

Environment and Cooperatives

G.C. Shrotriya & Daman Prakash



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Regional Office for Asia & the Pacific, New Delhi**

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Environment and Sustainable Cooperative Development

- An Asian Regional Study

G.C. Shrotriya & Daman Prakash



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Environment and Cooperatives
(Environment and Sustainable Cooperative
Development - an Asian Regional Study)
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Abbreviations

ASSOCHAM	: Associated of Chambers of Commerce (India)
ACFT	: Agricultural Cooperatives Federation of Thailand Ltd
BAPEDAL	: Agency for Environmental Impact Control (Indonesia)
BHC	: Benzene Hexa Chloride
BIS	: Bureau of Indian Standards
BSCFT	: Bus Service Cooperative Federation of Thailand Ltd.
CCA	: Canadian Cooperative Association
CCFT	: Consumer Cooperative Federation of Thailand Ltd.
CFC	: Chlorofluorocarbons
CUP	: The cooperative Union of the Philippines
CLT	: Cooperative League of Thailand
CPCB	: Central Pollution Control Board (India)
DDT	: Dichloro Diphenyl Trichloro ethane
DEKOPIN	: The Indonesian Cooperative Council
DFPCI	: Davao Fibres Producers Cooperative Inc. (Philippines)
EFP	: Environment Friendly Products
FAO	: Food and Agriculture Organization of United Nations
FORMASI	: Forum for Cooperative Development (Indonesia)
FSCT	: Federation of Saving and Credit
GOI	: Government of Indonesia
GEMS	: Global Environmental Monitoring System
GUSCOMASOL	: Gujarat State Agricultural Coop. Marketing Federation (India)
ha	: hectare
IBCSD	: Indonesian Business Council for Sustainable Development
ICA	: International Cooperative Alliance
ICAR OAP	: ICA Regional Office for Asia and the Pacific
INCODAP	: Indonesia Cooperative Development Assistance Programme
IFFCO	: Indian Farmers Fertiliser Cooperative Limited
IPC	: Indian Penal Code
IPM	: Integrated Pest Management
ILO	: International Labour Organisation of the UN
ICMOD	: International Centre for Integrated Mountains and Development
JCCU	: Japanese Consumer's Cooperative Union
JUK	: Cooperative Business Network (Indonesia)
KLH	: Ministry for the Environment (Indonesia)
KRIBHCO	: Krishak Bharti Cooperative Limited (India)
KUD	: Village Cooperative Unit (Indonesia)
LSM	: Self-Help Organization (Indonesia)
MRL	: Maximum Residual Limit
MT	: Metric tonne
MINAR	: Monitoring of Indian National Aquatic Resources

MINAS	: Minimal National Standards (India)
NABARD	: National Bank of Agricultural and Rural Development (India)
NAFED	: National Agricultural Cooperative Marketing Federation of India
NATCCO	: The National Confederation of Cooperatives (Philippines)
NAMVESCO	: The National Market Vendor's Service Cooperative Inc. (Phils)
NCCF	: National Consumer Cooperative Federation (India)
NCCT	: National Council for Cooperative Training (India)
NCDC	: National Cooperative Development Corporation (India)
NCDFI	: National Cooperative Dairy Federation of India
NCHF	: National Cooperative Housing Federation of India
NCUI	: National Cooperative Union of India
NDDDB	: National Dairy Development Board
NGO	: Non-Governmental Organisation
NWDB	: National Wastelands Development Board (India)
PACF	: Provincial Agricultural Cooperatives of Thailand Ltd.
PAN	: Pesticide Action Network
PEKERTI	: Indonesian People's Handicraft Foundation
PFCCI	: Philippine Federation of Credit Cooperatives Inc.
PFY	: Polyester Filament Yarn
PHPA	: Directorate for Nature Conservation (Indonesia)
PSSD	: Philippines Strategy for Sustainable Development
QCFCI	: Quezon City Federation of Cooperatives Inc. (Philippines)
RI	: Republic of Indonesia
SAARC	: South Asian Association for Regional Cooperation
SACEP	: South Asia Cooperative Environment Programme
SKEPHI	: Joint Secretariat for Forest Conservation (Indonesia)
SKREPP	: Secretariat for Pollution Control (Indonesia)
TGC	: Tree Growers' Cooperatives (India)
TLV	: Threshold Limit Values
UCE	: University Consortium on the Environment
UNDP	: United Nations Development Programme
UNICEF	: United Nations International Children Fund
VMNICM	: Vaikunth Mehta National Institute of Coop Management (India)
WALHI	: Indonesian Forum on the Environment
WWF	: World Wide Fund for Nature

Foreword

I consider it to be my privilege to write a foreword to this most topical publication. Protection of environment and sustainable development are indeed intimately related with each other. In our eagerness to become developed we tend to ignore several inter-related issues and thus at the end of it all we find that the development has not been fruitful - there are some ill-effects. For us, until now development has meant industrial and economic development which implied an excessive use of energy, chemicals, and other natural resources. The resulting ill-effects have created an "environmental crisis" which we are facing today. We are now talking of saving the earth. This crisis is threatening the future of our planet. Global warming, the depletion of ozone layer, desertification, acid rains, deforestation, air -water soil pollution, are some of the worrisome threats in front of our future generations. Grinding poverty, famine, over-population, shrinking agricultural land, the lack of drinking water, societies with high infant mortality and poor life expectancy, a degraded environment and health hazards are some of the major issues before us.

These ills are not the products of today. These are the cumulative effects of our traditional patterns of development, lopsided application of technology, ignorance and indifference. The developing world has been faithfully copying what the developed economies had done to achieve development without making corrections or making that development sustainable. However, during the last decade we have noticed a strong concern gathering momentum in favour of protecting the environment by including therein the element of "sustainability". Everyone now seems to speak the same language - the language of concern - regreening the earth, conservation of energy, alternative sources of energy, control on population growth, altering life style, and making our surroundings environment-friendly. Cooperatives are also taking part in this monumental programme since a large number of people are covered under the fold of cooperatives.

With a view to document the current status of environment-related activities within the cooperative sector and to identify the strategies to be adopted to suitably participate in the programme of environment protection, the International Cooperative Alliance Regional Office for Asia and the Pacific (ICA ROAP) undertook

an indepth Regional Study covering India, Indonesia, Japan, the Philippines, and Thailand. The Study was carried out with the help of national consultants who made use of questionnaires, field studies, on-site visits, interviews, discussions etc. in their respective countries. The Study documentation was thoroughly analysed and discussed at a regional workshop held in Jakarta, Indonesia, in April 1992.

The study has been supported by the Canadian Cooperative Association and the Indian Farmers' Fertiliser Cooperative Limited, both member-organisations of the ICA. The services of Dr G.C. Shrotriya were made available by the IFFCO-India to coordinate the work of the Study. From the ICAR OAP, my colleague, Mr Daman Prakash, Regional Advisor (Development Planning) provided the logistic support to the Study.

I take this opportunity of thanking the CCA, IFFCO, Dr Shrotriya, and all the national consultants, and Mr Daman Prakash who supported this project and contributed to the rich first-hand information that has formed part of this modest research activity. The ICAR OAP also thanks all the cooperative organisations in India, Indonesia, Japan, the Philippines, and Thailand in providing support to the national consultants in the preparation of national situation papers. My special thanks also go to the Dewan Koperasi Indonesia (Dekopin), Hon'ble Bustanil Arifin, Minister of Cooperatives of Indonesia, Hon'ble Professor Emil Salim, Indonesia's Minister for Environment and Population, and Professor Sri-Edi Suwasono, Chairman of Dekopin for addressing the Jakarta Workshop in April 1992.

My special appeal to our member-organisations is to carefully study the findings and recommendations of this exercise and develop follow-up programmes so that national level plans of action are prepared for implementation. The most important task before cooperative organisations now is to set up awareness programmes and to develop strategies together with their government departments. These can best be done through the organisation of national level follow-up workshops and campaigns. The ICAR OAP would be very happy to support such national efforts.

G.K. Sharma
ICA Regional Director
for Asia and the Pacific

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July 10, 1992

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I. Introduction

BACKGROUND

Environment concerns all of us. It concerns our cooperatives too. And cooperatives are ours. Our environment and ecological balance is under a great stress now. We have to work together to "protect our environment so that our future generations are able to lead a wholesome and healthy life". The deteriorating condition of environment and ecology is engaging the attention of all human beings. National governments, non-governmental organisations and international organisations have launched a number of projects thereby trying to protect environment. The matter was discussed at considerable length at the Central Committee of the International Cooperative Alliance (ICA) at its meeting held in Madrid in September 1990. The Committee adopted the following resolution in this context:

Environment and Development

"The Central Committee of the ICA at its meeting in Madrid in September 1990:

Deeply concerned by the critical state of the environment in which we live and the economic, social and political policies that perpetuate and further aggravate these conditions,

Noting that the major cause of the continuing deterioration of the global environment is the unsustainable pattern of production and consumption which has resulted in the depletion of the ozone layer, the greenhouse effect, the contamination of air and water, the degradation of land resources, etc.,

Recognizing the inter-related nature of development and environment necessities that environmental protection be viewed as an integral part of the development

process and that economic policies be reviewed on issues including debt.

Recognizing also that unless action is taken in the immediate future at the local, national, regional and international level, human survival may be endangered,

Stress the need for education campaigns, conservation measures and policy changes in all sectors of the economy and at all levels to be made.

Urges ICA member-organisations to join in local, national, regional and international efforts to address the issues of environment and development and take measures to stop the degradation of the human and natural environment.”

In its message issued in conjunction with the 68th International Cooperative day (1990), the International Cooperative Alliance, a world confederation of Cooperative Movement, called on its 600 million individual members “to continue the battle to protect the environment, by supporting their societies’ environmental campaigns and sustainable development programmes, lobbying local governments to adopt environment-friendly policies, boycotting products which are harmful to the environment, recycling reusable items and informing themselves and educating their children about nutrition and the environment.”

Awareness Efforts

Being aware of the harmful effects to mankind through pollution and in accordance with the general policies laid down by the International Cooperative Alliance in this sector, the ICA Regional Office for Asia and the Pacific (ICA ROAP), New Delhi, undertook to develop and launch modest programmes for its member-organisations in the Region, by way of developing awareness materials. A small brochure - A PLACE TO LIVE - written by Mr. Daman Prakash, issued by the ICA ROAP in November, 1990, is a modest attempt in generating awareness among the cooperative populace and to create situations where all members of the cooperative world stand together to participate in this most important activity of our life time, protecting the environment. 3,000 copies of this awareness material have been distributed extensively. ICA member-organisations have been requested to give widest possible publicity to the material by reproducing it or by undertaking its translations. The material has already been translated into various languages e.g., Japanese, Hindi, Urdu, Bahasa Indonesia etc., and has been serialized in a number of cooperative journals throughout the Region.

ICA REGIONAL STUDY

Already in this Region some positive steps have been taken by some Movements e.g., the Japanese Consumers Cooperative Union, the Agricultural Cooperative Movement of Japan, various sectors of the Indian Cooperative Movement etc. During the year 1991-92, the ICA ROAP decided to undertake a comprehensive Regional Study leading to identification of causes of imbalances in eco-system. The Study is also aimed at developing suitable recommendations and national plans for the benefit of cooperative organisations in the Region.

In this connection the ICA ROAP had developed collaborative arrangements with some of the ICA member-organisations to carry out the proposed Study. Active cooperation and support was made available from the Canadian Cooperative Association (CCA), the Indian Farmers' Fertiliser Cooperative Limited (IFFCO-India), and the Japanese Consumers' Cooperative Union (JCCU).

The ICA ROAP is also aware of the efforts made by the Canadian Cooperatives Association (CCA) in this sector. Of special significance was the holding of a Regional Conference on "Environment and Sustainable Cooperative Development" in May 1990 in Chiang Mai, Thailand, which was also attended by a representative of the ICA ROAP. The Conference, besides suggesting long-term and short-term action plans, also issued a declaration, called the Chiang Mai Declaration, as reproduced below:

"We, the Cooperators of the Earth, who have gathered for a common cause, at the CCA Asia Regional Conference - Environment and Sustainable Cooperative Development - who believe the time for concern and action is now, do hereby declare:

- That every person is entitled to live in a clean and ecologically balanced environment;
- That future generations of humankind should not be deprived of their share of Earth's bounties;
- That it is every person's duty to conserve, protect and enhance his/her environment.

To these ends, we pledge ourselves and our cooperatives to implement the recommendations of this Conference."

"Sustainable development is development that meets the needs of the present

without compromising the ability of future generations to meet their own needs” as was aptly said by **Our Common Future** (the Brundtland Report) is also quite relevant to the cooperative initiative. This report, besides generating awareness among the rich and the poor, had a galvanizing effect on international development at this crucial time. Another significant pressure on governments was put by the Stockholm Initiative on Global Security and Governance on “Common Responsibility in the 1990s”. In the context of environment the following proposals were made to the international community:

“13. that fees are levied on the emission of pollutants affecting the global environment, in particular carbon dioxide emissions from the burning of fossil fuels,

“14. an international energy dialogue promoting a more efficient use of the world’s energy resources, and, in particular, the use of alternative and renewable energy sources e.g. solar energy;

“15. that the United Nations be encouraged to take up environmental issues at the highest level in all appropriate fora; and

“16. that nations resolve to make the 1992 United Nations Conference on Environment and Development a breakthrough for achieving sustainable development.”

In the context of environment protection, the ICA Asia-Pacific Cooperative Ministers’ Conference held at Jakarta, February 18-21, 1992, made the following recommendation:

“The Conference took note of the importance being given by cooperatives in regard to protection of environment and promotion of ecological plans by cooperatives in various ways. The Conference appreciated such activities in view of the present situation of environmental degradation. The Conference recommended to develop more intensive environment-related awareness activities by cooperatives.”

The above points are the positive indicators that cooperative institutions and the cooperative members including all those who are responsible for cooperative development e.g. the concerned government departments, have a lot to contribute in protecting our environment and making the cooperative development sustainable.

The Earth has become hopelessly ill while we have enjoyed the benefits of economic prosperity. We think that something must be done about the situation because we cannot pass an ailing Earth on to the next generation. There are many things which we can do alone as well as together. Either way, we should start where we can.

In his thought-provoking paper "*Cooperatives in the Year 2000*", Prof. A.F. Laidlaw stated : "One of the characteristics of present-day society is a growing awareness of social problems. People seem determined to dig out facts and expose the weaknesses in the social fabric and hunt for causes and solutions, for instance, of the neglect of the aged, the abuse of children, the exercise of status and privilege, denial of civil liberties, the treatment given to aborigines, damage to the environment, political corruption or the public cost of private poverty, including the automobile. Groups of people will stand up to oppose, with violence if necessary, what they would have watched and accepted in silence even a few decades ago".

Referring to environment and the sustainability of cooperative development, Prof. Laidlaw said : "Whatever else may be said about the century now approaching an end, it must be recorded as the period in which mankind has done more to poison and destroy the environment than in all previous eras of history. The industrial revolution of modern times, beginning about 200 years ago, started society on the road to destruction and spoilage of the whole human habitat, using the adage "muck makes money". The degradation of the environment has gone hand in hand with wasteful use of resources and disturbance of the delicate balances of nature.

"Many great lakes and rivers can no longer sustain fish-life because of chemical wastes. Acid rain now threatens to destroy thousands of lakes across Europe and North America. Soil erosion is helping the onward march of deserts on several continents. The great tropical rain forest have been reduced to about 60 per cent of their original size. Many animal species have disappeared altogether and others are threatened with extinction. And now the ultimate pollutant, nuclear waste, is creating environmental disasters that may last for thousands of years. If we think of the earth or the planet as space on which mankind holds a lease, we are now getting close to the time when the lease runs out.

"An important fact of misuse of the environment is that the Western nations and the highly industrialised societies are the worst polluters, as shown by an OECD study published in 1979. It detailed such dangers as polluted drinking water, unacceptable levels of aircraft noise, health hazards from chemicals in the soil and general deterioration in the quality of life because of abuse to the environment, especially poisoning of the atmosphere. Recent emergency situations in nuclear power plants also go to show that man-made disasters are not so remote as we may think.

"But the general outlook for protection of the environment is better now than it used to be, as concerned citizens become aware of the urgencies and the need for

vigilance. At least, our knowledge of the environment, which was woefully limited until quite recently, is now much better and growing rapidly. If governments will only divert some of the astronomical sums of money and resources away from armaments and towards protection of the environment, there is yet hope for mankind on this score".

STUDY OBJECTIVES

The main objectives of the Regional Study were to :

1. identify the environmental issues faced by cooperatives in various major activity sectors in the Region,
2. take stock of the effective and visible measures already undertaken by cooperatives in protecting environment and the contributions made by cooperatives and other self-help groups,
3. suggest methods and techniques of developing greater awareness about environmental issues among all member-countries of the ICA ROAP hence making environment an integral part of sustainable cooperative development planning,
4. develop programme strategies and action plans (short-term and long-term) for environmental enhancement for each participating organisation for their organisations and country, and
5. to make suitable recommendations for each country and to the ICA ROAP and suggest follow-up activity required to implement and monitor local, national and regional plans of action.

APPROACH TO ICA ROAP STUDY

Growth in population, shrinking of agricultural land, contamination of air, water and soil, and improper use of technology contribute to the degradation of environment. Healthy environment leads to: i) better standards and quality of life, ii) life support system, iii) conservation and regeneration, and iv) pollution free environment.

In view of the limited information available on this subject in a systematic way, it was proposed that an indepth Study is undertaken in the Region to : a) identify causes and extent of pollution in the cooperative sector, (b) document measures

already undertaken by cooperatives to control pollution and to participate in the sustainable cooperative development process, c) developing local, national and regional plans of action, and d) suggesting measures (long-term and short-term) and activities required to implement action plans.

COUNTRIES COVERED UNDER THE REGIONAL STUDY

Countries covered under the Study were : China, India, Indonesia, Japan, the Philippines and Thailand. Since a lot of pioneering and concrete work in this sector has been done in Japan, information was obtained from the Consumer Sector as well as from the Agricultural Sector of the Japanese Cooperative Movement and included in the main frame of the Study. Useful work on waste resource recycling by cooperatives and conservation of energy has been done by the Chinese Cooperative Movement for quite some time now. The All-China Federation of Supply and Marketing Cooperatives (ACFSMC) and the ICA ROAP have, in the recent past, been conducting a variety of technical discussions on Waste Resource Recycling and thus some useful technical material has been generated. The Study has made use of this valuable and highly relevant material and, therefore, included in this documentation a special paper on China on the subject.

MEANS AND METHODOLOGY

The ICA ROAP identified and appointed one Regional Consultant and four National Consultants who produced National Situation Papers according to a Main Frame Questionnaire/Guidelines developed by the ICA ROAP.

The National Consultants made use of a Main Frame Questionnaire to obtain first-hand information from the national cooperative organisations, other cooperatives, government departments and other agencies interested in the subject. The National Consultants also made use of the already available documentation in their respective countries to enrich the contents of their national papers. The national papers generally covered, the following topics:

- General introduction to the subject in national context;
- General statistics and crucial information on topics like area covered by forests, agricultural lands, use of water and other natural resources, industrial activity, infra-structural development e.g., road constructions, canal construction, housing estates, shrinkage of agricultural land, cutting down of forests, increase in automobile production, pollution levels, population-related information, government policies on environment protection, etc.

etc.;

- Existing legislation on environment protection;
- Analytical treatment of the first-hand information received from various organisations etc. based on the Main Frame Questionnaire;
- Additional information gathered by National Consultants based on on-site visits, interviews, discussions etc.;
- Involvement of cooperatives in this sector e.g., generation of environmental problems by cooperatives and their solution already undertaken or planned;
- Suggestions and opinions of the National Consultants and others;
- A set of recommendations for national Cooperative Movement, national government (special reference to government cooperative department), for primary level and secondary level cooperatives, individual cooperators, for the ICA ROAP and other international organisations;
- A plan of action (short-term and long-term) for all levels;
- A bibliography; and
- Any additional relevant information on the subject.

The Main Frame Questionnaire was developed by the ICA ROAP. It might not have responded fully and adequately to the needs and requirements of national Cooperative Movements/national consultants. The Consultants were encouraged to make necessary amendments, additions, alterations and improvements in the given questionnaire to obtain the best possible information from the field for inclusion in the National Situation Papers. A copy of the Main Frame Questionnaire is included in the Report. Some 2000 persons, cooperatives and other organisations at various levels, social workers, and government officials in the covered countries made use of this Main Frame Questionnaire. The National Consultants analysed the replies received by them and made use of in the preparation of their national situation papers. The National Consultants also adopted other methods to enrich the contents of their situation papers e.g., on-site visits, interviews, reference of available material etc.

An Overview paper based on the National Situation Papers was developed. This overview paper and the national papers were discussed and analyzed thoroughly at a Regional Workshop held in April 1992 at Jakarta, Indonesia. The regional workshop developed the following material:

- a. Extent of problem in the covered countries
- b. Involvement of cooperatives in these problems
- c. An analytical regional report
- d. A set of recommendations
- e. A set of national plans

The Regional Study was a participatory exercise having been undertaken by the ICAROAP with the collaboration of its member-organisations. A major part of the expenses incurred on this Study was covered from a grant made available to the ICAROAP by the Canadian Cooperative Association (CCA). Part of the expenses were covered by member-organisations in the concerned countries. The Indian Farmers Fertiliser Cooperative Limited (IFFCO-India) a member-organisation of the ICA, identified one of its scientists to work with the project to coordinate the Study and act as Regional Consultant. Similarly, the Japanese Consumers' Cooperative Union developed a national situation paper based on the Main Frame Questionnaire and made all the needed information available to the ICAROAP for inclusion in the Study report. Likewise the Japanese Study Committee on "Environment and Cooperatives" of the Organising Committee of the ICA Tokyo Congress produced a comprehensive paper on the subject for inclusive in the Study. The participation of the Japanese Cooperative Movement in the Study was spontaneous, voluntary and indeed most welcome.



II. State of Environment in Asia - An Overview

POPULATION PRESSURE

The Asia-Pacific Region has over half of the world's total population and almost three quarters of the world's agricultural population exists on less than one-third of the world's arable and permanently cropped area. It is estimated that world population in mid-1992 will be 5.48 billion. In 1998 it is expected to reach 6 billion. The annual addition will be about 97 million. Nearly all the growth in population will be in Africa, Asia and the Latin America.

The population in the Asia-Pacific Region is expected to have doubled from 1980 levels by the year 2000. If this population is to be fed, the rate at which food supplies grow should be greater than the rate at which population increases. Assessment of available land resources suggests that 75% of the extra food should come from higher yields. In turn, these yields will require major crop intensification programmes together with major increases in inputs.

The Region as a whole has reached or passed the safe limits for the horizontal expansion of agricultural production. As a result the fragile eco-systems of marginal and submarginal lands are being endangered through over-exploitation by man.

Faced with the twin problems of population pressure and land scarcity the Region's main response, however, has been to increase agricultural production by intensifying cultivation on a more or less fixed land resource base. This has been successful in keeping rates of growth in agricultural production ahead of population growth rates. The question now to be asked is whether growth in agriculture, fisheries and forestry development required to feed and support the ever-growing population can be maintained in a sustainable and environmentally sound manner?

As population increases the need to produce more food to feed more mouths gains urgency. If the satisfaction of land hunger leads to the destruction of forests and common lands, the need to increase production results in the application of more fertilisers, more pesticides and more water to the land for irrigated farming.

FOREST RESOURCES OF THE REGION

Forest resources of 16 countries in the Asia-Pacific Region extend over 445 million ha. The countries with more than 20 million ha. of closed tropical forest area in the Region are Indonesia, India, Papua New Guinea, Myanmar and Malaysia. The annual rate of deafforestation is around 1.815 million ha. or 5,000 ha. per day. The causes of deafforestation are shifting cultivation, encroachment into forest areas for agriculture, organized forms of settlement, and loss of forest area for mining, hydro-electric dams and urbanization. Reafforestation efforts in the past were negligible. In recent years "Social Forestry" or "Community Forestry" programmes are gaining ground. However, reafforestation efforts, which amount to only 10% of deafforestation, are inadequate and call for dynamic planning for sustained development of forest resources by developing countries of the Region.

Analysis of the rates of deafforestation by country shows that Indonesia leads all others with a mean annual deafforestation of over half a million ha; Thailand is the next with 333,000 ha. The range is between 100,000 and 250,000 ha for Malaysia, India, Laos, Philippines and Myanmar. The least affected countries in absolute terms are Bhutan (2,000 ha), Pakistan (7,000 ha) and Bangladesh (8,000 ha).

As a consequence of deafforestation and degradation of forest resources, the biological system is near the threshold of a collapse. Unsolved forestry problems in the Region continue to exist and grow. Evidence accumulated has shown that conservation, as well as rebuilding tree cover, is best achieved by people's participation on a decentralized self-help basis. Participation provides the motive force for cooperative action; it helps conserve the natural resources while increasing production.

FERTILISER USE

Fertiliser consumption in term of kilogram of nutrient per hectare of agricultural land is not very high in Asia in comparison to Europe. However, it is slightly higher in comparison to the world average consumption. Within Asia, Korea and Japan have maximum fertiliser consumption. In Japan where fertiliser nutrient consumption is near 400 kg/ha reports of water pollution due to excessive use of

fertilisers have been received. River water, which is also used as drinking water, has been affected. The consumption of nutrients in kilogram per hectare of arable land is significantly more in China and Indonesia compared to that of agricultural land.

Cooperatives, in the countries under the Study, are responsible for distribution of sizeable quantities of fertilisers. However, extension programme for farmers' education through cooperative system about the efficient use of fertilisers and integrated nutrient management is not in vogue. In India, where some programmes in this direction have been undertaken are, in fact, being carried out by the fertiliser manufacturers in the cooperative sectors. In most of the developing countries not only the fertiliser consumption per unit area is to be increased but its use efficiency has also to be increased to a great extent. Efficient fertiliser use is key to minimising pollution hazards.

Fertiliser Consumption per hectare of Agricultural Land 1989-90

Countries	N	P ₂ O ₅	K ₂ O	Total
China	45.4	12.7	3.1	61.2
India	40.9	16.9	6.4	64.1
Philippines	40.8	9.1	8.4	58.3
Japan	121.4	137.9	107.8	367.1
Indonesia	47.2	20.0	7.8	75.0
Thailand	19.8	9.3	6.2	35.3
Asia	31.8	11.3	3.9	47.0
World	16.5	7.8	5.6	30.0

PESTICIDE USE

In 1985, the Asia-Pacific Region accounted for 16% of the pesticide market. The average annual market growth in the Region has been estimated at 5 to 7%. Of the total estimated consumption of pesticides, 75.8% are in the form of insecticides, 13.4% herbicides and 8.4% fungicides. Insecticides are mainly used for rice, cotton, and vegetable; herbicides for rubber, oil palm, tea, coffee and cacao plantations; and fungicides for vegetables, bananas and tobacco.

Most of the active ingredients are imported from the basic manufacturers in Europe, USA and Japan, although India, Indonesia, Republic of Korea and China are now starting to produce for exports. Most of the countries in the Region have formulation and repacking plants.

Developing countries in this Region are projected to double their expenditures on pesticides by 1995, assuming current use rates. Most of this increase is expected to occur in agriculture. It is also projected that these countries will continue to increase both the absolute quantities of pesticides they use and their proportion of the total global sales.

A number of factors contribute to excessive use and misuse of pesticides by agricultural and health workers in this Region. Some of these relate to economic conditions and related government policies. Governmental pricing and input subsidies, which are intended to stimulate agricultural production, lower the costs of pesticides and other agricultural inputs, thus providing incentives to use more. In the health sector, subsidies are used because of the importance of lowering the incidence of illness caused by vector-borne diseases. Again such subsidies create incentives to use more pesticides. In many cases the subsidies are channelised through cooperatives. The cooperatives are also involved in distributing agro-inputs including pesticides directly and also through distribution of credit.

Many farmers in this part of the world use substantial quantities of pesticides because they find pesticides to be convenient means of pest control and because they lack information on alternatives. Climate is another factor. Tropical climates permit more crop cycles per year than temperate zones, so that over the course of a year greater quantities of pesticides are commonly used. Workers frequently reject protective clothing as too uncomfortable to use in tropical climates.

Lack of information on hazards is a common contributing factor to pesticide misuse. User illiteracy and warning labels in languages other than that of the users, as is the case in countries with no regulations, impede the communication of appropriate information. Additionally, farmers frequently lack access to technical assistance. Further, lack of proper training on the safe handling and efficient application of pesticides is another important contributing factor to pesticide misuse. In countries where pesticide use is not controlled, agricultural workers often have access and are exposed to highly toxic products which require special protective equipment. Farmers are often unaware of the importance of observing practices that may reduce their exposure to pesticides.

The problems that result from misuse of pesticides are numerous, most important of which are: human health effects, environmental damage, and pest resistance.

In this Region, there has recently been great awareness on the need to control the residues on food, especially among agricultural commodities that are exported.

A large number of studies have been conducted on pesticide residues in vegetables. In general, conclusions are that the residue levels are below the recommended Maximum Residual Limit (MRL) but that there are cases when these are exceeded and affect the countries exports. Since organochlorines (DDT, BHC, endrin, aldrin) have been used extensively in this Region for the past 10 years, even if banned, residues persist. A number of studies have been conducted to measure the extent of the problem and the impact on soil, water and the fish. In Thailand, for example, organochlorine residue studies from 1976-1985 show that about 50.5% of the water analyzed from canals, rivers, and reservoirs still contain residues; 90.6% of the fish shellfish; and 96.6% of the soil from agricultural fields.

It is not enough to highlight the problem of pesticide misuse. Awareness of the situation is only the first step. The bigger, more important step is to find solutions to the problem. It was in this light that FAO developed the International Code of Conduct on the Distribution and Use of Pesticides. It is the only international initiative which addresses most to the aspects of the pesticide problem and seeks to provide acceptable standards of conduct for governments, industry and the general public on the distribution and use of pesticides. Indonesia has successfully implemented Integrated Pest Management (IPM) programme for rice cultivation in which reduction in pesticide use was achieved alongwith the increased crop yield.

GREEN COVER

Green cover does not mean planting trees only. This activity also includes protecting the already existing ones and planting trees which could, over a period of time, become a source of income for the growers. In India, some instances of positive initiatives have been noticed. Trees have been planted on salt-affected soil on an experimental basis by the IFFCO. The effort is commendable. The benefits seem to be manifold: these yield timber, fuel and fodder, there is change in soil quality which supports the cultivation of cash crops, the once-unskilled villagers have acquired enviable expertise in afforestation and, perhaps not important of all, the greening of the soil has stimulated them into attempting yet another venture like aquaculture to supplement their income. The IFFCO has also undertaken several social forestry programmes with success in some parts of the country.

The Tree Growers' Cooperatives, initiated by the National Dairy Development Board are also successful. They not only provide employment to the people but also ensure for them a variety of opportunities in the future to supplement their incomes. These cooperatives, over a period of time, would generate a variety of activities e.g., firewood, forest products, fruits, fodder for the animals, water resources, timber etc.

The National Wasteland Development Board of India also provides incentive to cooperatives to grow trees. Cooperative industrial units are also developing green-belts, treatment of waste water, efficient use of energy, sanitation etc.

Cooperative institutions in rural Indonesia are also involved in planting "sengon" trees under a centrally-sponsored programme called "sengonisation programme". In the Philippines also cooperative institution in rural areas are engaged in tree planting activities.

In Thailand under the Conservation of Natural Resources and Environment Programme, cooperatives are actively involved in: reforestation in North-East land settlement cooperatives; planting of fruit trees, one-million tree planting campaign in connection with King's Mother birthday celebrations; Teak growing promotion activities. In the Chiangmai and Chiangrai provinces cooperatives are also involved in "no-trees-no-water-and-no-electricity" campaign.

In the Philippines, the NATCCO has recommended to its constituents that persons who have planted some trees and who support the tree-plantation activities should be given a positive consideration while admitting them to the membership of a cooperative society. The NATCCO also assists in the formation of cooperatives among forest-dwellers and tree-planters.

With these isolated yet encouraging experiments it is hard to believe that the loss of forest resources could be recovered. More intensive activities need to be undertaken where cooperatives can play significant roles.

CONSERVATION OF ENERGY

Keeping in view the current consumption level of energy, it is seen not too far when the fossil fuels would get exhausted. There is need to develop and exploit other sources of energy. In some of the cooperative institutions solar energy has been used for lighting and heating, but that still is on an experimental basis and serves more as a show piece. There are no visible signs where bio-gas, wind energy or solar energy has been put to a real and wider use.

In the cooperative sector not much has been done to conserve energy or to utilise or exploit other sources of energy although there are large number of industrial units and housing complexes within the cooperative sector. Some instances of successful application of alternative sources of energy have been noticed within the Indian Cooperative Movement e.g., gas from bio-gas plant used as a fuel for the distillery of a sugar cooperative; dairy cooperatives are promoting solar cookers, wind mills, solar

panels and bio-gas for a variety of uses; recycling of empty plastic pouches by dairy cooperatives, etc. A village cooperative in Java (Indonesia) introduced solar energy to 11 villages. There are 500 solar generators producing 130 kw each per day without major maintenance or repairs. Such experiments need to be replicated.

In Japan intensive research is being carried out to produce battery-operated delivery vans with a view to conserve fuel and to eliminated pollution. The project is being carried out by the Japanese Consumers' Cooperative Movement in collaboration with the leading motor vehicle producing companies.

In the process of recycling of waste material the underlying concept is to save energy, save further exploitation of natural resources, control pollution and thereby eliminating waste material clogging the streams and polluting the environment. In China, for instance, the efforts of Shanghai Resource Recovery Utilisation Company (SRRUC) are noteworthy. This company, through its facilities, handle recycling of a variety of waste material e.g., ferrous and non-ferrous metals, glass, waster paper, iron and steel shavings and filings, rubber tyres, old shoes, rubber pipes, PVC, a variety of plastics, parts of computers, radios, TVs, photographic material, ropes, cotton ends, wires, cans etc. By these efforts, the SRRUC is generating new and useable resources from waste and scrap thus consuming energy and natural resources.

Except for Japan, cooperatives have not provided any information on the steps taken by them to conserve energy through: use of air-conditioning systems, vehicle maintenance, disposal of used oils and lubricants, recycling of waste paper, health-related environment programmes, studying the life-style of people, reducing use of plastics for food wrapping and shopping bags etc.

The Japanese Consumers' Coops are now restricting supply of plastic shopping bags. The Coop Stores encourage members and customers to carry their own shopping bags. The shopping bags are, however, being supplied by the Coop Stores, but at a price. The proceeds of these sales are used for humanitarian activities e.g., donations to the Unicef and/or supporting technical assistance programmes in developing countries.

Environment-friendly products and environment protection activities are very closely integrated in the activities of the consumers cooperative movement in Japan especially by emphasising on recycling of waste materials e.g., cans, glass, paper, carton etc. The coops in Japan are now using a special seal or a mark on their products that these are environment-friendly. Such initiatives need to be publicised and necessary expertise to be made available to other Movements.

RURAL DEVELOPMENT AND ENVIRONMENT

Due to multi-agency involvement in rural development without attempting a proper coordination, the development inputs do not adequately include environment concerns and activities. Agencies involved, for instance, in supply of drinking water in rural areas, will come to the village, lay down pipes and fix water taps without taking care of the steps that need be taken to handle the waste water and ultimately creating sanitation problems and health hazards in the village. Cooperative institutions could, therefore, be used by development agencies to undertake rural (rather village) development programmes on an integrated basis keeping in mind the environment concerns.

Cooperative institutions which are engaged in processing, industrial and other manufacturing activities should voluntarily go one step further to undertake environment-related activities than the ones which are mandatory according to the law. This initiative is lacking and cooperatives tend to "shirk" their responsibilities, perhaps due to ignorance, over-expenditure or indifference. There is need to create awareness among the cooperative members and the general public that all environment-friendly activities are of use to mankind.

Although cooperative education and training structures exist in the covered countries, no special efforts have been made to include environment-related topics in the curricula intended for ordinary cooperative members, cooperative employees and cooperative leaders. In the context of Japan, however, both consumer and agricultural sectors are actively pursuing environmental education for the members, students and general public. Activities like acid rain tests, local environment and pollution tests are being taught to cooperative employees and students. Such initiatives are necessary and need to be undertaken by other movements in the Region.

"GREEN CAMPAIGN" OF SINGAPORE

The environment-friendly activities carried out by the Singapore Cooperative Movement are quite impressive and due notice of these successful initiatives deserve to be taken. In an effort to project the Island Republic, as a country of efficiency and technological advancement, the authorities and the citizens have, over a period of time, enacted a variety of laws and imposed upon themselves strict discipline on environment and health related matters. Enforcement of legislations are vigorously pursued, backed up by truly deterrent penalties. Impact of campaigns and legislations are being closely monitored. Rapid changes, such as demographic changes,

changes in land-use parameters, rising affluence and aspirations necessitate new policy goals to be devised to meet these changes.

Highlights in Environment Protection

a) Singapore banned the manufacture and import of CFC in February 1991. This is ahead of the schedule set by the Montreal Protocol which requires countries to reduce the use of ozone-depleting CFC by the year 2000; b) Lead-free petrol was introduced for use by motorists in January 1991 to protect the environment as lead emission from car exhausts pollutes the atmosphere; c) The mushrooming of environment groups and their growing roles testify to the increasing "green" consciousness among Singaporeans. One example is a voluntary 19-member National Council of the Environment which aims to encourage schools, business and individuals to think and act green; d) The government, business and community organisations joined force to develop 'Recycling Cabinets' for placing in housing estates, hotels, petrol kiosks to help the recycling of paper, plastic and batteries; e) The government had accepted most of the Malayan Nature Society master plan marking 27 areas of conservation to help preserve wildlife and fauna in these areas.

Background Facts on NTUC Fairprice Cooperative

a) NTUC Fairprice Cooperative is a multi-purpose cooperative registered under the Cooperative Societies Act. The Cooperative aims to stabilise the cost of living in Singapore through its retailing and trading operations; b) The share capital of NTUC Fairprice is contributed mainly by trade unions and union members; c) It is the largest supermarket group in Singapore, operating 41 supermarkets/department stores, 2 coffee shops, a printing workshop and a trading division; d) For the year ended 31 March 1992, the Cooperative had a staff strength of 2,000 and an annual sales turnover of S\$462 million.

Active Support of "Green Campaign"

NTUC Fairprice actively supports the "green campaign" through its various programmes. a) The Cooperative completed the withdrawal of products containing CFC from all its supermarkets in April 1990, ten months ahead of the government's ban of CFC products in February 1991; b) Fairprice is the first supermarket group to launch the use of photodegradable plastic carrier bags for customers in June 1990; since then, these plastic bags are being used; c) As an on-going project, "How to be green" messages are being printed on the plastic bags to remind shoppers to be kind to the environment; d) Fairprice is also the first supermarket group that introduced

the use of paper-bags made of 100% recycled paper for customers to pack dry and not so heavy purchases; e) To promote the awareness of green products, Fairprice conducts regular promotion of environment-friendly products through advertised offers and other promotions.

Public Education and Awareness

a) To inculcate in children the habit of keeping our environment clean, on-the-spot colouring contests with "green environment" themes were organised regularly outside Fairprice supermarkets; b) To spread green messages in a fun way, the Cooperative organised pop concerts compared by local radio station deejays and performed by popular artistes; c) Fairprice was also a participant in "Care for the Environment" exhibitions organised by the Ministry of the Environment; d) Attractive and colourful "green" publicity materials were developed for distribution to customers to create awareness and interest, such as pocket-calendars and book-mark cum calendars printed on recycled paper.

Promoting Recycling

a) Through an annual on-going community service - the used textbooks project, Fairprice collected used textbooks from the public for free distribution to needy students. Since its inception in 1983, 470,000 used textbooks were recycled, benefitting 45,000 students; b) The Cooperative was presented the PRISM (Public Relations in the Service of Mankind) Award 1992 by the Public Relations Institute of Singapore for this outstanding contribution to the community; c) Singapore as a nation and NTUC Fairprice Cooperative will continue to work together with other nations and cooperatives towards making "the Earth a secure and hospitable home for present and future generation".

SUMMING UP

Although there are positive steps taken by various Cooperative Organisations to control pollution and to improve environmental situation, there is on the whole a clear signal that cooperative leaders and members are not yet aware of the dangers of degradation of environment. Institutions are not "prepared" to take another step forward than the ones that are stipulated by law. There is a strong need to intensify discussions on environment within the Cooperative Movement in Asia. The pitch has to be high and clear !

III. Study Findings and Recommendations

The study on “Environment and Sustainable Cooperative Development” in the five nations of the region India, Indonesia, Japan, Philippines and Thailand reviewed the current status of environment management in cooperatives. Background information on demography, geography, land use, cooperatives and, rules and regulation for the environmental protection were also collected. Environmental issues faced by cooperatives and causes of imbalances were identified. The cooperatives have already taken certain steps to protect the environment. These measures were also highlighted.

STUDY FINDINGS

Lack of awareness about environmental protection methods and environmentally friendly practices and products, deforestation, land degradation, disposal of waste, air and water pollution were, by and large, the common environmental issues confronted by the cooperatives in all the nations. Increasing pressure of population on country’s available resources was also common to all the countries under the regional Study.

Depleting forest was caused by several reasons in different nations. It was mainly for recreational purposes in Japan, for fuel wood in India, for timber and housing area in the Philippines, for agricultural purposes in Thailand and due to unsustainable forest management and over-grazing in Indonesia. Unsustainable use of marine and coastal resources was another environmental issue faced by the cooperatives of all the nations. Much of the water pollutions was caused by excessive use or misuse of fertilisers and pesticides in Japan, Thailand, Indonesia, and Philippines. Waste disposal and industrial effulents were other major water pollutants in all the countries.

Major reasons of air pollution was reported to be due to emissions of gases from industries and exhaust from automobiles. Smoke from household was also considered an air pollutant particularly in India. Gasoline having lead has resulted in high lead content in gasses and other vegetations along the road side, which was ultimately grazed by the animals and caused toxicity problems.

Packaging material of consumer's goods was also identified as major environmental threat as disposal of these material has added to the garbage heaps in urban areas and also many of them are not biogradable and result in problem of solid disposal in the open water drains and rivers.

Agricultural, consumer and industrial cooperatives were found to have immediate direct role in environmental protection. Various steps have been initiated by the cooperatives in these countries to minimise the pollution hazards and also to create better environment. Japanese Cooperative Movement has played significant role in this direction. Both, agricultural and consumer cooperatives have taken positive steps to promote environment friendly practices and products. Japanese Consumers' Cooperative Union (JCCU) during 1990 has undertaken programmes related to following issues for conserving the environment:

1. Recycling of used milk cartons.
2. Recycling of waste.
3. The water environment.
4. Monitoring of air pollution.
5. Forest, golf courses and pesticides.
6. Meetings, campaigns and inside operation.

JCCU's Ecomark Programme has identified the products which are friendly to water, air, forest, nature saving resources and energy, and can be regulated. These products include soaps, toothpaste, strainer bags, non-bleached papers, non-gas sprays, cellulose sponge, refill packaging products, diaper made of fabric, canned beverage with a stay-on-tab.

Consumer cooperatives in Japan formulated a policy on environmental protection activities with member participation. In fiscal year 1991 every society implemente a wide range of environmental protection activities including the members activities such as reviewing life style, recycling and environmental monitoring, the development and promotion of environmentally-friendly products, environmental care in business operations of stores etc. and net-working for environment protection.

A campaign of "Environmental Conservation Agriculture" 3H (Healthy, High-tech and High quality) agriculture was promoted with an emphasis on organic farming and optimisation of fertilisers and pesticides use. The cooperative associations are also carrying on a production movement based on the policy for supplying safe and good quality food and agricultural products.

Tree planting and afforestation has been taken up intensively by cooperatives in India, Indonesia, Japan, Philippines and Thailand, However, the extent of forest loss is such that this activity needs further expansion and strengthening.

Industrial cooperatives which are considered to be major polluters, through emission of gases and effluents, are, by and large, observing pollution control norms fixed by the respective governments. In India, in addition to observing these norms of control on direct pollutants, creation of greenbelt around the industrial units is also made mandatory and all the cooperatives are trying to maintain the green belt.

Dairy cooperatives, both in India and Indonesia, have taken up environmentally friendly activities at the places of rearing animals and also at the milk processing plants. General healthiness of environment and animals through cattleshed management and veterinary activities have been taken up. At the processing plants effluent treatment and recycling of polypacks is being carried out.

Indonesian Handicraft Cooperatives which promote traditional articles made of hides and skins are entering an area where some of the animals important for balancing the ecosystem are endangered. Cooperatives have taken up the activity purely because of commercial reasons, as these articles are purchased by the tourists. Alternative material and crafts are to be provided to the members of these cooperatives.

The Study has clearly brought out that lack of awareness about environmental issues in the cooperative sectors is a major constraint in taking up environmental protection programmes. National Cooperative Unions (NCUI) in India, Dekopin in Indonesia, JCCU in Japan, CUP and NATCCO in Philippines and Cooperative League of Thailand can take lead in launching general awareness campaigns in active collaboration with the government; NGO and cooperative federations. All the nations covered under the Study felt the immediate need of preparing some education and training material for general environmental awareness. A comprehensive study to identify the problems in individual cooperative sectors can also be undertaken for identifying and formulating specific programmes for each sector.

Agricultural cooperatives, including agriculture credit, dairy, forestry, fisheries,

land settlement cooperatives; consumers cooperative and industrial cooperatives are the ones which need awareness programme at once. Optimum and efficient use of fertilisers and pesticides, waste management and land degradation are the major common environmental issues which the cooperatives have to manage.

It was amply clear that cooperative organisations and cooperative members need a strong motivation to undertake environment awareness activities on their own since their own development is at stake. The national consultants emphasised that, to begin with, some external inputs may be necessary to provide encouragement and motivation to the cooperative organisations. Ultimately, for the cooperative development to be sustainable, the initiative and the needed resources should come from within the cooperative institutions themselves. The ICA ROAP may strive to bring this point home to its constituents in the Region.

GENERAL RECOMMENDATIONS

Following are the general recommendations which have emerged out of the ICA ROAP Study on Environment and Sustainable Cooperative Development :

- The developmental planning of nations should relate GNP target to quality of life of the people in general and select business investment which are conducive to sustainable development;
- Cooperative Movement should include the subject of environmental protection in their business plans;
- Cooperative organisations should take note of the findings of this Study and initiate appropriate follow-up action;
- Cooperative Movement should also respond to community's need for environmental protection;
- Industry, in general, should take responsibility for environmental protection and encourage waste minimisation and recycling. Environmental management in industry should address itself to "clean technology" rather than "clearing technology."

STRATEGY TO BOOST COOPERATIVES' INVOLVEMENT IN ENVIRONMENT PROTECTION

Keeping in view the present state of environment in the Region, and taking into consideration the efforts made by cooperatives in overcoming the environment-related problems, and upon analysing the various development efforts that are

needed to be made by cooperative organisations and the concerned government department, the Study suggests that the following points are relevant to develop a suitable strategy to boost cooperatives' involvement in environment protection:

- Great emphasis is needed on creation of awareness among cooperative populace on all issues relating to environment protection;
- Great need is felt to create and develop suitable and effective awareness programmes, materials and publicity campaigns;
- Environment-related topics to be included in cooperative education and training programmes;
- Cooperative federations to carry out awareness programmes for their affiliates and their ultimate basic members;
- Cooperatives engaged in production and distribution sectors to ensure the safety and quality of goods handled by them;
- Cooperatives to remember "Energy saved is energy generated" and "There is great wealth buried under the garbage" thereby providing momentum to energy conservation and waste resource recycling;
- Cooperatives Movements having experience and resources in the sectors of environment protection to come forward to help, support and collaborate with sister-movements through expertise, exchange of information and financial resources;
- Cooperative Movements to set up an international environment unit within the ICA - an international cooperative network - to channel technical assistance, information and further interaction with member-movements;
- Cooperative Movements to set up an international environment fund and contribute to it liberally. The fund may support clearing house services, training, education, research and development activities;
- Cooperatives to collaborate with respective national governments in the sectors of environment and sustainable cooperative development.

SUGGESTED REGIONAL PLAN OF ACTION

Based on the information compiled in the Study, it was viewed that cooperative institutions and the cooperative members are generally unaware of all the ill-effects of pollution. Much of the environment degradation is the result of lack of awareness. Members and cooperative institution considered the environment matters to be the responsibilities of the State. However, some of the cooperative institutions in the covered countries demonstrated beyond doubt that cooperative institutions are aware of the consequences of imbalance in eco-system and that they

have taken remedial steps to ensure that the products they produce and market are pollution-free and environment-friendly. It was noted that some of the general environment problems faced by cooperatives in the covered countries are: fertilisers and pesticides over-use or misuse; animal waste disposal; land degradation; and excessive urbanisation at the cost of agricultural lands and green cover.

The Study firmly concluded that cooperative organisations in the Region should undertake, on a priority basis, intensive awareness campaigns among the cooperative populace “to continue the battle to protect the environment, by supporting their societies’ environmental campaigns and sustainable development programmes, lobbying local government to adopt environment-friendly policies, boycotting products which are harmful to the environment, recycling reusable items and informing themselves and educating their children about nutrition and the environment”. It was impressed upon the International Cooperative Alliance to interact with its member-organisations intensively and as frequently as possible. If the world’s environment is to be truly protected we need a massive programme of wealth transfer from rich to the poor, the establishment of a more equitable global economic equilibrium and the most strenuous efforts to ensure that the world’s population does not exceed the numbers that it can healthily contain.

ROLE OF THE ICA ROAP

As a part of the Study, a Regional Plan of Action to be followed-up by the ICA was developed. Given below are the points made out by the Study on this subject:

- 01 to help its member-organisations and the respective governments in setting up policies and programmes aimed at enhancing awareness on environment-related problems among the cooperative membership in the Region. This is to be achieved by influencing the decision-making process among the cooperative organisations and through them the respective government agencies and departments.
- 02 to offer cooperation, collaboration and technical support to ICA member-organisations in carrying out the needed studies and workshops which are able to crystalize national action plans, and identify feasible projects for implementation in the sector of environment.
- 03 to study and analyse the identified projects and float them for funding among the interested donor agencies and provide the needed coordination and collaborative support.
- 04 to give publicity to the practice of “eco-labelling” the products which has been introduced by some of the cooperative organisations. The ICA may assist the cooperative organisations in establishing norms which could qualify a product to receive an eco-mark or eco-labelling.

- 05 to provide opportunities and facilities to cooperative institutions in the Region to vigorously pursue the programmes of recycling of waste resources and help in the transfer of the needed expertise and technology.
- 06 in collaboration with its member-organisations set up an Environment-related Clearing House and Experience sharing service and procure, produce and issue success stories, news and other informatory material among cooperatives and governments in the Region for a wider circulation.
- 07 to initiate steps to set up an Environment Unit/Environment Fund to support environment-related education, training and research activities.
- 08 Environment-related matters be suitably included in all technical projects of the ICA ROAP.
- 09 to pursue closely the follow-up of the Study and encourage its member-organisation to conduct follow-up activities and development of national plans of action.
- 10 to support and participate in the activities of international and national agencies which deal with environment and which have close relationship with cooperatives.
- 11 to collaborate actively with the ICA Congress Organising Committee in the formulation of the ICA Declaration on Environment proposed to be issued in Tokyo by the 30th Congress of the International Cooperative Alliance. The ICA ROAP to give widest possible publicity to the ICA Declaration and formulate the needed plans and programmes to implement the Declaration.
- 12 In all the activities of the ICA ROAP it should be ensured that the development of cooperative institutions in the Region is sustainable. For this purpose a multi-facet development approach is needed. Environment-related issues are closely hinged on the population activities, judicious land use, environment-friendly farm practices, safe and healthy consumer articles and an objective educational and training programmes. The ICA should aim at helping the cooperative organisations to develop an integrated programme of development, taking into consideration the issues relating to environment protection.
- 13 should strongly recommend to its member-organisations to include environment-related topics in their education, training and extension programmes so that a well-informed and well-motivated cadre of environmentalists is quickly created.
- 14 to request all its member-organisations to take up environment-related topics at their Board meetings in order to create and generate interest among their affiliates. The member-organisations may also be requested to establish Environment Units within their structures to monitor programmes in this sector.

- 15 to encourage its member-organisations to coordinate their programmes with the respective departments of their respective national government so that well co-ordinated programmes are initiated and carried out.

FOLLOW-UP ACTIVITIES AT THE NATIONAL LEVEL

The Study identified assignments for the cooperative organisations, government agencies and other agencies involved in the process of cooperative development. It has been highlighted that environment awareness is not one factor, rather it is an integral part of the entire process of cooperative development. The following assignments were laid down by the Study:

What Needs to be Done !

First and foremost is the creation of a national environment protection policy for the cooperative sector. To do this it is absolutely necessary that a national consultation on this topic takes place. This is a logical sequence of identifying the present status, analysing the present status, identifying problems areas, and then getting together to develop strategies to overcome problems and then develop plans of action for local, regional and national implementation. This is the most important task for the Cooperative Movement. It is the need of the hour and an absolute must.

(a) Cooperative Movements Level Assignments

- All national level cooperative organisations should review their member education, employees training and development programmes carefully keeping the environment factor in view and from the standpoint of a sustainable cooperative development. If they own processing units, necessary steps should be taken to control pollution and encourage greenery projects.
- Intensive publicity and propaganda campaign should be launched to generate awareness among the constituents.
- In large office complexes owned by cooperatives special campaigns should be launched to keep them clean, fresh and environment-friendly e. g., cross ventilation, natural lighting, toilets, office rooms, disposal of garbage, cooking areas, proper use of electricity, use of recycled paper, avoiding unnecessary paper works, smoke-free environment, store rooms godowns, etc.
- Organisations using a large number of vehicles and operating diesel/petrol driven machines should see to it that the engines are properly tuned, well-oiled and properly maintained that they do not emit gases, heat and unwanted noise. Also ensure that the oils and lubricants are not spilled on the ground and/or disposed off in pits outside the town.

- All cooperatives having large compounds or open spaces or waste land should launch a tree planting campaign.
- Cooperatives dealing in chemical fertilizers and farm chemicals should ensure that they are properly stored, transported, checked and maintained. Proper education on their handling and application is imparted to the dealers and end-users. Disposal of empties is also equally important. This responsibility is also that of the distributor of such materials.
- All cooperatives dealing with community should support the community life by providing street-lighting, drinking water facilities, normal public health checks and ensure that the waste water from the community does not create sanitation problems. Streets may have to be lined. Cooperatives should participate together with the local government in community development activities.
- Experiments carried out by progressive organisations in environment protection should be given widest possible publicity so that other cooperatives such as dairying, sugar, textiles, leathers etc. also get encouraged and develop suitable environment-friendly products and programmes for the community.
- Greater encouragement should be given to women and youth so that they involve themselves in environment-related activities.
- All national level cooperative organisations should create within their organisational structures an Environment Information Cell whose responsibility should be to collect information from their constituents in this sector. These cells should be the promoters and extension agencies in preserving environment. A similar unit should be created in all the Ministries responsible for cooperative development.

(b) Assignments for Training/Education Institutions

- All organisations concerned with cooperatives education, training and extension should enrich their programmes and courses by including subjects relating to environment protection and ecology. It should be clearly understood that environment awareness is not an isolated topic, it is indeed a part of the whole subject.
- All such organisations should generate extension materials e. g., photographs, posters, booklets, video films, etc. to be used as information tools at various levels and in various languages.

- At the national level cooperative management institutes, a special programme for providing orientation in this sector for the senior level government and cooperative officials should be developed and vigorously pursued without much delay.

(c) Government Responsibilities

Although the governments are already engaged in environment affairs at various levels, there is a need for the Cooperative Ministries and Departments to support, monitor and accelerate programmes relating to environment protection.

- The Central Ministry of Agricultural and Cooperation convenes a national level conference of cooperative ministers, senior officials, cooperative leaders and other prominent leaders and environmentalists to discuss and formulate a national policy on the subject with special reference to cooperatives. The government could provide encouragement and motivation for the cooperatives to participate in such a programme.
- If necessary, legal support be provided to cooperatives engaged in environment-related activities.
- The government could encourage, promote and support some of the pilots projects in this sectors and, if found successful, be replicated for other parts of the country.

Roles Cooperatives Can Play

Cooperative institutions as peoples' organisations can play a significant role in creating awareness among the people. These could be by:

- Creating awareness among cooperatives and cooperative members through extension programmes and publicity campaigns. Environment protection is an integral part of the entire process of the cooperative development.
- Developing educational and training programmes for board members and staff members.
- Giving publicity to environment-related successful measures taken by cooperatives.
- Collaborating with cooperatives abroad in exchanging information, techniques and expertise.
- Creating awareness among the people on the consequences of increase in population. Special programmes on population control can be undertaken

by cooperatives in collaboration with government concerned agencies.

- Creating awareness among the people on the consequences of cutting down trees indiscriminately.
- Creating awareness among the people on the consequences of flow of waste water in village streets.
- Creating awareness among the people on indiscriminate mining and digging up soil for brick-kilns etc.
- Educating farmers on the use and handling of chemical fertilizers, insecticides and pesticides e. g., DDT.
- Educating people on the importance of washing vegetables and fruits before consuming them.
- Informing people on the use of alternative sources of energy for cooking, heating and lighting. Included also is the increasing use of bio-gas for domestic use.
- Encouraging people to develop social forestry programmes.
- Encouraging people to participate in community development programmes e. g., rural sanitation, cleaning of school premises, cleaning of village streets, repairing of leaking water taps, discussions with the nearby factories or mills, developing modest rural health programmes, better management and re-greening of wasteland etc.

The main emphasis of cooperative extension activities should really focus on: population control, stopping the rural youth from moving away from the rural areas to the cities (perhaps due to the lack of employment opportunities in the villages, and also perhaps due to the lack of vocational training opportunities in the villages), soil erosion, tree planting, education of members, and making the cooperative as an economic centre of the village.

While national awareness planning and action plan is necessary, a real work could be done at the basic level. Cooperative institutions can interact strongly with the rural local self-government agencies in order to develop an integrated environment development strategy. This would involve awareness, extension, training and development activities. A strong well-informed and properly trained cadre of environment-conscious "missionary" workers has to be developed who could provide, on a regular basis, education and information on various aspects e. g. rural/general sanitation, farm guidance, hygiene warehousing and handling of products, afforestation, water testing, systematic handling of chemicals and fertilizers, disposal of garbage, recycling of waste material, setting up of a bio-gas plant, family welfare and child care etc. etc. The national and provincial cooperative (business) organisa-

tions can formulate strategies, develop and provide back-up services e. g., curricula, trainers' training and extension of field materials, training packages, handbooks, and also identify, secure and provide proper funding for implementation of programmes. Vocational training facilities for rural youth should also be created e. g., repairing of household items, cycles, motor cycles, electrical items, welding, carpentry etc.

Simple, attractive and well-researched material may also be produced by concerned agencies and widely distributed. Some of the topics could be:

- Environmental protection and Dairy Cooperatives;
- Environmental protection and Industrial Cooperatives;
- Environmental protection and Leather Cooperatives;
- Environmental protection and Sugar Cooperatives;
- Environmental protection and Textile Cooperatives;
- Environmental protection and Fertiliser Cooperatives;
- Environmental protection and Warehousing;
- Environment and Tree Growers' Cooperatives;
- Environment and Transport Cooperatives;
- Use of Solar/Bio-gas as Energy; and
- Environment and You;

FOLLOW-UP GUIDELINES

It is suggested that national organisations in the Region carry out intensive follow-up activities. These can be in the form of a national workshop or a national situation study. The Study suggested the following guidelines:

- 01 Constitution of a national organising group consisting of representatives of government, national level cooperative federations and selected large-size production, processing and consumer cooperative organisations, including agencies responsible for cooperative education, training and extension programmes.
- 02 Define objectives and outline activities and methodology to achieve the set objectives.
- 03 Setting up a timetable for holding a national follow-up study or workshop to achieve the set objectives.
- 04 Appoint a coordinator and assign responsibilities and budget etc.
- 05 Identify target group, participants and invite them formally to participate in the follow-up activity. Identify also if any external collaboration/assistance is needed.
- 06 Invite technical situation papers from selected sectors who can contribute their experience.

07 Statement of policies and programmes. Suggest if any improvements needed.

08 Suggested contents of the situation papers:

- General information on the sector
- Problem areas faced by the sector
- Causes of problem areas
- Steps already taken/proposed to be undertaken to solve problems
- Detailed information on action initiated
- Problems encountered in solving problems
- Suggested solutions/Action Plan
- Specify assistance/collaboration needed
- Identification of feasible projects
- General recommendations

09 Develop a national plan of action and identify projects.

10 Prepare and issue national follow-up report to respective agencies for implementation.



IV. The Jakarta Workshop

INAUGURAL SESSION

Before finalizing the regional documentation it was considered appropriate that all the National Consultants get together to critically examine their findings and enrich the regional material. It was in this context that a regional workshop on "Environment and Sustainable Cooperative Development" was organised by the ICA ROAP in collaboration with the National Cooperative Council of Indonesia and the Department of Cooperatives, April 13-20, 1992 at Jakarta, Indonesia. The workshop was inaugurated by Hon'ble Bustanil Arifin SH, Minister of Cooperatives of Indonesia. The President of the Dekopin, Prof. Sri Edi Swasono, also addressed the workshop. A keynote address to the workshop was delivered by Hon'ble Prof. Dr. Emil Salim, Minister for Environment and Population Affairs, Government of Indonesia.

In his keynote address, Minister Salim made the following points:

Imbalance of present-day eco-system is attributed to lop-sided economic and industrial development pattern. The developing nations also tend to follow the same methods and means of development as was done by the developed countries during the period 1900-1990. The development had resulted in the following:

- Earth warming up
- Rise in sea level
- Depletion of ozone layer
- Acid rains
- Climatic changes.

In case the new nations also keep on following the traditional methods of devel-

opment the situation will aggravate further. This, however, does not mean that development should not take place. The development should take place since job opportunities for many have to be created and the economic system has to be strengthened to produce services for the people and industry. The development process should take into consideration two principal factors e.g., people and the environment. The development should be with environmental considerations. The development should be:

- a. In a sustained manner ,
- b. On the principle of equity,
- c. Representing the aspirations of the people,
- d. Enlisting international cooperation and collaboration, and
- e. Development with environmental considerations.

Deterioration of climate hits the poor most. Any increase in population brings pressure on all aspects of life and services. Services are provided depending on the capacity and resources available. The key to a sustained development is the family welfare and the size of the family. The following are the factors of sustainable development:

- Self-reliance
- Bottom-up approach
- Multi-facet approach
- Decentralization.

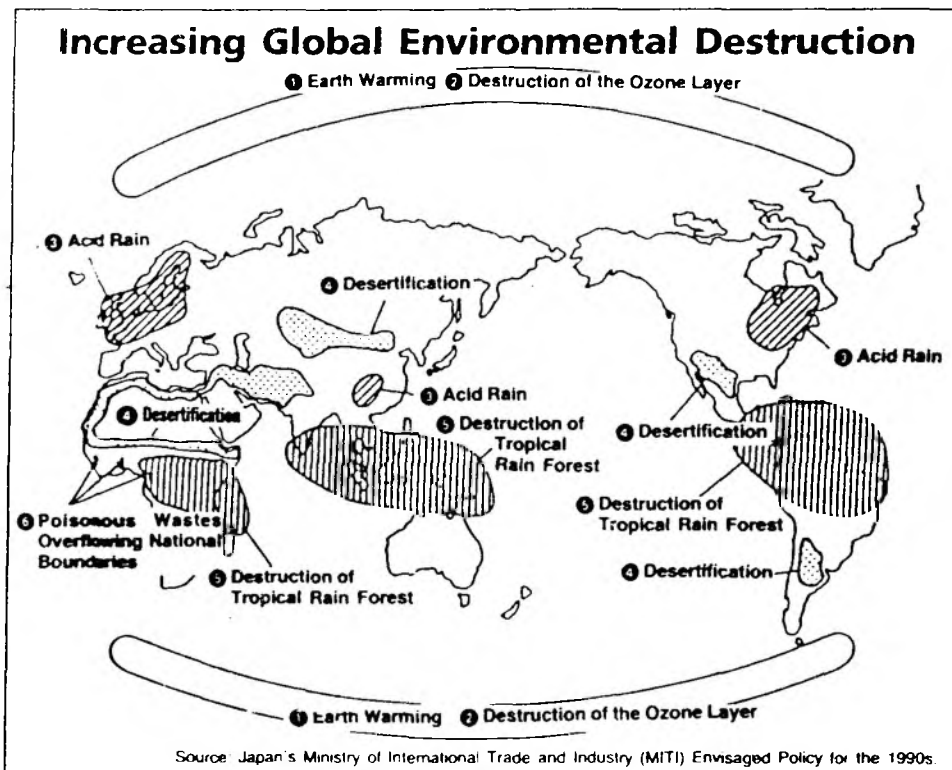
The Principles of Cooperation need to integrate the concept of sustainability. In the entire process of development - economic or industrial - it is the man that matters and the freedom with which he operates. His initiative has to be made use of.

Looking around the global environmental situation, we hear often that pollution levels have already crossed the threshold levels and all should work to keep that level within a reasonable limit so that humanity could breath and live in healthy surroundings. We have already reached the threshold level and it should not go above that level. This level has to be stabilized and gradually brought down by the application of remedial means, methods and techniques. Local innovations have to be made. Use of known technologies has to be made. International cooperation and collaboration has to be enlisted.

There are four principal kinds of pollution:

1. Air pollution
2. Water pollution
3. Soil pollution
4. Noise pollution

Conservation of energy is an important item. Alternative means of energy have to be developed and applied. Gas emissions (greenhouse effects) have to be controlled. Cooperative institutions, as self-help groups of people can contribute significantly to reduce the environmental pollutions by making necessary adjustments in their means of production, distribution and processing. Cooperatives can introduce better techniques in their processing units and farm practices. Cooperatives can educate their members and the people at large on the ill-effects of pollution by developing and suitably improving their member education training and extension programmes. They can contribute significantly on the regreening of earth.



**Welcome address by Dr. Sri-Edi Swasono,
President of the Indonesian Cooperative Council, (DEKOPIN)**

*Excellency Mr. Emil Salim, State Minister of Population and Environment,
Excellency Mr. Bustanil Arifin, Minister of Cooperatives ,
Mr. Daman Prakash, representing the International Cooperative, Alliance (ICA),
Distinguished Guests, Participants of the Workshop, Ladies and Gentlemen,*

It is only about two months ago that I welcomed Excellencies, Ministers-in-charge of Cooperatives, at the opening session of the ICA Asia Pacific Ministers' Conference here in Jakarta. And the day before I was also honored to address the ICA Regional Council Meeting of Asia and the Pacific. And today it is indeed a privilege for me to welcome another important audience again in cooperation with the ICA, at the opening session of the Workshop on Environment and Sustainable Cooperative Development, jointly sponsored by the International Cooperative Alliance (ICA), Dewan Koperasi Indonesia (DEKOPIN), and Canadian Cooperative Association (CCA) and supported by the Ministry of Cooperatives of the Republic of Indonesia.

First of all I would like to take this opportunity to thank the ICA (through Mr. Daman Prakash) for selecting Indonesia as the venue of the 5-nation workshop : Japan, India, Thailand, The Philippine and Indonesia. The subject of Environment and Sustainable Cooperative Development is also an existing one, since the challenge of environment has become a critical issue on the political agenda and is emerging in many aspects of cooperative endeavours. I am therefore particularly happy and grateful and certainly honoured too, that two ministers are complying to address this workshop.

I would like to take this opportunity to welcome our guests from Japan, India, Thailand, and the Philippines and from the ICA. We appreciate their sincere commitment to share their knowledge and experiences with our Indonesian friends on this very issue. I am also grateful for the attention of international organizations, high ranking officials of several ministries and top leaders of national non-governmental organizations, to witness the opening of the workshop.

Even the workshop itself will only be participated in by 14 to 15 persons, it is indeed an important one. It will discuss studies on environmental issues that are still new for many cooperators of the world and implemented in five different countries under different conditions and with different backgrounds and cultures. I was informed that the results of this workshop will be presented to a seminar in May this year in Tokyo and be reported to the ICA International Congress also in Tokyo this year, in October. So it is expected to contribute inputs to the Congress to compose a worldwide solution on environment and sustainable cooperative development that concern millions of people.

Environment is a new challenge to the Cooperative Movement. For many developing countries, where people struggle for more additional income, the attention of cooperative leaders and managers were mostly focussed on the development at large, in particular the increase of production, without a sufficient awareness of environmental responsibility, both as a causal element and as an impact as well.

It is indeed a hard job for people in new developing countries to balance development process. A sustainable development is not only achieved through a balance between development and environment, but also firstly development should be perceived as a nonzero-sum game, i.e. on the one hand development should produce betterment of environment and on the other hand maintenance and improvement of environment should also enhance development. In other words, environment is an integral part of development.

There are at least three challenges that cooperators of the world are facing today and need attention and solution, namely : (1) the democratization momentum, (2) the globalization of economy, and (3) the economic subordination.

These three challenges have substantial bearing on the environment.

Almost all over the world today the democratic momentum occurs in political as well as in economic areas. Democratization has become a new phenomena of the world, it is a rational trend, it is a basic need and value, and also seemingly a world latest fashion too. We are witnessing that the world has fully accepted the empirical acts that the most effective approach to development is the bottom-up one. The poor have respectably been recognized as active productive development participants. In Indonesia, President Soeharto, based on the principle of economic democracy of the Indonesian Constitution and alongside with this world trend had introduced a democratic momentum into the fast growing economy through an appeal to the private companies to sell up to 25% of their total outstanding shares to cooperatives.

The Indonesian Cooperative Council had launched the “partnership pattern” or “linkage pattern” to foster this momentum neatly. Democratization of the private company through this share ownership system is relevant to the position of workers as legitimate participants in the production. As the consequence, the democratization momentum has claimed a more extensive joint responsibilities, i.e. the co-ownership demands co-responsibility in production, meaning mutual obligation in the protection of environment, especially for the non-renewable resources of production should become our mutual attention.

The other relevant challenge is the globalization in economy. Many cooperators indicated this as dangers or threats to cooperatives and tend to exclude

themselves from this on going process. DEKOPIN, on the contrary, considers this new era as a momentum too, as an opportunity to participate in the global process through active role in global management and decision-making. Our main effort should be to avoid globalization becoming a process of economic domination of the strong upon the weak. Economic domination tends to obscure the non-economic responsibility, it weakens the world-wide environmental protection and development.

Through the active role of the weak into the global decision-making, we could avoid the bias and the dominating decisions of the strong that tends to neglect the interest of the weak, that might have negative environmental impact on the poor countries. Allow me to put forward one of many examples of the case. The destruction of our rain forests is a result of an unavoidable global economic decision, not merely a local one.

Apart from globalization, our challenge is to avoid from being trapped into a system of economic subordination within the national economy, i.e. the informal sector is subordinated by the formal sector, the poor peasants and fishermen are subordinated economically by the modern industrialist. The economic value-added earned by the primary producers is unjustly too little, too much is earned by the secondary and the tertiary income-earners. Environmental protection and development should necessarily provide real benefit to these under-privileged and help them to end the system of economic subordination, from our point of view, through cooperative system. The environment should conclusively support the development of the poor. There are many other examples that the poors have to pay a higher cost of development resulting from the negative environmental impacts. Not only the greedy globalization could be dangerous to protection of environment, property too can be harmful to environment. Our job is to convert the poors from liability into asset of development, to lead them as full participants of environmental development. That is why we are now among other encouraging the development of reforestration cooperatives.

Other challenges may appear soon after these examples. I do hope you could share with me in formulating solutions for the wellbeing of mankind.

In conclusion, I would like to thank H.E. the State Minister for Population and Environment for his presence to address this very occasion. My thanks also go to H.E. the Minister of Cooperatives who has offered this auditorium for the opening session and other meeting rooms for discussions and above all to inaugurate this workshop.

**Inaugural Address by Hon'ble Bustanil Arifin SH,
Minister of Cooperatives, Government of Indonesia**

*Distinguished Delegates. The Organizers and Participants in the Workshop,
Ladies and Gentlemen.*

It is really a great pleasure for me to meet you all today and address this most important workshop on "Cooperatives and Environment". No doubt, this workshop on Cooperatives and Environment is extremely important, for the obvious reason that, admittedly, to most people it is easy to relate cooperatives with environment. We, therefore, value this workshop highly and we are eager to see the outcome of the workshop which may contribute to the better understanding and to generate awareness among the cooperative community of the pressing problem of protecting the environment.

I also understand that in this workshop the delegates from India, Indonesia, Japan the Philippines and Thailand will present the findings of their respective studies on Cooperative and Environment. Based on the results of these studies in the various countries the Workshop will be able to come up with concrete and hopefully "easy to implement" programmes in maintaining a healthy environment for us, for our children and for our children's children.

It is also my understanding that this Workshop will also hear from Professor Emil Salim, our Minister for Environment and Population Affair, on the Environmental Development in Indonesia. We all know that Professor Emil Salim is a stout crusader for sustainable development in this country. He is also widely known for his stern action against industries which are polluting environment.

It should be noted that the KUD-Village Unit Cooperative of Indonesia is actively involved in the re-greening and reforestration programme of the country side of Java with commercial trees (sengon tree), popularly known as the "sengonization programme" of the Department of Forestry of Indonesia. While the "cattle-fattening" programme which is promoted by our cooperatives, in cooperation with state-owned estate companies (Perusahaan Perkebunan Negara), also help in maintaining the environment by keeping the local grazing grounds green.

What I want to say is that the cooperative of Indonesia, in a way, has already been involved in preserving the environment. It should be admitted, however, that a lot more is still to be done. We, therefore, have great expectations from the results of this Workshop on Cooperatives and Environment.

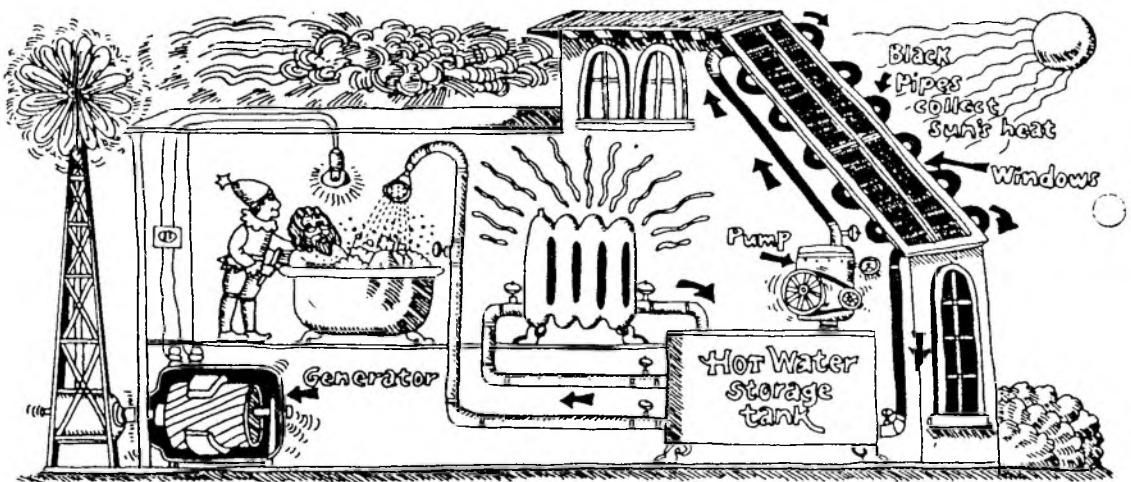
For us all, the problem of the pollution of environment is a big problem, but it is

hoped that this big problem can be solved with simple ways and means, by the ordinary people, by the masses of the population, by the average members of our cooperative societies.

I believe, this is the main task of the Workshop, that is to work out “easy-to-implement” programmes to preserve the environment.

I wish you all a fruitful discussion in the Workshop and a pleasant stay in the country.

And with a solemn Bismillahirohmannirohim I declare this Workshop on “Co-operatives and Environment” officially open.



**Introductory remarks made by Mr. Daman Prakash,
Regional Advisor (Development Planning), ICA ROAP, New Delhi.**

*Hon'ble Ministers, Chairman of Dekopin, National Consultants, friends,
ladies and gentlemen*

We the human beings are highly emotional. We feel the pleasure and we feel the pains of sorrow. We are highly sensitive with a strong sense of distinction. The charms of beauty and freshness touches our body and soul and every single pore of our body oozes with ecstasy. We sing and dance to the tune of happiness, with the song of nature and with the colours and hues blessed on us by the mother nature. We feel happy, delighted and light and we bow to the enormous gifts given to us by nature. These are the blessing, as we often say, of God, the Almighty.

When the reverse takes place, when we encounter an unpleasant sight, when we see darkness, poverty, misery, and plunder around, we feel sad. When we see the dryness, destruction caused by the furies of nature in the forms of floods, fires, earthquakes, our every nerve aches with pain and anguish. The soul cries and the body shivers with the pangs of pain of melancholy. We then surrender to the forces of nature and we bow to the powers and will of God, the Almighty, attributing these to the sins and ignorance of ours.

We, as human beings on this Earth, often resign to the fate and we tend to leave everything relating to our life and environment in the hands of nature. It has two major implications, first, we find ourselves too dwarf before the forces of nature, and secondly, we find completely helpless because we are poor and we do not possess the adequate means and resources to protect ourselves and our environment. Those who have realised their inner strength and who have been able to muster strength and resources, have come up with suitable methods, measures and means to protect themselves. There is, of course, unity in strength and it is said "united we stand and divided we fall". In ensuring our present status as human beings of this civilised world we have to work together. We have to make good use of modern technologies of others. This is Cooperation in the use of technology - that is for the benefits of all and in the interest of all - our future generations and the community at large.

In the present world we are living on this Earth which is receiving the battering of all descriptions and from everyone. Powerful bombs are being tested on this Earth, the beauty of green forests is being destroyed, the eco-system is getting out of balance, the surface temperatures are rising, new and enormous mouths are being added to be fed at very fast rate, agricultural production is being increased by applying artificial means e.g., chemical fertilisers, dangerous insecticides and pesticides, frequency and fury of floods is increasing, ice-caps on the mountains do not stay longer, sun rays are hitting us harder due to the thinning of ozone layer thus

causing a variety of skin problems, we seem to be increasingly being brought under a greenhouse cover. Industrialisation has virtues and also has negative implications. In order to make our food tastier we are adding unwanted chemicals and artificial colours to it thus exposing ourselves to a variety of disorders.

We as individuals, even if we cry ourselves hoarse, will not be heard by anyone. We have to work together to take care of these problems ourselves. Through a cooperative action, we can make ourselves "felt" and also we, as a group, can sit together to find some possible solutions to the our environment-related problems.

Making the picture still gloomier, it may be added that: 1) one in 3 children is malnourished; 2) nearly 3 million children die annually from diseases that could be averted by immunisation; 3) over 100 million children of primary school age are not in schools; 4) some 1.2 billion people lack water safe to drink; 5) about 1 billion adults cannot read or write; 6) 1 million women die each year from preventable reproductive health problems.

But there is nothing to worry about. There is always some hope. The situation is not bad. Timely action, a coordinated action, and in cooperation, the situation can still be corrected. It would be enough, I believe, if people are made aware of the environmental problems, who cause them and how to prevent a further degradation of ecological system. No programme of this type can succeed without enlisting the support, cooperation and commitment of the people themselves. There is a strong need for developing an integrated programme to sustain our development process - cooperatively and in unison. Together only we will survive and leave something "greener" for our children.

We are now witnessing a tremendous change taking place in our society. Everybody is under pressure - governments, groups and individuals - to wake up and save this planet from its becoming a desert or a lifeless rock. At various levels discussions are taking place and leaders, workers and individuals are trying to find alternatives. I refer to the preparations for the UNCED Earth Summit in June this year. It is a complex situation though.

From the ICA point of view, as a world confederation of cooperatives, we consider it appropriate that cooperative institutions can play a strong role in creating the desired awareness among the cooperative population. Within the cooperative sectors there are large number of production units, procesing plants, super markets and a sizeable agricultural production activity. They produce food and other goods for the community. They deal with people, land and modern consumer industry. There is a large chunk of people who are involved in the cooperative activity, atleast within this Region almost 460 million individuals are in the direct membership of the Cooperative Movement. There is, therefore a vast scope for cooperative institutions to further the cause of environment.

The present workshop is aimed at collecting, documenting and analysing the problems areas in this sector faced by cooperatives and finding out various solutions to extinguish these problems cooperatively and by working together. The workshop will discuss environment and cooperative situations in China, India, Indonesia, Japan, the Philippines and Thailand. Senior level national consultants will present their research papers and get together to produce an overall picture of this region and suggest to the respective countries well-thoughtout national and regional plans of action. The ICA Regional Office would eventually support these follow-up initiatives of its member-organisations. The results of this study would also be distributed throughout the Region among the governments and cooperative federations and also the international community, more specifically, at the 30th International Cooperative Congress to be held in Japan in October 1992.

We, at the ICA Regional Office, are indeed thankful to the DEKOPIN (Indonesian Cooperative Council), the Government of the Republic of Indonesia in the Ministry of Cooperatives and the Canadian Cooperative Association for providing the needed support and encouragement in the execution of this workshop and the Regional Study. We thank all the national consultants in producing their research papers and through them we thank their respective organisations in providing support to this effort.

I take this opportunity of extending the most sincere thanks of the ICA to the Hon'ble Ministers the Chairman of the Dekopin and the distinguished guests for being present with us to witness the inauguration of this workshop.

Thank you.

JAKARTA WORKSHOP PROGRAMME

Monday April 13, 1992

- 09.30-09.35 Welcome Address by the President of DEKOPIN,
Prof. Dr. Sri-Edi Swasono
- 09.35-09.45 Address and Official Opening by HE The Minister of Cooperatives,
Mr. Bustanil Arifin SH
- 09.45-10.00 Introduction to the Regional Workshop
by Daman Prakash, ICA ROAP
- 10.00-10.30 Keynote Address by HE the State Minister for Population and En-
vironment, Prof. Dr. Emil Salim
- 11.30 Introduction/Objectives of Workshop
- 12.30 Lunch
- 13.30 Country Presentations & Discussions - Indonesia
- 15.30 Coffee Break
- 15.45 Country Presentation & Discussions - India

Tuesday April 14, 1992

- 09.00 Country Presentations & Discussions - Japan
- 10.30 Coffee Break
- 10.45 Country Presentations & Discussions - Philippines
- 12.30 Lunch
- 13.30 Country Presentations & Discussions - Thailand
- 15.30 Coffee Break
- 15.45 Preparation for synthesizing national papers

Wednesday April 15, 1992

- 09.00 Discussions on synthesizing national papers

10.30	Coffee Break
10.45	Discussions Continue
12.30	Lunch
13.30	Discussions Continue
15.30	Coffee Break
15.45	Discussions Continue

Thursday April 16, 1992

09.00	Discussions on preparation of Regional Workshop Report
10.30	Coffee Break
10.45	Adoption of Regional Workshop Report
15.30	Coffee Break
15.45	Closing. Vote of thanks.

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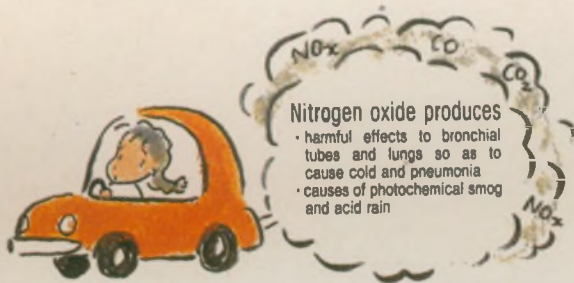
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Point to check

Do you get along without depending too much upon automobiles in your daily life?

One of the most serious causes for air pollution problems these days is nitrogen oxide, which is mostly exhausted from automobiles.



Point to check

Do you save energy in your daily life?

*27 liters of oil a year can be saved for a family if you control the room airconditioner one degree centigrade lower than usual.



*13 liters of oil a year can be saved for a family if you don't leave the pilot light of a small-sized gas water heater on all day long.

*One to three w/h of electric power can be saved when the television set is not kept on.



Point to check

Do you recycle resources as much as possible?



A Japanese person throws away about 1 kg of trash a day. It costs about 28,000 yen for a family a year for waste disposal (as in Kanagawa Prefecture). So, let's

reduce trash and recycle as many resources as possible to save energy. (The energy used for keeping a 40-watt bulb lit for 10 hours and 36 minutes is saved if you recycle one used aluminum can.)



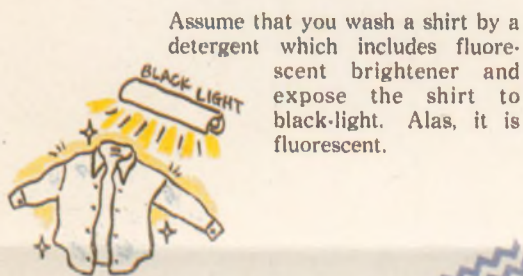
Point to check

Do you think you pollute the river when you drain after washing?

Let's check the following:



Fill a glass with water and see if bubbles disappear within five to ten seconds. If not, a synthetic detergent remains in it.



Assume that you wash a shirt by a detergent which includes fluorescent brightener and expose the shirt to black-light. Alas, it is fluorescent.

Point to check

Are you careful of what you pour into the sink?



LET'S CHECK THE LABELLING OF A DETERGENT

Labelling according to the Quality Indication Standard for Household Articles	
article name	synthetic detergent
used for	cotton, hemp, rayon, and synthetic fiber
pH density	weak alkalinity
ingredients	surface active agent(25%) linertype, ABS alpha-olefin sulfonic acid natrium alkylsulfuric ester natrium sulfate, aluminosilicate, carbonate silicate, fluorescent brightener This article does not include phosphorus. Please note, however, that a little amount of phosphorus is detected because this article is produced through the same equipment with that of phosphorus-including synthetic detergents.

Linertype, ABS(LAS) which is generally included in detergents as a washing-off ingredient has the following problems:

- 1.LAS contained in drainage is not completely decomposed and remains in the water, which is absorbed in our body as we drink tap water.
- 2.Animals and plants, such as rice in paddy fields and fishes in the river, lake, and sea are badly influenced by LAS that has remained in the water. LAS is one of the causes of a red tide.
- 3.LAS also causes rough dry skin or a rash. Many scholars point out the bad influence of LAS on internal organs such as the liver.

Fluorescent brightener is included in synthetic detergents. Its catchphrase is "brightening whiteness of washed clothes." Fluorescent brightener is a dye which makes washed clothes look whiter and brighter than actual ones. The dye is easy to use but difficult to be removed. It is prohibited to use this dye for paper napkins, dishclothes, gauze, or baby diapers.

- Let's use Co-op's soap powder and "Uneri" detergent which are easy to be decomposed.
- Let's use a proper amount of detergent when washing clothes.
- Let's use a wanuno dish towel called "Biwako", which easily wipes off oil when washing dishes.



If you drain the following liquids into the river, the amount of extra tap water necessary to make the river clean enough for fish to live is shown below.

cause of pollution		amount of extra water(liter)
soy sauce (15cc)		450
rinsed water of rice(2 l)		1,200
miso soup(200cc)		1,410
mayonnaise(10cc)		2,400
milk(200cc)		3,000
draft beer(150cc)		3,300
oden soup(500cc)		7,500
leftover cooking oil(500cc)		99,000

*Cooking scraps, leftovers and seasonings have a high degree of biochemical oxygen demand(BOD), and tends to pollute the water.

Biochemical oxygen demand(BOD), is a standard representing the degree of water pollution. BOD is the amount of oxygen necessary for microbes to decompose organic compounds in the water. Its unit is represented by mg/ l.

When BOD value is below 3mg/ l, the water is as clean as tap water; when it is 5mg/ l, the water is clean enough for fish to live; when it is over 10mg/ l, the water is very polluted. Actually, the BOD values of some rivers flowing into the Tokyo Bay are around 30mg/ l. Only about 25% of water areas throughout Japan comes up to the level of national environmental standards. There is another standard called Chemical Oxygen Demand(COD) which also represents the degree of water pollution.

Why Aren't You a Little More Concerned about Your Life and the Earth?

— Check how your life affects the earth —

U Co-op Federation

2-5-11, Shinyokohama Kohoku-ku Yokohama-shi Kanagawa-ken, JAPAN. TEL. 045-471-5615



Environmental
Check List

Are You a Friend, or Enemy of the Earth?

Please try to check your life according to the following items:
— The Earth Is for You and I —

1 Atmosphere and Energy <i>26 points is the best score</i>	choose the appropriate item		
	no		yes
1. You don't have a car, or drive a car.	10		0
If you choose "no", proceed to 2. If you choose "yes", proceed to (1) through (4).	always yes	sometimes yes	no
* (1) You try not to use a car when going out (say, for shopping) to a nearby place.	2	1	0
* (2) You try not to use a car when you don't have luggage with you.	2	1	0
* (3) You use public transportation when you go out by yourself.	2	1	0
* (4) You drive a car at an economical speed, avoiding sudden starting or accelerating.	2	1	0
2. You control the room temperature by making good use of natural conditions, such as sunlight and wind and by the clothing wear when you are at home.	2	1	0
3. You pay attention to the air conditioner so that a proper temperature is always controlled.	2	1	0
4. You turn off lights whenever possible.	2	1	0
5. You make a periodical check and maintenance of household electric appliances.	2	1	0
6. You avoid using elevators and use stairs when you go to a nearby floor.	2	1	0
7. You eat as few vegetables as possible that are produced by using excessive energy and agricultural chemicals.	2	1	0
8. Your refrigerator stores less food and the door is kept opened for a minimal time.	2	1	0
9. You turn off the TV when you have a meal or when nobody watches it.	2	1	0
each total score			
grand total score			

2 Water and Environment <i>26 points is the best score</i>	choose the appropriate item		
	always yes	sometimes yes	no
1. You use cooking oil as economically as possible and avoid pouring the leftover oil directly into the sink.	2	1	0
2. You throw away the leftover cooking oil by absorbing it into paper or cloth.	2	1	0
3. You wipe up the oil on dishes before you wash them.	2	1	0
4. You use a wamono dish towel as much as possible instead of a kitchen detergent when you wash dishes.	2	1	0
5. You avoid throwing away scraps of vegetables and leftover soups directly into the sink.	2	1	0
6. You make the proper amount of food so there is no need to throw away leftovers.	2	1	0
7. You use the water from cooking to water garden plants and to wash dishes.	2	1	0
8. You use soap powder and detergents, which are easy to be decomposed, for washing clothes.	2	1	0
9. You do the preliminary washing before you wash clothes.	2	1	0
10. You avoid letting the water flow out but fill up the washing machine when you rinse clothes.	2	1	0
11. You effectively use the leftover bath water for say, washing clothes.	2	1	0
12. You avoid keeping the water running in the sink, washbasin of washroom, and toilet whenever unnecessary.	2	1	0
13. You use a proper amount of shampoo and detergent and try not to be wasteful.	2	1	0
each total score			
grand total score			

3 Urban and Nature (Green, Soil, Animal) <i>12 points is the best score</i>	choose the appropriate item		
	always yes	sometimes yes	no
1. You let your family and friends know about the importance of nature.	2	1	0
2. You participate in observation and protection activities of nature, and attend study meetings about nature.	2	1	0
3. You avoid bringing stray animals and insects into your home thoughtlessly.	2	1	0
4. You cook worm-eaten vegetables without much trouble.	2	1	0
5. You try to be as close to nature as possible on your holidays. (You bring your trash home as much as possible to keep the nature clean.)	2	1	0
6. You avoid throwing away trash in the street or open space.	2	1	0
each total score			
grand total score			

4 Saving and Recycling of Resources <i>36 points is the best score</i>	choose the appropriate item		
	always yes	sometimes yes	no
1. You ask for goods not to be overwrapped when you buy them.	2	1	0
2. You avoid using too much tissue paper, paper napkins and paper towels thoughtlessly.	2	1	0
3. You use as many edible portions as possible of vegetables for cooking so there are not any scraps.	2	1	0
4. You purchase and use as many products as possible that are made of recycled paper.	2	1	0
5. You give careful consideration before you purchase a product as to whether or not it is indispensable.	2	1	0
6. You send back or refuse to receive unnecessary direct mail and mail order catalogs.	2	1	0
7. You consider before you throw something away whether it is still usable, and try to make good use of it by mending and repairing.	2	1	0
8. You bring your own shopping bag (or basket) with you when you go shopping.	2	1	0
9. You participate in (or cooperate in) the recycling activities of used milk cartons, used cans, and used paper.	4	2	0
10. You reuse the plain back of printed materials, such as leaflets for memo pads. You recycle used envelopes.	2	1	0
11. You store used newspaper and cardboard boxes separately for recycling.	2	1	0
12. You choose to buy and use the products which can be refilled or recycled.	2	1	0
13. You use worn-out underwear effectively for recycling.	2	1	0
14. You return used batteries to the store where you bought them, or you bring them to a waste collection spot on a specified date.	2	1	0
15. You separate garbage according to each type and bring them to a garbage collection spot.	2	1	0
16. You take an active part in recycling projects and activities, such as charity bazaars, garage sales, and disused article exchanging.	2	1	0
17. You let your family and friends know about issues of trash waste and recycling.	2	1	0
each total score			
grand total score			

MAIN FRAME QUESTIONNAIRE

Note: This is the foundation step of the Regional Study. Through this instrument first-hand information is sought to be collected from a variety of cooperative organizations and government agencies. The information given in this Questionnaire is, therefore, to be authentic, precise, accurate and most upto date. The information given in this Questionnaire will be used in the preparation of a National Situation Paper. Suggestions and recommendations, if any, should be given freely. Indication of national strategies to be followed should also be given. Please use additional sheet, if necessary.

- 01 Name and address of the responding organisation.
- 02 Phone: _____ 03 Telex: _____ 04 Fax: _____
- 05 Name and designation of the official responsible for completing this Questionnaire.
- Name _____
- Position _____
- Phones: Office: _____ Residence: _____
- 06 Major activities of the responding organisation.
- 07 Please specify the environmental problems faced (or created) by your organisation. (Type and magnitude of problems).
- 08 Steps already taken/or planned to be taken to solve the above mentioned problems.
- 09 Has your cooperative organised any tree planting campaign recently? If YES, please give the objectives of tree planting, species and number of sapplings planted and area covered.

planted and area covered.

- 10 Has your cooperative organised any other activity relating to environmental issues? Please specify activities and achievements. Efforts related to population control can also form part of such an activity.
- 11 Has your cooperative participated in any seminar/symposium/workshop etc. or training on environment-related issues during the past one year?
 - 11.1 Types of programmes
 - 11.2 Locations
 - 11.3 Periods
 - 11.4 Organisers
 - 11.5 Number of persons deputed by you
 - 11.6 Main subject-area
- 12 Has your cooperative developed any material/programme on environmental education for members/constituents? Please give the details of such materials and programmes. Please enclose copies of such materials.
- 13 Is your cooperative organisation/members represented on organisations/bodies related to environment protection? If YES, please give the following information:
 - 13.1 Name of the organisation on which represented
 - 13.2 How represented
- 14 Is your cooperative supporting any other organisation (may be outside the cooperative sector) committed to the environmental issues?
 - 14.1 Name of the such organisation(s)
 - 14.2 Type of commitment
 - 14.3 Nature of your support
- 15 Has your cooperative undertaken any environment-friendly programmes on promotion of alternate and renewable energy (like solar cooker/heater, wind-mills, photovoltaic lights, biogas etc. etc.)?
- 16 Has your cooperative taken up any environment-friendly programmes on issues like reduction of air pollution in atmosphere (like smokeless burners/cooking places), ban on smoking in public areas, reduction in gasoline consumption etc? Please describe briefly.
- 17 Has your cooperative taken up any programmes which help in conservation of

natural resources like water, soil, air etc. (programmes like soil and water conservation, integrated pest management, promotion of organic and bio-fertilizers)? Please describe briefly.

- 18 Has your cooperative implemented environment-friendly practices in daily office work e.g., photocopying on both sides of the paper, use of recycled paper or non-glossy-paper, minimising use of air-conditioners, waste-material management etc.?
- 19 Are environmental issues discussed as agenda item of the Board of Directors of your cooperative? Please highlight the issues taken up for discussion during the meetings held in 1990 and 1991.
- 20 Has your cooperative identified environment-friendly goods for consumption in offices, factory, and home? Have these identified items been marked/displayed separately?
- 21 What is the policy of your cooperative - if it is a consumer-oriented cooperative - on the sale of environment-friendly goods? Please give a brief description.
- 22 Is there any handbook/guide or an orientation programme for sales staff developed by your cooperative so that they could inform the general public about environment-friendly goods marketed through you?
- 23 Is there any legislative support for the conservation of environment or pollution control for the activities related to your cooperative? Enumerate the legislations and organisations responsible for monitoring.
- 24 Has your cooperative planned any programme for creating awareness about the environmental issues? Please list the awareness programmes planned for the year 1992 e.g., seminars, conferences, publications, production of audio-visual aids, exhibitions etc.
- 25 Has your cooperative planned any action programme for improving environment e.g., afforestation, nursery raising, development of home gardens, development of alternate energy etc. Please specify the programmes with size, place, technology of the programmes etc.
- 26 Please name the cooperative journals issued by your organisation.
 - 26.1 Name of journals
 - 26.2 Frequency of publications
 - 26.3 Usual numbers of pages
 - 26.4 Language(s)

- 26.5 Print orders per issue
 - 26.6 Type of paper used
 - 26.7 Any other
-
- 27 Have you included any environment-related articles/information in any of your journals during 1990 and 1991? Please specify briefly.
 - 28 Are members of your staff contributing to other journals (outside your own journals)? If YES, has any one of them written any article on environment-related issues? Please give a copy of such a material.
 - 29 In your opinion what role cooperative institutions can play in protecting the environment? Please give your free and frank opinion.
 - 30 What are your suggestions for developing short and long-term strategies and action plan for upgrading the environment through cooperative efforts? Please give your free and frank suggestions.
 - 31 Any other information on environment-related issues that you would like to offer for the information of cooperatives in other countries. (for instance, recycling activities, water and soil treatment projects, handling of chemicals, energy management, noise pollution etc.etc.)
 - 32 What roles cooperatives can play in improving community life in rural and urban areas (e.g., relating to sanitation, health services, livestock care, farm machinery maintenance, etc. etc.)? Please make your free and frank suggestions.
 - 33 Any other additional material you would like to include in the Regional Study documentation.

V. National Situation Paper-China *

BASIC INFORMATION

Area and Population

China is bounded north by the Russia and Mongolia, east by Korea, the Yellow Sea and the East China Sea, with Hong Kong and Macao as enclaves on the south-east coast; south by Vietnam, Laos, Myanmar, India, Bhutan and Nepal; west by India, Pakistan, Afghanistan and the USSR. The total area (including Taiwan) is estimated at 9,572,900 sq.km (3,696,100 sq. miles).

At the 1990 census the population was 1,133 million (51.6% male). Ethnic minorities numbered some 91m. There are 55 ethnic minorities; those numbering more than 3m were: Zhuang, Hui Uighur, Yi Miao, Manchu, Tibetan and Mongolian.

1979 regulations restricting married couples to a single child, a policy enforced by compulsory abortions and economic sanctions, have been widely ignored, and it was admitted in 1988 that the population target of 1,200m by 2000 AD would have to be revised to 1,270m. Since 1988 peasant couples have been permitted a second child after 4 years if the first born is a girl, a measure to combat infanticide.

China is administratively divided into 22 provinces, 5 autonomous regions and 3 government-controlled municipalities. These are, in turn, divided into 151 prefectures, 431 cities, 1,936 counties and 647 urban districts.

* *The authors produced this paper based on the information available at the ICA ROAP Library and Information Resource Centre and recommended for inclusion in the Study documentation since the information on Waste Resource Recovery and Utilisation activities is valuable and relevant.*

Climate

Most of China has a temperate climate but, with such a large country, many parts experience extremes of climate, especially in winter. Most rain falls during the summer, from May to Sept., though amounts decrease inland.

Agriculture

China remains essentially an agricultural country. 95.72m ha were cultivated in 1989. Intensive agriculture and horticulture have been practised for millennia. Present day policy aims to avert the traditional threat from floods and droughts by soil conservancy, afforestation, irrigation and drainage projects, and to increase the 'high stable yields areas by introducing fertilizers, pesticides and improved crops. 44.4m ha were irrigated in 1988, and 17.99m tonnes of chemical fertilizer were applied.

Since 1979 agricultural communes have shed the administrative functions which they had in the Maoist period to become 'rural economic associations, whose members manage them jointly and share the costs and benefits. There were 470,600 associations in 1989, with 4,339,500 members. There were also 232,800 agricultural townships and village enterprises, engaging 95,454,600 persons. There were 2,126 state farms in 1988 with 4.68m. workers and 180m peasant households in 1989.

The 1988 harvest fell short of targets. Reasons for the shortfall included the greater profitability in devoting land to cash crops and stock-breeding and the migration of peasants to industry.

Forestry

Forest area in 1989 was 124.65m. ha, including 2.6m ha of timber forest. Timber reserves were 102,600m cu. metres in 1985. The chief forested areas are in Heilongjiang, Sichuan and Yunnan. Timber output in 1988 was 63m cu metres.

Industry

'Cottage' industries persisted into the late 20th century. Modern industrial development began with the manufacture of cotton textiles, and the establishment of silk filatures, steel plants, flour-mills and match factories. In 1988 there were 8,105,600 industrial enterprises, of which 10,800 were classified as 'large or medium'. 99,000 were state-owned, 1,853,000 were collectives and 6,148,100 were individually-owned. In 1988 2,597,100 enterprises were engaged in heavy industry. A law of Aug. 1988 ends direct state control of firms and provides for the possibility of bankruptcy. Expanding sectors of manufacture are: Steel, chemicals, cement, agri-

cultural implements, plastics and lorries. The gross value of industrial output in 1988 was 1.822,400m. yuan.

Energy

Electricity. Sources of energy in 1988: coal 73.1%; oil 20.4%; hydroelectric power 4.5%, gas 2%. Hydroelectric potential is 676m kw. Generating is not centralized; local units range between 30 and 60 mw of output. Total output in 1990 was 615,000m kwh. There is a nuclear energy plant at Shanghai. Plans to build further nuclear power plants have been abandoned.

Oil. There are on-shore fields at Daqing, Shengli, Dagang and Karamai, and 10 provinces south of the Yangtze River have been opened for exploration in co-operation with foreign companies. Crude oil production was 138m tonnes in 1989.

Gas. Natural gas is available from fields near Canton and Shanghai and in Sichuan province. Production was 13,890m cu. metres in 1987, but is only used locally.

Minerals

Coal. Most provinces contain coal, and there are 70 major production centres, of which the largest are in Hebei, Shanxi, Shandong, Jilin and Anhui. Coal reserves are estimated at 873,719m. tonnes, coal production was 1,090m tonnes in 1990.

COOPERATIVE MOVEMENT IN CHINA

The Present Situation

The present strong representation of cooperatives in Chinese economy is a product of both cooperative history in China and deliberate policies of the Government, particularly after the foundation of the People's Republic in 1949. The cooperative sector today plays an important role in the Chinese economy, as one of the three main sectors; the other two are the government sector and the private sector. In some areas, cooperatives dominate, for example, in marketing of farm produce and supply of farm needs, covering about 70-80% of the markets. In some areas the cooperative sector is even given formal monopoly rights for example, in buying cotton from farmers and providing fertilizers to farmers.

Pre-War Cooperative History

As early as around 1900, Cooperative Credit Societies were organized in Northern China. Later agricultural marketing cooperatives were widely organized

in cotton-growing regions. In urban areas, workers and students formed consumer cooperatives 1920. The first cooperative law in China was promulgated in 1935, after a national cooperative conference. During the 1930 and 1940, industrial cooperatives provided for the war efforts and the farmers with arms, tools and consumer goods.

Cooperatives in Post-War China

The most striking feature of immediate post 1949 development was the clear consensus that cooperatives should be the major instrument for achieving the transition to a socialistic economy. A second major characteristic feature of the post-war Government policies was to focus on enlisting the peasant in rebuilding the nation. This was different from, for example, the Russian concentration on urban industrial workers, but easily understandable, as in China the peasants constituted and still constitute the major part (about 80%) of the population.

A key word in the government policies during the initial period was “gradualism”. Main stages in the cooperative element of the revolution were expected to be : (a) Mutual Aid Teams (MATs); (b) Advanced Agricultural Producer Cooperatives (APCs); and (c) Communes. In the mid-1950’s “elementary cooperatives” were set up, comprising of 25-40 households. The individual peasant retained, however, private ownership of their land and means of production. By 1955, more than two-thirds of China’s farmers had joined such cooperatives.

The earlier MATs were merged into large agricultural producer cooperatives; at first made up of 25-40 families, often the usual population of a village, later expanded to enroll 125 families and finally even up to 400 households. The purpose was to stimulate the rural productivity, by creating larger and more effective planning units, by promoting rationalization of land use and use of mass labour for large-scale capital constructions. Another intention was to impose a higher rate of savings under state control to be used for major investments like water conservation (irrigation) projects, reforestation, road construction and general mechanization.

Agricultural Cooperatives

Under the earlier commune system, the activities now undertaken by agricultural cooperatives were handled by the “production teams.” An agricultural cooperative is thus often based on a small village, comprising of 20-30 households with about 50-80 members. It owns and controls most of the land in the area. It may still receive from the local government certain quota to supply to government purchase bureaus or agents, production matters are self- managed and self-controlled by its members. The State administration may be represented by a cadre guiding the member’s education, but not involved in any economic matters. Under the new responsibility system the agricultural cooperatives operate through contracts with

individual households. These contracts are signed by the State Government Agency which works out the plan for rural production. The cooperative contracts out land to the peasant households, which, in turn, commit themselves to deliver certain quantities of certain produce, like grain, cotton, etc.

Supply and Marketing Cooperatives

Rural supply and marketing cooperatives were set up in the early 1950 to assist the farmers in providing farm inputs like seed and fertiliser and the marketing of the produce. They were founded by the peasants themselves under the auspices of the State. In 1951, the national union was established, the All China Federation of Cooperatives including also light industry (handicraft) from which in 1954 the All China Federation of Supply and Marketing Cooperatives (ACFSMC) broke off and established its separate federation. ACFSMC is a member-organisation of the ICA.

The primary level supply and marketing cooperatives gradually lost their character as farmer-controlled organizations. After 1958, they were reorganized. The National Federation of Supply and Marketing Cooperatives became a government office, handling about 40% of the farm produce which was purchased by the State. After 1978, however, primary level supply and marketing coops have regained their autonomy and settled their outstanding accounts with the members by paying dividends which had been withheld during the Cultural Revolution.

These reborn supply and marketing cooperatives had in 1983 a total membership of 140 million individual farmers, organized in 35,000 primary level cooperatives mostly at the commune level with supply and marketing stations or at least agents in every village - 11,000 of these cooperatives operated above county levels in form of management organizations and wholesale units. At the secondary county levels there were 2,010 federations further united into 28 regional federations at the province level, with the ACFSMC in Beijing as the national apex organization.

About 60-70% of the farm inputs are supplied by the SMC of which seeds, fertiliser and fuel are the most important ones. The Supply and Marketing Cooperatives further expanded their activities to include a lot of new functions quite different from the original ones. Aside from the 2,200 trade centers, 470,000 retail shops, 26,000 industrial products wholesale centers, 15,000 processing enterprises and 6,500 storage and transportation services. The SMC sector is also engaged in waste material collection through 24,000 stations as well as catering and social services through 90,000 centres.

The SMCs have further been assigned by the government to be the exclusive purchaser of cotton from farmers. This is being done through 14,000 purchasing stations or collecting centers supplemented with 2,500 cotton ginning mills, whereas the SMC handles 90% of all cotton produced in the country.

The SMC structure also provides for and financially supports education among their members and cooperative employees. A large number of 8 national and 100 regional and local research institutions are also being administered by the SMC sector.

Other Cooperatives

Other significant components of the Chinese Cooperative Movement are credit cooperatives, rural industrial cooperatives, handicraft cooperatives, self-help enterprises etc.

WASTE RESOURCE RECOVERY AND UTILIZATION IN SHANGHAI - A CASE STUDY OF THE COOPERATIVE INITIATIVE

Waste materials are often rejected as useless objects in the course of production and people daily's life. But in actuality most of these rejects have not yet lost their use value and can be generated as raw material for further utilization i.e., turning the useless into the useful, and turning the waste into treasure.

Maximized recovery and utilization of the waste material is, in effect, the amplification of mining industries, which contributes greatly to the conservation of natural resources and alleviation of environmental pollution, while boosting production, encouraging social frugality and enlarging employment.

Following the rapid development of production and increase in the consumption of natural resources, the amount of waste materials is largely enhanced, resource recovery and utilization as a social engineering operation will envisage much wider prospects.

The government has always attached much importance to resource recovery activities, and placed them under effective administration. In the meantime, special economic policies and legal provisions were adopted to ensure the social status, role and production targets for recycling industries. All these are incorporated in the State programme for developing national economy and social progress. For the expansion of recycling industries necessary funds, technologies and equipment are usually provided by local governments.

After the founding of the People's Republic, ACFSMC set up specialized organisations for resource recovery and utilization. Shanghai Resource Recovery and Utilization Company (SRRUC) is a subsidiary company of SFSMC and a municipal level recycling enterprise, which was founded in 1956 and is now commanding in the

trade throughout the country with regard to resource recovery amount, transaction volume, integrated utilization and operational scale. In other words, SRRUC possesses a complete organizational structure, processing system and business network. At present 16 categories of reclaimable waste material (encompassing more than a thousand varieties) are processed and recycled by this enterprise. They are scrap ferrous and non-ferrous metals, rubber, plastics, paper, cotton, hemp, rags, chemical residues, domestic animal bones, human hair, used glass bottles, old machine and accessories, acids, old computer parts, x-ray plates, radio and TV parts etc.

During the 35 years since the establishment of SRRUC in 1956 various kinds of recyclable waste materials totalling 37.02 million tons with a value over 12.6 billion Yuan were reclaimed. The reclaimed raw materials and products have been supplied to various industries and innumerable households. Besides, in making use of these materials the country conserve a lot of natural resources and save energy comparable to 23.62 million tons of standard coal and 2.3 billion kw/h.

Organizational Structure

SRRUC manipulates resource recovery within the range of Shanghai and undertakes professional dealing and management affairs. It is necessary to set up a complete organizational system to ensure different functional bodies running well, to take timely decisions and workout plans, to give instructions, and carry out efficient monitoring and coordination. The organizational structure consists of a municipal company and several districts or county branches. Directly subordinating to the municipal company, SRRUC, there are four business departments, namely, metals, machinery and electric appliances business department; comprehensive waste reclamation business department; rubber, plastics and miscellaneous goods business department; and storage and transportation department. In addition to them there are three direct subsidiaries which are Shanghai Precious Metals Refinery; Haiguang Ferrous Metal Smeltery; and SRRUC Vocational Training Centre. For administration purposes there are 12 district branches and nine county branches. SRRUC and the branches exercise respective administration over all their subordinating waste purchasing, processing and sales units.

In the districts there are 287 waste materials purchasing stations, and 215 such stations sprawling over the suburban counties under the management of grass-roots supply and marketing cooperatives. In the city of Shanghai there are 26 comprehensive waste materials reclamation shops, chiefly undertaking the purchase of all recyclable industrial wastes, 66 reclaimed raw materials and products sales depart-

ments and 138 such retail shops. Based on the different characteristics of all reclaimable wastes a complicated but streamlined network has been formed for processing old machinery and electric appliances, plastics and rubber scrap, formed steel products and stainless steel, used glass bottles, ropes and threads, paper, hemp, etc. Besides, there are a number of big-size shops, renowned shops and shops of special features, all dealing in sales business in large quantities.

Since waste materials are usually mixed with great varieties and different specifications, they have to undergo processing, such as sorting, classification, removal of dust and impurities and refining, before they can gain reuse value. With this view, under SRRUC and its branches is set up a group of commerce-based industrial enterprises specializing in scrap iron and steel and non-ferrous metals processing, briquetting and precious metals refining, chemical products fabrication, waste rubber and plastics regeneration, and scrap automobiles disintegration.

SRRUC employes over 21,000 staff and workers, possesses a fixed estate plus flowing capital totalling 430 million Yuan, more than 800 cargo vehicles, 600,000 m² of building space for waste recycling and materials depositing, and thousands of complete sets of processing equipments.

The above organization structure has basically formed a resource recovery and utilization corporate featuring an overall professional undertaking within the range of Shanghai.

Given below is a brief description of activities of the various companies of the Shanghai Federation of Supply and Marketing Cooperatives :

Waste Resource Recovery and Utilisation Company deals in ferrous and non-ferrous metal scraps, used paper, and a variety of household throw-outs;

Xing Guang Plastic Factory deals in processing of waste plastics consisting of PE, PVC and PA including cuttings and trims coming from other plastic factories;

Nanshi Paper Stock Supplying Station deals in waste paper, cuttings and trims from printing presses, files, accounting books;

Hai Guang Ferrous Metal Smeltry deals in reclaiming of scrap ferrous metal mainly involving swarfs, shavings, scrap iron and steel;

Rubber, Plastic and Miscellaneous Goods Business Department of the SRRUC deals

in acquisition of rubber scrap e.g., rubber tubes, pipes, plates and strips, waste tyres, rubber shoes etc.;

The Scrap Iron and Steel Recycling Centre deals in iron and steel scrap from more than 500 factories in the district. These include : scrap steel, iron, usable formed steel, sheets and shavings, filings etc.; and

Precious Metals Refinery of SRRUC deals in the recovery of precious metals from the scrap collected from specialised factories where precious metals are employed, computer parts, radio and TV components, wet batteries, X-ray and other photographic plates and liquids, etc.

Development of Applied Science Research

Integrated resource recovery and utilization are closely linked with applied science researches. In order to comply with the daily increase of waste varieties, new processing technologies and equipment are earnestly required to solve much more complicated technical problems in the course of processing. In view of this, it is felt that applied research should have close ties with exploitation of waste reuse. Stress must be placed on integrated utilization of the secondary raw materials, and concentrated efforts are to be made to eliminate environmental pollution generated in the course of waste processing.

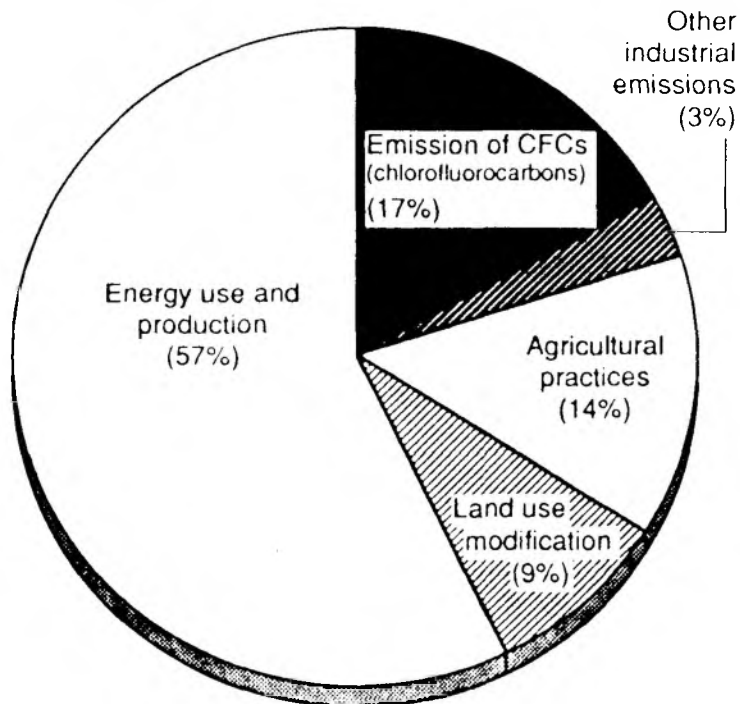
For the realization of the above objectives the following is emphasised :

1. **Combination of scientific research with practice:** This is the only way to make it possible to upgrade the function of resource recovery and utilization. To attach science research to production can ensure quick transformation of research fruits into production capacity. For example, the improved precious metals refining technology has realized the extraction of pure gold, silver and platinum group metals from scrap containing such metal traces, and developed high value products. Through diligent study, new tech has been developed to employ high temperature and high pressure to produce regenerated rubber from synthetic rubber scrap, which has been granted patent right by the State Science Commission for nationwide application.
2. **Initiation and renovation of processing equipment:** Technical force should be organised to raise production efficiency and reduce manual labour. Materials loading and unloading for transportation, briquetting and baling of ferrous scrap, removing impurities and dust in the process of sorting, which were originally done by man force, are now replaced by simple mechanical devices.
3. **Elimination of regenerated waste pollution:** Concentrated treatment of waste

materials, mostly containing harmful and poisonous elements, will inevitably give rise to secondary pollution. Protection of workers' health and social environment is an urgent task for applied research. In order to reduce dust contamination, oscillating screen and pulse dust arresting system have been worked out. Biochemical treatment of waste water, metal displacement, and noise-reducing facilities are all that contribute greatly to the alleviation of secondary pollution.

4. Establishment of an efficient technical contingent: Timely professional training, collaboration with social science research institutes, setting up experimental labs, and exchange of information with other recycling enterprises at home and abroad have all proved successful in cultivating a strong technical force rich in theory as well as practice in waste recycling, thus creating a favourable condition for developing the industry.

Activities contributing to global warming



Environment Protection Agency's (EPA-JAPAN) estimate of greenhouse gas emissions

VI. National Situation Paper-India

*Dr. G.C. Shrotriya**

THE REPUBLIC OF INDIA : SOME BASIC INFORMATION

India is the second most populous and the seventh largest country in the world. It is situated in the northern hemisphere and covers an area of 3.280 million sq km. It has land frontier of 15,200 km and a coastline of 7,516 km.

It is bounded on the South-West by Arabian Sea, in the South by Indian Ocean and in the South-East by the Bay of Bengal. The country, in the northern part is adjoined by China and Nepal, in the East by Bangladesh and Myanmar and in the North-West by Afghanistan and Pakistan. In the south the Gulf of Mannar and the Palk Strait separates India from Sri Lanka. The major portion of the country is a compact land mass but the islands of Andaman and Nicobar in the Bay of Bengal and Laccadive, Minicoy and Amindivi Islands in the Arabian Sea form a part of the territory of India. The mainland comprises four regions, namely, the great mountain zone, plains of the Ganga and the Indus, the desert region and the southern Peninsula.

Climate

The climate of India may be broadly described as tropical monsoon type. There are four seasons (i) winter (January-February), (ii) hot weather summer (March-May), (iii) rainy south-western monsoon period (June-September), and (iv) post monsoon period, also known as north-east monsoon period in the southern peninsula (October-December).

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Population

The present population of the country is about 845 million. Two-third population live in rural areas. The decennial growth rate of population during 1981-91 was 23.50 per cent. The decennial growth rate in the decade 1971-81 was 24.66 per cent. There has, therefore, been a decrease by 1.16 percentage points in the growth rate during 1981-91 compared to 1971-81. The density of population in the country according to 1991 census is 267 per sq km as against 216 at the 1981 census. There are approximately 0.6 million villages, 4,200 towns and cities and 422 districts. The country has 31 states.

The literacy percentage according to 1991 census is 52.11. Out of this 63.86% males and 39.42% females.

Underlying many of India's problems and running a race with its development is its population growth. The base population is so large that the actual number involved in growth rate is about 16 million or more persons a year. The rate of growth is not the same throughout the country. The high density regions are the Gangetic Plains in the north and the coastal areas on the entire side of the western peninsula. The necessity of allocating a substantial portion of future economic growth to the additional population hampers attempts to raise the general standard of living. A large population would also give rise to large-scale unemployment and create tremendous social tensions and play havoc with the environment. The Indian Government is one of the few that have adopted birth control as an element in the state policy.

India 1991 - Census at a Glance

Population	Total	....	843,930,861
	Males	....	437,597,929
	Females	....	406,332,932
Decennial population growth 1981-91	Absolute	....	160,601,764
	Percentage	....	23.50 percent
Density of Population	...	....	267 per sq km
Sex Ratio	....	....	927 females per 1,000 males
Literacy rate	Total	....	52.11 per cent
	Males	....	63.86 per cent
	Females	....	39.42 per cent

Land Utilization Pattern - India 1987-88

Particulars	Area in million hectares	% of total reporting areas
1. Geographical Area	328.73	-
2. Reporting area for land utilization statistics	304.85	-
3. Forest	66.86	21.9
4. Not available for cultivation (Area put to non-agricultural + Barren unculturable land)	41.20	13.5
5. Other uncultivated land (pastures, under misc. tree crop and culturable wasteland)	31.01	10.2
6. Fallowland	29.60	9.7
7. Net area sown	136.18	44.7
8. Area sown more than once	36.70	-
9. Total cropped Area	172.88	-

Land use

Of the total geographical area about 45 per cent is under cultivation. Presently about 140 million hectare is net sown, while 177 million ha is gross sown. About 24 million ha remain fallow. Although efforts for the use of fallow lands has continued year after year, yet the degradation of land continues to grow. Almost 50% of the land area is chronically sick.

**Distribution of Area under Different Soil Erosion,
Land Degradation and Land Utilization Problems 1984-85**

Area subjected to water & wind erosion	....	....	144.13 m ha
Waterlogged area	....	....	8.53 m ha
Alkali soils	....	....	3.88 m ha
Saline soils including coastal sandy soils	....	....	5.50 m ha
Ravines and gullies	....	....	3.97 m ha
Area subjected to shifting cultivation	....	....	4.91 m ha
Riverain and torrents	....	....	2.73 m ha
Total Problem Area	....	....	173.65 m ha

The country has given due priority for the conservation of soil in order to make agriculture sustainable so that future generations do not suffer due to the present over-exploitation of natural resources.

The per capita availability of land will come down to 0.15 ha by 2000 AD in comparison to 0.20 ha in 1981. The country will need an additional area of 58 million ha, for crop production (8 million ha), fuel and timber wood (40 million ha) and fodder production (10 million ha) by 2000 AD.

Agriculture

The Indian economy is predominantly an agricultural economy. The agricultural sector contributes nearly 40 per cent of the net national product, provides livelihood to 60 per cent of the total working force, and accounts for nearly 35 per cent of the country's exports. The contribution of women in agricultural production is around 52 per cent. Agriculture (including animal husbandry, fishery and forestry) provided employment to the largest chunk of India's labour force. The average size of holdings in India is only 1.69 ha. More than 76 per cent of total number of holdings are less than 2 ha. Only 2 per cent holdings are above ten ha. Again the 76 per cent holdings operate only 29 per cent area.

Agriculture in India is still dependent on the vagaries of monsoons. Nearly 30% of the cultivable area is rainfed. Main agricultural products of India include among others, wheat, rice, other cereals, pulses, sugar, oilseeds, cotton, jute etc. The per capita availability of cereals, pulses, edible oils, sugar, cotton cloth, tea etc. is still very low. However, India at the moment is self-sufficient in foodgrain production, which

stands at 177 million tonnes. By the turn of century the country will need 240 million tonnes of food-grain production to feed around one billion people. Milk, egg, fish production can also supplement the food requirement substantially. The nation supports a large number of livestock, however, their productivity is at very low level.

Distribution of Operational Holdings - India 1985-86

Category of Holdings	Number of Operational Holdings (in million)	Area operated (million ha)	Average size of holding (ha)
Marginal (less than 1 ha)	56.47 (57.8)	22.042 (13.4)	0.39
Small (1 to 2 ha)	17.22 (18.5)	25.708 (15.6)	1.43
Semi-Medium (2 to 4 ha)	13.252 (13.6)	36.666 (22.3)	2.77
Medium (4 to 10 ha)	7.16 (08.1)	47.44 (28.6)	5.96
Large (100)	1.18 (02.0)	33.02 (20.1)	17.21
	97.55 (100.0)	164.62 (100.0)	1.69

Figures in () indicate percentage of respective column to total.

Energy use in agriculture is increasing steadily. Almost one-fourth of the electricity consumption of the country is utilized for agricultural purposes. The tractor population in the country exceeds 815,000.

Fertiliser is the kingpin for increasing productivity in agriculture. For every tonne of fertiliser nutrient put in soil, there is an increase of seven to eight tonnes of foodgrains, other things remaining equal. It has been estimated that about 70 per cent of growth in agricultural production can be attributed to increased fertiliser use. Total fertiliser consumption went up from 69,000 tonnes of nutrients in 1950-51 to 12.5 million tonnes in 1990-91.

The consumption of insecticides in India ranged between 47-68 thousand tonne of technical material, fungicides around 18,000 tonnes, herbicides around 5,000

tonnes, rodenticide between 850-1000 tonnes and fumigants around 75 tonnes. The total pesticides consumption ranges between 70-90 thousand tonnes per annum. The installed capacity of technical grade pesticides in organized sector is 124,000 tonnes. The production and consumption of pesticides is going to increase because of heavy demand on Indian agriculture to produce more food and fibre for growing population. Presently there are also serious imbalances in the use of pesticide. Less than 8m hectares of cotton takes practically half of total pesticides consumption. All pesticides are poisonous and their use attended by risk.

Consumption of Electricity - India (Million KWH)

Year	For Agri. Consumption	Total Consumption	% Share of Agri. Cons.
1980-81	14,489	82,367	17.59
1981-82	15,201	90,245	16.84
1982-83	17,817	95,589	18.64
1983-84	18,234	102,344	17.81
1984-85	20,960	114,068	18.38
1985-86	23,422	122,999	19.04
1986-87	29,444	135,952	21.66
1987-88	35,267	145,613	24.22
1988-89	38,847	161,341	24.08

Per-capita Availability of certain Important Articles of Consumption 1989-90

Article	Availability
Cereals	438 grams per day
Pulses	36 grams per day
Edible oils	5.3 kg per annum
Sugar	13.5 kg per annum
Cotton Cloth	11.5 mts per annum
Manmade Fibre Fabrics	5.8 mts per annum
Tea	590 grams
Electricity domestic	34.5 KWH per annum

Production of Milk, Eggs, Wool and Fish - India 1989-90

Item	Production
Milk	51.4 million tonnes
Eggs	20.2 billion Nos
Wool	41.7 million Kg
Fish	3.6 million tonne

Livestock Census - India 1982 (provisional)

Animals	No. of Animals (in thousands)
Cattle	192,453
Buffaloes	69,783
Sheep	48,765
Goats	95,255
Horses & ponies	300
Mules	131
Donkeys	1,024
Camels	1,078
Pigs	10,071
Other livestock	128
Total livestock	419,588

Forests

In India, 90 per cent of the land area was under forests around 3000 B.C. It is believed that hordes of migrants that came to India from treeless countries did not understand the environmental values of forests and denudation of forests continued unabated. During the post-independence period, the destruction and reduction of forest continued for revenue earning, giant hydro-electric projects, road building (especially in mountainous and hilly regions), conversion to agricultural land owing primarily to agriculture dependent population pressure, providing raw material to forest based industries, shifting cultivation and hordes of other causes. Currently though the forested area is claimed to be 66.86 million ha (21.9 per cent of the total

land mass), National Remote Sensing Agency's photoimagery shows that 13.5 per cent of the total land mass is actually under forest cover.

Demand and Supply of Forest Resource

The population pressure coupled with the accelerated rate of economic growth has widened the gap of demand and supply of forest resources which seems almost unbridgeable. According to a projection, in 2000 AD demand for firewood, timber, pulpwood will be 225,000 Mm³, 45,7000 Mm³, and 77.70 Mm³. In addition, needs of woody material for wooden crates, panel products and other wood-based industries will also be substantial. These cannot be met from the current levels of productivity of the forest stands.

Due to denudation of forested areas the very life supporting systems are in poor shape. The degradation of watershed has already depleted the water flow in rivers, water falls, etc. On account of lack of recharging of underground water due to surface run-off of rain water, the underground water table is progressively receding deeper and deeper. Large areas of the land have become drought prone. Wells and tubewells dry up during summer months sooner than expected. The same is the case of ponds, tanks, etc. Due to overgrazing the cattle population virtually starves.

Much of what is officially classified as forest is, in fact, no more than dry, thorny shrub. Apart from certain protected areas, the greater part of the remaining forests are in hilly and mountain areas or other locations ill-suited to peasant cultivation. Most of the India's forests and grasslands, having been degraded by human intervention, are considerably different from the natural type the climate would lead one to expect. Large areas of peninsular India where one might expect a deciduous forest to dominate, are actually thorny scrub. Similar vegetation grows on myriad patches of once cultivated but now exhausted land on the Indo-gangetic plain. The most important consequence of deforestation has been the extent of siltation in its river. Despite the clearly increasing damage caused by flood each year, there is little coordination or joint planning by the Department of Flood Control, Soil Conservation and Forest.

The destruction of forests has a major impact on the productivity of our crop lands. Soil erosion increases manifold and the soil literally gets washed away leading to an accentuated cycle of flood and droughts. It is estimated that 5.37 to 8.4 million tonnes of nutrients are lost from land annually due to erosion. Flood and drought prone areas now account 40 and 260 million ha respectively.

Water Resources

The basic and the most important input for agricultural production as well as sustenance of human and animal life is the 'water'. In India, predominant source of water is rainfall which, on an average, is about 1170 millimeter depth per annum. The available surface water resources of the country have been assessed at 188 million hectare meter (ha m). However, since about 80% of this water is received during 3-4 months of the monsoon period, this cannot be utilized unless stored in reservoirs for subsequent use. On account of limitations of topography, enough dam sites to store a major part of the available water are scarce. The estimates made by the Central Water Commission indicate that the water resources utilizable through surface structures is about 69 million ha m which constitutes only 31% of the available water. The Central Ground Water Board indicates that the utilizable ground water is about 45 million ha m. The existing water availability per capita per annum is quite low in India in comparison to other countries.

Estimated Area under Land Degradation and Land Utilization Problem

Annual average loss of Nutrients from land is worth	5.37 to 8.4 million tonnes
Annual average loss of Production for not developing ravine is worth	3 million tonnes
Average annual rate of encroachment of table land by ravines	8,000 ha
Average area annually subject to damages through shifting cultivation	1 million ha
Total flood-prone area	40 million ha
Total drought-prone area	260 million ha

Water Availability per Capita per Annum in Various Countries

Countries			Cubic Meters
Russia	....	....	17,536
Japan	....	....	6,500
USA	....	....	6,200
Yugoslavia	....	....	6,000
India	....	....	3,200
China	....	....	2,500

The irrigated area in the country was only about 21 million ha in 1950-51 whereas the anticipated potential to be created by 1989-90 is about 77 million ha, comprising 42 million ha irrigated by surface water and 35 million ha irrigated by ground water. The ultimate irrigation potential of the country has been estimated by the Central Water Commission as 113 million ha.

The attention of our irrigation engineers in the past had been confined to canal outlet of delivery of water, but had, by and large, not been related to on-farm water management. Indian farmers had to adopt their own traditions or wisdom on their farms leading to inefficiency and other hazards like water-logging, salinity etc. On an average a gestation period of 10-15 years has been recorded for the opening of a canal and appearance of waterlogging and secondary salinisation. Almost all major irrigation commands have suffered from this problem. The National Commission on Agriculture (1976) estimated that about 6 million ha of land is damaged by waterlogging during the monsoon months, mostly in the states of West Bengal, Orissa, Andhra Pradesh, Eastern Uttar Pradesh, Tamil Nadu, Kerala, Gujarat and Punjab. In addition, an area of 2.6 million ha has the problem of high water table. In the canal irrigated area of flat plains of northern India water-logging occurs in 1 m ha. Water logging is a serious problem in areas of injudicious water use where ground waters are unfit for recycling or where water rates and water availability do not favour conjunctive use of fresh ground water and where a hard pan exists below the surface.

In the Indira Gandhi Canal Project Stage II command area, there is hard pan below 5 meter depth over 0.07 million ha area and below 5-10 meters depth in an area of 0.25 million ha. In desert areas of Rajasthan, where fresh water is scarce, use of saline irrigation water has left large areas salt affected.

Industrial Development

Progress of industrialisation over the last 40 years has been a striking feature of Indian economic development. There has been a substantial diversification of industrial base during this period with the consequent ability to produce a very broad range of industrial goods

Government had decided to classify industries into three categories, having regard to the part which the State would play in each of them. In first category are industries the future development of which will be exclusive responsibility of the State. Second category consists of industries which will be progressively State-owned and in which the state will generally take initiative to establish new undertakings, but in which private enterprise will also be expected to supplement the effort of the State. Third category includes all remaining industries and their future development has been left to initiative and enterprise of private sector.

India has the distinction of being the tenth among the industrialised nations in the world. As a result of industrialisation atmospheric and river pollution, stack emissions, industrial effluent and sewage disposed are assuming alarming proportions. Owing to the imbalance in industrial development, the pollution levels are different in different states. Himachal Pradesh and Assam have only about 20 pollutant industries, where as Maharashtra and Gujarat have between 400 to 600 pollutant industries.

Urbanisation

India's urban areas grow at a good pace, and the large cities grow the fastest of all. The marked growth of cities is also a result of increasing economic pressure in the rural areas more than one third of the city dwellers have migrated from villages. The urban housing shortage already acute is worsening and congested areas in industrial cities reach densities of 2000 or more persons per hectare. House style tend to be a rural type without the saving grace of open air and sunlight found in the villages.

Urban Population

Urban population grew from 26 million in 1901 to 62 million in 1951, further to 160 million in 1981. It is projected at 326 million in 2001. Urban growth has been distinctly fast since independence.

Indian cities have been growing at an alarming rate over the past few decades.

Against a national population growth rate of 2.1 - 2.5 per cent. Indian cities with population above 1 million have grown at an annual growth rate of 3.5-4.5 per cent. In 1981 over 28 per cent of the Indian population was dwelling in the urban areas. At this rate the population living in urban areas in India will increase to 35 to 49% by 2000 AD.

The expected population by 2000 AD in Bombay, Calcutta, Madras and New Delhi is 17.1 million, 16.7 million, 10.9 million and 11.2 million respectively.

Urban Slums

Slums in cities, generally a cluster of huts, with subnormal living and environmental conditions, are deemed as unfit for human habitation. According to the information provided by the National Buildings Organisation, New Delhi, 18.75 per cent of India's urban population was living in slums in 1981.

The percentage of slum population in urban population differs widely by States and Urban Territories. Bihar, the State with one of the lowest per capita income in the country, has an additional dubious distinction of being on the top in percentage (37.5) of urban population living in slums. But it is in Kerala where one finds the lowest percentage (8.81) of urban population in slums.

It is to be underlined that slum-dwellers perceive a slum as a solution of their problem rather a problem, as generally viewed. Their prime need is employment and their residence must be in proximity to the place of work or possible employment. Living in a slum is acceptable for it does not entail any undue expenditure. Overall conditions in slums may be comparable to those in native villages as many of them may have been living in mud huts in the countryside and problem of water supply may have been no less acute even there. The social milieu in the slum locality is also not unfamiliar as there is generally a high degree of segregation by source region among the slum-dwellers. In other words, the slum hutment is usually not so discouraging to the migrant squatter as many outsiders may like to believe.

Urban Air Pollution

One of the major problem areas have been urban air pollution due to vehicular emissions. A recently-conducted study on urban air pollution from vehicular emission indicates the following:

- * Carbon monoxide emissions are mostly contributed by petrol driven vehicles to

the tune of 85%. Among petrol driven vehicles, contribution of two wheelers is expected to rise in the coming years;

- * Two and three wheelers are high contributors of hydrocarbons. Their contribution at present ranges from 35 to 65% in different cities and is estimated to increase even up to 80% by 1991-92;
- * Diesel driven vehicles contribute more than 90% of nitrogen oxides and are expected to remain so, if uncontrolled. Diesel vehicle is also the principal source of particulate emissions;
- * Two stroke engines (scooters, motorcycles & mopeds) are adding unburned hydrocarbons to the atmosphere and no commercially viable technology to reduce unburned hydrocarbons from these is yet available;
- * Any vehicle emission control programme in India, therefore, must necessarily be directed to the emission reduction from two stroke engines.

Delhi has country's worst air pollution problem due to heavy traffic. Air pollution Survey has revealed that 400 tonnes of pollutants are emitted every day by nearly 500,000 vehicles. Two and three wheelers constitute 63% of the total vehicles now plying on the Delhi roads. Work carried out by Central Water Pollution Control Board showed that the exhaust gas from two-wheelers, three wheelers and four wheelers contained on volume basis 4.12%, 3.86% and 6.63% of carbon monoxide respectively. Average density of smoke in Hartridge units from trucks was between 91-95. Pollution from automobiles has already reached alarming situation. Over 8 million two and three wheelers are powered by simple but highly polluting engines. The automobile industry's reactions to suggestions that these engines be phased out is predictably negative. While the urban population is going up at a rate of 4 per cent annually, the figure for vehicles is a staggering, 30 per cent. The contribution of various emission in the air pollution from automobiles was about 70 per cent. Dust emission from Indraprastha Thermal Power Station from units 3 and 4 was 28.9 and 27.32 MT/ day.

Urban Water Pollution

The cities in India are facing the traditional environmental problems such as lack of sanitation, water supply, chronic shortage of services, polluted air and water, lack of space and recreational areas, refuse disposal, traffic congestion etc. The rivers passing through or passing by the side of almost all the cities are grossly polluted.

57% of the population of class I cities and 80% of class II cities in India are unsewered. Pollution of water courses in urban areas are mainly due to sewage, sullage, solid waste leachates and industrial wastes.

70 per cent of all available water in India is polluted. About 73 million work days are lost due to water-related diseases. The water supply systems in urban centres are facing the problem of contamination of water in the distribution system. Water is distributed to the community intermittently.

Urban Refuse Disposal

Solid waste disposal is assuming serious dimensions in the urban areas in India. The amount of solid wastes generated per capita is nearly four times that of dry weight of sewage solids. But the amount of money and effort spent on solving this problem is comparatively meagre. In India primitive methods of solid waste disposal have been practiced in many cities hitherto. These have been highly unhygienic and unsatisfactory involving manual handling of wastes in loading, unloading and land filling or composting operations.

The solid wastes from industries can be grouped as (a) biodegradable (b) non-biodegradable (c) hazardous. Biodegradable soiled wastes are generated in industries like fruit processing canning, slaughter house, cotton ginning, textile etc. Non-biodegradable wastes are generated in industries like refineries, collieries, thermal power plants, paper industry, ferrous and non-ferrous metallurgical industries etc. Solid wastes generated from urban and industrial sources contain large number of ingredients, some of which are toxic or hazardous. Bulk of these toxic or hazardous wastes containing arsenic, cyanide, mercury, chlorinated hydrocarbons etc. are generated in the industries.

The impact of their disposal on environment in general and water pollution in particular in urban areas is not well studied.

ENVIRONMENTAL MANAGEMENT

Environmental Management Awareness

Increasing population and various developmental activities pose threat to the environment and urgent remedial measures are now required for restoring the environment and maintaining ecological balance. Environmental management is accepted as a major guiding factor for national development. Over the last decades



Soil Erosion : The terrace farming without attention being paid to the erosion of soil that is already taking place



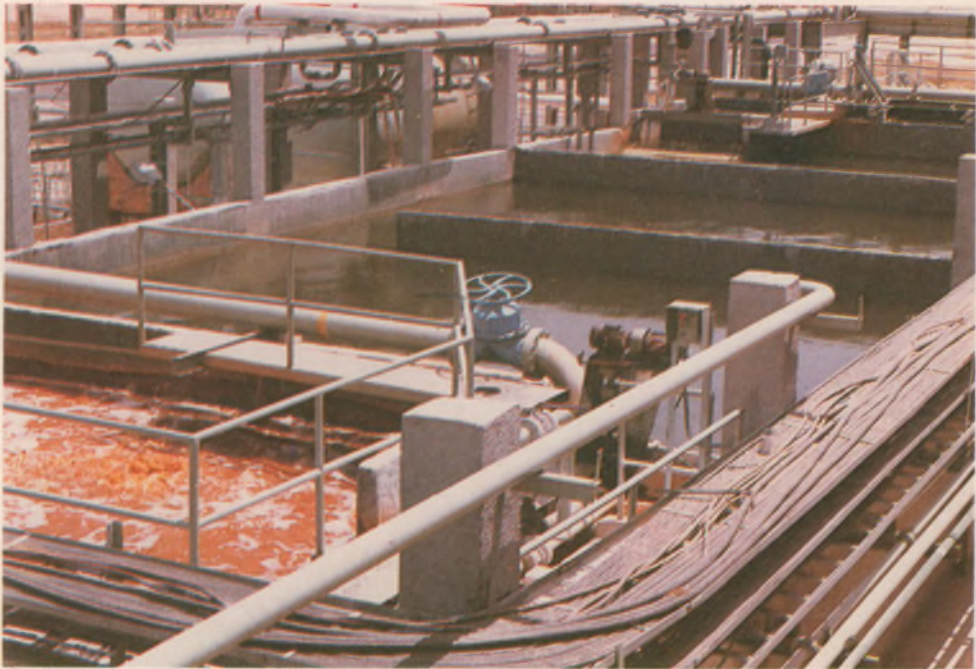
Indiscriminate minning for clay poses a real danger to ecological balance. Land- slides and flash floods are the logical consequences



Air pollution : High volume air sampler installed at one of the plants of IFFCO in India



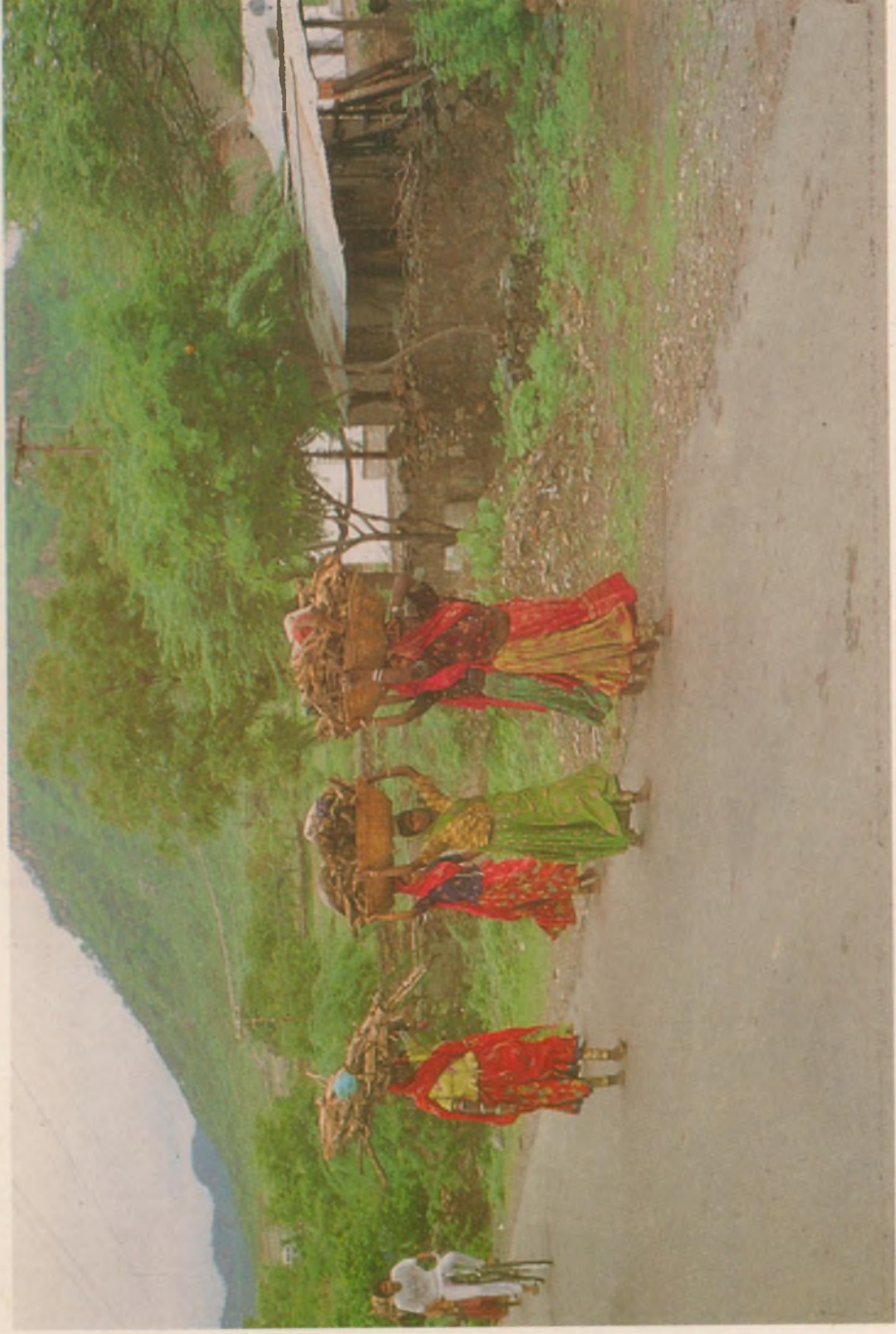
The Green Cover : A view of a social forestry farm developed by one of the fertiliser cooperatives in India



Treatment of Effluent : The Aonla Unit of the IFFCO has installed a large-size chromate reduction and precipitation chamber



Centralised effluent treatment plant at one of the cooperative industrial units in India



Wood as fuel : These women are bringing home the wood from the forest



Social Forestry : A view of the social forestry farm developed by the IFFCO



Jakarta Workshop : Hon'ble Bustanil Arifin, Minister of Cooperatives of Indonesia seen inaugurating the Jakarta Workshop



The Hon'ble Minister of Cooperatives being welcomed by Mr Daman Prakash on behalf of the ICA Regional Office



Hon'ble Dr Emil Salim, Minister for Environment and Population of Indonesia with (l to r) Judge Manuel F. Verzosa, the Hon'ble Minister, Prof Sri Edi Suwasono and Dr G. C. Shrotriya



Jakarta Workshop : A view of the audience attending the inaugural session of the Workshop on Environment and Cooperatives



Judge Manuel F. Verzosa introducing his national situation paper at the Workshop



Ms Margret Mockler (Team Member-Indonesia), Mr Kazuo Tsukada (Japan) and Judge Verzosa (Philippines) - all consultants - at the Jakarta Workshop

there has been progressive strengthening of official involvement in environmental management with increased scientific, technical, administrative and legislative back-up at the Centre and State levels.

Another class of environmental problems faced is the unintended side-effects of the very attempts at development. These are: mismanagement of natural resources, large-scale deforestation, unplanned discharge of residues and wastes, handling of toxic chemicals, indiscriminate construction, expansion of settlement activities etc. It is to this class of problems the tools and methodologies of environmental planning are primarily addressed. A committee on environmental coordination was set up in 1972 to look into these problems and suggest solution in consultation with experts and concerned ministries/departments of the Government. Another committee was set up in January 1980 for reviewing exhaustive legislative measures, administrative machinery for ensuring environmental promotion and for recommending ways to strengthen them. On the recommendations of this high-powered committee, Department of Environment was set up in 1980. Subsequently it was made a new Ministry of Environment, Forests and Wild Life in 1985 to serve as the focal point in administrative structure for planning promotion and coordination of environmental programmes.

Constitutional Provisions

In India the problems of environment management were given a serious thought by a few environmentalists and the then Prime Minister, Mrs. Indira Gandhi. In 1972, she attended the United Nations Conference on Human Environment at Stockholm. In 1976 the Constitution (Fortysecond Amendment) Act was passed, incorporating provisions to protect environment and safeguard against pollution. The problem of environmental pollution was highlighted through inclusion of Article 48-A in the Chapter on Directive Principles of State Policy which runs as follows :

“48A. Protection and Improvement of Environment and Safeguarding of Forests and Wild Life - The State shall endeavour to protect and improve the environment and to safeguard the forests and wild-life of the country.

The Constitution (Fortysecond Amendment) Act, 1976 provided in Section ii a new Part IV-A under the nomenclature “Fundamental Duties”. It provides Article 51-A in which sub-clause (g) is about duty of citizens in environment management and reads as under :

“It shall be the duty of every citizen of India....to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures.”

The effect of including these provisions in the Constitution of India has been instant. There has been a national awareness of the inherent danger in the further neglect of purity of environment.

The provisions contained in Part IV of the Constitution dealing with the Directive Principles are not enforceable by any court, but the principles therein laid down are, however, fundamental in the governance of the State. It shall, therefore, be the duty of the State to apply these principles in making laws. The Supreme Court of India has conferred varying degrees of respectability to the Directive Principles from time to time.

Environment (Protection) Act, 1986

This Act has been brought into force from 19 November 1986. its salient features are (A) conferring powers on Central Government to : (i) take all necessary measures for protecting quality of environment; (ii) coordinate actions of States, officers and other authorities under this Act; (iii) plan and execute a nationwide programme for prevention, control and abatement of environmental pollution; (iv) lay down standards for discharge of environmental pollutants; (v) empower any person to enter, inspect, take samples and test; (vi) establish or recognize environmental laboratories; (vii) appoint or recognize government analysts; (viii) lay down standards for quality of environment; (ix) restrict areas in which any industries, operations or processes may not be carried out or shall be carried out subject to certain safeguards; (x) lay down safeguards for prevention of accidents and take remedial measures in case of such accidents; (xi) lay down procedures and safeguards for handling hazardous substances; (xii) constitute an authority or authorities for exercising powers; (xiii) issue directions to any person, officer or authority including the power to direct closure, prohibition or regulation of any industry, operation or process or stoppage or regulation of supply of electricity, water or any other service; (xiv) require any person, officer, state government or authority to furnish any prescribed information; and (xv) delegate powers to any officer of a state or authority; (B) it confers powers on persons to complain to courts regarding violation of the provisions of the Act, after a notice of 60 days to prescribed authorities; (C) the Act makes it obligatory for the person in-charge of a place to inform the prescribed authorities regarding any accidental discharge or apprehend discharge of any pollutant in excess of prescribed standards. Authorities, on receipt of such

information or otherwise, shall take remedial measures to prevent or mitigate pollution caused by such accidents and expenses incurred by the authorities in respect of remedial measures are recoverable with interest from the polluter; (D) it prescribes stringent penalties for violation of the provisions of the Act. No distinction is shown between government departments and other companies, and (E) jurisdiction of civil courts is barred under the Act.

Government has taken several steps to provide legal and institutional basis for implementation of the Act. These include issue of rules, notification of standards action regarding environmental laboratories, strengthening of state departments of environment and pollution control boards, delegation of powers, identification of agencies for carrying out various activities for hazardous chemical management and setting up of environment protection councils in states.

Water Pollution

Though water is a State subject, except that the Central Government has the responsibility of regulation and development of inter-state rivers and valleys to the extent to which such regulation and development declared by Parliament to be expedient in public interest, yet the Act is a central enactment. The Act has been enacted by Parliament under Article 252 of the Constitution which enables Parliament to pass an Act for any matter falling in the state list.

The Act being comprehensive covers various types of water. Its application is to streams which term includes rivers water course, island water, sub teranian water, sea or tidal water. The Act is the most comprehensive legislation to clean up the nation's waters.

There is a provision in the Act for establishment of a central Board and state Boards for prevention and control of water pollution which are autonomous Boards in their working and powers.

Central Board has to coordinate the activities of the state Boards and resolve disputes among them, whereas the main function of the state Boards are: (i) to lay down standards of pollution; and (ii) to make consent order for putting trade and sewage effluents into the streams. The Central Board and State Boards have to act according to the directions of the central government and state governments/ Central Board respectively. In cases of divergence in directions given by the state government and Central Board, the matter is to be referred to the central government for adjudication.

The main function of the Central Board is to coordinate the activities of the State Boards and thereby plan and execute a nationwide programme for prevention, control and abatement of water pollution. The State Boards, in turn will plan a comprehensive programme for the same purpose in their respective states. State Boards have to make surveys, maintain records of flow on volume of any stream or well or discharging sewage or trade effluent into them.

The objective of this legislation is to prevent and control water pollution and also to maintain and restore the wholesomeness of water. As an existing industry cannot be asked to abruptly stop its discharge into a water course, therefore, in respect of the existing sources of pollution, the remedy lies in a gradual control of pollution, for which a special provision has been made in the Act, which permits the existing industries, discharging effluents in the water course to apply for consent within three months of the establishment of State Boards. So far as new industries are concerned, standards can be laid down and enforced strictly, with a view to making systematic arrangements for the treatment of effluents in accordance with the requisite standards before they are discharged in the water course. There is also a provision in the Act which lays down that no person can bring into use any new or altered outlet for the discharge of sewage or trade effluents into a stream or well without the previous consent of the State Board.

Section 277 of Indian Penal Code (IPC) provides whoever voluntarily corrupts or fouls the water of any public spring or reservoir, so as to render less fit for the purpose for which it ordinarily used, shall be punished with imprisonment of either description for a term which may extend to three months, or with fine which may extend to five hundred rupees, or with both.

The aforesaid provision is extremely limited in scope. This applies to a public spring or reservoir. There is a section 269 IPC which prescribes punishment for negligent act likely to spread infection of any disease dangerous to life. Pollution of water other than springs and reservoirs will be covered by section 290 of the Indian Penal Code. Another provision in the IPC relevant to water is section 426 which deals with mischief.

The Municipal enactments also contain provisions dealing with water pollution. The Delhi Municipal Corporation Act 1975 is one of such enactments, which empowers the commissioner to make an order restraining the use of water from any well, tank or any other source of supply not vested in the Corporation when it is so polluted as to be prejudicial to health of the people.

Prevention and Control of Water Pollution

Central Pollution Control Board (CPCB) is the national apex body for assessment, monitoring and control of water and air pollution. Executive responsibilities for enforcement of the Acts for prevention and control of pollution of water (1974) and air (1981) as also of the Water Cess Act (1977) are carried out through the Board and similar statutory boards established in the states under these Acts. Except Manipur, Nagaland, Sikkim, Arunachal Pradesh and Mizoram all states have constituted their boards. Central Board also looks after pollution control activities in union territories except Lakshadweep.

With enactment of the Environment (Prevention) Act, 1986, major additional responsibilities have been placed on Central and state boards. Under the Act, effluent and emission standards in respect of 31 specific industries have been notified which are applicable to all types of effluents generated from industries including municipal sewage. This excludes industries for which standards have already been notified. So far 83 laboratories have been recognized as environmental laboratories. Minimal National Standards (MINAS) for pollution discharge from specific industries have been formulated and control measures are being implemented in a phased manner.

CPCB is also engaged in the study of existing surface water quality under the programme "Monitoring of Indian National Aquatic Resources" (MINAR) including stations of the Global Environmental Monitoring System (GEMS/Water). There are altogether 400 water quality monitoring stations. The Board has also a programme on monitoring of ambient air quality under National Ambient Air Quality Monitoring Programme. At present, 120 air quality monitoring stations are in operation.

Air Pollution

To begin with air pollution was indirectly controlled by various enactments made by Central Government and State Governments. Therefore, there arose a need to introduce a comprehensive legislation with the sole object to deal with air pollution. Indian Government enacted the Air (Prevention and Control of Pollution) Act, 1981. This Act was passed under Article 253 of the Indian Constitution to implement the decisions reached at the 1972 Stockholm Conference, in so far as they relate to the prevention of the quality of air and control of air pollution, to which India is party.

This Act under Section 2 defines air pollution as the presence of any solid, liquid

or gaseous substances present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures of plants or property or environment. Pollution damages not only the health of the individuals, it rather affects the entire social fibre and leaves its unbridgeable impacts.

The Act provides for setting up of Air Pollution Control Boards at the Centre as well as in the States with power to issue and revoke licenses of polluting industries, enforce emission standards and to frame rules and regulations for the control of air pollution. The Act envisages an integrated approach for tackling the environment pollution problems by laying down that the Central Board and State Boards for the Prevention and Control of Water Pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974 shall also perform the functions of the Central Board as well as the State Board for the Prevention and Control of Air Pollution.

Moreover, certain heavily polluted regions may be declared as “air pollution control areas” by the State Government, after consultation with the State Board where any further pollution by the use of any fuel would become a severe health hazard to the people. Similarly the use of any appliance can be prohibited in the premises situated in such control areas. The burning of any material (other than fuel) like garbage and other waste products in such area which is likely to cause air pollution can be prohibited by the State Government. It also prohibits the fouling up of the air by burning smoking fuels for domestic purposes.

The State Government in consultation with the State Board has power to give instructions to the concerned authority in charge of registration of motor vehicles under the Motor Vehicles Act, 1939 for ensuring standards for emission from automobiles and such authority is bound to comply with such instructions. No industrial plant shall be operated in an ‘air pollution control area’ by any persons without the previous consent of the State Board.

There are stringent measures to check hazardous pollution.

Noise Pollution

Noise Pollution has been described as a sound without agreeable musical quality, or an unwanted or undesired sound. The definition given in ILO Convention No 148 is :

“ the term noise covers all sound which can result in hearing impairment or be harmful to health or otherwise dangerous”.

The major sources of noise pollution include industry, transport and community activities. When the sound level in the working environment is more than 90dB and there is difficulty to communicate by speech.

Legal Regulation of Noise Pollution

In India, there is no law exclusively dealing with the problem of noise pollution. There are some stray provisions here and there in different laws which are discussed below:

(a) Noise Control under Law of Torts: A civil suit can be filed claiming damages for the nuisance. Nuisance as a tort means an unlawful interference with a person's use of enjoyment of land, or some right over, or in connection with it. Therefore, it is duty of every neighbour or a person living in that locality not to make any unreasonable noise in order to allow neighbours to live in peace. No person has absolute right to make noise on his land to the detriment of others and the person makes noise which disturbs his neighbour, the neighbour can file a case for the tort of nuisance. But it is clear that the law of torts can be used as an instrument to control the noise pollution but the field of its application is very small and narrow.

(b) Noise Control under Law of Crimes: Section 268 of the Indian Penal Code recognizes noise as public nuisance. Section 268 reads:

A person is guilty of a public nuisance who does not act or is guilty of an illegal omission which causes any common injury, danger, or annoyance to the public or to the people in general who dwell or occupy property in the vicinity, or which must necessarily cause injury, obstruction, danger or annoyance to persons who may have occasion to use any public right.

Nuisance by noise in India is not considered as seriously as it should be. This can be attributed to many factors. Firstly, there are very rare prosecutions for nuisance by noise. Secondly the offence of public nuisance u/s 290 IPC is non-cognizable. Thirdly, the nuisance by noise is not regarded as public nuisance by the courts on the ground that it does not affect all the residents of a locality. Fourthly, the courts easily accept the defence of enjoyment of his right of property by the accused which he asserts as his basic human right. Fifthly, the judges are, generally, unaware of the health hazards of unbearable noise. Sixthly, nuisance by noise is taken by the courts as too insignificant to be taken notice of under the IPC. Seventhly, the people in India are neither conscious of their rights nor aware of the relevant provisions of law for the enforcement of the violations of the concerned rights. Eighthly, the absence

of the provision of the sentence of imprisonment under section 290 discourages penal prosecution for nuisance by noise. Ninthly, the IPC was drafted when there were no such scientific and industrial developments and therefore, the IPC's drafters had no idea of such noise pollution by so many irritants of the modern society. Consequently, the provision of the IPC is inadequate to cope with increasing menace of noise pollution.

Noise Control under Motor Vehicles Act, 1939

This Act under sections 20, 21J, 41, 68, 68(I), 70, 90 and 111A empowers a State Government to frame rules for the upkeep of motor vehicles and control of noise produced by them in its jurisdiction. A close examination of motor vehicles rules made by various States reveals that there is nothing substantial to control the noise pollution except small control 'Horns' and 'Silencers' producing noise. So, the power conferred by this Act has not been fully utilized by governments towards making effective regulatory provisions to control noise pollution.

Noise Control under Industrial Laws

Surprisingly no industrial law has provided protection to the workers from the noise pollution except Section II of Factories Act, 1948.

Afforestation

India is one of the few countries which had a forest policy since 1894. It was revised in 1952 and again in 1988. Main plank of the revised forest policy 1988 is protection, conservation and development of forests. Its aim are : (i) maintenance of environmental stability through preservation and restoration of ecological balance; (ii) conservation of natural heritage; (iii) check on soil erosion and denudation in catchment area of rivers, lakes and reservoirs; (iv) check on extension of sand dunes in desert areas of Rajasthan and along coastal tracts; (v) substantial increase in forest/tree cover through massive afforestation and social forestry programmes; (vi) steps to meet requirements of fuel wood, fodder, minor forest produce and small timber of rural and tribal populations; (vii) increase in productivity of forests to meet national needs; (viii) encouragement of efficient utilization of forest produce and optimum substitution of wood, and (ix) steps to create massive people's movement with involvement of women to achieve objectives and minimize pressure on existing forests.

Forest Conservation

Increasing destruction and degradation of forests and treelands especially in the Himalaya and other hill areas, is leading to heavy erosion of top soil, erratic rainfall and recurring floods. It is also causing acute shortage of fire wood and, what is more important, loss of productivity due to eroded and degraded lands. The Forests (Conservation) Act, 1980, enacted primarily to check indiscriminate deforestation/diversion of forest lands for non-forestry purposes, was amended in 1988 to make it more stringent by prescribing punishment for violations. Rate of diversion came down to about 16,500 hectare a year after the enactment of this Act as compared to 1.5 lakh hectare per annum earlier.

Another areas of concern has been degradation of forests due to biotic pressure. Guidelines have been framed for preparation of working plans and felling in forests. Some of the salient features are: (i) preliminary working plan should be up-to-date and stress conservation; (ii) preliminary working plan should have a multi-disciplinary approach; (iii) tribal rights and concessions should be highlighted along with control mechanisms; (iv) grazing should be studied in detail and specific prescriptions should cover fodder propagation; (v) clear-felling with artificial regeneration should be avoided as far as possible and clear-felling blocks should not exceed 10 hectare in hills and 25 hectare area in plains; and (vi) banning all felling above 1,000 meter altitude for a few years should be considered to allow these areas to recover. Critical areas in hills and catchment areas prone to landslips, erosion, etc., should be totally protected and quickly afforested.

Government has recently set up a National Forest Fund. Initially its funds will be used for unemployed youth, ex-servicemen, tribal, etc., for planting trees on users' lands.

National Mission on Wastelands Development

National Wastelands Development Board (NWDB) was established in May 1985 with primary objective of undertaking wastelands development. NWDB seeks to achieve this through a massive programme of afforestation and tree planting with people's participation. First four years of Seventh Plan saw coverage of 7.16 million hectare of land under it.

Besides providing impetus to on-going programmes such as rural fuelwood plantations, operation soil watch, decentralized nurseries etc., several new initiatives like seed development agencies, aerial seeding, margin money assistance to autonomous

bodies/organisations, minor forest produce planting and fuel wood and fodder projects, were taken up in 1988-89.

A review of the activities of the Board showed that there is need for restructuring and strengthening the programme. Recognizing this Government decided to raise wastelands development programmes to the level of a technology mission and National Technology Mission on Wastelands Development was launched on 5 October, 1989.

Industrial Safety and Environment

Despite the Factories Act, 1948, and the licensing procedures framed under the Industries (Development and Regulation) Act, 1951, containing provisions for regulating the siting of industrial units from the point of view of environmental hazards, especially for the industries which emit poisonous and highly toxic gases, endeavours at environmental protection - atmospheric as well as water - did not make much headway till about the middle of the last decade. An Expert Committee of ASSOCHAM set up in 1973 specifically to assess the situation reported after a survey that there was a definite lack of awareness of the environmental protection problem even among the constituents of ASSOCHAM. The position was no different, if not worse, in the case of the industrial sector in general. Most industrial units did not take any environmental protection measure. They even lacked monitoring facilities in this regard.

Statutory Provisions Relating to Industries

Besides the general provisions in the Factories and the Industries (Development and Regulation) Acts formalized procedures have now been evolved by the government for selected hazardous industries coming under the overview of the licensing system. According to this procedure, letters of intent can be converted into industrial licenses only if the following conditions are fulfilled :

- The State Director of Industries confirms that the site of the project has been approved from the environmental angle by the competent state authority;
- The entrepreneur commits, both to the state government and the Central Government, that he will, install the appropriate equipment and implement the prescribed measures for the prevention and control of pollution;
- The concerned State Board of the Prevention and Control of Pollution has

certified that the proposal meets with environmental requirements and that the equipments installed or proposed to be installed are adequate and appropriate to the requirements.

The Minimal National Standards (MINAS) for pollution discharges for specific industries have been formulated and control measures are being implemented.

In the wake of the Bhopal tragedy, caused by the leakage of poisonous gas in a pesticides manufacturing plant there, a policy paper for legislative and institutional framework to regulate the import, manufacture, handling and disposal of hazardous substances (toxic chemicals and micro-organisms) has been prepared. A document recommending the threshold limit values (TLV) for selected hazardous industries for environmental purposes also has been prepared.

International Cooperation

The Ministry functions as nodal agency for UNEP, South-Asia Cooperative Environment Programme (SACEP), and International Centre for Integrated Mountains and Development (ICMOD). It is also the nodal point for interaction with various international agencies, regional bodies and multilateral institutions. It coordinates all bilateral cooperation in the field of environment. India has such cooperation programmes with the Netherlands, Norway, Sweden, Denmark, Britain, USA, erstwhile USSR, Canada, Japan and Germany, in addition to social forestry programmes with external assistance.

In 1988, a move was initiated for studies of environmental degradation and natural disasters through SAARC. The Ministry is playing a coordinating role in deliberations on global warming, trans-boundary movement of hazardous chemicals and chemical wastes.

India is a signatory to World Heritage Convention and the Ministry deals with the natural sites inscribed in this Convention. India is a member of Convention on International Trade in Endangered Species, International Whaling Commission, Antarctica Treaty and Convention on Migratory Species. It is also a party to a number of other international agreements for protection of flora and fauna.

Monitoring

Government has constituted an Environmental Monitoring Committee with a view to ensuring effective implementation of environmental safeguards in irrigation,

multi-purpose and flood control projects. Headed by Member (Water Planning), Central Water Commission, it has representatives of Ministries of Water Resources, Environment and Forests, Agriculture, Welfare, Planning Commission and Central Water Commission.

Whenever need arises, representatives of other national organisations are invited for discussions on any related specific issues. The committee will review mechanism established by project authorities to monitor ecology of project areas, irrigation command areas and catchment areas and suggest additional compensatory measures/facilities whenever necessary.

Ecomark

The new scheme, due for implementation in 1992, is to award 'ecomark' label to products which are friendly throughout their life cycle of manufacture, use and disposal. Environmental criteria, for each product category will be set by the government and thus marked out to be Indian Standards by the Bureau of Indian Standards (BIS). Products eligible for the ecomark should be less polluting than other comparable products in production, usage and disposal. They should be made from material that can be recycled, made from recycled products or be biodegradable where comparable products are not. A significant contribution towards saving non-renewable resources, as well as effective use of waste products or reduction of waste generated are also ecomark criteria.

The scheme is purely voluntary. Manufacturers of products which comply with published criteria can apply for testing and certification of their products. The BIS will undertake this function. Terms and conditions governing the operation of Licenses, including fees, will follow the rules and procedures laid down by the BIS Act. The ecomark scheme will cover product categories ranging from soaps and detergents to food products, cosmetics, paints, packaging paper and many others. The scheme has the potential to create consumer awareness on environmental issues.

The criteria for the first product category, soaps and detergents, have been published in a gazette notification dated November 29, 1991.

COOPERATIVE MOVEMENT IN INDIA

Historic Perspective

In India, the Cooperative Movement was introduced with the main object of making a breakthrough in the stagnation of the poorer classes, especially for the vast majority of the agriculturists who were under the heavy weight of indebtedness.

With the introduction of Cooperative Credit Societies Act of 1904, Cooperative Movement was started in India and stress was laid on organizing only agricultural credit cooperatives. The main object of this Act was “to encourage thrift, self-help and cooperation among the agriculturists, artisans and other persons of limited means.” At the beginning of the year 1906-7, the number of societies was 843 with a membership of 90,840 persons.

After the attainment of independence in 1947, the nation adopted a policy of planned economic development for establishing an integrated and just society providing individual liberty, equality of opportunity and a basic economic minimum for all. In this context, Cooperation was considered as an effective and important instrument for achieving the objectives of Economic Planning.

The First Five-Year (1950-51 to 1955-56) Plan itself stated, “as it is the purpose of the Plan to change the economy of the country from an individualistic to social and cooperative basis, its success would be judged, among other things, by the extent to which it is implemented through cooperative organisations.”

As a result of the emphasis given in the Plans on Cooperation as a means of achieving socio-economic transformation, there has been considerable diversification in the operations of cooperative during the last two decades. Cooperative now operates a network of banking institutions, marketing and processing societies, consumers stores and other type of societies like dairy societies poultry societies etc. Their performance in terms of turnover has also been very impressive.

Over a period of time, the Movement has not only grown in size, but also diversified its activities in various other fields besides agricultural credit. Some of the important fields in which the Indian Movement is currently active include: agricultural production and processing, fertilisers production and distribution, milk production, sugar production, oilseed production and processing etc.

A number of national federations of specialized sectors have emerged and trade is being carried on with parties outside the Indian shores earning valuable foreign exchange.

Cooperative Structure

The Cooperative Movement in India has a 3-tier structure. At the village level, there are agricultural primary cooperative societies (a primary society is one whose membership consists of individuals only). Similarly, there are primary societies in

urban areas formed by consumers, artisans and workers, taxi and auto-operators, urban credit unions (banks), housing, poultry, dairy, fishermen, plantation workers, employees' thrift and credit societies etc.

The primary societies federate into the District level societies, which, in turn, form the State-level cooperative societies/federations. At the state level, there are, cooperative banks, land development banks, agricultural marketing federations, industrial federations, specialized commodities marketing federations, housing federations, cooperative sugar federations, spinning mills' federations etc.

National level cooperative federations have also eventually emerged in many sectors like agricultural marketing, industrial, housing, consumers, sugar, dairy, fertilizers, banking, land development, spinning, handloom, textiles etc. These organisations primarily play promotional and coordinating roles. These national federations also undertake, on their own as well as on behalf of their affiliates, business contacts with other business organisations in India and abroad.

There are also State Cooperative Unions, which undertake activities like education and training, publicity, propaganda and coordination of activities in various sectors. The Unions also act as spokesman of the Cooperative Movement. Another very important function of the Unions is to act as liaison between the Government and the Cooperative Movement. The National Cooperative Union of India (NCUI) is the apex body of the Cooperative Movement in the country and all state and national level cooperative institutions are affiliated to the NCUI. Thus, there exists a well-knit vertical and horizontal relationship between cooperatives at all levels.

The subject of Cooperation is a State subject according to the Constitution of India. The Government of India does not make cooperative laws for all the States in the country. The Central Ministry of Cooperation (a part of the Ministry of Agriculture, at present) only prepares guidelines and holds periodic consultations with the State Governments. The Central Government, however, has a Central Registrar whose main task is to register and look after the large-size multi-unit cooperatives having an area of operation of more than one State. The Ministry and its Department of Cooperation maintains a close liaison with NCUI at the national level.

It is, however, the policy of the Central Government to promote the Movement in all possible ways. For this purpose a special organisation, the National Cooperative Development Corporation (NCDC), has been constituted by the Government of India. Established under an Act of Parliament in 1962, the main functions of the

NCDC include, among others, to plan and promote programmes through cooperative societies for: (i) the production, processing, marketing, storage, export and import of agricultural produce, foodstuffs, poultry feed; (ii) the collection, processing, marketing, storage and export of minor forest produce. For discharging the above functions, the NCDC is empowered to: (a) advance loans and subsidies to State Governments for financing cooperative societies and employment of staff; (b) provide funds for financing cooperative societies for the purchase of agricultural produce, and other commodities on behalf of the Central Government; (c) plan and promote programmes for supply of seeds, manures, fertilisers, agricultural implements for the development of agricultural produce; (d) provide loans and grants to national level cooperative societies having objects extending beyond one state; and (e) participate in the share capital of national level cooperative societies.

The State Governments are empowered to make laws on cooperative subject. The Registrar of Cooperative Societies is at the top of the state cooperative structure. He functions under the State Ministry of Cooperation. He has a full department which covers all the districts and primary cooperatives in the state. He registers all cooperatives, conducts the audit, undertakes supervision and offers guidance. The power of the Registrar starts with the registration of the society, continues during its existence and ceases only when the society is liquidated. In the line down there are additional, joint and deputy registrars at the state or divisional levels and assistant registrars at the district level who are supported by inspectors, sub-inspectors and auditors etc. All primaries, as could be seen from this structure, are directly covered by the assistant registrar through his subordinate staff.

Growth of Cooperatives

There are now more than 350,000 societies in India with a membership of more than 150 million and working capital of Rs.621,440 million. There are 20 national level and 260 state level cooperative organisations. The cooperatives account for 60.5 per cent of sugar production in the country, 20 per cent of the total spindalage capacity, and are responsible for white revolution which resulted in the abundance of milk in the country.

A major development after independence has been the emergence of national cooperative federations which has added a new dimension to cooperative infrastructure. With National Cooperative Union of India at the apex, other national level cooperative federations established in the country are : National Agricultural Cooperative Marketing Federation, National Federation of State Cooperative Banks, National Federation of Cooperative Sugar Factories, National Cooperative

Agriculture and Rural Development Banks Federation, National Cooperative Consumers' Federation, National Federation of Industrial Cooperatives, All India Federation of Cooperative Spinning Mills, National Cooperative Housing Federation, National Cooperative Dairy Federation, National Federation of Urban Cooperative Banks and Credit Societies, National Federation of Fishermen's Cooperatives, National Federation of Labour Cooperatives and National Cooperative Tobacco Growers' Federation.

Training and Education

Under the training function, the NCUI is supposed to provide professional training to cooperative employees (both from the government cooperative departments as well as from cooperative institutions). This is done through a special National Council for Cooperative Training (NCCT). The NCCT operates Vaikunth Mehta National Institute of Cooperative Management (VMNICM) at Pune and 18 state level cooperative training colleges located at various points throughout all the States in India. In addition, the state cooperative unions in collaboration with the state governments, also operate 95 junior cooperative training institutes, which also receive some technical guidance from the NCCT and the respective state level cooperative training colleges. The training structure offers various types of courses for various categories of personnel e.g. Diploma in Cooperative Business Management, Certificates in Cooperative Management, Certificates in Cooperative Movement, Auditing, Book-Keeping etc.

As to the cooperative member education activities, the NCUI operates a cooperative member education programme on its own. The programme is operated mainly through the network of state cooperative unions. There are at present nearly 900 cooperative educational instructors in the country who are expected to service the 145.1 million membership - it works out to roughly 160,000 cooperative members per instructor. The number of members joining the primary societies every year is certainly more than the persons trained in one year.

The cooperative educational instructors organize classes in the societies for various categories of persons of duration ranging from 3 days to four weeks. Classes are held for prospective members, office bearers, and directors of district level cooperative institutions. The state unions arrange to provide subject-matter training to instructors and also supervise the actual implementation of the programme through cooperative education officers. Training in educational techniques and methods is provided by the NCUI at its National Centre for Cooperative Education (NCCE).

PRESENT STATUS OF ENVIRONMENTAL MANAGEMENT IN INDIAN COOPERATIVES

Based on the survey through main frame questionnaire the status to environmental management in Indian cooperatives is compiled and presented here for various group of cooperatives. The main frame questionnaire was sent out to nearly 450 persons/institutions throughout the country representing cooperative institutions at various levels, renowned cooperative leaders, social workers, cooperative colleges and training centres, government departments at various levels throughout the country. The questionnaire was also sent to specialised national level research and management training institutions and several cooperative industrial institutions. The questionnaire was very closely followed-up by the Study Regional Consultant by personal visits, on-site observations, discussions and interviews. Some 250 replies were received. The information given hereunder is based on the feedback from the field.

Fertiliser Cooperatives

Cooperatives in India are in picture both for fertiliser production as well as its distribution. Two manufacturers, Indian Farmers Fertilizer Cooperative Limited (IFFCO) and Krishak Bharati Cooperative Limited (KRIBHCO), taking together have a total production of 1722 thousand tonne of nitrogen (N) and 235 thousand tonne of phosphorus (P_2O_5) and accounted for 24.6 per cent and 11.5 per cent of N and P_2O_5 production respectively in the country. Nitrogenous fertiliser-urea is produced at Hazira-Gujarat (KRIBHCO), Kalol-Gujarat (IFFCO), Phulpur and Aonla-Uttar Pradesh (IFFCO). While P_2O_5 is produced in the form of diammonium phosphate and N-P-K complexes at Kandla- Gujarat (IFFCO). Urea Units are basically Ammonia Urea complex units. The Urea units may contribute to environmental pollution through liquid effluent and gaseous emissions. However, all these four units have adopted effluent and gaseous emissions, treatment systems which are operating efficiently and as a result there is no pollution hazards from these plants. At DAP/NPK complex unit at Kandla the pollutant emitted from stocks are fertilizer dust (particulate matter), ammonia gas and sulphur dioxide. Adequate steps have been taken at this plant for keeping the discharge of pollutants lower than specified by the pollution control Board.

All the units are maintaining greenbelt around the unit by taking activities of tree plantation in the surrounding areas. Nurseries are raised which distribute seedlings to others as well.

There is a good participation of people from the units in seminars related to

pollution and environment management and they also represents groups related to Environment at Fertiliser Association of India and Chambers of Commerce and Industry. Besides, these units also publish posters, booklets and literature/articles on the environment related issues, organize seminars and special occasions like Earth Day, Environment Day, Energy Conservation Week etc. Both these cooperatives have also produced video films on environment.

As agricultural extension activities, IFFCO and KRIBHCO promote balanced and efficient use of fertilisers and also emphasis on Integrated Nutrient Management approach for crop production. Necessary facilities required for promoting this concept are being provided to the farmers through their cooperative societies. Activities in this direction include distribution of seed-cum-fertiliser drills, propagation of bio-gas plants, development of watershed, soil testing facilities etc. Training of cooperative society personnel dealing with fertiliser marketing is also organized which help in transfer of proper technology regarding fertiliser application. Efficient use of fertiliser, in turn, minimizes chances of environmental pollution through leaching of nitrates or volatilization as ammonia, nitrous oxides etc.

In the community development programmes through village adoption around the production units and elsewhere emphasis is also given to sanitation, family planning, health care, tree plantation etc. Family planning programmes are being followed for the employees of the two societies also. Pollution problems are also tackled by encouraging public transport system, minimizing the wastage of paper, electricity etc.

KRIBHCO bagged “Best Environmental Production Award” of Fertiliser Association of India for the years 1988-89 and 1990-91, IFFCO-Phulpur unit was the winner of first prize in fertiliser sector for Energy Conservation for 1986-89 instituted by the Ministry of Power and Non-Conventional Energy Science, Government of India.

Cooperatives in India are also involved in fertiliser distribution. As on March 31, 1990 number of retail outlets of cooperative and other institutional agencies for fertiliser distribution was 78,656, which were about one-third of the total outlets. The share of distribution of fertiliser by cooperative societies in the country is also one-third. These grassroots level societies which are in direct contact with the farmers in connection with fertiliser distribution can play very important role in promoting efficient use of fertiliser, thereby, minimizing the water and air pollution hazards likely to be caused by fertiliser application.

Petrochemicals Cooperatives

Petrofils Cooperatives Limited, Varodara (Gujarat) is the only organisation in this sector and is engaged in manufacture of Nylon and Polyester Filament Yarn (PFY). The society is also setting up a plant for manufacture of Spandex Yarn and Spun bonded fabrics. The organisation is not faced with any environmental problem at present and is also geared up to tackle the problems of environment in future plant. The plant areas are monitored by the Gujarat Pollution Control Board. Green belt has been developed for the existing plant at Varodara and at the new site also a green belt is being developed as per the directives of Ministry of Environment. After treatment effluent water is recycled for the green belt development. The society is also supporting the Vadodara Municipal Corporation by maintaining traffic islands in the city.

The society continuously explores venues for minimizing consumption of papers and observing energy conservation operations.

Housing Cooperatives

Housing cooperatives are an effective and powerful medium for promoting affordable housing with users full participation. About 60,000 housing cooperative societies are functioning in the country. At the national level National Cooperative Housing Federation of India (NCHF) represents the cooperative housing movement. 23 state level housing finance/federations are members of NCHF. The society provides a forum for dealing with technical, financial and practical problems of cooperative housing and devises ways and means to solve them. It coordinates the working of housing cooperatives in respect of planning, construction etc. and makes available expert advice and services as well as financial and organizational guidance.

Realising the basic problem of housing in-adequency and the consequent environmental degradation NCHF has been undertaking family welfare programmes in cooperative housing areas in association with the Ministry of Health and Family Welfare. Camps were held in seven states in collaboration with state level cooperative housing federations and primary housing cooperatives to educate members in particular, and public in general, about the benefit of family planning.

In rural housing, the cooperatives are promoting and providing smokeless chulha. The housing cooperatives developing colonies have also opted for prefabricated structures for doors, windows etc instead of scarce conventional material like wood. Tree plantation in colonies is also encouraged.

Rubber Cooperatives

Rubber cooperatives are responsible for procurement of rubber from grower and market the same to terminal markets for establishing a grower-consumer link. They also take processing of various grades of technically specified rubber. Consequent on the establishment of Crumb Rubber Factory aided by World Bank under Kerala Agricultural Development Project problem of water pollution was created which was rectified by establishing a pollution control system as per guidelines given by the World Bank Manual on Crumb Rubber Processing.

The Kerala State Cooperative Rubber Marketing Federation Limited (Rubber Mark) is also engaged in supply of agro-inputs and providing services like aerial spray of pesticides etc. Besides this, farmers' education and extension programme is also undertaken to help farmers in adopting latest technology in rubber production and farm management.

Sugar Cooperatives

The establishment of sugar cooperatives heralded a new era in the history of the cooperative movement. Their success is gauged by the fact that cooperatives today accounts for more than 60 per cent sugar production in the country. Moreover, the recovery of sugar cooperatives has been consistently ahead of the private and public sector sugar mills. Over 2.2 million sugarcane growers, mainly small farmers, are the members and users of about 220 cooperative sugar mills. These cooperatives have also contributed to the socio-economic development of the surrounding rural community by providing for irrigation facilities, promotion of dairy and poultry activities, agricultural extension and education, health and recreational facilities. Cooperative sugar factories have thus acted as a catalyst for industrialization and over all development of the rural masses. The activities of the cooperative sugar factories are coordinated by the National Federation of Cooperative Sugar Factories. The Federation assists in the promotion and organisation of new cooperative sugar factories and expansion of existing units.

The sugar factories, and distilleries and paper mills attached to some of these, invariably let out effluent which are pollutants. However, effective steps have been taken at all the places to combat pollution problems. There are approved effluent treatment equipments and systems. A Biogas plant has been installed at Pravaranagar for treating entire effluent of distillery which not only solved pollution problem but also generated gas sufficient to cater to 70-80% fuel requirement of distillery. The effluent of sugar factory is diluted with good quality water and is used for

irrigating sugarcane fields. Many cooperatives have taken up efficient recycling of water. Sugar cooperatives have also taken up tree plantation around the premises and the catchment area. Maintenance of cleanliness in plants, colonies and also in the villages in the area has been a regular programme with majority of cooperatives. Officials of sugar cooperatives are also taking active part in environment related seminars/trainings etc. and their experts also represent on other organisations concerning pollution control like Maharashtra Pollution Control Board etc. The training about awareness is not restricted to employees and members but also for general public. The extension programmes of sugar cooperatives encourage efficient use of chemical fertiliser and use of bio-fertilisers and also byproduct of sugar mills viz. pressmud.

Oilseeds Cooperatives

Oilseed development is one of the national priorities in the farm sector. A National Oilseed Development Programme has been launched. Integrated oilseeds complexes have been promoted in cooperative sector to provide better returns to the farmers through increased productivity on the farm and in processing units. These projects provide a package of inputs, collection, transport and processing of oilseeds to marketing of oil and by-products. Separate village level oilseed growers cooperatives are organized for providing extension services, delivery of inputs and for collection of oilseeds from farmers for supply to the processing unit. More than 300 oil mills have been installed in the cooperative sector in the country.

In the oil mills, environmental problems are primarily created from the gaseous emissions coming out of boilers and from effluents coming out from bleaching, deodourisation and hydrogenation processes. The water from effluent tank is released only after dilution and sedimentation. The oil mills are being supervised by inspector of boilers and norms prescribed by Pollution Boards are normally followed. At many places solar energy is utilized to run boilers and supplying power to ovens.

The state level oilseed growers federations take up extension activities also and method of efficient use of agro-chemicals, fertilisers, pesticides and soil amendments becomes the integral part of extension education. Bio-fertilisers are being popularized to minimize the environmental hazards. In the socio economic development activities like tree plantation, bio-gas plants, smokeless chulha are also undertaken.

Cooperative Training Institutions

The training institutions do not face or create environmental problems but are conscious of magnitude of the problem. Courses on topics which are environmentally-friendly like afforestation, family welfare (population control), alternate energy sources etc have been conducted. The Vaikunth Mehta National Institute of Cooperative Management has published compendium on one week training programme organized by them on "Social Forestry through Cooperatives". Besides organizing training, institutions are taking up measures which are contributing to the environmental cleanliness. These measures include use of solar heaters, greening of campus, conservation of energy and paper, prohibition on smoking etc. It has, however, been observed that in the curricula and syllabi of cooperative training institutions no serious thought has been given to the subjects relating to environment problems. The NCCT of the NCUI which operates the cooperative training structure in the country should seriously consider launching environment-related programmes and provide exposure to senior level government and cooperative officials on the subject. For this purpose special training/workshop events may have to be developed, and curricula for various courses modified and improved.

Marketing Cooperatives

The network of cooperative marketing structure comprises of about 6,000 primary marketing societies in the country. There are also district level and state level societies and state level federations. At the national level there is National Agricultural Cooperative Marketing Federation of India (NAFED) and also special commodity marketing federations. NAFED undertakes the price support operations for oilseeds and coarse grains and also act as government agency for market intervention for potato, onion, ginger etc. NAFED also serves as analysing agency for export of agricultural produce. The state federations and district level societies, besides procurement operation, also involve in distribution of farm inputs such as pesticides, seeds, fertilisers, farm implements etc. The State Cooperative Marketing Federations also run processing plants. At agro-processing units, effluent treatment plants have been installed and in the federations estates tree plantation has been done. The processing plants comply with the regulations of Pollution Control Boards.

A few of the states, like in Gujarat and Rajasthan federations, have their own pesticides formulation plants. GUJCOMASOL has its own Rhizobium Culture Laboratory and Bio-fertilisers are distributed to farmers through member cooperatives.

Dairy Cooperatives

Diary is the most important subsidiary occupation of small farmers. Cooperative form of organisation has been well accepted as institutional frame-work to implement integrated programme of dairy development. Organisational structure of dairy cooperatives is 4 tier consisting of primaries, district, state and national level federations. National Cooperative Dairy Federation of India Ltd (NCDFI) is the apex organisation representing the interests of six million producers.

The milk plants operating with District or State level dairy federations are provided with effluent treatment plants which are operating and statutory inspections of State Pollution Control Boards are regularly undertaken. Kaira District Cooperative Milk Producers' Union, Anand (Gujarat) has promoted Tree Growers' Cooperatives. As the cattle keeping at village level needs better sanitation, the Union is also supplying prefabricated cattle manger etc. The Union is also undertaking programmes of rural health including family welfare.

The Maharashtra State Cooperative Milk Federation Ltd., considers that empty pouches which are thrown away by customers create environmental problems. The pouches broken during packaging are discarded by the dairy. To handle the broken pouches a granulation unit has been installed. The member milk unions are being encouraged to install granulation plants. The empty pouches thrown away by the customers are picked up by rag pickers and recycled as II grade plastic. The federations have adopted solar water heating system, which save about 200 litre furnace oil per day, beside keeping the environment smoke free. Smoking and Tobacco chewing has been banned at in the dairy premises. Wide coverage and support to adoption of solar cookers, wind mills, photovoltaic lights, biogas etc have been given by the dairy federation. Programme of tree plantation is also undertaken.

Consumer Cooperatives

For consumer protection, a public distribution system has been organised in the country to ensure availability of quality goods to consumers at reasonable prices. The commodities under public distribution scheme have been identified on the basis of needs of common man. These commodities termed as essential commodities include cereals, sugar, edible oil, soft coke, kerosene, controlled cloth, tea, coffee, soap, match-boxes and exercise books for children. Cooperatives have been recognised as important agencies to implement public distribution scheme. Their main accent is on provision of goods in rural areas. In urban areas also, wide net-work of consumer cooperatives at primary, secondary and national level has been created. There are

nearly 22,000 primary stores, more than 660 wholesale stores and 26 state consumer federations and the National Consumer Cooperative Federation (NCCF). The network of consumer cooperatives is operating more than 80,000 small, medium and large-size retail outlets.

Presently there is no identification of sales items which are environmentally friendly. The mobile vans which are used for distribution/sale of consumer items may also be contributing to pollution. Proper maintenance and monitoring is undertaken to minimise the pollution problems. Super Bazar (the Cooperative Store Limited, New Delhi) is represented at the committee for identifying and labelling Environmentally Friendly Products (EFP) set up by the Ministry of Environment and Forest. The cooperative stores are also promoting sales of solar cookers on subsidised rates. Stores have banned smoking in public areas. Consumer cooperative stores can help in creating awareness among consumers and promoting EFP.

Credit/Banking Cooperatives

Cooperatives continue to be the major institutional agencies to provide agricultural credit to farmers to enable them to adopt modern technology and improved agricultural practices for increasing production and productivity. The short-term credit cooperative structure is comprised of 29 State Cooperative Banks, 35 Central Cooperative Banks and 90,081 Primary Agricultural Cooperative Societies. While long-term credit cooperative structure consists of 19 State Land Development Banks which operate through a network of 2229 Primary Land Development Banks. In urban credit sector, there are 25,708 cooperative credit societies and urban cooperative banks.

The role of Banks in creation of environmental problems or providing solutions has been of no significance. However, Banks have initiated a programme of funding for establishment of bio-gas plants. Madhya Pradesh State Cooperative Bank Ltd., for example, has helped installation of 5,018 bio-gas plants. Strict discipline and control in banks have also ensured economy in use of paper, power and petrol.

Forestry Cooperatives

Cooperative linkages with forestry is not very old. However, earlier it was the forest labour who organised themselves under cooperatives against their exploitation by forest contractors. Need of cooperatives for promoting plantation of trees was realised very recently.

The Indian Farmers' Fertiliser Cooperative Limited (IFFCO) has launched a project to demonstrate the viability of afforestation on waste-land involving the

people in afforestation through Farm Forestry Cooperatives. The project has been designed and being implemented to meet the following specific objectives:

- to promote tree plantation on waste-lands and sub-marginal lands and help in restoration of ecological balance;
- to generate sustainable rural employment and help in the economic development of rural poor;
- to promote afforestation as a people's movement and make it ongoing by organizing village level farm forestry cooperatives; and
- to develop a model for promoting afforestation on the lines of integrated farming system.

Creation of an institutional structure for bringing the rural population together for this noble but gigantic task was undertaken. Village level cooperative institutions were organized in the project area. Up till now, 33 primary cooperative societies have been organized, of which 29 have already been registered. The societies own capital items, create irrigation facilities (tubewells etc), raise centralized nurseries and provide services which are common to all members. The societies will also make necessary arrangements for marketing of main produce and recovery and repaying of loans. The societies are the centres for all extension and educational programmes. The societies are also responsible for arrangement of funds. In all, 4040 ha wasteland has been put under green cover in the states of Madhya Pradesh, Uttar Pradesh and Rajasthan since 1987. By-laws for a multi-state cooperative society, a federation of all the primary societies, have been prepared, and the Central Registrar of Cooperative Societies has agreed in principle to register the society.

The National Dairy Development Board (NDDB) initiated a pilot project on Tree Growers' Cooperatives (TGCs) in five states viz., Gujarat, Rajasthan, Orissa, Karnataka and Andhra Pradesh in 1986. By July 1991, there were over 101 registered societies and 12 functional but not registered TGCs. Over 1000 ha of land been leased and over 1.75 million trees planted so far. Supplementary activities have also been carried out along with the plantation programme. In Energy Conservation Programme over 3000 smokeless chulhas and over 60 bio-gas plants have been installed. Various training programmes for farmers and especially for women have been organized in all districts.

NATIONAL WORKSHIOP - 1985

A National Workshop on "Role of Cooperatives in Preservation and Protec-

tion of Environment" by the National Cooperative Union of India was organised in July 1985. The National Workshop had proposed a set of recommendations and an Action Programme for Cooperatives. In the context of nature of activities required to be undertaken in regard to environmental development, the following was visualised as an Action Programme for societies :

Land and Water Resources

Land : To protect land resources consisting of land and forests' cooperatives may undertake following activities:

- a) Making arrangements for providing farm guidance to the members specially in regard to crop husbandry practices and use of inputs;
- b) To protect soil erosion by providing necessary financial support to the beneficiaries;
- c) The village level agricultural cooperative societies, in collaboration with village panchayats may initiate social forestry programme on the land of their members;
- d) Organisation of social forestry cooperatives of landless agricultural labourers on waste-lands in the villages;
- e) In urban areas, housing cooperatives may undertake social forestry programmes in the settlements established by them;
- f) Cooperative processing units e.g., sugar factories, spinning mills, oil mills may also motivate their members to undertake social forestry programmes; and
- g) Forest labourers' cooperatives should prepare well thought out plan for the development of forest coupes allotted to them.

Water : Water resources have to be protected and preserved for drinking and irrigation facilities. Still on both these counts, country is facing great difficulties. The problem is to stop wastage of water resources due to floods, to ensure equitable distribution of water resources for the benefit of largest number of beneficiaries and to prevent water logging.

Drinking Water Facilities : Drinking water problems are generally faced in rural areas. Still there are a large number of villages without drinking water facilities. Cooperatives may take up following steps to solve drinking water problems in their

areas:

- a) Village cooperative societies and village panchayats may collaborate in creating drinking water facilities while village panchayats may make land available to set up well or tube well, cooperatives may bear the cost of construction.
- b) Cooperatives for creating drinking water facilities may be organised. Big cooperative organisations like cooperative sugar factories, cooperative spinning mills may also start cooperative drinking water facilities in their areas.

Water for Irrigation : (1) Organisation of lift irrigation cooperative societies; (2) Organisation of ground water irrigation cooperatives for tube-well irrigation; (3) Ensure liberal financial assistance to farmers for setting up their own tube-wells/wells for irrigation purposes; (4) Priority consideration to cooperative beneficiaries in respect of energisation of their wells; and (5) Organisation of water users' cooperative societies in canal and command Area Development Project areas.

Protection of Water Pollution : It is the basic responsibility of the State to take care of public health and sanitary welfare of its citizens and cooperatives are very remotely concerned with the problem of water pollution. However, water user cooperatives and fishery cooperatives may take up aqua-culture particularly for development of fisheries. It is said that the fish can help in preventing pollution of water.

Energy Alternatives : There are two aspects of energy problems in India. One is to ensure continuous supply for production purposes and second is to give its advantage to the poorer section of the community. In this context, the Cooperative Movement can help in solving the energy problem in the country. Some of the steps suggested are as follows:

(a) Expansion of Rural Electrification Cooperatives; (b) Easy financial assistance may be made available by cooperative financing institutions to the rural people for installation of bio-gas plants; (c) Village level cooperative institutions may instal wind mills; (d) In urban areas, possibilities may be explored for organising cooperatives for solar energy in different colonies; and (e) Consumer cooperatives may market solar energy equipments for home use purposes.

Natural Living Resources : In this sphere cooperatives have very little responsibility. It is the Government which is basically responsible for protection of

natural living environment. However, it is worth considering that for management and protection of national parks, the cooperatives of tribals may be organised.

Environmental Pollution : To mitigate the problems of environmental pollution, the basic responsibilities lies with the Government and cooperatives are very remotely connected with this aspect of environmental protection. However, the following steps may be taken by cooperatives:

(a) The cooperative industrial units like IFFCO, KRIBHCO, PETROFILS, Cooperative Sugar Factories, etc. may prepare well thought out plans for the development of environment in their factory areas. All steps will be taken that cooperative industry activity does not create any environmental pollution in the area; and (b) Many a times tragedies occur on account of environmental pollution, e.g. Bhopal gas incident. Cooperatives can help in rehabilitating such victims and also in ensuring timely supply of essential commodities to such victims.

Urbanisation : The problems that emerge out of the urbanisation need to be tackled by the Government. In this context, the cooperative colonies set up by housing cooperatives can supplement the efforts of the Government to keep environment in and around localities neat and clean. In the re-settlement colonies, service cooperatives consisting of all the residents of the colonies may be set up to take care of environmental problems of the locality. This will also ensure peoples' participation in the environmental development programmes.

Creating Awareness Among the Public: Cooperatives can play a very important role in creating awareness about the development of environment as they are peoples' institutions. Cooperative education and training programmes may be suitably oriented to include need, importance and scope of environmental development, so as to make the members and workers of cooperatives aware and responsible towards environmental development.

The workshop recommended that the NCUI should prepare guidelines for members at grassroot level regarding health, hygiene, maintenance of surroundings, drinking water and family planning also. The workshop also recommended that to orient cooperative education and training programme, NCUI may constitute on small team to examine various aspects. Based on the recommendations of the study team, suitable orientation programme for personnel of NCUI education projects and state cooperative unions may be organised.

SUGGESTED ACTION PROGRAMME FOR INDIA

In the light of the above information and description of environmental activities being carried out within the Indian Cooperative Movement, it is appropriate that a plan of action for national follow-up is suggested. It is recommended that a national level follow-up workshop is organised soonest by the National Cooperative Union of India to take stock of the existing situation, identify problem areas and develop suitable strategies to overcome the identified problems. The workshop should have a broad spectrum of representation e.g., national level federations, industrial units of the Movement, government, ICA and the interested international and other organisations.

- Pollution control systems are very capital intensive and many a times costlier than the original plant cost. It is therefore, essential that Government and Institutional agencies including NCDC make provisions of subsidy/soft loan to the extent of 75% of the project cost so that cooperative industries can take up effective installation of pollution control systems.
- Research process for evolving cheap and effective control systems of pollution of industrial effluents need to be strengthened through the R&D activities of the cooperative organisations.
- A consortium of cooperative experts in different sector of industries for developing pollution control technologies be constituted which will also help in setting up project designs which are environmentally friendly. The consortium can also take up the responsibility of experience sharing within cooperative sector.
- An “Environment fund” may be created to carry out awareness programme and follow-up activities. It will also be appropriate to create an “Environment cell” in cooperatives, which can take initiative and lead in developing educational material and publicity campaign for keeping the environment clean and sustaining the cooperative development.
- The Cooperatives with vast proliferated network can be actively associated with programmes of awareness for environment protection. Much of the environment degradation is the result of lack of awareness. The member education programme, therefore, should also place emphasis on environment protection, cleanliness etc. Cooperative Unions in India should take lead in this direction. This will help in motivating individual members of the societies to participate voluntarily in environment conservation activities.

Awareness creation through seminars, meeting, conference regarding the

environmental cleanliness in respective sector should also be encouraged. Leading cooperative institutions can take active role in organising such programme. A national level seminar in this direction would be a welcome move. ICA Regional Office in collaboration with national level cooperatives under the aegis of NCUI may take up this responsibility.

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VII. National Situation Paper-Indonesia

*J.K. Lumunon, Zaim Saidi and Margaret Mockler**

SOME BASIC INFORMATION

Area and Population

The Republic of Indonesia lies along the Equator between the south-eastern tip of the Asian mainland and Australia. Indonesia, covering a total land area of 741,098 sq. miles (1,919,443 sq. km), consists of 13,677 islands extending about 3,200 miles east to west and 1,250 miles north to south. The largest islands are Sumatra, Java, Kalimantan, Sulawesi and Irian Jaya. The 1990 census put the population at 179 million, making it the fourth largest country in the world. The population is heavily concentrated on the fertile islands of Java, Madura, and Bali.

Climate

Conditions vary greatly, but generally the climate is tropical monsoon, with a dry season from June to September and a wet one from October to April. Temperatures are high all the year and rainfall varies according to situation on lee or windward shores.

Agriculture

Indonesia is a resource rich country with a variety of resources ranging from oil and wood to exotic spices and fruits. Agriculture accounts for more than one-fourth of the GNP, and employs nearly three-fifths of the work force. Production (in 1,000 tonnes) during 1988 was : rice, 41,769; cassava, 15,166; maize, 6,229; sweet potatoes, 2,166; sugar-cane, 20,800; coconuts and copra, 12,750; palm oil, 1,180; fruits, 5,598; tea, 144; tobacco, 147.

* *Director, International Department, Dekopin, Indonesia; Executive Secretary, Indonesian Consumers Organisation; and Consultant respectively.*

Livestock (1988): Cattle, 6.5m; buffaloes, 3m; horses, 722,000; sheep, 5.4m; goats, 12.7m; pigs, 6.5m; poultry, 439m. In 1988 the catch of sea fish was 2,166,000 tonnes; inland fish was 715,000 tonnes. In 1988 there were 117,526 motorized and 222,233 other fishing vessels. Exports (1988) included 56,552 tonnes of shrimps, 59,049 tonnes of fresh fish and 955 tonnes of ornamental fish.

Forestry

The forest area during 1988 was 122m. ha comprising of 67% of the land area. Provisional production during 1988-89 was: Sawn timber, 4.3m. cu. metres; plywood, 7.5m. cu. metres. Exports consisted (1988-89) of sawn timber, 2,874,000 cu. metres; plywood 6.86m. cu. metres.

Industry

There are shipyards at Jakarta Raya, Surabaya, Semarang and Amboina. There were (1985) more than 2,000 textile factories, large paper factories, match factories, automobile and bicycle assembly works, large construction works, tyre factories, glass factories, a caustic soda and other chemical factories. Production (1987-88): Cement 22,419,000 tonnes; fertilisers 5,811,000 tonnes; 160,372 motor vehicles and 249,573 motorcycles; 2.36m. boxes of matches; glasses and bottles, 126,060 tonnes; steel ingots 1,337,000 tonnes; 640 TV sets and 159,020 refrigerators.

Labour

In 1985 there were 62,457,138 people employed: 34,141,809 in agriculture; 9,345,210 in commerce; 8,317,285 in public services; 5,795,919 in industry; 2,095,577 in construction; 1,958,333 in transport and communications; 415,512 in mining and quarrying; 250,481 in finance and insurance; 69,715 in electricity, gas and water.

Roads

The total length of the artery and connecting road network in 1988-89 was 44,552 km. of which 27,480 km were in good condition. Motor vehicles in December 1989 totalled 9,674,246.

THE INDONESIAN COOPERATIVE MOVEMENT

Cooperative Development

Cooperatives occupy a unique position in Indonesia as their role is entrenched in the 1945 Constitution. Article 33 states:

“The economy is organized as a common effort, based upon ways of working that accord with the brotherhood principles. The Cooperative is the form of enterprise in harmony with this.”

Various Presidential Instructions and Ministerial decrees reinforce this emphasis on cooperatives, at times extending special privileges to cooperatives to promote rural development.

The Law on the Basic Regulations for Cooperatives, known as Law 12, 1967 is the operational basis of the Indonesian Cooperative Movement. This legislation is amended or adapted by various instruments such as Presidential Instructions. Emphasizing mutual help and collective endeavours as the basic values of Cooperation, the Act:

- recognizes self-help as the cornerstone of Cooperation;
- vests the supreme authority of the society in its general assembly;
- emphasizes the voluntary and open nature of membership and the society's operations;
- provides for the equitable distribution of the surplus;
- exhorts the promotion of the welfare of members in particular and the community in general; and
- emphasizes other aspects consistent with Cooperative Principles.

The Cooperative Movement can be divided into two basic sectors; Registered legal Cooperatives which includes the KUDs (Village Cooperative Unit) and the non-KUDs and; non-registered cooperatives which includes non-governmental organizations (NGOs) and pre-cooperatives. In the former category, in addition to KUDs, there are primary cooperatives and federations such as the employees cooperative, INKOPKAR. In the latter category there are cooperative that are not registered with the Department of Cooperatives. For example, there are a number of organizations that are registered as NGOs but when examined from the perspective of structure and function they are, in fact, cooperatives. Also there are NGOs that have established pre-cooperatives or self-help groups (**usaha bersama**). These groups operate according to Cooperative Principles but are not yet at the stage of development where they can establish a cooperative on their own.

Since the early 1980's, NGOs and cooperatives have increasingly turned their attention to cooperative development in the informal economic sector. The potential for co-operative development in this sector is large as it is estimated that about 3 out of 4 Indonesians are employed in this sector. In the early stages of cooperative development *usaha bersama* or pre-cooperatives are established. The pre-cooperatives are typically organized to lessen people's dependence on money-lenders. They focus on savings and loan programmes to expand individual member's business activities such as handicrafts, agriculture, fisheries, and animal husbandry. There is no complete data on the number of pre-cooperatives, but given the number of community development organizations that are involved in this type of activity, it can be argued that they play a significant role in the informal economic sector.

Although there is a strong political commitment to cooperative development, in practice cooperatives are not a significant player in the Indonesian economy. When we look at the total assets of the cooperative sector, it is no more than 0.5%. This is considerably lower than the other two sectors of the economy, state-owned enterprises (BUMN) and private, which are 68.2 percent and 31.2 percent, respectively. Taken as a total contribution to the GDP, the cooperative sector's contribution is less than 1%.

The Cooperative Law defines the government's role as protecting, guiding, assisting and educating. But in fact the government role at this stage of cooperative development is greater than that defined by the 1967 Law. This is reflected in the support both legally and financially extended to the KUDs.

The Cooperative KUD structure was introduced in 1976-77 with the expectation of developing a structure reaching from the small village cooperative unit to one national level apex organization. The latter, "The National Federation of Village Unit Cooperatives" (Induk Koperasi Unit Desa - INKUD), was established in 1980. KUDs total 8,214, constituting the second largest group of cooperatives in the country; the first being those formed by occupational and professional groups.

Strengthening the KUDs is the first priority of the government's cooperative programme. The most significant of the Presidential Instructions relating to rural co-operative development is No. 4/1984 on the promotion and development of multipurpose village unit cooperatives (KUD) as the only legal cooperative allowed to function in rural areas. It extended their role to credit services, supply and distribution of production facilities, goods, and services. In effect it was hoped that the KUDs would become a rural economic service centre.

Although strengthening the rural KUDs remains the number one priority in

government's cooperative programme, it is becoming clear that they are not functioning as hoped. In many communities the only sign of the KUD is the long abandoned office. Despite the urging of local government officials many communities have been reluctant to join the KUDs because of mismanagement and/or suspicion of the cooperative's role.

All registered cooperatives including KUDs are represented by the Indonesian Co-operative Council (DEKOPIN). The existing structure of DEKOPIN has evolved, over a number of years, with the present status of the National Council dating back to January 1983. Its legal basis is found in the Cooperative Law of 1967 which stipulates that "A Cooperative Union, with the aims and objectives of promoting the interest of the Cooperative Movement in Indonesia, shall be formed; its organization shall be one and only". DEKOPIN is both a member of Asean Cooperative Organization (ACO) and the International Cooperative Alliance (ICA).

DEKOPIN is represented at the provincial level (DEKOPINWIL) and at the district level (DEKOPINDA). DEKOPIN's membership consists of 21 national level cooperative unions and federations plus some 2,600 primary and secondary cooperatives with direct membership. Cooperatives are found both in the rural and urban areas and are active in a wide range of sectors: trade, credit, production, distribution, agriculture, small industry, etc. A particular feature of the Cooperative Movement is the high number of cooperatives formed by occupational and professional groups: civil servants, army personnel, women, etc. Taken as a whole cooperatives formed by the civil servants and the army constitute the largest group within the Movement.

In 1985, under the sponsorship of Canadian Cooperative Association (CCA) and DEKOPIN, an institutional needs survey was carried out in the non-KUD sector, with a special emphasis on cooperative or pre-cooperative activity in the informal economic sector. The survey found that:

- They are cut off from each other and, therefore, lack benefit of moral support or shared learning and collaboration;
- They face constant capital shortage problems;
- Leaders have a limited ability to manage, motivate, and involve their members in the affairs of the cooperative.

As a result of this survey a number of NGOs and cooperatives established a co-

operative forum in January 1987 known as the Forum for Cooperative Development (FORMASI). FORMASI, in partnership with the Canadian Cooperative Association (CCA), undertook the task of designing a cooperative development programme. The combined efforts resulted in the inception of the four-year Indonesia Cooperative Development Assistance Programme (INCODAP) in 1988. An important INCODAP goal is to consolidate the NGOs and cooperatives which facilitate grassroots cooperative development under the auspices of DEKOPIN. The attention devoted to cooperative development in Indonesia is impressive. As a result of the unique role reserved for cooperatives in the Constitution, considerable resources have been targeted for cooperative development. But as the less than 1% total contribution to GDP suggests, they play a marginal role in the economy. This is symptomatic of a top-down bureaucratic approach to cooperative development. Indeed, the Department of Cooperatives has been severely criticised for its interventionist-bureaucratic approach to cooperative development. The profusion of government regulations, critics claim, have in fact hampered the growth of sustainable, autonomous cooperatives.

It is not only the Department of Cooperatives, however, that has been the target of criticism. DEKOPIN as well has not borne up to close scrutiny. The services it provides to its membership are almost non-existent because there is no operational staff to speak of. As a result DEKOPIN's credibility among its membership is low.

Although the Cooperative Movement has some serious shortcomings, there are sincere attempts to address them. The GOI has instituted a three-stage programme that will lead to a redefinition of its role in the cooperative sector. The plan for "debureaucratization" should lead to the autonomy of cooperatives. This policy is reflected in the government's policy on KUDs.

In addition to the above initiative, the Department of Cooperatives and DEKOPIN established a joint team (TNPP) in 1989 to examine government-cooperative policy and provide policy input to both Department of Cooperatives and DEKOPIN. Finally, DEKOPIN is examining specific areas where it can provide a service to its membership. For example, it is currently carrying out a baseline survey of cooperatives with the objective of establishing a cooperative business network (JUK). When operational, it will be a "fee for service" activity. It is hoped that this will give the Cooperative Movement a greater sense of ownership of DEKOPIN and have a positive impact on creating a more united and proactive Cooperative Movement.

These changes currently underway bode well for the future growth of the Cooperative Movement. Historically cooperatives have emerged as community responses

to large-scale economic challenges. The 1990s are witnessing economic change at the expense of the environment, not only on a national scale, but also on a global scale. The Cooperative Movement, with its roots in the community, are well-placed to ensure that economic development does not arrive at the expense of a degraded environment.

Number and Types of Cooperatives

The approximately 36,466 cooperatives in Indonesia are divided into two types of co-operatives. In the rural areas they are known as Koperasi Unit Desa (KUD) and in urban areas, non KUDs. The non-KUDs are, however, in the majority (27,676), and comprise mostly of Functional Cooperatives (Civil Servants and Retired Armed Forces personnel), Workers' Cooperatives, Multi-Purpose or Income-Generating Cooperatives, Market Cooperatives (Retailers), Handicraft and Small Industry Cooperatives, transportation, and other smaller cooperative groups.

Number of Types of Cooperatives in Indonesia 1990

KUDs	Functional Coops	Worker Coops	Multi-purpose non-KUDs	Handicraft Coops	Market Vendors Coops	Transport Coops	Others Coops	Total KUD and non-KUDs
8,345	12,734	2,555	1,538	1,165	626	359	9,171	36,466

Source: Ministry of Cooperatives, Republic of Indonesia

As can be seen from the above the Functional Cooperatives are the largest group of cooperatives. Those designated as "others" comprise of youth, boy scouts, women's co-operatives, Moslem boarding schools, and university students' cooperatives. Not unexpectedly 44% of cooperatives are found on Java, Sumatra 26%, Sulawesi 13%, Kalimantan 9%; followed by Bali, N.T.B. and Irian Jaya with less than 2% each.

The sectoral division of cooperatives is shown in the table below. An effort was made to distribute the survey forms according to the relative numbers of cooperatives in each sector. The sectoral division was also used to identify the extent of potential environmental impact according to the number of cooperatives and their membership in each sector activity. The membership of agriculturally-based cooperatives accounts for approximately 11% of the total population of Indonesia.

Cooperatives in Indonesia by Sector 1990

Sector	Agriculture	Fishery	Handicraft	Transport	Dairy	Total
Total No. of Cooperatives	8,345	634	1,165	359	176	10,679
Members & Associates	19,461,367	630,935	573,860		74,000	20,740,162

ENVIRONMENT MANAGEMENT IN INDONESIA

Government Initiatives

In 1972 the GOI acknowledged the importance of environmental issues with the creation of a committee to draw up the National Development Plan in Natural Resources and Environment. The formation of this committee was a follow-up to the GOI's commitment to the UN Conference in Stockholm - June 5, 1972.

The committee's recommendations were included in the 1973 Outline of State Policy and has become Indonesia's national policy. Point 29 of the Development Direction and Policy (GBHN) states that in order to support sustainable development, every effort must be made to maintain an environmental balance for future generations.

The GOI has issued the following regulations and laws governing the environment:

Law No.4/1982, Article 5 - "Every person has the right to a good and healthy living environment. Every person has the obligation to maintain the living environment and to prevent and abate environmental damage and pollution. Article 9 further states "that the government is obliged to create and develop a sense of public responsibility on managing the environment", and Article 8 says that "the government has laid down policies and has taken steps for the preservation of the environment with the objectives of supporting sustainable development."

1986 Government Regulation No.29 - Provision for the Formulation of Environmental Impact Analysis. Decree of the State Minister for Population and Environment No. KEP-2/MENKLH/1988 - Guidelines for Determining Environmental Standard Quality. Circular of the State Minister for Population and Environment No.33/SE/MENKLH/6/1987 - Procedures for Addressing Environment Pollution and Damage.

The government has backed its laws with specific programmes. For example, in June 1989 the Clean River Programme (PROKASIH) was launched in Surabaya. The programme is designed to decrease river pollution from industrial waste in eight provinces by implementing standards of waste and water control. PROKASIH is a formal agreement between the State Minister for Population and Environment, the Attorney General, and the police to implement and enforce current environmental laws. A special training programme for the enforcement of these laws and a means of investigating industrial pollution was created.

In 1990 the Agency for Environmental Impact Control (BAPEDAL) was created with a mandate to establish legal procedures, do environmental impact assessments and enforce environmental regulations. It reports directly to the President concerning all environmental issues. Large environmental projects such as PROKASIH fall under the auspices of this agency.

Community Initiatives

The need for action on environmental issues has not escaped the attention of the NGO community. NGOs emerged in a response to the need for a bottom-up approach to community development with the objective of improving skills and increasing the income of marginalized communities. As environmental issues related to industrialization began to surface, especially pollution, some NGOs began to focus their attention on the negative impacts of industrialization.

In October of 1980, Environmental Forum (WALHI) was established by ten NGOs along with various professionals, students, and other interested groups. Its main function is to act as a community forum and network among environmental NGOs and now has become a focal point of the environmental movement. Together with various NGOs, WALHI has created more other environmentally specific networks:

- KRAPP - Anti-Abuse Group presently known as PAN Indonesia,
- SKREPP - Secretariat for Pollution Control,
- SKEPHI - Joint Secretariat for Forest Conservation.

The private sector is also showing a greater concern about environmental problems. In 1983, community leaders, together with WALHI founded a philanthropic institution called Environmental Partnership Fund (DML). On the 8th anniversary of this institution a new forum was established, the Indonesian Business Council for Sustainable Development (IBCSD). IBCSD is the private sector forum

for discussion and presentation of proposals for sustainable development. It is hoped that IBCSD will work with the International BCSD based in Geneva, Switzerland.

Cooperative Initiatives

As the preceding discussion suggests, concern for the environment is not a sectoral issue. Rather it cuts across all sectors of the economy, be it public, private or co-operative. The relationship between the environment and cooperatives is only now being made in Indonesia. Historically co-operatives emerged as responses by communities to the challenges of large-scale economic changes. As community based organizations, cooperatives have the potential to play a key role in protecting the environment because

...they attempt to reconcile, within themselves, democracy and efficiency, market and nonmarket costs and benefits, the short-term self-interest of individuals and the long-term self-interest of groups the interests of majorities and minorities.

The following provides a brief overview of some cooperative initiatives on environment:

- In May 1990, as a follow-up to the 68th World Cooperative Day, seven Asian region countries including Indonesia, participated in a Regional Conference on Environment and Sustainable Cooperative Development in Chiangmai, Thailand, sponsored by CCA. These cooperative organizations made pledges to carry out regional programmes, personal and institutional action plans in support of sustainable cooperative development.
- The FORMASI membership held its first workshop on Cooperatives and Sustainable Development in November 1990. Keynote speakers from the Indonesian Forum on the Environment (WALHI), University Consortium on the Environment (UCE), and World Wide Fund for Nature (WWF) were invited to discuss various environmental issues and how they were related to the Cooperative Movement. The participants showed a good grasp of environmental issues, but there was still a major gap between awareness and action.
- In order to close the gap between awareness and action, a follow-up workshop was held in January 1991. The "green" concept for the office and

home was introduced as a means to provide practical hands on activities that would create the link between individual actions and environmental impacts. One of the results of this workshop was a declaration by FORMASI members committing their respective organizations to designing green offices and homes. As a follow-up to this workshop, one of FORMASI's members, PEKERTI designed an education package for establishing environmentally conscious community groups. PIP, the Cooperative Movement's magazine, has written a number of articles on the environment and sustainable cooperative development.

- A KUD in West Java introduced solar energy to eleven villages. There are 500 solar generators producing 130 kilo watts each per day without major maintenance or repairs. Not only is solar energy an inexpensive source of energy, it is a clean one.
- Three student cooperatives in North Sumatra, Riau and Yogyakarta were offered shares, as a result of President Soeharto's appeal for fair distribution of the wealth - known as the Tapos Event - in a pulp and paper company known to be polluting nearby rivers. They refused on the grounds that the company was irresponsibly damaging the environment. This example illustrates how co-operatives can meaningfully act to raise community awareness while having an impact on private sector practices.

Despite the fact that there is some recognition in the **Cooperative Movement** of the need for protecting the environment, no coordinated national action plan has yet been created. This can be attributed to a number of factors: co-operatives are seen as "neutral"; lack of trained staff; and the perception that economic issues are divorced from environmental issues.

Ignorance of environmental issues can be found in all sectors of the society. Indonesian State Minister for Population and Environment Emil Salim warned "that the environment will not be able to support human life if the present policies of energy, transportation and industry continue in perpetuity." This implies that environmental degradation is structural and unless political, social, cultural and economic structures are transformed, the root causes of environmental degradation will not be reduced. Strategies for structural change has been described as "thinking globally and acting locally". Individuals and communities can make a difference and cooperatives are an ideal vehicle for this task.

ENVIRONMENTAL AWARENESS AND ISSUES RELATED TO COOPERATIVES

Pollution and Waste Disposal

Respondents showed a greater awareness of highly-publicized problems such as air-soil-water pollution and waste disposal than of more technical problems such as the use of dangerous chemicals (pesticides, for example) or of non-recyclable products such as plastics. Yet less than half (42%) indicated that pollution was of particular concern in their co-operatives, and only 22% indicated that their co-operatives were aware of the hazards of the indiscriminate dumping of waste.

Energy

The percentage of respondents indicating an awareness of the problems of excessive energy use was not high in absolute terms (16%). But was significantly higher than the percentages in other areas surveyed. (For instance, the figures for those who were concerned with recycling and for those who saw a problem with the use of paper in their offices were the same, slightly under 5%). It might be assumed, however, that this relatively high figure for energy reflects not only an awareness of environmental problems caused by energy use, but also a rational decision to lower operating costs in cooperatives, as electricity in Indonesia is expensive. Yet there is reason to believe that economic choices alone do not account for the high energy figure (see Awareness Related to Activities) and that, therefore, respondents are aware, at least to some extent, of the environmental necessity for energy conservation.

Recycling

The very low percentage of respondents who indicated some awareness of the need for recycling is probably not an accurate measure of actual conditions in cooperatives, for the following reasons:

- The term for “recycling” in Indonesian (**daur ulang**) may not have been clearly understood by respondents; and
- in Indonesia, as in many developing countries, whatever can profitably be re-used will be recycled.

That this “scavenging effect”, a form of non-systematic recycling, occurs regu-

larly, is suggested by the fact that whereas only 3% of respondents indicated that their cooperatives engaged in recycling, 28% indicated that waste materials in their cooperatives were frequently re-used.

Awareness Related to Activities

There is a consistent drop of about from figures measuring awareness of particular problems to figures measuring actual programmes and activities employed to solve those problems. This pattern is observed in almost every area of concern surveyed, including pollution (42% awareness, 21% activity), waste (22%, 12%), and energy conservation (16%, 9%). Since the pattern is consistent across a number of areas, there is some reason to believe that a greater awareness of environmental problems in the future will be accompanied by increasing action—that the dissemination of information is effective. Moreover, since the figures for energy and waste are also consistent with the pattern, we might conclude that they are not attributable solely to “habitual” efforts to save costs. (If that were the case, we would expect a more even distribution of awareness and activity.)

Environmental “Green” Office Policies

The percentages of those who indicated that environmentally sound policies have been instituted in their cooperatives’ offices were relatively high: 34% stated that it was office policy to conserve electricity, and 18% stated that they recycled glossy paper. Even if these numbers are accurate, however, it cannot be assumed that such policies represent the behavior of cooperatives as a whole. Office workers, who constitute only a small part of the total membership of cooperatives, have greater access to publicized information. On the other hand, the figures would appear to offer evidence of the relation between awareness and activity, and to suggest that cooperatives’ offices might be useful in spreading information.

Java/Non-Java : A comparison of responses from Java and outside of Java suggests that the rates of both awareness and activity are in general evenly distributed across the entire country. There are, however, the following exceptions:

- Responses from Java showed significantly higher levels of both awareness and activity with respect to pollution.
- Responses outside of Java showed significantly higher levels of both awareness and activity with respect to waste control.
- Responses from Java accounted for almost all of the respondents indicating

either a concern about the use of chemicals or some participation in Integrated Pest Management Programmes.

Effects of Environmental Awareness Training

Although the survey showed that high levels of both awareness (44%) and activity (43%) had been sustained in cooperatives without the benefit of any training at all (seminars, conferences, formal instruction, counseling), it should not be concluded that training has no significant effects. Of the 26 respondents from Java who indicated that they had some training, all showed awareness of environmental issues and 22 stated that their co-operatives had instituted special programmes to deal with environmental problems. From these results we might draw the following conclusions:

- There is a wide acceptance among cooperatives of the notion of environmental conservation and of particular environmental aims and goals. 67% of respondents expressed interest in ideas and programmes directed at environmental problems; and less than 1% indicated that members of their co-operatives had at some time expressed negative attitudes toward environmental aims;
- There is a strong possibility that further training and dissemination of information will raise the already high acceptance rates and help to refine activities now in progress. 79% of respondents on Java showed awareness of at least some environmental problem, and 73% indicated that their cooperatives were engaged in some activity designed to deal with such problems.

Agricultural/Consumer Cooperatives

The major issues encountered in agricultural/consumer co-operatives confirm a concern voiced in the Chiangmai CCA Conference that agriculture has become an important non-point source of water pollution, ultimately entering even the food chain. It not only destroys natural habitats and ecosystems, but above all, its own productive resources through erosion, loss of genetic diversity, poisoning of the natural enemies of pests, poisoning of drinking and irrigation water, acidification of soils.

Agricultural/Consumer Co-operatives through credit programmes distributed prepacked fertilisers and pesticides to farmers who were, until 1986, obliged to take the entire package. Now they are not part of the programme, in principle, but in

practice farmers are often still obliged to take pesticides as part of the loan package.

The staff of the cooperatives felt that often packages of fertiliser have no instructions and although pesticides are labelled, many farmers do not understand or read well enough to assure correct usage. With over 19 million farmers, who are members of cooperatives in rural areas where lower literacy rates are common, the risk of pesticide and fertiliser mis-use has been witnessed and is also documented by FAO. Staff of the cooperative were unaware of the toxic effects on farmers and/or crops, or of the pesticides which are banned - they themselves were selling one - diazinon.

Although their level of awareness and knowledge was low regarding the implications of the mis-use of pesticides and fertilisers or on other topical environmental issues they said they were eager to receive more information and to have specific programmes for their members

Dairy Cooperatives

The significance of the environmental impact is related to type of activity or process, the size of the venture and proximity to the surrounding community. A large dairy co-operative near Jakarta, reported problems in disposing of both the effluent from the milk processing as well as the manure from the large number of cows which they handle on a daily basis. An added concern was the disposal of the returned pasteurized milk left unsold - this they had not yet been able to solve - but is clearly a threat to water quality.

An associated environmental problem in dairy co-operatives is overgrazing of pasture land and is a primary livestock management problem in Indonesia. The average land holding of a dairy farmer is only 0.5 ha., from which only about one-fourth is allocated for grass planting. On Java also the basic diet for dairy cows consists primarily of cut-and-carry green roughage and either rice bran or commercial concentrate. The lack of a resource management system, will lead to decreased ground cover, subsequent erosion, reduced water retention, and declining soil fertility.

Additionally, research has shown that the green roughage being cut from roadsides in Java is high in lead - pollution from vehicles. Also organophosphate poisoning ingested from feed in the early 1980's was one of the most commonly treated diseases and although pesticides use has improved the potential for contamination from both these sources remains an environmental problem and should be monitored.

An environmental problem related to dairy co-operatives is the farmer's continuing search for feed for his cows - and soil erosion. The majority of dairy farms are on the upland areas of Java and Sumatra where slope and soil type make these steep mountain slopes highly erodible.

Fisheries Cooperatives

Fishery Cooperatives, particularly those which make fish meal cause air and water pollution unless pollution management systems are installed. From the 634 fishery co-operatives only 11 have fish meal mills, the largest of these was visited. Instigated by local government's concern over safety due to its proximity to the international airport - Bali's gateway for tourism - local government requires that they move the mill to a more distant location even though they have installed adequate pollution management systems.

Often cooperative staff are more aware of environmental problems generated by nearby activities than by their own activities as was the case in the Gresik fishery co-operative visited. While they admitted an "odour" problem from their fish shipping activities this was of minor importance when compared to the impact of the nearby chemical factory. They claimed the factory's effluent was decreasing their catch, harming shrimp spawning grounds in their area, and had already decreased the demand for the locally produced salt. They did not know what could be done about this.

Handicraft & Small Industries Cooperatives

Although handicraft makers in Indonesia are often lured by the profits offered by the export market into using tortoise shell, the two cooperatives visited, one in Bali and one in Jakarta, were adamant that they did not use any protected species. The director of the handicraft cooperatives in Bali reported that the Governor had made it clear that handicrafts made from protected animals and turtles were no longer to be traded. This occurred at the time of Green Peace's visit in 1990. He said this was difficult as many of the small groups which produce the cooperative's handicrafts had to find alternative materials and products, often substituting wooden carvings for the previous turtle shell boxes etc.

Much of the wood used for handicrafts is soft wood and, therefore, not an environmental issue. However, there are many cooperatives that make furniture and although this survey did not visit them it is assumed that the source of the wood be unknown.

Small industrial KUDs which produce tahu and tempe number 87. 98% of these are on Java. Although there are technologies already developed to treat the effluent from tofu production very few cooperatives are aware of it or use it.

With the advent of and growing public environmental concern “green labelling” will undoubtedly reach the housing, furniture and handicraft cooperatives. the GOI’s efforts to reforest are devoted primarily to fast-growing softwood rather than hardwoods and concessionaires have shown little compliance with appropriate forest management systems. Both the limited supply of hardwood and increasing public pressure for sustainably managed concessions/timber - and the protection of endangered species - will force even cooperatives to comply with consumer demand for “green labelling” certification of their products.

Transport Cooperatives

Air pollution is a growing concern in most Indonesian cities. The major offenders are usually public transport vehicles. The Transport/Taxi Cooperative visited has already started to use low octane fuel.

Housing Cooperatives

The housing cooperative visited was small and did not use wood from a sustainably managed source. There was some concern about soil erosion at the building site as they were not aware of land management procedures. Limited information was obtained as the manager was not available at the time of the visit.

In contrast to the results of the survey, most of the co-operatives visited when asked about environmental problems associated with their activities responded only if, as in the case of Bali’s fish meal factory or the dairy outside Jakarta, attention had specifically been given to the problem, or, the volume of generated waste was in itself a disposal problem. Apart from these few examples the immediate response level was low without prompting. However, we can still be relatively sure that there is a basic level of awareness and more importantly, interest and willingness to learn more about environmental concerns and issues.

Summary of Environmental Issues in Indonesian Cooperatives

The significant environmental issues identified by this Study are:

- (i) Water pollution caused by:

- the mis-use of pesticides and fertilisers;
- the distribution and sale of illegal pesticides;
- insufficient awareness and knowledge of the dangers of incorrect use on crops, ecosystems and to people;
- effluent from fish meal factories, tahu production, dyes from textile production; and chemicals from leather tanning;
- indiscriminate disposal of dairy products and cows manure.

(ii) Air pollution caused by:

- the incorrect preparation and spraying procedures used by farmers;
- the use of leaded gasoline;
- tahu and fish meal production;
- improper disposal of dairy products and cows manure.

(iii) Soil erosion caused by:

- farmers livestock management practices particularly on upland areas;
- the need to extend feeding areas for livestock.

(iv) Deforestation and endangered species are caused by:

- the use of hardwood and ratan from unsustainably managed forests;
- handicrafts made from protected species of shells, corals, animals and plants.

SUGGESTIONS AND RECOMMENDATIONS

The magnitude and the seriousness of environment issues necessitate that all sectors of society are mobilized to play a role in ensuring that, to paraphrase Our Common Future, the needs of the present do not compromise the ability of future generations to meet their own needs.

Cooperatives are in a unique position to play a leading role in addressing environmental issues. For decades they have emerged where economic change has threatened to destroy communities; where local people wanted to have a say in how resources were being used; and in order to preserve what they (the community) valued. With the need to find a balance between economic development and the environment, the challenge for cooperatives becomes more complex. But it is precisely this type of challenge that cooperatives thrive on.

This study indicates where cooperative do have an impact on the environment and some activities that can be implemented to address these environmental concerns. It is by no means an exhaustive study, but rather it seeks to challenge us in how we view cooperative activities and their impact on the environment.

Awareness of the issues is only the first step. A comprehensive education programme needs to be followed up by addressing necessary changes at both the macro and micro levels. The key to the success of these activities is people's participation and this is where co-operatives excel.

Developing Programme Strategies

The key to environmental development is the participation, organization, education and empowerment of people. Sustainable development is not production-centered; it is people-centered.

Effective environmentally sustainable cooperative development depends upon appropriate strategies developed with resource managers, scientists, decision and policy makers, with the support and cooperation of an informed and motivated membership. Equally important, however, is the need for action from those who have control over the adoption and successful implementation of the resource management strategies.

To develop a programme strategy to achieve the above, the tools that are used to motivate must be tailored to the audience which is to receive the message. Messages targeted to the decision-makers must be persuasive in character since the ultimate aim is to influence their actions. Messages to the membership require widespread agreement. The best way to elicit this is to demonstrate why environmental conservation is in their best interest. The membership's support, once sparked, can also positively influence decision-makers. Ultimately, by developing a deliberate programme to improve environmental awareness through education, changes in attitudes and actions can result.

Of course, to accomplish this, we must have a clear picture of the critical issues that we wish to improve, which were detailed in the previous section. We can then determine which groups should be targeted and what the most appropriate message will be for each group.

Essentially, each communication message is tailored to a specific critical issue and a specific target group. DEKOPIN is seeking to change policy-makers and

senior managers' thinking, and FORMASI is seeking to change peoples' actions. This requires a thoughtful examination of each sectors' motivations, likes, dislikes, and fears.

Finally, once the content of the message had been determined, careful consideration must be given to the communication channels used to convey the message. This again requires an understanding of the target group's communications habits. Far from a mere media blitz, there is a need to develop an analytic approach to change peoples' opinions and actions.

To achieve these ends, the following process to design an environmental awareness and education programme was used:

- i. Identify critical environmental issues related to cooperative's activities through discussions with:
- ii. Decision/policy-makers in DEKOPIN, Cooperative Federations the Ministry of Cooperatives, KLH, Bapedal and various national and international NGOs.
- iii. Policy Implementors such as Board of Directors in Primary Cooperatives and Managers.
- iv. Cooperative Members.
- v. Identify critical environmental issues and/or activities related to cooperative's activities through field visits and survey forms to selected cooperatives in Indonesia.
- vi. Define the objective or desired change for each level (policy or implementation) and for each critical issue;
- vii. Define the target audience, determining why these people are important and how they effect the critical issues;
- viii. Create and communicate the message so that it reaches the target audience;
- ix. Choose the tactic or media mix that will most effectively communicate the message to the target audience; and, once the programme is implemented;
- x. Monitor and evaluate results, making modification, when necessary.

Environmental Awareness and Education Programme

By synthesizing the information gathered from decision/policy-makers, cooperatives and NGOs and from our survey and field visits to identify environmental issues related to cooperative activities, we have defined what areas require change and indicate below five priority programmes. Examples of these programmes have been developed which define project objectives, delineate audience and target groups, and detail strategies and tactics. A brief synopsis of the critical issues underlying each programme is presented below:

1. Pesticide and Fertiliser Awareness Programme: National production of insecticides fell over 65% since the Presidential Decree of 1986. Despite this revolutionary shift recent surveys show that, alarmingly, 40% of all insecticide applications on rice use banned broad spectrum organophosphate, still freely sold and distributed, supposedly for other crops, in the countryside. Field visits to cooperatives confirmed that fertilisers often had no instructions on the packet and that pesticide labelling may not be read or understood well as many farmers are illiterate. One cooperative visited was selling a banned pesticide - diazinon. Farmers will only be convinced by seeing with their own eyes the improved productivity achieved through the use of IPM and the savings benefit in not having to buy pesticides.

2. Livestock Management and Soil Conservation Programme : Overgrazing of pasture land is a primary livestock management problem in Indonesia, particularly, but not only, in the Outer Islands where livestock is free ranging and uses common property. Research has shown that the green roughage being cut from road-sides in Java is high in lead - pollution from vehicles and pesticide poisoning ingested from feed still remains a potential problem. Future expansion of the dairy industry is inevitable. The lack of a resource management system will lead to decreased ground cover, subsequent erosion, reduced water retention, declining soil fertility, and unchecked impact on human health.

3. A "Green Labelling" Certification Programme - Wood-based and Handicraft Industries:

The selective cutting system has been used in Indonesia since 1972. It can be roughly estimated that within 30 years, all of Indonesia's concession areas will be selectively logged at least once. Reforesting logged forests is the responsibility of private concessionaries - with little monitoring or control of actual results. The GOI's efforts to reforest are devoted primarily to fast-growing softwood trees rather than hardwoods and the plantation programme has emphasized the rapid expansion of

planting area, rather than increasing the productivity and efficiency of existing plantations and logged forests. Moreover, the large-scale planting of softwood trees will not meet the demands of Indonesia's growing wood processing industry.

4. Industrial Waste Minimization Programme - Small Industries: With industrialization accelerating and a population density at 2,500 persons per square mile, on Java, water has been recognised as the principal resource constraint on urban and industrial development. Conversely Java's rivers are the main source of water, along which and into which major industries dump their wastes. Although Bapedal is addressing this problem through the Clean Rivers Project (PROKASIH) this programme does not aim to reach small polluters that also contribute substantially to the pollution loads of streams and rivers. To ameliorate this situation waste minimization programmes can address two aspects-source reduction and recycling.

Source reduction is the reduction or elimination of waste at the source, or "front end" of an industrial process. Source reduction is the only strategy that can actually avoid the release of pollutants into the air, land, and water. From the survey we saw that some recycling does take place informally in Indonesia. However, recycling where the use or reuse of wastes as a substitute for a commercial product or as an ingredient or feedstock in an industrial process is as yet not done commercially.

5. Protection of Endangered Species: Indonesia also supports a growing domestic and export industry based on the utilization of wildlife species. Major commercial species include crocodiles, primates, marine turtle products, monitor lizards, snakes and other reptiles, butterflies, marine shells, aquarium fish, orchids, and other ornamental plants. The Directorate of Nature Conservation (PHPA) is charged with monitoring trade and enforcing quotas and conservation measures. The National Institute of Science (LIPI) is responsible for assessing species status and Indonesia has acceded to the CITES treaty. Unfortunately due to lack of good information and trained personnel enforcement is difficult.

Implementation Strategy

While the various components of this environmental awareness and education programme address a variety of critical issues, certain common threads can be seen throughout. There exists an undeniable need for action at all levels, from the GOI policy level, through to concerned and involved NGOs, and finally to the members of cooperatives who are the present and future generations of this archipelago. DEKOPIN and FORMASI have a key role play in raising awareness and promoting change among these disparate groups because the former is a policy advocated and latter is an implementor.

The cooperative and environmental movements have the same constitutional basis as Article 33. Therefore, this fact can be used as a starting point for the integration of environmental concerns for sustainable cooperative development and management. DEKOPIN as the key motivator and facilitator of this change will need to focus on three essential elements:

- Programme to strengthen their own environmental awareness and capabilities for policy revision;
- Strategic management of their links with relevant government ministries, enforcement agencies, national and international NGOs and funding sources; and
- Development and implementation of effective co-operative awareness and education programmes integral to co-operative development and management.

The most strategic approach to achieve the above necessitates DEKOPIN's utilization of the established linkages with Formasi's NGO membership, CCA, FAO-IPM, ICA, and ACO to support and strengthen DEKOPIN's environmental awareness in preparation for a policy review and the eventual incorporation of environmental concerns into cooperative development and management.

Programme should focus on the priority environmental issues identified in this paper, with the production of educational materials as defined in each programme, targeting the co-operatives that have their own resources (training budget) and are already capable of implementing environmental awareness and education programme.

DEKOPIN could play a variety of roles, from acting as a centre for environmental awareness and education for the sustainable cooperative development in Indonesia to serving as a facilitator networking relevant government and international agencies, etc. to direct the necessary resources to achieve this end. Ultimately, the long-term benefits resulting from the synergy between the groups involved will have a significant impact upon cooperative environmental awareness and action in Indonesia.

RECOMMENDATIONS FOR DEKOPIN AND CCA

This Action Plans should act as a starting point for a more detailed assessment within DEKOPIN and with the relevant ministries and associated agencies. The scope of this paper does not adequately address some of the important institutional

issues which influence the effective implementation of a strategy for sustainable cooperative development. Environmental awareness and education of cooperative staff and membership is only one step - and a step which require the support of the global cooperative community.

ISSUE	WHAT SOLUTION	WHEN	HOW
1. No environmental concepts in coop. development, policy	Establish commitment at the ICA Ministers Conference	2/1992	Presentaion of this paper, working group discussion, lobbying
2.	DEKOPIN to initiate an internal environment with view to issue - oriented policy review	3/1992	Identify relevant consultant and/or organizations to assist with this process
3.	DEKOPIN to initiate an intersectoral workshop	6/1992	Through linkages with the relevent GOI bodies and Bapedal
4. Water pollution from pesticide and fertiliser mis-use	Pesticide and Fertiliser Awareness Programme	7/1992	Development of curriculum and material to be done in association with FAO-IPM programme, PAN and Bapedal for enforcement procedures.
5. Deforestation and endangered species	Livestock Management and Soil Conservation Programme	8/1992	Development of curriculum and material to be done in collaboration with relevant NGOs and UNDP-related programmes.
6. Deforestation and endangered species	"Green Label" Certification programme	9/1992	Assessment of procedure for certification and development of awareness programme in association with GTZ and WWF
7. Air and water pollution	Industrial Waste Minimization Programme	10/1992	Development of information and material on appropriate technological solution for small industries in collaboration with Bapedal

RECOMMENDATIONS TO ICA

It is recommended that ICA continues the type of support which has been provided to date - a regional action-oriented forum on global issues related to sustainable cooperative development. These can then be followed-up by country specific activities such as those already facilitated by CCA and/or local NGOs with the support of resource groups such as WWF and FAO-IPM for example. There is therefore a need for:

- i) Occasional Regional Workshop which address some of the “policy and institutional” issues where change is just as essential as among the co-operative membership themselves;
- ii) An educational material information exchange;
- iii) An information resource centre on environmental issues:
 - what has been done internationally ?
 - which NGOs are specializing in what issue ?
 - what solutions have been tried and where, with what results ?
 - how to tie into an international NGO network ?

A WWF survey of the Status and Needs of Environmental Education in Asia done in July, 1990 stated that the critical needs of environmental education organisations in Asia are administrative skills, funding, training, staffing, equipment and supplies, and educational materials. If sustainable development is only possible through the participation, organization, education and empowerment of people - a people-centered approach is the key-stone around which all other activities must centre.

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VIII. National Situation Paper-Japan *

SOME BASIC INFORMATION

Area and Population

Known as the Land of the Rising Sun, Japan is located at the north-eastern periphery of the Asian continent. Nearly 4000 islands constitute its entire geographical area. However, the four major islands viz., Hokkaido, Honshu, Shikoku and Kysushu, which are located in a 38000 km arc, form the four main parts of the country. The total land area of Japan is 378,000 square kilometers out of which only 54,000 sq km being 14.4 percent of the total, are available for cultivation or for other productive activities in the rural areas. According to the National Land Use Plan, in 1986, only 16.2 percent of the total land area was available for agriculture and 65.7 percent was covered by forests.

Census population: (1989) 123 million (males 60.6 million females 62.7 million). Expectation of life was 75.8 years for men, 81.9 years for women.

Climate

Despite the long stretch of land area most parts of Japan have temperate zone climate. Only the northernmost parts and the southernmost parts witness extra climatic conditions. While the northern island of Hokkaido has sub-zero temperatures in winter, the southern Kyshu island can grow tropical fruits and vegetables.

* *The paper was originally developed by the Study Committee on Environment and Cooperatives-Japan, and presented at the Jakarta Workshop by Mr Kazuo Tsukada, Manager of the International Department of Central Union of Agricultural Cooperatives - JA ZANCHU. The authors have also included information available at the ICA Regional Office in order to make the paper more comprehensive and cohesive.*

Agriculture

Agricultural workers in 1989 were 5,968,000, including 561,000 subsidiary and seasonal workers. The arable land area in 1989 was 5,279,000 ha. Rice is the staple food, but its consumption is declining. Rice cultivation accounted for 2,110,000 ha in 1989. Average farm size was just over 1 ha in 1990. Farmer are represented by the cooperative organization in Nokyo (JA ZENCHU).

In 1989 there were 4,703,000 power cultivators and tractors and 2,205,000 rice power planters; 1,408,000 power sprayers and 1,674,000 power dusters. According to the National Land Use Plan, in 1986, only 16.2 percent of the total land area was available for agriculture and 65.7 percent was covered by forests.

Forestry. Forests and grasslands cover about 25m ha (nearly 70% of the whole land area), with an estimated timber stand of 2,862m. cu. metres in 1986. In 1987, 38,4 milliom cu. metres were felled.

Fisheries. Before the War, Japanese catch represented one-half to two-third of the world's total fishing, in 1987 it was 12.8%. The catch in 1988 was 12.79m tonnes, excluding whaling.

Industry

Japan's industrial equipment, 1987, numbered 719,908 plants of all sizes, employing 11,371,000 production workers.

Since 1920 there has been a shift from light to heavy industries. The production of electrical appliances and electronic machinery has made great strides; Television sets, radio sets, cameras, computing machines and automation equipment are produced in increasing quantities. The chemical industry ranks third in production value after machinery and metals.

Output (1988), in 1,000 tonnes, of pig iron was 79,295; crude steel, 105,681; ordinary rolled steel, 84,100. In 1988 paper production was 14,343,000 tonnes; paperboard, 10,228,000 tonnes.

Labour. Total labour force in 1989 was 61.28m, of which 4.2m was in agriculture and forestry, 440,000 in fishing 70,000 in mining, 5.8m in construction, 14.84m in manufacturing 16m in commerce and finance, 3.98m in transport and other public utilities, 13.36m in services (including the professions) and 1.89m in government

work. Normal retirement age is 60, but some 40% of the workforce retire earlier.

Roads. The total length of roads (including urban and other local roads) was 1,104,282 km in 1988. There were 46,661 km of national roads, of which 45,589 km were paved. Motor vehicles numbered 53.9 million including 32.6 million passenger cars and 21 million commercial vehicles.

Electricity

In 1988 generating facilities were capable of an output of 181,708,000 kw: electricity produced was 753,728m kwh. There were 38 nuclear power stations in 1990, producing about 30% of electricity. Supply 100 and 200 volts: 50 or 60 Hz.

Oil and Gas. Output of crude petroleum, 1988, was 689,000 tonnes, almost entirely from oilfields on the island of Honshu, but 193,851,000 tonnes crude oil had to be imported. Output of natural gas, 1988, 2,097m. cu. metres.

Minerals. Ore production in tonnes, 1988, of chromite, 9,508; coal, 11,223,000 iron, 97,461; zinc, 47,217; manganese 80; copper, 16,666; lead, 22,899; tungsten, 438; silver, 251,971 kg; gold, 7,308 kg.

COOPERATIVE MOVEMENT IN JAPAN

According to a survey conducted by the Government in 1898, a total of 451 cooperatives existed in Japan at this time out of which 351 cooperatives were active. There were about 190 credit cooperatives, 178 marketing cooperatives, 45 purchasing cooperatives and 38 production and service cooperatives. About 78% of these cooperatives were active. This survey convinced the government that the cooperatives were one of the best agencies to tackle problems of farming communities. Steps were therefore taken to initiate necessary legislation for regulating their establishment and business activities.

Cooperation During Early 20th Century

During the first three decades of the twentieth century, rural Japan had still the tradition-bound social structure dominated by landlords and a small percentage of owner farmers. As mentioned earlier, the leadership of agricultural cooperatives remained, by and large, with these groups while a majority of cooperative members continued to sub-serve the interests of the well-to-do classes. The cooperative had, however, alleviated their members' suffering to some extent as they had access to

institutional loans and a limited degree of cooperative support in their agricultural operations. The paternal management of the gentry continued.

In 1900, therefore, the government enacted the first Cooperative Society Law to facilitate the formation of four types of cooperatives. These were : (1) credit cooperatives; (2) marketing cooperatives; (3) purchasing cooperatives; and (4) production cooperatives. The credit cooperatives were not allowed to engage in any other type of business as it was feared that the savings of members may be frittered away if their money was invested in other business.

A major change took place with the second amendment to the Law in 1909. This facilitated the formation of federations at local levels. Also, the Great Japan Central Union of Cooperatives was dissolved and the Central Union of Cooperatives (CUC) was established in its place. From this time on the CUC played an important role in cooperative development in Japan. By the end of the first decade the government policy towards cooperatives was also becoming more positive than before. Also, local federations were established in many prefectures (provinces).

At the beginning of World War II, only 31.1% of the farmers were owners of the land they cultivated. 42.1% belonged to the category of tenant-owners and the remaining 26.8% were just tenants. The Land Reform, carried out with the help of Occupation Forces between 1947 and 1949, completely abolished the tenant system and all farmers, except a small percent of marginal cases, were given the status of independent owner-farmers. The Land Reform also abolished the loans given by the land-owners during the pre-war period. As tenant-farmer had no money to pay for the land, the government purchased about two million hectare of farmland and pastures from four million farmland owners and sold them to landless farmers with facilities and concessions for easy payment. Since then the owner-farmers have been the backbone of agriculture and agricultural cooperatives in post-war Japan.

In 1951, the government passed the Law for Rehabilitation and Consolidation of the Agricultural, Forestry and Fishery Cooperatives. This Law was for the rehabilitation of primary cooperatives. Under this law, cooperatives had to obtain government approval to their plans for reconstruction. Cooperatives with approved plans were entitled to receive subsidies for increasing their capital and subsidy towards the interest on frozen fund of war time agricultural associations.

Cooperatives in the 'Rapid Economic Growth' Period

Japan witnessed phenomenal all-round growth during the two decades following

the reconstruction period (1955-75). The most intensive development took place during the sixties (1960-70). This was due to drastic structural changes in industrial and related fields. The emphasis had shifted from light industries to heavy and chemical industries most of which were export oriented. Wages had shot up due to high demand in the various industries and average annual increase during the intensive development period was 6.4%. The big jump in incomes created greater demand for consumer durables like TV, washing machines and electronics.

The Central Union of Agricultural Cooperatives (CUAC) (JA-ZENCHU) is the apex organization representing the entire Agricultural Cooperative Movement at home and abroad. There are Prefectural Cooperative Unions in each of the forty-seven prefectures in Japan and almost all the federations and cooperatives in the concerned prefecture are members of these unions. All the prefectural unions and their regular members are members of the CUAC.

Some of the national level cooperatives, though established with full participation of agricultural cooperatives at various levels, are not governed by the Agricultural Cooperative Law. These are, the Central Cooperative Bank, the National Association of Federations of Agricultural Cooperatives, the Ie-No-Hikari Publishing Association, UNICOOPJAPAN (coop. trading company for agricultural cooperatives) and such other specially created organizations.

Fisheries Cooperatives

The Fisheries Cooperative Law passed in 1949 facilitated the establishment of fisheries cooperatives. The National Federation of Fisheries Cooperative Associations (ZENGYOREN) came into being on October 25, 1952. The fisheries cooperatives have their own three tier structure of national federation, the prefectural federations of fishery cooperatives, the prefectural credit federations of fisheries cooperatives and some specialized federations. The national federation has 81 such members which are regular members; the National Mutual Insurance Federation of Fishery Cooperatives is an associated member. There are about 2,000 primary fisheries cooperatives with 550,000 members. Out of these about 1,700 cooperatives are active. Out of a total of 2.6 trillion yen worth of fishery production in Japan, the fisheries cooperatives account for 1.5 trillion yen worth of production.

Forestry Cooperatives

The Forestry Owners' Cooperative Law was passed in 1951 to facilitate the registration of forest owners' cooperatives. Such cooperatives existed even before the

War, but during the war period they were compulsorily brought under the National Forestry Federation. The National Federation of Forestry Cooperatives, established soon after the passing of the Law is engaged in guidance, purchasing and marketing and providing utilisation services for its member prefectural federations and their affiliates. The forestry cooperatives also have their own three-tier organisational structure with primary cooperatives at the base, the prefectural federations at the prefectural level and the national federation at the apex level. There is a prefectural federation in each of the country's 47 prefectures which also conduct similar activities for their members.

The Japanese Consumer Cooperative Movement

The formation of the first consumers' cooperatives dates back to as early as 1879, and a growing number of cooperatives began to appear after the enactment of the Industrial Cooperative Association Law in 1900. Cooperative activities were suppressed during the World War II period, and many cooperative shops and facilities were demolished by the air attacks of the Allied forces. Cooperatives were quick to start reconstruction activities soon after the war, and began a new period of their history after the Consumers' Livelihood Cooperative Society Law took effect in 1948 under the jurisdiction of the Ministry of Health and Welfare.

The cooperatives entered the period of full-scale development in the second half of the 1960s. A number of today's leading cooperatives were founded in this period. At that time, university cooperatives projected the idea of organising citizen cooperatives, and accordingly many people with great experience in the university cooperatives played a leading role in the establishment of citizen cooperatives. Also, the basis of present '*Han*' activities was established during that period. On the other hand, a number of cooperatives experienced management crisis in the same period, as they expanded their store operations in a hurry without a sufficient managerial and membership base. Learning a lesson from these bitter experiences, in the first half of the 1970s cooperatives began to pursue a democratic administration truly founded on the activities of individual members.

Function and Organisation of the JCCU

The Japanese Consumers' Cooperative Union was founded in 1951 as a national apex body organisation for the guidance of individual cooperatives, succeeding the functions of the former Cooperative League of Japan. In 1965, the JCCU merged with the former All Japan Consumers' Cooperative Wholesale Society, starting wholesale business for primary cooperatives. In the field of international trade, the

JCCU established a subsidiary, coop trade Japan Ltd., to embark on import and export business on the basis of the interco-operative trade.

In Japan there are about 665 consumer cooperatives with a total membership of nearly 13.4 million with a share capital of 216 billion Yen. The total turnover of these cooperatives is around 2,502 billion Yen. There are 2,330 retail outlets with a total of 51,465 full-time employees. All consumer cooperatives are in the membership of the JCCU through 43 prefectural unions. NADAKOBE COOP (now called COOP KOBE) is the second among the world top 10 consumer cooperatives with a total membership of nearly 1 million. As a sole national consumer cooperative organisation, the JCCU fulfills the following functions:

Formulation of co-op national policies; Coordination of member activities of national level; Representation of co-ops' voice at national and international level; Planning, development and supply of CO-OP brand products; Other business operations including mutual insurance, travel agency, and publishing; and Guidance on member co-op management and staff education through correspondence courses and seminars.

Some of the noteworthy factors which have contributed to the success of Japanese Consumer Movement are as follows:-

1. Japanese consumer cooperatives leadership, although dominated by men, had realised that housewives, determine the consumer pattern in the family and hence their active participation in the Movement is of utmost importance for its growth, progress and success. It is with realisation of women's power, they have encouraged women's active involvement by organising membership of cooperatives into small neighbourhood groups (5-10 members) of housewives known as HAN (small in Japanese) group as the basic unit of the organisation. Through these groups, members can take part in administration of their cooperatives and each member can freely voice her opinion and desire to the management.
2. The members are highly motivated on account of the continuing attention and concern shown to members needs, opinions, desires and aspirations and welfare and material benefits made available to them.
3. Development of 'COOP' brand products in consultation with housewives which has given them an assurance of supply of better, safer, healthier and quality products at very competitive prices. (There are about 7000 COOP brand consumer products).

4. Financially self-sufficient Movement without any outside help or support.
5. Joint buying activities through HAN groups which develop a sense of responsibility and also provide convenience to working members.
6. Close collaboration and coordinated activities with producer Cooperatives like fisheries, dairies and agricultural 'COOPs'.
7. Collaboration with local manufacturers of consumer products who assist in manufacturing 'COOP' brand products as per specification approved by the members.
8. Strict adherence to Cooperative Principles with special emphasis on democratic administration and continuous consultation with members.
9. Great attention to development of human resources, well-informed membership and skilled and trained employees with emphasis on continuing education and training programme.
10. Active role to promote and defend interests of the consumer and close collaboration with other agencies with similar objectives.
11. The concept of family membership in Consumer Cooperatives permitting the use of community welfare facilities by the entire family of members.
12. The harmonious blend between members, management and employees - all working in close coordination, irrespective of their status or position is a very distinctive feature that has contributed immensely to their success.
13. Awakening of women about their rightful place in the community and helping them to raise their economic status by providing opportunity of service in the Co-op without confining them to the position of mere objects of sympathy.
14. Capacity of the leadership to foresee and plan for the future.
15. Absence of religious bias and political neutrality of the leadership as well as members.

The Japanese Consumer Coop Strategy for the '90s

On the 'Pursuit of a Better Life Full of Humanity', Coops seek to develop activities in the following directions:

- 1) Movement to create a comfortable life; (2) Cooperatives in which anyone can take

part anywhere; (3) A wide range of consumer cooperative business; (4) Creating comfortable living circumstances and addressing human-related issues of environment and peace; (5) Establishing consumers' rights; (6) Community and nationwide cooperative networks; and (7) Social role of cooperatives. Cooperative Movement will contribute to the development of society as well as strengthen the consumer's position. Cooperatives will endeavour to improve their social position by playing a vital role in the community and economy when the majority of households in cities and towns become cooperative members.

ENVIRONMENTAL MANAGEMENT IN JAPAN

"In this century mankind has done more pollution and destruction to the environment than in any other periods of the past. If we consider that mankind has rented this planet, the Earth, the expiration of the term of rent is impending," warned Dr. A.F. Laidlaw at the 27th ICA Congress in Moscow in his speech entitled the "Cooperatives in the Year 2000." Earth's environment is now giving a critical warning against the disease of all ecosystems including mankind and of nature that supports their lives.

Japan, while relying on other countries of the world for almost all resource, has carried on large-scale economic and social activities and has experienced a serious environmental problem called a "Pollution Archipelago" under the name of development without giving due consideration to environment and high economic growth.

In presenting a report on "Environmental Problems and Japanese Cooperative Movements" at the 30th ICA Tokyo Congress, we members of Japanese cooperatives consisting of four organizations of Agricultural, Forest-Owners', Fishery and Consumers Cooperatives, have re-examined closely the way of our own living and our society and culture have developed that have imposed a great burden on global environment. And it is our desire to create a fair and democratic community by (1) realizing that the world is a community in which the limited blessing of the earth environment should be shared equally by mankind and various ecosystems and also by the future generations, (2) questioning in depth the life style and the course of economic and social development of industrialized nations of the world that followed the doctrine of material affluence, (3) counting our efforts towards sustainable development in cooperation with the people who have the need of "development" in the face of environmental destruction resulting from a rapid increase of population and poverty, and (4) respecting the sense of values and culture that can coexist with environment.

Cooperatives are based on the linkage of people and organized on the principle of mutual assistance and are carrying out business operations in almost all aspects of

people's living, including agriculture, forestry and fishery industries which have multifarious environment conservation functions.

Today, when both "thinking on a global level and thinking on a regional level and doing on a global level" are required, it is expected of cooperatives to play a leading role in environment conservation activities in harmony with sustainable development in any country and region by making the best use of their organising ability that has taken root in the community and diverse business characteristics.

We represent that we will further strengthen our solidarity and friendship with ICA and our colleagues of the world massing around ICA and will put into practice our environment conservation programmes from a family level to a regional level, from a regional level to a national level and then to the global level as steadily as possible.

Environmental Problems in Japan

In the course of modernization, Japan has experienced various pollution problems. The history of environmental problems in Japan may be said to be the history of pollution problems.

1. *Precedence of industrial development over all other measures (Pre-war days)* : From the Meiji Restoration in 1868 until the end of World War II in 1945, industrial development and military expansion took precedence over all other political measures, with the resultant various pollution problems arising in the course and Japan traced the dark and depressed history as the greatest destructor of environment called the "war".

2. *High economic growth and frequent occurrence of serious industrial pollutions:* Also during the post-war period, top priority was given to the economic recovery at first. And centering around the development of the large natural resources consumption type and of waterfront industrial zones, the remarkable high economic growth continued from the latter half of the 1950s through the 1980s. In return for this economic growth, however, there was an explosive increase of all kinds of industrial pollutions, including air pollution, water pollution, noises, vibrations, offensive odours, soil contamination, ground subsidence, industrial wastes, with the successive occurrence of such tragic diseases as Minamata disease, thus making Japan notorious as a "Pollution Archipelago".

The high economic growth has also caused a sudden shift of population from farm and fishing villages to major cities leading to frequent occurrence of the urban and living type pollutions such as the traffic-related pollution, water pollution, an increase of the amount of wastes, loss of familiar greens due to indiscriminate development.

3. *Spread of civil movements and progress of environment protection measures:* In the midst of frequent occurrence and worsening of industrial pollutions on a national scale, there was the growing public opinion against pollutions and there was a spread of civil movements demanding the substantial environmental measures through trials of pollution-related cases, enhancement of pollution control administration of local governments, etc. The Japanese government strengthened its administration for environmental protection by taking a radical measure for provision of legislation that gives priority to the "protection of living environment", including the legislation of two water quality related laws such as the Industrial Waste Water Control Law (1959) and the Environmental Pollution Prevention Act (1967), and approval in the Diet of the 14 pollution related laws (1970), together with the establishment of the Environment Agency (1971).

The Environmental Pollution Prevention Act provides environmental standards for air pollution, water pollution, soil contamination and noise levels. With the background of pollution related laws and establishment of environmental standards, etc., there was an increase of investment in pollution prevention equipment and facilities and there was also a technological development for pollution control, resulting in a considerable decrease of the occurrence of industrial pollution.

4. *Lessons of oil crises and resources/energy conservation measures:* What changed drastically the environment situation of Japan, then called a "Pollution Archipelago," were two oil crisis of 1973 and 1978. Affected by these oil events, the Japanese economy recorded a negative growth for the mass energy consumption type up to then had to be reconsidered. The Japanese were compelled to select the economic activities of the resources/energy conservation type in all aspects including production, distribution and national life. For example, the standard of automobile emission that was on the increase with the progress of motorization became most strict in the world, thus accelerating the development of low fuel consumption and low pollution automobiles. This experience made the Japanese realize anew the limitation of resources of the earth and prompted them to reflect on their consumption-oriented society having a sense of values that "consumption is a virtue."

Present Environmental Problems

Though the domestic environmental situation has been improved considerably through industrial pollution prevention measures, the destruction of natural environment has progressed owing to the occurrence of urban type pollutions resulting from the accelerated concentration of population and industries in the metropolitan area and the development of golf courses, resorts, etc., while there is concern about the deterioration of the environment conservation functions of agriculture, forestry and fishery.

1. *Delay of environment protection measures and tendencies toward aggravation*

of air and water pollutions: Since the end of the oil crisis, the weight of the Japanese industrial structure has shifted from the heavy and chemical industries of the high energy consumption type to the high-tech industry and the information and service industries of the energy conservation type. On the other hand, large public projects, including the construction of Seto-Ohashi bridge and highway networks, were launched on a national scale, resulted in a marked increase of problems related to the conservation of natural environment. In the latter half of the 1970s, environmental standards for emission of NO₂ were relaxed due to the stagnation of economic activities and the industries investments in pollution control equipment and facilities decreased from the peak in 1975. Moreover, with further progress of motorization and recovery and expansion of economic activities, air and water pollutions have tendencies to become aggravated again from around 1986.

2. *Serious "garbage war" and appearance of new type of pollutions:* Changes in the industrial structure and the progress of internationalization of information service, financing and trading have spurred the concentration of population and industries in major cities, particularly in Tokyo. Since the 1980s, the urban/domestic type pollution problems, such as water pollution caused by the discharge of domestic waste water and the increasing waste treatment problems, have become serious problems in addition to the air pollution in urban areas caused by NO_x. While the resources recycling movements are becoming active mainly because of the enforcement of the Resources Recycling Law (1991), the "garbage war" in connection with the disposal of industrial wastes and domestic waste has become a serious environmental issue and there is also the occurrence of new types of pollution such as chemical pollutions resulting from high technologies.

3. *Development of resorts and destruction of natural environment :* The land of Japan is covered by forests in two-thirds of the total area and is surrounded by beaches full of variety. Destruction of nature, including these forests and beaches, has progressed further with the recent increase of public projects such as highway network construction projects and the progress of resort development on a national scale, such as the construction of sightseeing roads, golf courses, leisure facilities, villas, following the legislation of the Resorts Development Law (1987), in addition to the industrial development and land reclamation during the period of high economic growth. Recently, the development of golf courses, which brings about water pollution caused by agricultural chemicals, had become a major social problem, and there is a widespread public opinion demanding a review of the Resorts Law.

As to the present state of wildlife, 20 species of vertebrate animals among animals originating in Japan are considered to have become extinct and more than 200 species or subspecies or animals (including animals other than vertebrate animals) are feared to become extinct. (1991 "Environmental White Paper").

4. *Agriculture, forestry and fishery industries and environmental problems:* Agriculture, forestry and fishery are closely related to environmental problems. Their basic role is to produce and supply agricultural, forest and marine products on a stable base but they also have important multifarious functions (public benefit functions) for preservation of land and natural environment such as (1) Water conservation, (2) Land conservation, (3) Purification of the air, (4) Conservation of organisms, (5) Preservation of sceneries, and (6) Provision of comfortable health and recreational environments.

However, a sharp decrease of population in farm and fishing villages resulting from the inflow of workers into urban areas, aging of workers, contamination of soils and fishing areas (rivers, lakes and the ocean) caused by industrial and domestic pollutants, the increased imports of agricultural, forest and marine products, an 80% reduction in the cultivation area of paddy fields and the increase in area of abandoned arable land under unfavourable conditions have led to the weakening of the production basis of agriculture, forestry and fishery year by year, and there is concern about the impairment of the environment conservation functions of these industries.

Japanese Direction to Challenge Global Environmental Problems

The global environmental problems such as the destruction of the ozonosphere, global warming, acid rain, reduction in area of forests, tropical forests in particular, and the decrease of species of wildlife are rapidly aggravating as a result of economic and social activities which gave no consideration to the limit of non-reproducible resources and the regeneration power of reproducible resources. For the solution of these global problems, international cooperation is indispensable and Japan, who depends on other countries of the world for many of the resources, has important obligations.

1. *Global environment and involvement of Japan:* Japan has very high production and consumption levels in her economic and social activities and her involvement in global environment extends to almost all fields. For example, Japan's population is 2.4% of world's population but her land area is only 0.3% of world's total land. In the gross national product (GNP), however, Japan accounts for 14% (1988) of world's GNP, with consumption of fossil fuels and emission of CO₂, which lead to global warming, each accounting for 4.7% (1986) of world's total and the production of Freon gas, which is destructive to the ozonosphere, accounting for about 11% (1986) of world's total production. Japan is the largest importer of agricultural, forest and marine products, including cereals and lumber, in the world. Japan's "affluence" is supported by mass consumption of resources, which is putting a large burden on global environment.

2. *Policies of the Japanese Government on global environmental problems:* At the Earth Summit, the Japanese government expressed its intention to participate in the

establishment of an international framework, increase the government development aids with more consideration given to environment conservation and participate in international scientific study and research programmes, etc.

3. *“The Earth Environment Charter” of the Federation of Economic Organizations*: Multifarious advance of operations and investment activities of Japanese corporations in overseas market have also brought about an excess import of resources and the situation called “export of pollutions,” thereby creating problems which may impair the trust of counterpart countries with respect to the national feelings and environmental consideration. For this reason, the Federation of Economic Organizations (KEIDANREN) mapped out the “Earth Environment Charter” and published a booklet entitled “The Environmental Matters to be Considered in Advancing into the Overseas Market” in 1991, thereby clarifying its view that addressing the environmental problem is indispensable for overseas activities.

4. *“The Earth Charter” of Japanese citizens*: At the Earth Summit, the '92 NGO Forum, Japan presented a report entitled “I Have the Earth in Mind, the Earth Has Me in Hand” and announced “The Earth Charter” and “The Action Programme” of Japanese citizens. The Japanese Consumers' Cooperative Union (JCCU) is also participating in this '92 NGO Forum Japan. The '92 NGO Forum Japan expressed in its “Earth Charter” the following new concept of the North-South problems and development:

(North-South problems): We, who live in the materially-affluent “Countries of North” must, first of all, endeavour to mend our own wasteful life-style and at the same time spare no effort to extend assistance to the people of the “Countries of South” who have been cornered as a result of our material desire to grope for a new way of life standing on the same horizon.

(Development): In order to overcome the contradiction between “environment” and “development” and realize a sustainable society for the 21st century, we must find a new way of life, a new sense of values and a new economic/social system. In such a social system, the following two cycles will be required.

(i) In any communities of the countries of North and South, people should try to “cycle” within their own area such necessities as food, clothing and shelter and water, without destroying the environment of other countries located far in terms of space and time; (ii) We are a spiritual and social beings who are aware of a link with other people and other living things. For the “spiritual cycle” that realizes a link with other people and other living things, a wide-area and global cycle is required without being confined to the parochialism.

5. *Toward the reform of life-style and economic and social structures*: While the Japanese government, industries and civil organizations have views as mentioned

above, they realize that the consciousness and activities of the Japanese, including the activities of cooperatives, for environment conservation are still extremely inadequate.

We must review extensively the wasteful mode of life and economic and social structures associated with mass production, mass consumption and mass dumping that have imposed a heavy burden on the environment of the earth and attempt to live together with the environment. At the same time, we express our determination to continue our efforts for sustainable development in cooperation with the people of developing countries and regions who are in need of development by making the best use of experiences and lessons Japan gained and learned from the past activities which caused numerous tragic pollution problems by begin called a "Pollution Archipelago." It is essential for cooperatives in each country to cooperate with each other to watch closely the investments for development and economic assistance which may be called "exports of pollution" or economic activities which may result in unilateral exploitation of resources.

The path toward the harmony between conservation of global environment and sustainable development and the reform to the mode of life and economic and social structures with due consideration given to the environment is never easy to follow. But every country and every people of the world has obligations and responsibilities to pass over to the future generations the right for equal development favoured by the earth environment.

ENVIRONMENTAL PROBLEMS AND JAPANESE COOPERATIVES

At the beginning of the 1960s when the first stage of economic recovery from the devastation of World War II completed, the Japanese government announced in succession the modernization policies aimed for improvement of productivity of the agriculture, forestry and fisheries by helping the agriculture, forestry and fisheries industries to stand on their own legs. These policies were useful for improvement of productivity of the agriculture, forestry and fishery industries but also brought about new environmental problems.

Agriculture

Japan's agriculture has developed centering around cultivation of rice which is most suitable under the climate and natural features of Japan.

Based on the policies for development of self-supporting farmers and selective expansion of agricultural production following the legislation of the "Agricultural Basic Law" in 1961, there are further progress of specialized production of selected crops, agricultural such as vinyl house or green house culture, diversification of crop type and the expansion of operating scale of stock raising and orchards with the



Jakarta Workshop : (l to r) Mr J.K. Lumonon (Indonesia), and Col Surin Cholpraserd (Thailand)



A point under discussion with the help of ZOPP-oriented flip charts session. On the right is Mr Meths. Kusumahadi, workshop resource person.



Hon'ble Professor Emil Salim with the Participants of the Regional Workshop



A view of the session of the Jakarta Workshop in progress



"Co-op" brand plus "Environment-friendly" logo emphasise the image of "Safe", "reliable", "healthy" and "Environment-friendly" products



Co-op stores in Japan have installed special cabinets for receiving recyclable empties

地球に優しい電気配送トラック

ENVIRONMENT FRIENDLY ELECTRIC DELIVERY TRUCK



第1次試作車1991年1月完成
The first prototype was completed in January, 1991.



第2次試作車1992年5月完成
The second prototype was completed in May, 1992.

CO-OP EV-2000

Controlling air pollution: "Environment-friendly" electric delivery trucks developed by the automobile industry in cooperation with consumer cooperatives. 1,400 such vehicles are already on the road in Japan and by 2000 A.D. 100,000 such vehicles are planned to be produced

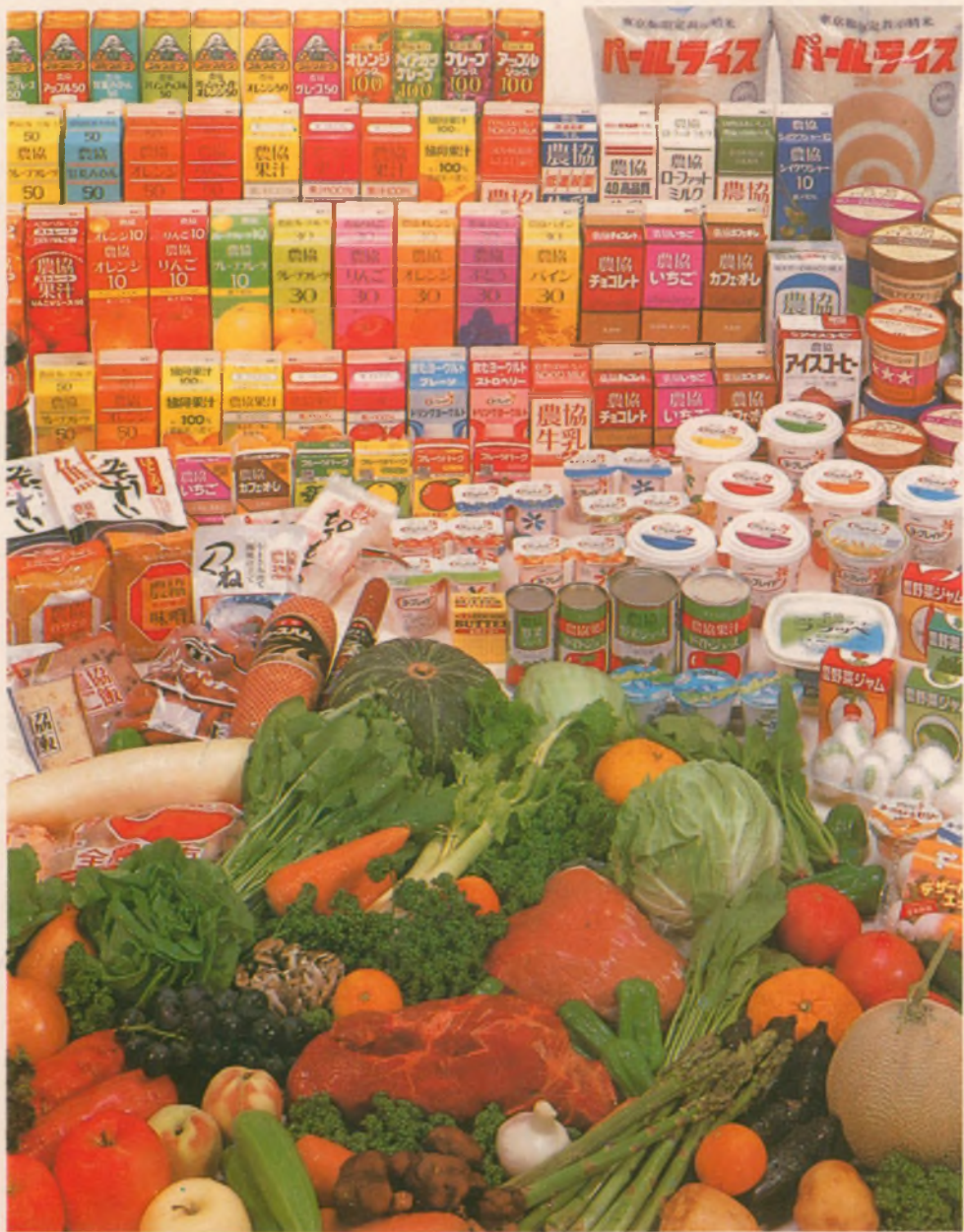


Fresh fruits : Agricultural products grown under "environment-friendly" conditions contribute to the health of the people in Japan

Environment-friendly pasture lands are developed by agricultural cooperatives in Japan to ensure safe products

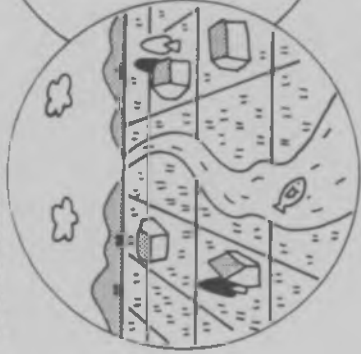


Women play an important role in agricultural cooperatives in Japan in spreading environment consciousness



Fresh and crisp products of agricultural cooperatives of Japan for exports and home consumption

Beautiful nature and pastoral landscape are preserved to contribute to rest and health care



Vegetables and other fresh foods are supplied



Rice and other staple foods are supplied stably



Society marked by rich human feelings and tradition is still preserved



Expectations for rural community



Urban dwellers

Creation of attractive regional community as a basic strategy of agricultural cooperatives of Japan gearing up for the 21st century

こどもの光

1992 3



読みもの

お話大すき/斉藤 洋
世界の名たんてい大集合

れんさいまんが

さわやかさやか

Ie-No-Hikari Journal issued by the publishing federation of agricultural cooperatives in Japan gives extensive coverage to environment-related activities

地上

Good Earth

4

昭和22年5月20日第3種郵便物認可
平成4年4月1日発行(毎月1日発行)
第46巻 第4号

今求められる農協の役割
情報機器のもたらすもの
立松和平のふるさとトーク



GOOD EARTH is another important journal aimed at agricultural cooperatives which also gives extensive information on ecology-related activities

農業協同組合



アグリ・ルネッサンス

Japan Agricultural Cooperatives

農協は「JA」ジェイエイに生まれ変わります。

The new symbol of Japanese agricultural cooperatives JA emphasises on the relationship of man with nature



Fresh vegetables on sale (Philippines). Care, of course, has to be taken on the use of chemicals and pesticides applied in their production



Fresh and crisp vegetables are grown extensively by the Japanese farmers in green/glass houses using environment-friendly methods

Stop the Destruction

The horrific results of slash and burn



Photo : WWF Mauri Rautkari

Over half a million hectares of forest disappear annually in Indonesia owing to population pressures

progress of mechanization of agriculture and use of large quantities of chemical fertilizers and agricultural chemicals, with the subsequent spread of high energy consumption type agricultural production. In stock and poultry farming, there was an increase of the number of cattle (fowls) raised, with increased dependence on imports for feed. While the formation of main production areas of agriculture and stock raising was in progress, competition between production areas became intensified and it became increasingly necessary to secure to maintain the production area.

The oil crisis in the 1970s made producers realize the need of resource/energy saving measures also in agricultural production. At the same time there was an increasing interest of consumers in health problems and safety of food associated with industrial pollution.

In response to this movement, cultivation with low input of agricultural chemicals and chemical fertilizers or trails of organic agriculture aimed to maintain production while paying attention to the natural ecosystem, etc. were spreading gradually among producers.

This movement bore fruit as "direct link with producers" activities through exchange between consumers and producers and is developing in various forms such as partnership relations between consumers' cooperatives and agricultural cooperatives, fishery cooperatives, forest owners' associations.

At the 18th National Convention held in 1988, agricultural cooperatives in Japan adopted a resolution to promote the "3 H Agriculture" (Healthy, High Quality and High Technology) as the future course of agricultural production and to promote positively agricultural production with due consideration given to health and environment such as organic agriculture.

The Ministry of Agriculture, Forestry and Fishery (MAFF) has also initiated a study of guidelines for development of environment conservation types agriculture by establishing the Office for Organic Agriculture Measures.

In conjunction with stock farmers' measures for treatment of excretions, compost centers of agricultural cooperatives have been established in various parts of the country and soil making with fermented compost is being promoted positively, with the agricultural cooperatives engaged in organic/reduced chemical agriculture now accounting for 30% of national total.

Again at the 19th National Convention held in 1991, the agricultural cooperatives in Japan passed a resolution for "Challenges and Reforms of Agricultural Cooperatives toward the 21st Century", in which the "Guidelines for Supply of Safe and High Quality Food and Agricultural Products," which would encourage the environ-

ment conservation type agriculture and promote the "3 H Agriculture." were adopted.

Based on these guidelines, agricultural cooperatives and their members are challenging such tasks as (1) the promotion of a "Healthy Soil Making Movement" for improvement of productivity of soil and reduction of the amount of fertiliser, (2) diffusion of preventive disease and pest control measures aimed for reduction of the amount of agricultural chemicals used, (3) safety and hazard prevention movements (three safety factors - agricultural products, persons engaged in chemical spraying and environment); (4) development and diffusion of fertilising methods and fertilisers kind to environment, (5) development and diffusion of livestock dissections treatment facilities and materials and at the same time, they have embarked on their own chemical residue tests of agriculture products and safety tests of livestock products.

In the districts under unfavourable conditions such as mountainous regions, the area of abandoned cultivated land is on the increase. Promotion of agriculture in these districts is very important also for protection of water resources and conservation of land environment. Agricultural cooperatives are appealing to the government and the public for this measure as an important political issue.

Forestry

The excessive deforestation to supply wood as military materials during World War II and for housing during the postwar period has resulted in a frequent occurrence of large scale floods. Afforestation aimed for restoration of forests was promoted mainly with coniferous trees such as pine, Japanese cedar, Japanese cypress, and plantation in the cut-over area was almost complete in and around 1960. In 1964, the Forestry Basic Law was enacted and the forestry structure improvement project was put forward for increase of gross forestry product, improvement of productivity of forestry and increase of income for forestry workers.

As fuels for home use were replaced by petroleum products with the progress of high economic growth, there was a decrease in demand for fire wood and charcoal and there was also a decrease in the share of domestic lumber in construction materials owing to the increased use of non-wood construction materials and imported timber. The volume of low cost imported timber increased with liberalization of timber and Japan's self-sufficiency rate of timber fell below 50% in the 1970s. At the same time, the exodus of rural population into urban areas was accelerated with a marked decrease of forestry workers, resulting in hindrance to forestry management such as afforestation, pruning, thinning. Also, there was an increase in the number of absentee forest owners, with the resultant increase in the area of abandoned forests.

The area of planting in private forests, after hitting the peak in the middle of 1960s, tended to decrease but as a result of the expanded reforestation by forestry labour force organized by forest owners' cooperatives is very high and the cooperatives are now literally the bearers of forest-making.

Besides, the forest-owners' cooperatives succeeded in realizing a thinning subsidy system which they had requested the government for establishment and also came to be entrusted with thinning operations by members. The cooperatives are also engaged in processing of small-diameter wood such as thinned wood, and are endeavouring to create healthy forests that are also useful for environment conservation.

As forestry has multiple environment conservation functions through cultivation of forests, the forest owners' cooperatives adopted a resolution for "Enlivening Forests and Peoples Movement" as a three-Year campaign at the 21st National Convention of Forest Owners' Cooperatives held in 1989, aiming at the erection of the blessed forests and comprehensive use of forests such as the promotion of production of specialities in local areas including mushrooms and edible wild plants depending on the geographical conditions and forest recreation.

The principle of the forest owners' cooperatives begins with the creation of good forests and ends with the creation of good forests. Toward the 21st century when the present man-made forests see the harvest season, it will be an important task of the forest owners' cooperatives to carry out appropriate thinning and pruning operations in cooperation with their members and improve productivity of forestry through such means as collective operations, introduction of high performance machinery and provision of high density forest road networks. Creation of the blessed forests and rural areas is also a business for environment conservation.

Fisheries

The water areas around Japan are worlds' leading fishing grounds where a cold current and a warm current mix with each other and where numerous species of fish and shellfishes are living. Accordingly, marine resources have been used extensively from olden times and marine products now account for about 40% of Japanese total intake of animal protein.

Following the enactment of the Law Concerning the Promotion of Fishery in 1963, projects for improvement of the structure of coastal fishery were announced for improvement of productivity of coastal fishery, promotion of welfare of fishery were implemented. However, despite the improvement of production efficiencies through modernization and rationalization of management, under which drastic measures for promotion of the industry centering around coastal fishery were

implemented. However, despite the improvement of production efficiencies through modernization of fishing method, diffusion of culture fishery, production of the fishing industry was held in check because of the progress of water pollution caused by the discharge of industrial and domestic waste water.

As a result of environmental pollution, fishermen suffered not only damage to their health from disruption of environment but also tremendous economic loss from contamination of fish and shellfishes. Compensations for these damages by the industries involved were not adequate and the situation, under which local residents and fishermen had to live at a considerable sacrifice, remained unchanged for some time. Fishermen and those related to fishery cooperatives throughout the country, with a sense of growing crisis about the aggravating pollution of marine environment, initiated an environment conservation movement from their side. Since the National Fishermen Convention for Prevention of Water Pollution held in 1958, they held a number of national fishermen conventions to appeal to the public and the government for conservation of marine environment and prevention of pollution. Fishery cooperatives themselves studied countermeasures by establishing the National Fishermen's Council for Prevention of Water pollution (1965) and also created the Oil Polluted Fishing Grounds Relief Fund (1975).

The National Federation of Fishery Cooperative Associations (ZENGYOREN) adopted a resolution for "Realization of Resources Control Type Fishery that Self Controls Resources and Fishing Grounds" at the 1st and National Conventions of Fishery Cooperatives held in 1983 and 1986, respectively, and takes a clear stand that "fishermen themselves will tackle the question of environment conservation in a more positive manner" since the last half of the 1980s. In 1987, the Federation resolved to totally ban the use of fishing net filth control agents, including organic tin compounds, in yellow tail culture farms in 1987 and had been striving to work out a measure for proper disposition of fishery related waste materials such as scrapped fishing boats since 1991.

At the 3rd National Convention of Fishery Cooperatives held in 1989, a three-year action programme from 1990 was adopted, under which (1) establishment of an environment conservation and monitoring system for fishing grounds by cooperatives, (2) establishment of an environment assessment system, (3) positive drive for expulsion of synthetic detergents, and (4) tree-planting drive for conservation of environment of fishing grounds and for increase of marine resources are being carried out.

For coordination between development of coastal areas including reclamation and fishing operations, negotiations are being held with developers on the basic principle of not to aggravating further the environment of fishing villages and fishing grounds. It may be said that there is a pressing need for materialization of a

movement for guarding nature and living things of the blue sea from a viewpoint that “all the sea is for the people including the future generations.”

Activities of Cooperatives in Consumption and Living Aspects

The way of life is deeply involved in the current environmental problems. We must look over our own life style and grapple with a long life task to grope for a new life style that harmonizes with natural society.

Cooperative supplying business is intended to realize the wishes of members to live in plenty but the business are imposing various burdens on environment”. Cooperatives should fully realise this fact and should never fail to give “due consideration to environment” in carrying out this business.

Cooperatives in Japan have been engaged in various activities from the above-mentioned two side views.

(a) *Cooperative members' own environment conservation movements* : The point to which cooperative in Japan attached the greatest importance in carrying out environment conservation activities was the fact that members themselves watched environment closely from their living participated in activities which they thought they could participate and continued to make efforts to change their own life style step by step together with many of their colleagues. The “Water/Environment Protection” drive is a typical example.

The “Water/Environment Protection” drive has been carried on continuously since the 1970s as voluntary activities of women’s associations of agricultural cooperatives and fishery cooperatives and members of consumers’ cooperatives. The “water,” one of the elements of our living, stands on the brink of ruin as a result of domestic waste water in addition to industrial waste water, indiscriminate development of national land, inadequacy of sewer systems. The drive began with the inspection of the discharge of domestic waste water from members’ own homes and exchange of information on the life style that causes no water pollution. Then, efforts are being made for positioning the use of “original detergents” based on the “exclusion of LAS (alky-benzensulfonic acid base = a kind of synthetic surface active agents), phosphorus and optical whitening agent” and for integration of this “drive” and “business.”

Further, a network of environment conservation drives was established in cooperation with consumer organizations and those people having interest in environmental problems, and with these joint activities as a momentum, periodic water quality monitoring in rivers by administration, diffusion of sewer systems and purification of water, expulsion of synthetic detergents from school lunch program-

mes, public hearings on the Lake Biwa Comprehensive Development Project, etc. were realized.

Agricultural cooperatives carried on such drives as water quality measurements in streams, irrigation canals and reservoirs into which domestic waste water was discharged and a regional environment beautification programme for planting flowers by the road side and recovery of empty cans. Agricultural cooperatives are also engaged in activities for children who bear the next generation to become intimate with nature and agriculture through "Rice Planting Experience Tours" or "Children's Summer Vacation Village" to be participated by members of consumers' cooperatives and their children living in cities.

For fishery cooperatives, all the members and officials have been carrying on a beach cleaning drive. The women department of a fishery cooperatives in Hokkaido is mounting an "all Hokkaido tree planting drive" for protection of environment in coastal fishing grounds is spreading to many parts of the country.

Forest owners' cooperative associations are engaged in such activities as receiving a "Pruning Crusade" in which town's people participate in the work of rearing forests, educational activities such as providing guidance on observation of nature in which parents and children can enjoy forests, expansion of use of wood is an energy saving material.

Consumers' cooperatives are engaged in such activities as a study of living things at the waterside called "Brooklet Watching" and an inspection of the state of pollution in the water area, a study tour of water treatment plants and sewage treatment plants, activities to protect the environment of the head of stream from the development of a golf course, a tree-planting drive under the "Forest Foster Parent System, a study of garbage discharged from households and a study tour of a waste treatment plant, financial aids to the environment conservation type agriculture, forestry and fisheries industries through "Soil Making Funds" or "Environment Funds," and a fund-raising campaign for UNICEF. They also conduct a simple measurement test of acid rains and air pollution (NOx).

In the milk package recycling drive, which has spread rapidly among the cooperatives, the consumers' cooperatives alone recovered 120 million packages (approx. 4,000 tons) in a single year of 1991 and the recovered milk packages were regenerated as toilet paper and tissue paper. A drive for collection of empty cans and bottles, plastic containers and styrol foam trays, discarded dry cells is carried on by a considerable number of cooperatives.

In 1990, a "Three Million People Study Campaign" was launched by the women departments of agricultural cooperatives involving local women and a "10 Million

People Environment Conservation Drive,” aiming at the participation of every member in environment conservation activities, was launched by consumers’ cooperatives.

Members of consumers’ cooperatives are also engaged in such activities as checking their own life style with a check sheet with respect to waste water and garbage discharged from households, centering around 5.3 million members organized into units.

(b) Consideration of environment in operating cooperative stores: The age of high economic growth was also the age in which there was an increasing demand of consumers for safety of food and healthy living and for the realization of a pleasant community. Under these circumstances, consumers’, agricultural and fishery cooperatives organized a drive for seeking social restrictions on use of harmful food additives and improvement of agricultural chemicals, conducted voluntary inspections of commodities supplied by themselves and strived to develop the safe and high quality “original products” in a joint effort of members. For example, cooperatives paid as much attention as possible to environment in their business by spreading the use of “better detergents” linked with their members “water and environment conservation drive” and developing various products making the best use of resources (repacking commodities, recycled resources commodities, containers and packing materials tender to environment.)

Consumers’ cooperatives adopted a “Special Resolution for Enhancement of the Set-up to Cope with Environmental Problems” at the 40th regular general meeting held in 1990. In 1991, the cooperatives announced “Environment Conservation Drive of Livelihood Cooperatives, - the Concept and Guidelines” and confirmed that environmental problems are basic subjects closely linked with every subject of activities of consumers’ cooperatives.

Based on these guidelines, the JCCU selected a uniform slogan of “Let Us Watch Our Life and the Earth” as a symbol of environment conservation activities, developed 180 or more “products tender to environment,” supplying commodities worth about ¥ 15 billion in 1991. JCCU sold ¥ 7 billion worth merchandise made from recycled papers. JCCU is now engaged in the work directed to realize the use of recycled papers and non-bleaching for all paper products. Use of repacked commodities increased 1.5 times over the previous year, thereby saving 20 tons of natural resources. JCCU is practicing “markings of materials” on cans used for beverages voluntarily taking the lead of the industry and is also promoting a drive for making of materials used for plastic containers and for reduction in use of containers and packing.

A cooperative electric car development company was established with capital in-

vestments by 50 consumers' cooperatives throughout the country and the research and development work on small electric trucks to be used by consumers' cooperatives has progressed to the extent that a trial running test has already started.

Also, the JCCU has begun to map out a comprehensive business plan called the "Environment 21 Plan" with a view of the 21st century. Under this plan, a model plan for reduction of burdens imposed on environment by all commodities handled by consumers' cooperatives will be reviewed.

Agricultural cooperatives adopted a plan for the "Creation of Pleasant Villages and Towns for Us" at the 19th National Convention of Agricultural Cooperatives held in 1991. Action programmes under this plan include development of subsistence goods tender to environment, recycling compaigns with the cooperatives playing a leading role, improvement of members' home environment and provision of joint sewage treatment tanks for prevention of pollution of rivers.

Agricultural cooperatives have developed more than 40 products of their own, which are tender to environment, with annual sales amounting to about ¥ 4 billion. Agricultural cooperatives are carrying on such drives for recycling of materials and simplification of packing, converting garbage discharged from households to compost, holding study classes for environmental problems in tie-up with cooperatives' women departments and are also launching a campaign for "joint purchase of safe and high quality perishable foods."

Fishermen's cooperatives confirmed the intensification of their environment conservation activities and the course of actions at the 3rd National Convention of Fishermen's Cooperatives. In the operation of cooperative stores, they are making efforts to intensify their commodity distribution business based on the "campaign for expulsion of synthetic detergents and use of soap" which has so far been carried on, and spread the use of recycled paper products and diffuse fishing net contamination control agents and bottom paints of non-organic tin base.

Cooperatives' Basic View of Environmental Problems

Cooperatives in Japan declare that their 25 million members will, by a united effort, intensify their campaigns and environmental activities in every field of their business operations and that they will make every effort to strengthen global solidarity and international relationship between cooperatives of different countries of the world.

(1) How to address global environmental problems: It may well be said that we can fulfil our responsibilities as mankind who lives on "the irreplaceable earth" by (1) realizing that the world is a community in which this limited blessing of the earth

should be shared equally between mankind, other various living things and the future generations, (2) questioning in depth the life style and economic and social state of industrialized countries oriented to mass production, mass consumption and mass disuse, (3) continuing our efforts for sustainable development in cooperation with the people of developing countries who have a need for “development” and (4) following the course toward the creation of new sense of values, culture, livelihood and economic and social system that can coexist with environment.

For fundamental solution of environmental problems, it is essential that individual questions the way he or she lives and consumes goods, while considering the effect on a global scale and that the problems are jointly tackled by all people of the community at the place of production and living on the basis of cooperative relations of the people.

(2) Basic values of cooperatives and environmental problems of the earth: Cooperatives are established for the purpose of realizing a healthy and humanity-rich living for members on the basis of a link between people and principles of the greatest service (non-profit), mutual assistance, etc. and have social responsibilities for creating a community in which the people can enjoy a fair and affluent living, the so-called “symbiotic society.”

Environmental problems are the subjects which cannot be avoided in achieving the purpose and fulfilling social responsibilities of cooperatives. We are now required to clearly indicate in concrete terms the consideration which we should give to environment and implement the necessary measures in every aspect of the future values to be played by cooperatives, including (1) economic business operations to meet the needs of the people, (2) participation and democracy, (3) concentration and demonstration of the resources of members, (4) social responsibilities for economic justice and (5) national and international cooperation.

(3) Steady implementation of feasible programmes: Today, we are entering the age when all of us are required to “think on a global level and act on a local level” and “think on a local level and act on a global level.”

Cooperatives have many citizens as members in their local organizations and are engaged in various business activities in such fields as production, processing distribution and consumption. It is necessary for cooperatives to play a leading role in environment conservation activities by making the best use of their organizing ability rooted in local areas and versatile characteristics of their business operations.

However, there is a limit of environment conservation movements the cooperatives can carry on as an independent organization and business entity and it is important to obtain cooperation of administration and industries, not to mention a

wide-range support of the citizens, to realize the environment conservation type society. .

With the creation of better relationships between man and environment and enterprises incorporating a review of the way of life and consideration to environment as a basis, we will expand steadily the feasible environment conservation movements of cooperatives from homes to districts, from districts to the whole country and from the country to the world.

Cooperatives' Environmental Movements

(1) Environment conservation movements by 25 million members : Through study course, members will learn the effect of their living on environment and then will launch a drive for consumption practices kind to environment and for recycling of materials and will be engaged in activities for prevention of deterioration and for improvement of environment of their regions.

In promoting these activities, interchanges of members between cooperatives and tie-ups with civil organizations for environment conservation, industries and administration will be strengthened. We will also participate in fund-raising campaigns to support the effort of developing countries for sustainable development.

(2) Environment conservation activities in cooperatives' business: Efforts will be made to promote agriculture, forestry and fisheries kind to environment, an environment assessment system will be established for production and home use materials handled by cooperatives and consideration will be given to environment in every phase of production, distribution, consumption, disposal and recycling, including such activities as development of "product tender to environment," study of new production (cultivation) standards agreed by consumers producers, reduction of burdens on environment imposed by transportation and distribution and resources conservation/energy saving/recycling campaigns. In the management aspect of cooperatives' business, education of officers and employees on environment will be intensified.

(3) Maintenance and development of the agriculture, forestry and fisheries industries and promotion of environment conservation type industries: Amid the aggravating environment of the earth and sharp increase of world's population, stability of food production and maintenance and development of agriculture, forestry and fishery with multifarious environment conservation functions in all the countries of the world are increasingly important.

The agriculture, forestry and fishery industries in Japan have become weak in production basis due to the progress of internationalization, aging of producers, a

decrease in the number of capable workers, a decrease in the rate of self-sufficiency in food owing to imports of large quantities of agricultural, forestry and marine products and it is rather difficult to forecast the future of these industries.

For this reason, we will implement the following measures while strengthening our ties with national and international cooperatives toward the establishment of sustainable agriculture, forestry and fishery with importance attached to the aspect of environment conservation functions and resources recycling type industries:

Agricultural Cooperatives

- 1 Development and spread of agricultural production technologies tender to environment such as organic agriculture.
- 2 Harmonized development of crop types and stock farming in the region.
- 3 Securing farmers' income for reproduction (stability of prices of agricultural products through environment conservation type agricultural production).
- 4 Simplification of distribution standards and packing for agricultural products (distribution on palpability and quality basis).
- 5 Development of production techniques and equipment corresponding to aging of farmers and improvement of purchasing ability.
- 6 Establishment of distribution system for agricultural products produced by environment conservation type farming methods.
- 7 Intensification of activities for restoration of clean and scenic rivers in rural areas.

Forest-Owners' Cooperatives

- 1 Promotion of interchanges between cities and rural areas through construction of natural accommodation type recreational facilities by making use of versatile functions of forests.
- 2 Introduction of mixed forests composed of two or more tree species, creation of compound storied forests with trees of different heights, encouragement of small-lot cutting, selective cutting extension of cutting period.
- 3 Improvement of productivity and profitability of forestry through completion of high density forest road networks and introduction of high performance machinery.

- 4 Boosting demand for lumber to maintain firmly a reproduction basis and promote conservation of energy.

Fishery Cooperatives

- 1 Prevention of pollution and eutrophication of river, lake and sea waters.
- 2 Switching to fishing gear and materials tender to environment (decomposable fishing nets, innocuous lead bottom paints, etc.) and promotion of the environment conservation type culture fisheries.
- 3 Creation of environment suitable for inhabitation of fish and shellfishes through, for example, creation of woodland along the coasts.
- 4 Promotion of the resources management type fisheries

Toward the Sustainable "Common Future"

(1) Intensification of cooperatives' environment conservation movements on a global scale: It is important to realize that the present global environmental problems are caused by close and inseparable relations between the economic and social system of industrialized nations characterized by mass production, mass consumption and mass disposal and the world economic system characterized by poverty of developing countries. Cooperatives, one of the largest NGOs both in Japan and the world, are called upon to intensify international environment conservation movements through collaboration between cooperatives of various characters toward the sustainable "common future," and much is expected of ICA to take the lead in such movements.

Japanese cooperatives represent that they will give positive assistance to ICA for playing its role, in collaboration with environment conservation movements of cooperatives on a global scale.

Amid the increasing concern over a sharp increase of population and worsening environment in Asia, we, as a member of cooperative family in Asia, are determined to participate positively in environment conservation movements of cooperatives in Asian countries who are in need of development.

(2) Establishment of a promotional system and funds to support environment conservation movements: It is important that cooperatives' environment movements be carried on steadily on a long-term basis. We will establish a promotional system with a united effort of four organizations (agricultural, forest owners', fishery and consumers' cooperatives) and also establish "Cooperatives' Environment

Conservation Movements Funds” (*tentatively named*) as a long-term financial resource.

ENVIRONMENTAL ACTION PROGRAMMES OF JAPANESE COOPERATIVES

Environmental Movements of 25 Million Members

(1) Promotion of a drive for reviewing members’ living and communities

- i. Participation of 25 million members in environment study activities.
- ii. A review of members’ life and production activities using an environment check sheet (environment housekeeping book) or the like.
- iii. Surveys and observations of communities and natural environment using environment clinical charts or the like. Environment clinical charts - Materials used for measurement of NOx or acid rain, water quality, sceneries etc.

(2) Participation in production and consumption activities tender to environment

- i. Agriculture, forestry and fishery schemes tender to environment
 - Positive use of agricultural and fishing methods and forest management tender to environment.
 - Low input and efficient use of production materials, appropriate recovery and disposal of waste materials.
 - Use of garbage, bark, livestock excreta etc. for organic manures.
- ii. A drive for regular use of products and commodities tender to environment
 - Environment conservation commodities such as organic agricultural products, perishable vegetables and marine products, soap, toilet paper made of reclaimed papers.
- iii. Participation in resources conservation/energy-saving/recycle campaigns
 - A movement for carrying a shopping bag and declining packaging of commodities at cooperatives’ stores.
 - A campaign for recycling milk packages, empty cans, empty bottles, plastic containers, etc.

(3) Expand the ring of personnel exchanges and promote the creation of communities that protect “water and greens”

- i. Participation in environment symposiums and seminars, eco-life idea contests, etc.
- ii. Personal experiences of nature through exchange businesses of cooperatives.
 - Personal experiences such as summer (winter) vacation children’s villages, nature study classes for parents and children, stream watching, creation of forests participated by citizens, dragging a seine, etc.
- iii. Requests to the administration in tie-up with civil organizations concerned with environment.

Environmental Movements in Cooperatives’ Business

(1) Promotion of production and processing operations compatible with environment

- Research, development and spread of new technologies, new materials and agricultural and fishing methods.
 - Promotion of “Guiding Principles for Supplying Safe and Good Quality Food and Agricultural Products”.
- i. A tree planting drive for the preservation of marine resources.
 - ii. Creation of forests demonstrating versatile environment conservation abilities.

(2) Promotion of distribution business compatible with environment

- i. Expansion of business affiliation between cooperatives (producer-consumer direct dealings, etc.) for agricultural, forestry and marine products.
- ii. Research and development of a distribution system compatible with environment
 - Joint establishment and operation of key facilities such as collection and delivery depots and processing plants.
 - Simplification of distribution standards for agricultural, forestry and marine products.
 - Simplification of containers and packaging.

- Lightening the burden on environment in transportation and delivery.
- iii. Development of model stores and facilities.

(3) Promotion of consumption and home living businesses compatible with environment

- i. Development and spread of commodities compatible with environment.
- ii. Development and spread of a commodities assessment system.
- iii. Research on a new production standard (food plan) based on agreement between consumers and producers.

(4) Promotion of waste disposal compatible with environment and of recycling business

- i. Deployment of resources conservation, energy saving and recycling operations with cooperatives office, stores and other facilities in the area used as a strong-point.
- ii. Promotion of joint development and provision of common sewage disposal tanks, etc.
- iii. Joint operation of waste disposal facilities, resources recycling facilities, etc.

(5) Promotion of business operations compatible with environment

- i. Research development and practical use of an environment assessment system for cooperatives' business.
- ii. Substantial education of cooperatives' officers and employees.
- iii. International Movements to Open the Door to "Common Future"
 - Participation in ICA environment/development programmes.
 - Exchange of experiences and information on environment/development programmes.
 - Promotion of activities in tie-up with ICA's regional secretariats.
 - Cooperation in holding an Asia-Pacific Regional Environment and Cooperatives workshop.
 - Cooperation in working out cooperatives' environment action programmes.

- Supply of technologies and information on production, processing and consumption compatible with environment.
- Cooperation in development of human resources such as education and training of personnel.

Items mentioned above are only a few examples being studied by the Working Party and will be finalized upon full consultation with ICA headquarters and ICA's Asia-Pacific Regional Office.

4. *Establishment of a Promoting Organization and Creation of a Fund*

- i. A promotional system consisting of four organizations (agricultural, forest owners' fishery and consumers' cooperatives) will be established to promote cooperatives' environment conservation movements.
- ii. "Cooperatives Environment Campaign Funds" (*tentative name*) will be established as a long-term fund raising measure to support cooperatives' environment activities and international campaigns.

IX. National Situation Paper-Philippines

*Judge Manuel F. Verzosa **

SOME BASIC INFORMATION

Area and Population

The Philippines is situated between 21 25' and 4 23' latitude, and between 116 E. longitude. It is composed of 7,100 islands. Approximate total land area is 115,830 sq. miles (3,00,000 sq. km). The largest islands are Luzon, Mindanao, Samar, Negros, Palawan, Panay, Mindoro, Leyte, Cebu, Bohol, Masbate. Population of the country is estimated to be around 62.868 million in 1991.

Climate

Some areas have an equatorial climate while others experience tropical monsoon conditions, with a wet season extending from May to November. Mean temperatures are high all year, with very little variations. Manila January 77 F (25 C), July 82 F (27.8 C), annual rainfall 2,083 mm.

Agriculture

In 1980 the total area was 30m ha of which 9.7 ha (30.11%) was farm area. The rest was comprised of commercial and non-commercial forests, open grassland, mangrove and marshes, and cultivated land. The average size of the farm was 2.63 ha in 1989. The principal crops are coconuts, unhusked rice, sugar-cane, maize, root crops, bananas and pineapples. Minor crops are fruits, nuts, vegetables, onions,

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beans, coffee, cacao, peanuts, ramie, rubber, maguey, kapok, abaca and tobacco. As of October, 1989, 9.72 million persons were employed in agriculture (44% of the working population).

Livestock, estimated in 1989 (in 1,000): 2,826 carabaos (water buffaloes), 1,666 cattle, 7,775 pigs, 2,201 goats and 72,437 poultry. Fish production from all sources was 2,101,000 tonnes in 1989.

Forestry

The forests covered about 15.88m ha or 53% of the total land area. Out of these forest lands, 15.0m ha, or 94.4% have been classified into: Forest Reserve (3,271.504 ha); Military and naval reservation, (130.330 ha); fish ponds (75,478 ha); and unclassified forest lands (881.157 ha). Log production in 1988 was 3,809,200 cubic metres.

Minerals

Mineral production in 1989 (in tonnes): Nickel metal, 18,049; zinc metal, 1,345; copper metal, 196,422; cobalt metal (1986), 90; coal, 1,344,676; salt, 488,676; gold, 29,992 kg; silver, 50,630 kg; silica sand, 184,890. Other minerals include chromite, cement, rock asphalt, sand and gravel.

Industry

Manufacturing is a major source of economic development contributing 25.1% to GNP (1989). Leading growth sectors were food manufacturing, textile, footwear and wearing apparel, machinery except electrical, fabricated metal products, wood and cork products, industrial chemicals and other chemical products, furniture and fixtures and publishing and allied industries. The non-agricultural labour force as of October 1989 was 12,141,000 out of a total of 22,154,000 employed (54.8%).

COOPERATIVE MOVEMENT IN THE PHILIPPINES

Historical Perspective

In the past, cooperatives were viewed by the government and the private sector as voluntary organisations and self-help organisations with the main objective of providing limited resources to farmers and individuals.

The '70s marked a breakthrough of the cooperatives when the government made it as the centerpiece of economic development in the rural areas. Presidential Decree no. 175 confirmed that the State adopted the basic policy of “fostering the growth and development of cooperatives as a means of increasing the income and purchasing power of the low-income sector of the population in order to attain a more equitable distribution of income and wealth”.

Section 15 of Article XII of the Philippine Constitution provides that “Congress shall create an agency to promote the viability and growth of cooperatives as instrument for social justice and economic development”.

RA-6939 (1990) otherwise known as Act creating the Cooperative Development Authority (CDA) is a twin law of the Cooperative Code of the Philippines, its functions include registration, regulatory, developmental and quasi-judicial among others.

Structure like the Cooperative Consultative and Coordinating Committee (CCCC) was created by the Movement to facilitate a continuing dialogue. The CCCC existed in the mid-70s. This was composed of the national leadership of the cooperatives that served as a liaison agency between the cooperatives and the government. Significant contribution of CCCC was the creation of a National Cooperative Union - the Cooperative Union of the Philippines (CUP). The CCCC self-destructed at the start of the '80s after attaining its mission.

There is at present a proliferation of groups doing promotional activities and developing materials for cooperatives. Included in these groups are non-government organizations (NGOs), government organizations (GOs), religious organizations (ROs), people's organizations (POs), people's volunteer organizations (PVOs), civic organizations (COs) and other organizations.

One of the main thrusts of the Philippine Cooperative Movement is the promotion of the active involvement of women and youth. The establishment of the Philippine Federation of Women for Cooperatives, Inc in 1971 was a monumental action.

Promotion, Training and Education

Towards the middle of 1988, a concerted action on education and training was advanced by the Cooperative Union of the Philippines in cooperation with the Bureau of Agricultural Cooperative Development and the Agricultural Credit and

Cooperatives Institute (ACCI) of the University of the Philippines at Los Banos when it conducted a workshop and which adopted the National Education and Training Plan for the Philippine Cooperative Movement.

The general conceptual framework of the plan is the "ladderised approach" where participants are trained on a specific subject or discipline on a graduated manner. All cooperatives are encouraged to establish their respective training programme utilizing the plan with modification to suit local conditions and training needs.

Implementation of the plan demands for the corps of cooperative trainers to actualize the training scheme, holding of regular training courses by institution selected for the purpose.

Another gigantic education and training programme is the unique services of the National Confederation of Cooperatives (NATCCO). By its nature and identity, NATCCO adheres to its mission of being a cooperative education and training centre.

Cooperative staff development is the priority area of the Confederation specifically through its staff and leadership development programmes which is directed mainly to NATCCO's leadership and staff and its affiliates. Particular to NATCCO's education programme is the Distance Education (DE) Courses.

Polytechnic University of the Philippines Institute of Cooperatives (PUP-IC). The PUP-IC is an academic institution which offers four-year courses leading to the degrees of Bachelor of Cooperatives and Bachelor on Cooperative Education.

University of the Philippines - Institute of Small Industry (ISSI) Consultancy Courses for Cooperatives Development and Management is designed to provide professional training to incoming consultants to the cooperatives.

Agricultural Credit and Cooperatives Institute - University of the Philippines at Los Banos was originally conceived as a national research and training centre in agricultural credit and cooperatives in South-East, Asia. In 1987, ACCI expanded its role from merely a research and training centre into an academic institution offering degree programmes.

Development of Cooperatives

The development of agricultural cooperatives in the country can be characterized as generally slow. Out of 18,000 organized Samahang Nayons (SNs), only 2,000

are active and have been converted into multi-purpose cooperatives. There are 32 out of about 60 registered area marketing cooperatives (AMCs) and 29 Cooperative Rural Banks operating.

It should be noted, however, that in some areas of the country, there is now a proliferation of small farmers cooperatives. This proliferation is due to the small capitalization requirement of only P2,000 and a minimum of 15 members for registration.

In 1973, the government under PD-175 embarked on the organisation of Cooperative Rural Banks (CRBs). To date 29 CRBs have been established in 29 provinces under the joint supervision of the CB and the BACOD, now CDA. The CRB members are mostly Samahang Nayons and Area Marketing Cooperatives and a few other types of cooperatives. The CRBs have organised their national federation known as the BANGKOOP.

In 1960, the Philippine Credit Union League (Phileul) now PFCCI was organised. To date it has 382 credit cooperative members with regional leagues and provincial federations and chapters.

There are 6,751 registered cooperatives of different types including their federations and unions as of 31st December 1989 according to the report of the BACOD under PD-175. The biggest numbers of primaries are : credit coops (2,328); consumers coops (1,119); marketing coops (573); multipurpose coops (1,845); producers coops (343); and service coops (270). Among the secondary and tertiary coops are : AMCs (66); CRBs (29); federations (105); and unions (67).

ENVIRONMENTAL MANAGEMENT IN PHILIPPINES

The increasing application and modernization of technologies in developed as well as developing societies have affected the quality of life of the people in terms of environmental ecological changes. The adverse effects of technologies upon the environment/ecology commanded little attention until recent times when it begun to have deleterious effects upon the health and foods of the people. Unless positive steps are taken to control or eliminate these effects, the people's health and welfare will continue to suffer. It should be stressed that both the rich and the poor (people and nations) are equally affected in terms of quality of the air they breath; the water they drink; the food they eat; and the cosequent effect to their health and productivity.

In 1987, the World Commision on Environment and Development, in its report

“Our Common Future”, called attention to urgent global problems critically affecting the very survival of humankind: global warming, ozone layer depletion, desertification.

It concluded then that “it is impossible to separate development issues from environmental issues”. Many past development trends have left only more poverty and desolation in their wake, not to mention vast environmental destruction. It was clear then that a new development path had to be followed, one that would sustain human progress far into the different the distant future.

The Philippines, among the first Asian countries to respond to this call, started to re-evaluate its development thrusts in the wake of massive environmental destruction brought on by past development activities. More and more, various sectors are clamouring for the pursuit of development which would be equitable and sustainable.

Cooperatives represent the interest and welfare of their members who predominantly come from the middle and low income sectors of the population. From this standpoint, their opinions and actions would fairly represent those of the middle and low income groups in society in general whose quality of life are directly affected by environment ecology impacting products and by-products (solids, liquids, and gases) of technologies.

Within the Cooperative Movement in the Philippines, the matter of environment/ecology is a fairly new concern and has just begun to capture the attention of both public and private cooperative policymakers.

This paper aims to present the public policy on the Philippine environment and ecology; the government programme thereon; the expected role of cooperatives; and the role (if any) actually played by cooperatives in environmental and ecological protection, conservation, management and enhancement.

Public Policy

Capsule History: Serious official concern over the Philippine environment and its critical role in the Nation’s quality of life begun in 1964 when the government enacted the reasonable standards of purity for the country’s air and water, creating the National Water and Pollution Control Commission (NAWAPCO) for the purpose (R.A.No. 3931). Notably, this law empowered the NAWAPCO to encourage the organisation of cooperative groups or associations in municipalities, industries, enterprises and other users of waters to provide a medium to discuss and

formulate plans for the prevention and abatement of pollution.

The NAWAPCO was later on converted into the National Pollution Control Commission (NPCC) and invested with regulatory power under P.D. No. 984. In 1977, the government promulgated P.D.No. 1121 creating the National Environmental Protection Council (NEPCO) to serve as the central planning authority that will oversee, unify, and integrate the planning, management and implementation of the government programme.

Statutory Policy: The statutory policy on the environment is contained in P.D. No. 1151 which reads as follows:

“SECTION 1. It is hereby declared a continuing policy of the State: (a) to create, develop, maintain and improve conditions under which man and nature can thrive in productive and enjoyable harmony with each other; (b) to fulfil the social, economic and other requirements of the present and future generations of Filipinos; and (c) to ensure the attainment of an environmental quality that is conducive to a life of dignity and well-being.”

In pursuing this policy, it is the responsibility of the Government in cooperation with concerned private organizations and entities, to use all practicable means, consistent with other essential considerations of national policy, in promoting the general welfare to the end that the Nation may; (a) recognize, discharge and fulfil the responsibilities of each generations as trustee and guardian of the environment for succeeding generations; (b) assure the people of a safe, decent, healthful, productive and aesthetic environment; (c) encourage the widest exploitation of the environment without degrading it, or endangering human life, health and safety or creating conditions adverse to agriculture, commerce and industry; (d) preserve important historic and cultural aspects of the Philippine heritage; (e) attain a rational and orderly balance between population and resource use; and (f) improve the utilization of renewable and non-renewable resource. (Sec.2, P.D.No 1151)

In furtherance of these goals and policies, the Government recognises the right of the people to healthful environment. It shall be the duty and responsibility of each individual to contribute to the preservation and enhancement of the Philippine environment. (Sec 3, P.D. No. 1151).

Philippine Environment Code (P.D.No.1152) : The Philippine government launched its comprehensive programme of environmental protection and management and established specific environment management policies and environment quality

standards, and embodied the same in the Philippine Environment Code (PEC). The said Code covers the following areas of concern:

- i. **AIR QUALITY.** The purposes are to achieve and maintain such levels of air quality as to protect public health; and to prevent injury and/or damage to flora and fauna and property; and promote the social and economic development of the country. (Title I, PEC)
- ii. **WATER QUALITY.** The purposes are to protect and improve the quality of Philippine water resources and mitigation of pollution incidents. (Title II, PEC)
- iii. **LAND USE.** The purposes are to provide a rational orderly, and efficient acquisition, utilization, and disposition of land resources in order to derive therefrom maximum benefits; and to encourage the prudent use and conservation of land resources in order to prevent an imbalance between the nation's needs and such resources. This includes industry locations. (Title III, PEC)
- iv. **NATURAL RESOURCES.** The purposes are to properly manage and conserve the country's natural resources to obtain the optimum benefits therefrom and preserve the same for future generations.
- v. **WASTE MANAGEMENT.** The Department of Local Government and Community Development (now Department of Interior and Local Government) [DILG] is tasked to formulate and establish waste management programmes. Each local government unit (province, city or municipality) is obliged to provide measures to facilitate the collection, transportation, processing and disposal of wastes. (Secs. 42-44, PEC)

Solid waste disposal shall be by sanitary landfills, incineration, composting and other methods approved by the government. Dumping or disposal of solid waste into the sea and any body of water in the Philippine, including shoreline and riverbanks where the wastes are likely to be washed ashore is prohibited except in case of immediate and imminent danger to life and property, subject to regulations by the Philippine Coast Guard and the National Pollution Control Commission. (Secs. 45-49, PEC)

Disposal of liquid waste from manufacturing plants, industries, community or domestic sources shall be treated physically, biologically or chemically prior to disposal according to regulations. The prohibition on solid waste dumping in the seas and waters of the Philippines likewise applies to liquid wastes. (Secs. 50-51, PEC)

vi. **VARIOUS MATTERS OF CONCERN.** The Code provides for the following matters of concern:

- (a) **Population-Environment Balance.** The National Environmental Protection Council shall, in the assessment of development projects shall take into consideration the effect on population with a view to achieving a rational balance between man and his environment.
- (b) **Environmental Education and Information.** The department of Education, Culture and Sport (DECS) shall endeavour to conduct community education on man and nature, as well as environmental sanitation and practices. The NEPC and other agencies shall conduct a public information drive on environmental matters; promote and encourage research; and monitor and disseminate foreign environmental information. (Sec. 52-55, PEC)
- (c) **Incentives.** The code provides for fiscal incentives such as limited exemptions from tariff duties, compensating taxes, tax credits and tax deductions for a limited period from effectivity of the Code (Sec.56, PEC). Financial assistance and grants are also provided for by the Code for the design and construction of environmental protection facilities especially for waste disposal (Sec.7, PEC). These incentives, however, have already expired.
- (d) **Local Governments and Private Individuals.** The Code makes it the responsibility of local governments and private individuals to participate in the environmental management and protection programme of the government. (Sec. 58, PEC)

The local Government Code of 1991 (R.A.No.7061) which will take effect in 1992, provides for a rational devolution of the functions and powers from the national to local governments. This includes local policies, plan and programme on environmental/ecological concerns and the appointment of an Environmental and Natural Resources Officer (Sec. 484, Local Government Code).

Constitutional Mandate: The government legislative and executive action on environmental protection and enhancement culminated into the inclusion of a mandate on environmental protection and enhancement. Section 16, Article II on State Policies provides as follows:

“The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature”.

There are other provisions in the Constitution that touch upon the subject of environment such as those on: (1) Health; (2) Marine Wealth; (3) Lands of the public domain, e.g. agricultural, forestry, mineral, parks, inland water and watersheds; and (4) Agrarian and natural resources reform (Secs. 2, 3, 4 & 15, Art. XII; and Sec. 4, Art. XIII, Philippine Constitution). However, the above-cited Constitutional provision embodies the constitutional policy on the environment. All government laws, policies, and programmes shall comply with the said mandate.

Government Programme

The government programme aims to conserve and enhance the quality of the Philippine environment over the long term while it addresses the current issues on this subject.

Resource Depletion. An estimated 6.5 million hectares are open and denuded forest lands needing immediate rehabilitation/revegetation. The average annual rate of deforestation during the period 1969 to 1987 was 119,000 hectares. Only 0.9 million hectares of old growth or virgin dipterocarp forest, the source of commercial timber, remain of the country's 1,469 bird and animal life, at least 24 wildlife species have been rendered rare and endangered by man-induced activities such as over-capture and habitat destruction. Of the approximately 400,290 hectares of mangrove areas in the country in the 1920s, only 143,522 hectares exist today. The 1982 coral reef survey shows that about 32.1 percent of coral reefs are in poor condition, and only 5.5 percent in excellent condition.

Environmental Degradation. Of the total alienable and disposable lands (including agricultural lands), about 60 percent (8.25 million hectares) is severely eroded. In addition, the 9.3 million hectares of hilly and mountainous lands are highly susceptible to soil erosion. Mine tailings (estimated at 72.3 DMT in 1985) cause serious damage on land and water resources. An assessment of the quality of water of the country's surface water system showed that 50 major river systems are affected by significant pollution problems (e.g. Pasig River, Laguna Lake, Manila Bay coastal waters, and rivers in highly urbanised areas such as Cebu, Iloilo, Davao, and Baguio). The country's air pollution problems are mainly due to emission from motor vehicles and industrial plants. Gases emitted by geothermal projects also pose a threat to human and plant life. Alarming rate of water, air, and land pollution are worsened by the increased presence of toxic and hazardous substance in the environment.

Inequitable Distribution and Allocation of Lands and Natural Resources. Timber Licence Agreements (TLA), numbering 82, cover about 27 percent of the total area

of forest-lands. On the other hand, the area allocated to some 202,206 beneficiary families of the Integrated Social Forestry Programmes (ISFP) covers only about 3.09 percent of total forest lands. The root cause of the maldistribution/malallocation of land and natural resources, viewed from a historical perspective in the granting of rights and access to resources mainly to the few who are powerful and socially influential.

Poverty in Uplands and the Continuous Influx of Migrants from Lowlands. The estimated population in the uplands is 14 to 16 million of which 5 to 7 million are occupying areas within forest lands. While uplanders comprise a heterogeneous group, they are homogenous in terms of a certain level of living indicators. In general, they have low educational attainment, poor health and nutrition, and have poor housing and household facilities. Economically, they have been branded as the “poorest of the poor” segment of the Philippine society. It is assumed that these uplanders are receiving less than the estimated income of rural families of P2,041 per month in 1988.

Upland poverty can be attributed to several factors, such as low farm productivity, limited access to support services, unavailability of alternative employment opportunities and very limited access to basic social services. The annual population growth rate in the uplands is 2.55 per cent. Migrant population is estimated at 29 percent of total upland population.

Tenurial Problems in the Public Domain. The failure of the government to recognize the land rights of indigenous cultural communities and other vested rights on public land has spurred political unrest in the countryside. Meanwhile, the Certificate of Stewardship Contract (granted through the Integrated Social Forestry Program) has been criticized for being an inappropriate tenurial arrangement for upland occupants. Most small-scale miners, especially the goldpanners, are illegal operators because most gold deposits are already covered by valid mineral, timber and other rights.

Rationalization of Forest-Based Industries. A large number of processing plants have been operating at only 30 to 50 percent of total rated capacity because of reduced log supply and poor markets, among other reasons. In addition, most of the existing processing plants were designed for large-diameter timber. With the depletion of the natural forests, the expected development of Industrial Tree Plantations, and the harvesting of the second-growth forests, the wood raw materials in the future will be small-diameter logs (SDL). Operation of these processing plants using SDLs will be quite expensive. In general, the basic problems in rationalizing

forest-based industries are: (a) the diminishing supply of raw material; (b) antiquated and uneconomic technology used in wood processing; (c) high production costs; (d) low quality of and limited market for processed wood products; and (e) lack of government incentives for the forest-based industries.

Promotion and Rationalization of Small-Scale Mining. Notwithstanding the socioeconomic impacts of small-scale mining, the industry is plagued by a host of legal, social, environmental and technical problems, namely: (a) most areas of existing and prospective small-scale mining operations are already covered by valid mineral or forestry leases/permits or other claims; (b) peace-and - order problems; (c) unsafe working conditions; (d) improper handling of deleterious chemicals like mercury and cyanide and reckless disposal of mining wastes, (e) low value recoveries due to use of crude equipment and inferior processes and technologies; (f) absence of fair credit facilities ; and (g) smuggling out of gold rather than its sale to the government.

Policy Thrusts and Programmes

Given the above described crucial and urgent issues, the government through the Department of Environment has embarked upon the following:

Sustainable Development of Forest Resources. This policy focuses on the development of forest resources, emphasizing maintenance consistent with sustained use. The sustainability of resource development is based on two approaches: the prevention of irreversible depletion and harmful effects from exploitative use of resources, and the provision for the needs of the present generation without sacrificing the ability of future generations to provide for their own needs through proper resource use and allocation. The programmes/projects under this are: (a) National forestation;(b)Protected area system; (c) Forest Resource inventory; (d) Rainfed resource development; (e) Watershed rehabilitation and management.

Optimal Utilization of Lands and Minerals. This policy seeks to achieve the most favourable use of non-renewable resources such as land and mineral resources. The strategy is to accelerate land survey and titling as well as evaluation and classification of lands to determine their best uses and to generate more geological information/data for mineral resources. The programmes/prjects under this are: (a) Land classification and evaluation; (b) Cadastral survey; (c) Final lot survey; (e) Stone industry resource survey.

Social Equity and Efficiency in Resource Use. This policy thrust incorporates the social, economic and political dimensions of resource use into the Department's

overall scheme of resource and environmental management. The thrusts intends to correct the imbalance in resource allocation and allow the people to be a part of the decision making process. The programmes/projects under this are: (a) Integrated social forestry; (b) Community based reforestation; (c) Community based forest management lease; (d) Land patents; (e) Small-scale mining; (f) Agrarian reform in public lands; and (g) Wood industry rationalization.

Environmental Management. Environmental management is the underlying factor in all DENR efforts. This policy thrust is geared towards protecting and preserving the remaining resources as well as preventing further environmental degradation caused by various forms of industrial pollution and misuse of natural resources. The programmes/projects are: (a) Philippine Strategy for Sustainable Development (PSSD); (b) Strengthening of the environmental impact assessment system (EIAS); (c) Establishment of a new regulatory regime for pollution control; (d) River revival; (e) Ecosystem reasearch.

Other Major Programmes. These are:(a)Management development of the DENR; (b) Remote sensing and mapping; (c) Census of the forest eccupants and inventory of natural resources.

The Government Agency

The Department of Environment and Natural Resources (DENR) is the primary government agency responsible for the sustainable development of the country's natural resources and ecosystems.

Its mision is to promote the well-being of the Filipino people through sustainable development of forest resources;optimal utilization of lands and minerals;social equity and efficiency in resource use;and effective environmental management.

The DENR had its beginnings in the old Department of Agriculture and Natural Resources (DANR). In May 1974, the DANR was split into two departments through P.D. 461 in recognition that natural resources and agriculture were broad and diversified concerns. As such, the Department of Natural Resources (DNR) was mandated to ensure the conservation, optimal utilization, and programmed exploitation of the country's natural wealth. With the shift to a parliamentary form of government in 1978, the DNR became the Ministry of Natural Resources (MNR). In 1984, by virtue of Executive Order No. 967, the management of the fisheries sector, through the Bureau of Fisheries and Aquatic Resources (BFAR), was transferred from the MNR to the Ministry of Agriculture.

The events of February 1986 brought radical changes that altered the character of the MNR. First, President Corazon C. Aquino issued Executive Order No. 131 on January 30, 1987 creating the Department of Energy, Environment and Natural Resources (DEENR). The DEENR, however, was again reorganized into the present Department of Environment and Natural Resources (DENR) in June 1987 under Executive Order No. 192.

The Philippine Strategy for Sustainable Development

Government took cognizance of the need for a National Conservation Strategy specifically through Section 16 (h) of Executive Order No. 192. Pursuant to this mandate, the Environmental Management Bureau initiated a series of consultations with the different sectors of society. In its Resolution No. 37, dated November 29, 1989, the Cabinet approved the conceptual Framework of the Philippine Strategy for Sustainable Development.

The PSSD is basically the country's response to the world-wide call for undertaking development without destruction and "meeting the needs of the citizens of today without limiting the options of future generations to fulfil their needs". Specifically, "it aims to achieve and maintain economic growth without depleting the stock of natural resources and degrading environmental quality.

At its core are ten major strategies aimed at resolving and reconciling the diverse and sometimes conflicting environmental, demographic, economic and natural resources use issues. These strategies are:

1. Integration of Environmental Considerations in Decision-Making;
2. Proper Pricing of Natural Resources;
3. Property Rights Reform;
4. Conservation of Biodiversity;
5. Rehabilitation of Degraded Ecosystems;
6. Strengthening of Residuals Management;
7. Control of Population Growth and Human Resources development;
8. Inducing Growth in the Rural Areas;
9. Promotion of Environmental Education;
10. Strengthening of Citizen's Participation;

ROLE OF COOPERATIVES

Government policy and programme on the role of cooperatives in environmental/ecological matters are not very clear. While R.A. No. 3931 mandates the

NPCC to encourage the formation of cooperative groups and associations, there is no visible conscious programme on the matter. The current PSSD mentions mining cooperatives as part of its property rights reform but that is all. Fortunately, the PSSD has as a strategy the strengthening of citizen participation in environmental management (consonant with the Philippine Environment Code) making it the responsibility of local government units as well as private individuals to actively participate in the environmental management and protection programmes of the government (Sec. 58, PEC). The Roman Catholic Church and other churches as well as non-government organizations (NGOs) have involved themselves actively in environmental/ecological protection and management in varying fields and degrees of commitment. Cooperatives which can fall under the classification of NGO are not visible.

The ICA Study is timely as it provides the opportunity to look into what cooperatives have been doing, if any, in the field of environmental/ecological protection and management in the light of the government's active policy of involving the citizenry and industries in its environment programme.

The CUP is a purely non-business organization, rendering policy initiatives, education and training audit, and technical assistance and consultancy service to all cooperatives whether members or non-members, the others are business organizations having functions which may include interlending, intertrade, education and training audit, and technical consultancy services, as the case may be.

Environmental Ecological Legislation and Monitoring

There are special laws dealing with specific environmental/ecological matters, notably the following:

- (a) Water Code of the Philippines (P.D. No. 1067);
- (b) National Building Code (P.D. No. 1096);
- (c) Provincial Water Utilities Act of 1973 (P.D. No. 198, as amended);
- (d) Penalizing Improper Garbage Disposal (P.D. No. 825);
- (e) Forestry Code (P.D. No. 705, as amend); and
- (f) Public Land Act (C.A. No. 141, as amended).

The NATCCO mentioned the DENR (and probably the laws it implements); the NAMVESCO mentioned the anti-smoking ordinance (probably referring to the ordinance against smoking by the Metropolitan Manila Authority); the CFFMCI mentioned the Laguna Lake Development Authority law creating the Laguna Lake

Development Authority (LLDA) which monitors the pollution devices used by the cooperative.

Problems Faced and Solutions

The various problems faced by the organizations are:

- (a) Ozone depletion;
- (b) Ecosystem disruption due to forest-denudation, resulting in rainfall pattern changes, soil erosion, and floods;
- (c) Destruction of marine wealth (e.g. coral reefs and marine life) because of illegal fishing methods such as the use of dynamite, muro-ami, cyanide and other chemicals;
- (d) Degradation of health and sanitation conditions due to improper garbage disposal resulting in clogged waterways, drainage and sewage system; and air and water caused by industries equipment and office equipment resulting in respiratory diseases;
- (e) Sanitation in market places and abattoirs;
- (f) Farm use of chemicals and insecticides on vegetables and other food items.

The cooperatives have taken steps to solve the problems and plan future courses of action. The NATCCO has taken the lead in this area. As an ICA member it undertook the following:

- (a) Agreed to a resolution on environment and development in September 1990 urging member-organizations to join efforts to address environmental issues;
- (b) As Asian partner of the Canadian Cooperative Association it met with 31 other national representatives in Chiangmai, Thailand. The Conference came up with programmes, strategies and action plans for making environment an integral part of sustainable cooperative development;
- (c) Its affiliates have included environmental/ecological matters and importance of environmental-friendly actions like the use of organic fertilisers instead of chemical fertilisers.

The NATCCO plans to: (1) Source funds for environmental programmes; (2) Create task force to link with NGOs and GOs; (3) More intensive educational programmes to encourage concrete actions on environmental issues; information

sharing; and (4) Consideration of planting trees as an added requirement for membership in a cooperative.

The CUP and its concerned affiliates have embarked on negotiations for the establishment of pilot programmes on waste resource recovery and utilization in Davao City and Quezon City involving the Davao Fibers Producers Cooperative Inc. (DFPCI) and the Quezon City Federation of Cooperatives Inc. (QCFCI), with the support of the Regional Cooperative Union, Inc., and the National Capital Region Union of Cooperatives Inc. respectively, and the city governments (Davao City and Quezon City, respectively) since 1989. This is in pursuance to the ICA policy of protecting environment, the conservation of natural resources and pursuing sustainable cooperative development programmes. The 6-man Mission from the Shanghai Resource Recovery and Utilization Company (SRRUC) of China and the ICA ROAP visited the Philippines in January 1992, pursuing the study on the project which covers waste rubber, plastic, paper, precious metal and ferrous recycling. Later, in March-April 1992, CUP President Glicerio E. Lorejo, Sr. and CUP Director Renanto Yanez attended the ICA Regional Workshop on Waste Resource Recycling by Cooperatives in Shanghai.

The CUP embarked on collaborative activities with the Non-Government Organization's Council on Resources Protection (NGO-CORPROTEC), a coalition of eighteen NGOs including CUP that are bound by a common purpose of undertaking programmes on safety, health, particularly in advocacy for policies and programmes, support to appropriate legislations and public hearings, engaging as unified body in public information and dissemination studies, providing training and supporting participatory research. Likewise, CUP has direct link with the Foundation for Resources in Economic and Ecological Development (FREED) in enhancing the survival and development of communities at risk. FREED has a programme of reforestations of 60 hectares in the province of Marinduque which has been ongoing since 1989. The CUP is in the Governing Board of the Fisheries Committee as member of the National Agricultural and Fisheries Council involved in environmental protection and preservation of natural resources.

The CUP has so far been involved in the following CORPROTEC activities: (a) Safety and environmental protection conscientization through newsletter/bulletin quarterly publication; (b) other mass media information dissemination; (c) advocacy and policy initiatives (drafting of RA 6969's implementing guidelines); (d) holding of continuous consultation and preparation of essential baseline data on subjects like "Chemical Hazards Evaluation" and "Status of Occupational Safety and Health" (in various areas).

The CUP formally launched its Technology Transfer Programme for Cooperatives (TTPC) on April 3, 1991 with the signing of Memorandum of Agreement in Malacanang Palace among the Cooperative Union of the Philippines (CUP); the Cooperative Development Authority (CDA); the department of Science and Technologies (DOST); the Department of Agriculture (DA); the Department of Education, Culture and Sports (DECS); the Department of Trade and Industry (DTI); and the Filipino Inventors Society (FIS). Briefly, this programme is designed to bring the benefits of science and technology to cooperatives by providing education and training programmes that would enable our cooperatives to engage in income-generating activities. On September 16 and 23, 1991, the rapid composting programme as part of TTPC was launched in Cavite with demonstration on rapid composting using indigenous materials attended by farmers of cooperative leaders and government officials. This programme is being pursued in other parts of the country using the facilities and programmes of the various agricultural, fishery, and technical schools of the DECS, DA and DOST.

Among the planned thrusts of CUP for the protection of environment as part of its sustainable cooperative development are: (1) policy initiative on legislation; (2) drawing up model coop by-laws to include environment protection; (3) inclusion of environment protection in the cooperative training; (4) joint programme with the Department of Interior and Local Government regarding local waste disposal and recycling; (5) conduct of national conferences on Coops and Environment, among others.

The NAMVESCO has embarked on a programme of collaboration with local governments in the maintenance of health and sanitation standards in public and private markets where their members operate. The PFCCI advises farmers and fishermen to use organic fertilisers and legal methods of fishing. The BSPCMA suggests tree planting/reforestation by local governments; preventing tree cutting in highlands; and representation with local authorities to require firms to use anti-pollution control devices.

Environmental Training and Education

The cooperatives have also undertaken following activities:

- (1) Reforestation and family planning;
- (2) Pollution Control in Livestock Production; and
- (3) Cattle Dispersal Programme

The CUP has produced a primer on rapid composting (for use as fertiliser

instead of chemical fertilisers). The CUP has "CUP Gazette" which is a bi-monthly publication of 2,000 copies per issue and it carries environment-related articles.

The NATCCO has assigned a staff for environmental matters. More specific environmental programmes for 1992 are under consideration. The NATCCO also leads in this area with two publications, namely "Coop Sector" and "Coop Link" both of which are bi-monthly with 500 copies each per issue. Both carry environmental articles. The PFCCI plans to create awareness through its seminars and publications. The PFCCI has two publications, namely: "Philippine Credit Unions" which comes out monthly; and "ang Payong" which comes out quarterly. Both have 1,000 copies per issue. However, they have not carried any articles on environment as yet. The CFFMCI plans seminars on pollution control in livestock production. The CFFMCI has its CAFFMACO Newsletter which is published quarterly with 500 copies per issue. It carries articles on organic fertilizers which discuss advantages thereof; as well as on pollution control in livestock production.

The CCA-Philippines Representation Office also publishes a quarterly "CCA Asia Environmental Newsletter" which is sent out to all the cooperative institutions, government agencies and international organisations in the Philippines and outside.

Direct Environmental Impact Programmes

(a) *Tree Planting:* Both PFCCI and NAMVESCO members have tree-planting campaigns but they have no statistics on the matter. The NATCCO is involved on a pilot basis with the Integrated Social Reforestry Programmes (ISRP) of the DENR. It assists in the formation of cooperatives among forest-dwellers who are, by this means, given the opportunity to be productive rather than become illegal tree cutters.

The BSPCMA has a programme for free seeds distribution to its members for their home gardens and to public schools for the gardens of their pupils.

(b) *Environment-Friendly Programmes:* The NAMVESCO has a programme on the production of organic soap; while the CFFMCI has a seminar on pollution control in livestock production. None of the respondents have any programme on the promotion of alternate and renewable energy. Neither do they have any programme on reduction of air pollution. CUP and CFFMCI ban smoking in their premises while the others have no such ban.

CUP under its Cooptrade Project will market organic and biodegradable fertil-

isers to farmers and render consultancies on environmentally/ecologically sound technologies. CFFMCI is promoting the use of organic fertilisers from chicken manure. The NAMVESCO plans to market fertilisers. The rest of the respondents have no answer.

In office operations, the cooperatives are for activities such as energy conservation, recycling of paper, use of both sides of papers, use of cheaper materials, etc.

Articulation of Environmental/Ecological Issues

(a) *Board/General Assembly Meetings.* The NATCCO General Assembly in May 23-25, 1991 discussed Poverty and Environment. The Board of CFFMCI discussed environmental issues resulting in a decision to use chicken manure as organic fertilizer and to hold a seminar on pollution control in livestock production. All the other respondents do not discuss environmental/ecological matters in their board or general assembly meetings.

(b) *Environment-Friendly Goods.* The CJP Cooptrade Project is promoting and selling a biodegradable laundry soap. The NAMVESCO's members have produced a laundry bar soap "Coop Soap" which they sell at prices lower than the leading brands. NAMVESCO has a policy of selling high quality products through honest and fair dealings. Both CUP and NAMVESCO have no handbook/guide for environment-friendly goods. The rest of the cooperatives have not identified any environment-friendly goods nor have any policy or handbook/guide on such goods to guide their staff in advising the members on the matter.

Role of Cooperatives in Environmental Protection

NATCCO believes that cooperatives can play a substantial role in the protection and enhancement of the environment through educational activities, policy initiatives and active participation in government programmes. The CUP holds the view that cooperatives can play a major part in environmental protection through education and training of the people and the identification and delivery of environment-friendly goods. The PFCCI says that cooperatives create awareness among the people to environmental issues and inspire interest to join programmes on the environment which redound to their advantage. NAMVESCO says that cooperatives can harmoniously interact with the total environment for the good of all. The CFFMCI says that a cooperative like it can promote organic fertilisers and products with minimal pollutive character. BSPCMA believes that cooperatives should join with local governments on tree planting projects; and that cooperatives can help local government effect dialogues with industries on pollution control.

A continuing education programme with local government and cooperative participation appears to be generally favoured for creating awareness as the environmental issues.

Information-Sharing: All the cooperatives share the view that cooperatives can play a very vital role in the dissemination and exchange of information at the local, national and international levels.

Improvement of Community Life: Cooperatives believe that they can help improve community life through their economic and social activities that directly touch the community in general.

The Surveys showed the *lack of* a national cooperative policy. There is an absence of integrated plans and programmes of cooperatives from the National Cooperative Organizations down to the primaries regarding environmental/ecological protection and management. This is apparently the case despite the encouragement given by the government; and the activism of Philippine and international environmentalists ecologists. The programmes, projects and activities identified in the survey indicate a willingness on the part of cooperatives to do their part only that they do not have adequate information on what has to be done, what they need to do, and how to do their part.

At this point of time, the NATCCO has taken the lead with a strong policy initiative on environmental/ecological concerns both at the national and international levels. It has fostered awareness to the vital issues involved on the subject and has undertaken important steps such as designation of a staff on environmental/ecological concerns; publication of articles on the subject; information and educational activities; and pilot project with the DENR under its integrated social forestry project. The CUP and the national federations have yet to formulate their respective policies, plans, programmes/projects on the matter for replication down to their primaries.

Despite the existing infrastructure and superstructure of the Cooperative Movement in the Philippines evident in the Union and federation system as recognized in the Cooperative Code (R.A. No. 6938) and the Cooperative Development Authority Act (R.A. No. 6939) there appears to be no set vertical nor horizontal coordination nor integration of environment/ecology related activities of primary, secondary and tertiary cooperatives. A movement-wide network system to facilitate intercooperative and intersectoral information exchange and coordination of activities (vertical, horizontal, and diagonal) is strongly indicated. Such a net-work system

should be characterized by a free and unrestricted (or unhampered) two-way flow of information, bereft of any obstacles involving functional/territorial considerations (or deliberation); and should lay heavy emphasis on the urgent need for an immediate action.

All the foregoing areas of concern need to be properly attended to and the appropriate and suitable measures should be undertaken by the Cooperative Movement. There is a great deal of work to be done in those areas and the total commitment and unreserved cooperation by, and among the component elements of the Cooperative Movement, requires it.

RECOMMENDATIONS AND CONCLUSIONS

In the light of all the foregoing considerations, the Cooperative Movement in the Philippines represented by the existing National Cooperative Organizations under the Cooperative Code, should close ranks and address the environmental/ecological issues as laid out in the "Philippine Strategy for Sustainable Development" (PSSD).

The legal bases for such course of action by the NCOs are the Constitutional Mandate on the environment; Philippine Environment Policy (P.D. No. 1151); the Philippine Environment Code (P.D. No. 1152); the Cooperative Code of the Philippines (R.A. No. 6938); and the Cooperative Development Authority Act (R.A. No. 6939).

The following are the recommended measures for the NCOs to consider:

1. NCOs should convene a National Consultation for the purpose of drawing up and declaring the National Cooperative Policy on the Environment. Such policy should be communicated to the Philippine Government and all its subdivisions and instrumentalities, the ICA, and the United Nations and other official and non-official international bodies for their information and reference.
2. The NCOs should agree to establish a National Secretariat on the Environment and commit resources thereto for its operation as a centre of information and coordination of environmental concern and action.
3. The NCOs should draw up a comprehensive plan to guide all cooperatives on environmental/ecological concerns. The NCOs should come up with programmes and projects that would be within the capabilities and resources of coopera-

tives to accomplish. Large/Multi-million peso cooperatives may enter into joint ventures for the purpose.

4. Environmental protection and management should be made part of the purposes of cooperatives in their articles of incorporation. The bylaws of cooperatives should provide for a Committee on the Environment/Ecology; include in the programme of the education committee the teaching of environmental/ecological subjects to the members; and inclusion of environmental/ecological issues and reports in the agenda of General Assembly/Board/Committee meetings.
5. Regular conventions (annual) at the national, regional and local levels should be held under the sponsorship of the NCOs. International conferences should also be held annually. The objective here is to exchange information and experience as well as secure support from alliances.
6. The proper treatment and disposal of gaseous, liquid and solid wastes will have immediate impact on quality of community life. Representation with national and local government authorities may be effective. Waste recycling projects and waste conversion into energy and other products should be looked into and encouraged with technological and financial incentives.
7. Cooperatives should undertake a programme for the promotion of organic fertilisers, biodegradable products; and prevention of the use of agricultural chemicals, fertilizers and pesticides which not only pollute the soil but also rivers, lakes, and seashores killing fishery and aquatic resources when they flow with rainfall run-offs toward said water resources.
8. Continuous monitoring and reporting of illegal logging and tree-cutting, the use of dynamite, muro-ami, cyanide, and other illegal methods of fishing and aquatic harvests should be done by cooperatives with the objective of having the persons responsible brought before the law.
9. Although time-consuming, reforestation and revegetation projects will enhance environmental quality and food production especially so when fruit trees and vegetables are also included in the programme.
10. Continuously monitor, report, and campaign for the use of products not harmful to the ozone; and campaign against the sale and use of CFCs and other products that deplete the ozone layer.

11. Prevention of waste disposal in inland waters and seashores; clearing of debris therefrom; and renewal and maintenance of the ecological balance therein.
12. Alternative energy projects should be encouraged and promoted. Inventions and devices for hydro-solar, wind, biogas should be looked into with a view to their utilization toward establishment of alternative power for domestic and commercial consumption.

A glance at the number, membership and resources of cooperatives in the Philippines would make one feel that the Cooperative Movement in this country is formidable. The statistics would show that the Movement has over 10 million of members, and almost half a billion pesos in resources. Indeed, the Movement is formidable and could contribute substantially to the protection, conservation, management, and renewal of the country's natural resources on a permanent and self-sustaining programme in place. In like manner, the international cooperative movement through the ICA can substantially contribute to the worldwide movement for environmental/ecological protection and management.

The NATCCO has initiated cooperative action in the field of environment and ecology. The CUP and the other NCOs should now consider what further actions need to be taken to reinforce and expand the gains made by it along these lines; and institutionalize the role of the Cooperative Movement in environmental protection and management.

More importantly, the CUP and the other NCOs should now consider the adoption of a comprehensive national policy on environmental protection and enhancement, to be implemented by broad plans, programmes and projects.

Surely, the Movement can do it, given the full cooperation and commitment of all the NCOs, the moral and material support of the international cooperatives community, and the unqualified support of the National and local governments. It, therefore, now behoves the intellectual and popular leadership of the Movement to adopt a common stand on the issue of the environment and ecology and articulate it in the highest councils of government and the people at large.

The international cooperative movement, through the ICA, can likewise substantially contribute to the worldwide movement for environmental/ecological protection and management. From this standpoint, we may find it useful to reflect on the environmentalists'/ecologists' valid observation to the effect that "humanity is travelling in space aboard a spaceship, the Earth - which must be kept hospitable and habitable under pain of mankind's extinction."

Finally, it is but fitting and proper for us to keep in mind that succeeding generations of Cooperators and humanity at large will be as kind to us in their judgment as we are committed to their health and welfare today.

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X. National Situation Paper-Thailand

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SOME BASIC INFORMATION

Location

Thailand is a country of South-East Asia that was known as Siam through most of its long national existence. In the centre of mainland South-East Asia, touching on Laos, Cambodia, Malaysia and Myanmar, it has great strategic importance. The country has an area of approximately 514,000 sq km.

Climate

Thailand climate is hot and humid most of the year. Over most of the country 3 seasons may be recognised. The rainy season is June to October, the cool season from November to February and hot season is March to May. Rainfall is generally heaviest in the south and highest in the north-east.

Vegetation

Thailand plant life is tropical throughout. Valuable teakwood timber is obtained from the northwestern section adjacent to the Salween river boundary with Burma. The country produces a great variety of delicious fruits, such as mangoes, bananas, pineapples, citrus, litchis, and mangosteens.

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Population

Population in Thailand increased rapidly from 26.4 million in 1961 to 55.9 million in 1990. About 70% of the total population lives in the rural areas. The rapid growth of population has resulted in increasing demand of natural resources. Moreover, mismanagement of natural resources has accelerated destruction of resources and also created conflicts and pollution problems.

Forest Resources

In the past, Thailand's natural resources were abundant and were heavily utilized for increasing production and for mitigating poverty. In the north, mixed deciduous forests with teak growing in mixture with several other species predominate. In the north-east hardwood is found in most parts. In all other regions of the country tropical evergreen forests are found, with the timber yang the main crop (a source of yang oil). Most of the teak timber exploited in northern Thailand is floated down to Bangkok.

Output of main forestry products in 1989 was Teak-26,2000 cu. metres; yang and other woods, 892,600 cu. metres. By products in 1989 were Firewood-426,000 cu. metres; charcoal-325,5000 cu. metres. Rubber production in 1989 was 1,131.000 tonnes.

In the past, land under forest area was about 70% of Thailand's total area (320 million rai). Because, the population has continuously increased, large portion of forest land was used for agricultural, road construction, human settlement, hydro-power dam etc. Hence, the forested area of 171 million or 53% in 1961 had shrunk by over 32.45 million rai (18.9%) by 1973 and 45.40 million rai more (26.5%) by 1985. The average annual loss between 1961 - 1985 was about 3.24 million rai. But the reforestation could be done on only 3 million - rai within 79 years (1906 - 1985) or average of 0.04 million rai annually (6.25 rai = 1 hectare).

The most damaging periods were between 1973-1976 and 1976-1978, when the annual rate of destruction reached 4.85 and 7.25 million rai respectively. The most recent study by the Royal Forest Department in 1988, indicated that there are only 28% or 89.9 million rai of forest area remaining, while the national policy calls for the preservation of 40% of Thailand's forest area.

This accelerated destruction is closely linked with many economic development projects such as shrimp farming in the mangrove forest, project for paper production

to meet the demand that rises rapidly and the demand for lumber and fuelwood is also increasing while the resource base is diminishing. Now Thailand has turned from a long-standing net exporter into a net importer of timber.

Many economic development projects have paid too little attention to the long-term sustainability of their natural resources base; the laws and regulations have sometimes been weighted in favour of unscrupulous, rather than the conscientious.

Land Resources

Cultivable land area is about 65% of the country's 321 million rai total area. In the past years, when population pressure were less intense, there seemed to be adequate land for every purpose, agriculture, human settlement, water bodies and so on. Presently, the per capita arable land is down to only 3.103 rai (4,965 m²) and this area is getting smaller with each child born. The fertile arable land is also being converted into new urban settlement and industrial sites.

Moreover, there are evidences of degradation and erosion of Thai soils. The degradation can be caused by physical chemical, biological, socio-economic and institutional factors. In isolation or in combination, directly or indirectly, such factors alter the soil's potential for sustained or increased agricultural production. Increases in agricultural production have come from the expansion of cultivated areas rather than increases in the yield per unit of land area. It is generally recognized that the limit of the nation's land resources are now being approached.

The agricultural land has also been misused. The cultivation of paddy on unsuitable soils alone amount to 13.48 million rai, and the growing of upland crops on unsuitable soils account for a further 14.58 million rai. Another type of misuse of land is the encroachment and destruction of forests on steep slopes. Most of the encroachment is for cultivating upland crops without any soil and water conservation practices, thus creating severe erosion problems.

Water Resources

Thailand receives a generous rainfall, at an average volume of some 800 billion cubic meters each year. But evaporation and infiltration are important factors, leaving about 171,206 million cubic meter of surface run off, distributed unevenly among the regions and between seasons. Some areas have too little water, other have too much, suffering from floods which can cause substantial loss of life and damage to property. The surface water quantity for each river basin is determined as

the annual run off volume in million cubic meters at the mouth, or expressed in terms of depth in millimeters of water over the basin area it covers.

The Chao Phraya Basin of the Central Plain is Thailand's largest, with an annual run off of 170 millimeters. The MaeKlong Basin, west of Bangkok has an annual run off of 406 millimeters; The Mun Basin of the Northeast, 238 millimeters. These run off figures provide a simple indicator that the run off from MaeKlong is very large indeed and could perhaps be diverted to the Central Plain, which needs more water for its growing economy.

Groundwater is another resource that exists throughout the country but varies considerably in quantity and quality. In the Northeast, the groundwater from most wells is salty. Large and high yielding aquifers occur in alluvium and terrace deposits. In the Bangkok Area the abstraction rate of groundwater is exceedingly high, surpassing the estimated safe yield by at least 0.5 million m³/day or more, bringing the prospect of saltwater contamination, in addition to land subsidence.

The status of water development is indicated by the land area covered by irrigation projects. The current figure stands at 25 million rai, out of 152 million rai of agricultural land.

The Central Plain has more farm land and the largest irrigated area, almost a quarter, that has helped increase the rice production through dry season cropping. Its two major river basins - the Chao Phraya and MaeKlong - represent a good water supply, but water demand is increasing rapidly. The increase is due mainly to industrial expansion, dry season crop production, urban needs, and the extra supplies needed to combat salt water intrusion.

Another important aspect is hydropower development, to satisfy increasing public demand for electricity. The 1985 status is a total of 1988 MW in operation and 240 MW under construction. In addition, there are several microhydropower projects with a combined capacity of 1,123 kw, and more in progress. Hydropower meets over one-fifth of total electricity demand.

The country's water resource development activities are implemented and supervised by no fewer than 30 agencies and 17 committees, at an estimated cost of 402,608.4 million baht over that 55 years between 1928 and 1983.

Increase in demand of water for domestic and agricultural purposes as a result of population expansion has caused the problems of water shortage and conflicts

among water users for various purposes, including conflict in development and preservation of water resources.

Development of large-scale water source is still lacking in efficient water management system including appropriate continuous projects, and also resulted in low rate of irrigation water utilization which is only 15% instead of 60-70%. Development of small-scale water sources to respond basic needs is uneven and quality of water is unhealthy. Besides, in Bangkok and surrounding areas, the groundwater has been highly utilized for domestic and industrial purposes. The level of ground water is going down by 2-4 meters yearly and has caused sinking of the ground at the rate of 10 cm each year.

Agriculture

The chief produce is rice, a staple of the national diet. The area under paddy is about 18m acres. In 1987, 40% of the total land area was cultivated.

Output of the major crops in 1989 was (in 1,000 tonnes); Paddy, 21,400; maize, 4,100; sugar-cane 33,560; jute and kenaf, 164.7; tobacco, 28.5; tapioca-root, 2,312; soybeans, 610; coconut 1,140; mung beans, 355; cotton, 103; groundnuts, 177; sesame, 28.7; castor seeds, 34; kapok 19; buffaloes, 6,000; cattle, 5,000; pigs, 4,260; sheep, 95 goats, 80; poultry 101.000 thousands.

Fisheries

In 1989 the catch of sea fish was 2.6m. Tonnes including marine prawns and shrimps (0.23m tonnes) and of freshwater fish, 165,000 tonnes.

Electricity

In 1987 the principal sources of energy generation were natural gas (50%), lignite (24%), hydro (17%) and heavy oil (7%). Installed capacity was 55% thermal, 30% hydro, 11% combined cycle and 4% gas turbine. Annual hydro capacity is 26,204 mw.

Oil and Gas

There is extensive oil and gas exploration in the Gulf of Thailand. In 1987 the Sirikit oil field, which came on stream in 1983, remained Thailand's only significant find. Proven oil reserves in 1987 were less than 160m bls. Production of crude oil

(1990) was 1.82m tonnes providing 15% of needs. Production of natural gas in 1989 was 211.398m cu. ft. Estimated reserves, are around 12,922.000m cu ft.

Industry

Production of manufactured goods in 1989 included 15,024,622 tonnes of cement, 180,085.000 litres of beer, 2.2999,798 bottles of soft drinks, 37,365 tonnes of cigarettes, 200,616 tonnes of galvanized iron sheets, 149,478 tonnes of tin plate, 213,536 automobiles, 87,216 motorcycles, 59,427 tonnes of tyres, 202,347 tonnes of synthetic fibre, 191.633 tonnes of jute products, 14.370 tonnes of paper, 143.644 tonnes of detergent, 13.188m litres of petroleum products, 3,836,766 tonnes of sugar and 938m, integrated circuits.

Labour

In 1988, 28.2m persons out of a labour force of 29.9m were employed: 17.9m in agriculture and 2.8m in manufacturing.

COOPERATIVE MOVEMENT IN THAILAND

Historical perspective

The Cooperative Movement was introduced in Thailand some 73 years ago. The Cooperative Movement right from its inception has enjoyed the patronage of the State. There has been an increase in the number of cooperatives, cooperative membership and the volume of business in all type of cooperatives in Thailand.

Present Situation of Cooperative Movement

The cooperatives in Thailand are vertically organized at three levels; primary societies at the local level, secondary societies at provincial level and the apex societies at the national level. The primary agricultural cooperative society consists of individual farmers, divided into various groups of a village or tambol level for training purpose, business activities or determination of proposals for forwarding to the board of directors.

Three or more primaries can together form a secondary federation at provincial level. These secondary federations undertake joint activities on behalf of their primary affiliates including processing of agricultural produce.

There are 6 types of cooperatives that have been registered under the Cooperative Societies Act of BE 2511 (1968). The details are given below :-

Types and Membership of Cooperatives in Thailand 1990

No.	Types	No. of Coops	Cooperative Membership
1.	Agricultural Cooperatives	1,464	1,007,634
2.	Land Settlement	94	95,604
3.	Fishery Cooperatives	26	6,236
4.	Thrift & Credit Coops	858	1,349,449
5.	Consumer Cooperatives	419	713,236
6.	Service Cooperatives	302	86,913
Total		3,163	3,309,075

The primary cooperatives federate in their respective federations at the provincial and national level. In addition to the number of cooperatives mentioned above, there are 11 national level cooperative federations. These are: Thrift and Credit Cooperatives Federation; Consumer Cooperatives Federation; Credit Union League of Thailand; Service Cooperatives' Federation; Sugarcane Growers' Cooperatives Federation; Swine Raising Cooperatives Federation; Dairy Cooperative Federation; Military Cooperative Federation; Vocational Schools Consumer Cooperative Federation; and Onion Grower Cooperative Federation. All the federations are affiliated to the Cooperative League of Thailand (CLT) which was established in 1968 as a national apex organisation of the Cooperative Movement of Thailand. The national federations have a membership of 991 cooperative societies, 74 provincial level cooperatives as in 1991.

Cooperative Training Programmes

The CLT has been providing a variety of education, training and extension services to its affiliates. These programmes are aimed at the general membership, Board/Committee members, cooperative employees and the general public. These are carried out through short-term member education courses, sponsoring for staff for training, offering and making use of external and internal training scholarships and opportunities.

During the year 1991 the CLT has planned to undertake an intensive programme of education and training for all types of cooperatives. It is planned to organize 39 such training programmes to be attended by 4,080 participants at a cost of 7.6 million Baht.

Besides, the CLT in collaboration with local cooperatives has conducted training programmes for supplement occupation to meet the needs of each type of cooperatives. These programmes included trainings for women and youth to participate in cooperative activities.

ENVIRONMENTAL MANAGEMENT IN THAILAND

Destruction of natural resources has caused various problems to the environment of the country:

- Destruction of forest resource resulted in sedimentation of main rivers due to soil erosion.
- Expansion of saline soil in the Northeast, present figure is 17.8 million rai and tendency of expansion can be reached 19.4 million rai, and there is also 5.3 million rai of acid soil in the Central Plain.
- Destruction of mangrove forest, which presently exists at about 1.7 million rai, from expansion of brackish water fish and shrimp culture will be about 40,000 rai each year. Destruction of coral from explosion and sea mine can damage feeding source and survival of fish larvae and young fish.

Water Pollution

The expansion of economic activities, especially, industry and tourism including population growth in urban area as a result of migration of rural people to urban area has caused pollution problems in various ways such as polluted water and air, too much noise, dangerous chemical substance, and garbage. Quality of water in the main rivers such as Chao Phraya River and Tha Jen River including quality of water along the beach in tourist area are now lower than standard quality.

The fresh water aquaculture industry's problems with polluted water and disease are widely recognized, but its growth pattern remains strong. The same is true of brackish water culture. The silent sufferer has been the mariculture of bivalves - oysters, mussels and blood cockles - in certain areas of the inner Gulf receiving water flow through large urban and industrial centres. Much of this water is heavily

contaminated with untreated wastewater. The problem can be corrected by investment in proper operation of wastewater treatment plants.

On the other hand, brackish water shrimp culture has also polluted sea water by drainage of wastewater from the shrimp ponds into the sea without operating proper water treatment.

Air Pollution

Environment problems from polluted air can be seen clearly in the big cities like Bangkok, Chiangmai and Songkhla. The main causes of air pollution are dust, carbonmoxide and lead.

Air pollution from traffic comes from vehicle itslef, because there is no pollution control system on vehicles. Number of cars has rapidly increased. At present, there are 2.2 million cars in Bangkok alone and the yearly growth rate is 10%. Moreover, traffic in main cities is always congested due to increasing number of cars against limited rate of road construction.

Air pollution from industrial plants - generally small industrial plants - have no pullution tratment system, and inspection and supervision from the authroity concerned cannot be done properly and thoroughly.

Chemical Pollution

Development in agricultural and industrial sectors has brought about increasing rate of chemical use in production. The unawareness about dangers of chemical substances has caused the problem of environmental destruction and also affected health and sanitation of people indirectly and industrial workers directly.

Garbage

It comes froms three main sources, human residential areas, industrial plants and agricultural area. The amount of garbage has been increasing every year. The report of Bangkok Metropolitan Office in 1990 showed that amount of garbage was 4,212 tons. The amount of hazardous garbage from industrial plants also has a trend to increase every year.

Legislation on Environmental Protection

Owing to land degradation, air and water pollution, deforestation, mismanage-

ment of natural resources and industrialisation problems, of environmental protection are increasing rapidly. If there are no remedial and protective measures, it would be dangerous to the life of Thai people. The Thai government is aware of the importance of conserving the nation's environment and the need for the legislation on environment protection. Therefore, the first Act on Conservation and Development of Environment was promulgated in 1975.

The Act regulated to have the "National Environment Board" chaired by Deputy Prime Minister and the committee comprising Permanent Secretaries of Defence, Agriculture and Cooperatives, Communication, Interior, Science-Technology and Energy, Public Health, Industry, Secretary-General of National Economic and Social Development Board, five Environmental experts and five representatives from Non-Governmental Organizations or other persons appointed by the Cabinet. The Secretary-General of National Environment Board is the Secretary of the Board

The Board has authorities and duties as follows :

- 1) To propose and commend policy on development and conservation of environment to the Cabinet,
- 2) To regulate implementation guidelines for environment conservation planning and projecting in accordance with the policy.
- 3) To consider and commend to the Cabinet on project of government agencies, state enterprises and private enterprises which will affect environment.
- 4) To propose plan on development and conservation of environment.
- 5) To give advice to the Prime Minister on Official Announcements and Orders.
- 6) To recommend standard quality of environment, including measures for protection and conservation, to the government agencies.
- 7) To recommend amendment and improvement of laws related to environment to the cabinet.
- 8) To co-ordinate among government agencies: state and private enterprises on environment issues.
- 9) To give comments to the Prime Minister in case of any agencies violated against the laws, regulations or orders for preservation of environment.

- 10) To report environment situation to the Cabinet at least once a year,
- 11) To consider other issues related to environment which are requested by the Cabinet.
- 12) To perform other duties which are regulated by the Laws to be the Board's duties.

The standard quality of the environment and the report of environmental impact analysis regulated in the Laws will be the important measures to effect the national policy on national economic development.

The 1975 Act was firstly amended in 1978 and lately in 1979. There are many ministerial regulations and announcements concerning environment. Besides, the Laws on Conservation and Development of Environment, there are also many legislations relating to conservation of natural resources. There are 11 laws for land and forest resources, and five laws that are related to water resources development but no direct legislation for water resources.

National Policies on Environmental Protection

There were some limitations in development of Environment in the past. Lack of clear and continuous policies is the major Limitation. Environmental protection consists of two parts: (i) Conservation of natural resources; and (ii) Control of pollution. In part of conservation of natural resources such as forest resource, the policy was clearly made to conserve forest area of not less than 40% of country's total area in the Sixth National Plan. The implementing agencies could make the plans and projects to respond to the policy. But on pollution control aspect, the previous policy on industry did not emphasize on strict measures for pollutants from industry, agriculture and residential areas. The second limitation is lack of knowledge on pollution control technology. The other limitation is the unawareness of the people about the pollution and destruction of natural resources.

On the 4th of December 1990, his Majesty the King gave the royal speech to the audience of well-wishers on the occasion of the Royal Birthday Anniversary at the Dusit Palace. His Majesty showed deep concern over the state of the country, especially in the area of national environmental problems and those on the international level that affect Thailand. His Majesty the King gave some very useful advice on proper use of natural resources and conservation of the environment.

In response to His Majesty's wishes, the Cabinet has set up a remedial and

preservative policy to quickly solve existing problems and to conserve the country's natural resources and environment, which are essential to the development, future prosperity and security of the country. The three main points of this policy are:

1. To improve the system for management of nationwide natural resources, consisting of land, water, forest, fisheries, mineral and fuel, in order to derive the greatest benefit for the country and for the welfare of the Thai people.
2. To encourage the preservation, revival and development of natural resources in an organized and continuous manner.
3. To expedite the training of personnel and to develop research work on the utilization of natural resources and the preservation of the environment.

The Government of Thailand has announced the day of December the Fourth of every year to be the National Environment Day.

In the Draft of Seventh National Economic and Social Development Plan (1992 - 1996), conservation of natural resources and environment is one of the major objectives of the plan. The Seventh Plan has set up guidelines for development and conservation of natural resources and environment as follows:

1. Development of environment together with economic and social development of the country

- 1.1 To introduce the principle that the one who made pollution is the one who must be responsible for prevention of pollution.
- 1.2 To improve organizations, role and legislations relating to environment management in order to facilitate environment development;
- 1.3 To motivate investment in reducing and of pollution with some support from the government in various ways;
- 1.4 To strengthen cooperation among government, private sector, people and communities in protection and conservation of environment to be of the standard quality.

2. Improvement of natural resources management to be as an infrastructure for living of rural people, as the national heritage for the younger generations and as the base for further sustainable development of the country

- 2.1 To encourage people participation in natural conservation by promoting people organizations and non-governmental organizations.

- 2.2 Supervision on implementation of existing natural resources management plans by allocating adequate budget and personnels, encouraging people's consciousness on protection of natural resources by publicity through mass media.
- 2.3 Reduction of conflicts on future utilization of natural resources by regulating land utilization plans.
- 2.4 Introduction of monetary and financial measures in natural resources management in order to create equity in the society.
- 2.5 To set up natural resources data and information system for efficient planing.
- 2.6 To accelerate promulgation of legislation relating to natural resources conservation to be suitable with changing situations.

Activities on Environment Conservation and Protection

Since problems on environment in Thailand have become serious, either government or private organizations have undertaken various activities in order to conserve natural resources and environment. Various private organizations have initiated projects campaigning for conservation of environment and natural resources. Many projects aim at improving environment in the big cities especially Bangkok. Some of the projects are:

- "Make Bangkok Green" by Bangkok Metropolitan office. Purpose of the project is to encourage the people to plant trees in their houses and in public area.
- "Magic Eyes Project" with the concept of "Don't throw rubbish, Magic Eyes can see."
- Love Choa Phraya River with Magic Eyes in order to keep the river clean.
- Encourage car drivers to use unleaded gasoline by lowering the price of unleaded gasoline.

Projects campaign in the rural area mostly aim at conservation of natural resources, like Green Esarn (Greening Northeastern Area), community forest,

mangrove reforestation and many projects concern with conservation of forest, land and water resources.

Major activities undertaken by Agencies working on natural resources and environment:

Land resource

- Programme to improve efficiency in land use, responsible agencies are Department of Land Development, Agricultural Land Reform Office, Royal Forest Department, Thailand Institute for Scientific and Technology Research.
- General administration for land right protection by Department of Land.

Water resource

- Water resource development for agriculture programme by Royal Irrigation Department.
- Water resource for hydroelectric power generation by National Electric Administration.

Forest resource

- Forestry research programme and forest conservation programme by Royal Forest Department.
- Hill tribes development programme by Department of Public Welfare.

Fishery resource

- Fishery research programme, fishery promotion programme and fishery conservation programme are the responsibility of the Department of Fishery.

Environment

- Office of National Environment Board is responsible for administration of environment development programmes, environmental quality control pro-

gramme, pollution control programme, human settlement programme and Department of Public Health is undertaking sanitary programme.

ACTIVITIES UNDERTAKEN BY COOPERATIVES FOR ENVIRONMENTAL CONSERVATION

Reafforestation in Northeast Land Settlement Cooperatives

Cooperative Promotion Department has promoted reafforestation in four land settlement cooperatives in three Northeastern Provinces. Bamboo tree will be planted in idle public land of 4,500 rai (720 ha) with the purposes to increase forest area, improve land fertility and also provide income to the members, and the members will be responsible for bamboos cultivation. The project was started in 1989 and up till now 40% of the area has been reafforested.

Planting of Fruit Trees in Northeast Land Settlement Cooperatives

The project is operated in land settlement cooperatives in six provinces with an operation area of 6,300 rai (1,000 ha). The cooperatives shall provide funds for cost of cultivation. The members can grow trees on their own land. Since 1989 up to present 5,530 rai has been planted with cashew nut, tamarine, bamboo, mango and other tree crops. The objective of the project is to encourage cooperative members to make their own area green and fertile and to earn income from these trees.

One Million Tree Planting for King's Mother Birthday Celebration

The project was initiated by the government with the objective to plant 90 million trees within 1991 in order to honour the King's Mother 90 year anniversary. The government, private agencies and all people throughout the country cooperated in planting trees in their responsible areas. The Cooperative Promotion Department has persuaded all cooperatives and cooperative promotion offices to plant one million trees in the idle land. The objectives of the project are to create consciousness in forest conservation and tree value among the cooperative members and general public. The project was completed in 1991 with three million trees planted.

Teak Growing Promotion in Cooperative Areas

Teak is a valuable wood of Thailand but the number of teak trees cut down is much higher than teak grown. Hence, teak growing need to be promoted so as to

increase teak forest. The Tron Agricultural Cooperative Ltd. in Uttaradit province has promoted teak growing project with the objectives to increase forest area of the country and to create source of income for the members.

The cooperative targeted to grow 150,000 teak trees in 750 rai (140 ha) by 308 members. The project was started in 1987 and now teak has been grown in the area of 30 ha.

Rural Electricity Cooperative Ltd.

In many remote rural areas of Thailand, there is still no electricity, because the cost of connecting electric wire from high voltage area in to the village is quite high and the government budget each year is limited. In order to help them to have electric light in the village, it can be done by their cooperation with assistance from the National Energy Authority.

The cooperatives will be organized in the area where water sources is available and can be developed for generating electricity. Therefore, the villages in hilly area of the North were selected to start the project of electricity generating by water power. The National Energy Authority is responsible for construction, technology, equipments and some materials while the rural people must be obliged in providing labour for construction and maintance of generating system. Major benefit derived from the project besides electricity is the consciousness of rural people in protecting forest, because they realized that forest will build up water shed which will be generating electricity for them. The people will have the sense of preserving forest, because they will implant the idea of no-trees, no-water and no-electricity.

At present, there are 29 Rural Electricity Cooperatives in Chiangmai and Chiangrai provinces.

The above mentioned cooperative activities are considered very important in protection and conservation of natural resources. But on the other side, cooperative activities have created enviornmental problems too. for exmple agricultural cooperatives sell chemical material e.g. insecticide, pesticide, fertilizer to the members and these chemical material will accumulate in the field which result in soil destruction and also polluted water.

Mechanized farming system is another factor that accelerates cutting down of trees in the field so as to facilitate the use of machines.

Plastic bags used in cooperative stores which previously used paper bags, would

create environmental problems. This matter needs to be discussed in greater depth by consumer cooperative stores.

SUGGESTIONS FOR CONSERVATION OF ENVIRONMENT

1. Promotion of diversity and integrated farming systems in order to create balance of nature. Diversity of plants will help in reduction of insect outbreak, because different insects will be controlled in natural way. Soil texture will be improved by organic matter derived from various plants.
2. Reduction in the use of toxic chemicals, for insect and pest control and encouraging the use of biological control. Some plants and herb can be used as insect repellent.
3. Reduction in the use of chemical fertilizers by encouraging people to make compost from waste organic materials from farm or house.
4. Cooperative Store should stop using plastic bags for containing food and other products and use paper bags instead.

In Thailand, banana growing is to be promoted in order to persuade thai people to use banana leave for food or other product packaging as it used to be in the olden time. Besides, all parts of banana tree are useful e.g., fruit, stem and leaves. It can grow easily and rapidly.

In the Cooperative Movement of Thailand, there were various seminars organized in 1991, and the topic of environment and natural resources preservation were included. The most important group of participants is women, they are very important in the family and society. If we can make them understand clearly about the damages of deforestation, air and water pollutions and also damages from toxic chemicals, they will be the efficient leaders in campaigning for natural and environmental conservation.

Therefore, Cooperatives League of Thailand and Cooperative Promotion Department will work jointly in providing knowledge on conservation of natural resources and environment to cooperative members and sooner, cooperative institution will be the leader of the community in protecting the environment and natural resources.

RIO DECLARATION ON ENVIRONMENT PROTECTION

The historic **Earth Summit** ended on June 14, 1991 at Rio De Janeiro, Brazil, with the 12-day United Nations Conference on Environment and Development (UNCED) adopting a 27-point Declaration. The **Earth Summit** attended by over 115 heads of States or governments was the largest-ever held conference of world leaders under the auspices of the United Nations. Reproduced hereunder is the Rio Declaration on principles on general rights and obligations on environment protection:

Recognizing the integral and interdependent nature of the Earth, Our Home, we proclaim that:

1. Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.
2. States have, in accordance with Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or areas beyond the limits of national jurisdiction.
3. The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.
4. In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.
5. All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development.

*While the Study was in progress, discussions on preparations for the UNCED **Earth Summit** were also going on. By the time the manuscript of the report of the Study was being finalised and getting ready for printing, the Rio Declaration on Environment Protection adopted by the **Earth Summit** was also available. It was thus considered appropriate and timely to reproduce in this documentation the Rio-Declaration for the use and information of the readers.*

6. The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority.

International actions in the field of environment and development should also address the interests and needs of all countries.

7. States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the earth ecosystems. In view of the different contributions to global environmental degradation, states have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.
8. To achieve sustainable development and a higher quality of life for all people States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.
9. States should cooperate to strengthen indigenous capacity-building for sustainable development by improving scientific understanding through exchange of scientific and technological knowledge, and by enhancing the development, adaptation diffusion and transfer of technologies, including new and innovative technologies.
10. Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.
11. States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.
12. States should cooperate to promote a supportive and open international eco-

conomic system that would lead to economic growth and sustainable development in all countries to better address the problems of environmental degradation. Trade policy measures for environmental purpose should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

13. States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.
14. State should effectively cooperate to discourage or prevent the relocation and transfer to other states of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.
15. In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats to serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
16. National authorities shall endeavour to promote the internalization of environmental cost and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.
17. Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.
18. States shall immediately notify other states of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those states. Every effort shall be made by the international community to help states so afflicted.

19. States shall provide prior and timely notification and relevant information to potentially affected states on activities that may have a significant adverse transboundary environmental effect and shall consult with those states at an early stage and in good faith.
20. Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.
21. The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all.
22. Indigenous people and their communities and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.
23. The environment and natural resources of people under oppression, domination and occupation shall be protected.
24. Warfare is inherently destructive of sustainable development. States shall, therefore, respect international law providing protection for the environment in times of armed conflict and cooperate in its further development as necessary.
25. Peace, development and environmental protection are interdependent and indivisible.
26. States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.
27. States and people shall cooperate in good faith and in a spirit of partnership in the fulfilment of the principle embodied in this Declaration and in the further development of international law in the field of sustainable development.

You Can Save The World

- Buy products that come in the minimum of packaging.
- Buy products that come in re-useable packaging - like resaleable containers and bottles.
- Get into the habit of taking your own bag with you when you shop.
- Don't throw away glass beer bottles. Return them.
- Don't waste paper. Use both sides of each sheets and reuse envelopes.
- Avoid plastic packaging - fruit, vegetables and meat do not need plastic trays to protect them.
- Look for products that come in simple refillable containers and refill them each time.
- Store food in re-useable airtight containers NOT clingwraps.

Living in polluting. In the industrialised world, each consumer throws out upto 1-1/2 kilos of rubbish everyday. Little is recycled. The world is chocking. Our very presence on this planet makes us all exploiters of its natural wealth and contributors to the mass of waste we collectively spew-out into earth, air and sea. We have pushed the world towards ecological disaster. Now each of us must do our part to save it. Our wasteful careless ways must become a thing of the past. For we do not inherit the earth from our parents - we merely borrow it from our children

(Reproduction of an advertisement issued by ASEAN PALS OF THE EARTH)

On this Subject . . .

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