reduction of the Amazonian rain forest in recent years has provoked worldwide concern about possible ecological consequences.

In this manner, trees may provide food, fodder, firewood, and timber, and most importantly, nowadays, counteract possible global warming through the absorption of the increasing levels of atmospheric carbon dioxide.

Among all other things, deforestation of last decades must be given serious consideration to stop the reckless removal of numberless trees in natural forests by felling or burning in order to obtain timber or fuel wood or to clear the land for farming or mining. In most cases the means to solve these problems are available but their high costs, or conflict with sectional interests together with excessive mercantilism, prevent their implementation.

## **VII. Agroforestry or Sustainable Farming**

Regionally uneven development is common in all parts of country. It may be seen to be a result of market-oriented capitalism, based as it is on strong competition and accumulation, although it may be not unique to capitalism alone. This kind of imbalanced population from place to place may often stem from the result of the maldistribution and uneven development of resources as a whole. In a sense, some would suggest that pollution and the desecration of the countryside are indicators of overpopulation in the unduly overcrowded cities. That is true, but also there can be seen an indication of the movement of population and economic activity away from busy urban areas.

Due to the improvements in transportation and communications, the attractiveness of urban centres have been lessened, and commuters are often willing to trade off increased travel times for improved amenity. Furthermore, with the ageing of populations including those retired, many no longer need to travel to work. The push factors include: high land values, restricted sites for all types of development, high local taxes, congestion, and pollution. The pull factors offered by small towns are just the reverse: cheap, available land, clean, quiet surroundings, and high amenity.

In this context, any agricultural system should be given a serious consideration on “back-to-the-land” movement including agroforestry, which incorporates the planting or encouragement of trees on land in the manner of fostering sustainability. This idea links with plans for the development of sustainable farming, and other socio-economic proposals. It refers to one of important measures to improve fallow farmlands brought about during last decades by the policy of reducing acreage under cultivation, which has been forcibly implemented by giving farms government subsidies to reduce the amount of land they farm. Recently, there is an increasing concern among people about food safety in general. The

role and expectation of the farming business and agriculture is gathering nationwide attention in reference to securing food stability and the increase of food self-supporting ratio, particularly in Japan. It is also helpful to reduce poverty in rural country, and most probable to contribute for the global sustainability through the medium of local communities all over the world.

In this way, the planting of trees may aid farmers in various ways and contribute to alleviate the contaminations.

### **VIII. A Community-based Economy and Sustainability**

Man presumably has a responsibility for his environment. It is a concern for the nature, and especially with the bond between man and the environment, not solely in terms of technology but also in ethical terms. We are in this respect reminded of the necessity for sharing and conservation. Ecological politics is an advocacy for, or work towards, protecting the natural environment from degradation or pollution.

An examination should be taken as concerning about the relevance of ecological relations to human affairs and the sense of human responsibility for their deterioration, considering issues from the local to the global scale, and taking into account the longer-term ecological destiny of the human and non-human world. Proposals to remedy environmental deterioration are based on the recognition of the intrinsic value of nature, on seeing humans as part of, rather than owners of, and the biotic community.

To assure dignity, freedom, security and justice for the world, all people should have a responsibility to protect the air, water and soil of the earth for the sake of present inhabitants and future generations, and environmental protection became the duty of all inhabitants. It naturally follows that people should try to promote global sustainable development at a more fundamental level than traditional aid programmes, based on common needs and interests, and on collective responsibility.

Sustainable development combines with the integration of economic, social and environmental objectives, to produce development that is socially desirable, economically viable and ecologically sustainable, and this may the prevention of irreversible environmental change. Indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute a self-regulating sustainability of integrated environment and development systems.

There is much room for fuel reconsiderations through the recovery of forestry and agriculture by taking far-reaching consideration on community-based economy from the view point of sustainability. Making full use of renewable sources of energy such as wind and solar power including biomass, the world's hopes for sustained economic growth must be realized all over the world in the near future.

By encouraging nature-friendly industries together with bioethanol production, the rural economy would find a way out of the difficulties and also receive a boost from growing the necessary crops and afforestation. Local and regional economic development should be tightly committed to the execution performed in accordance with the content of local people for upgrading communities to retain jobs worthy to do, and improve their living standards, together with social, economic, and welfare services. Endogenous development, therefore, is a territorial approach to economic growth and structural change, based on the hypothesis that the territory can be understood as the territorial community's network of interests and, thus, can be perceived as an actor for local development.

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