ENVIRONMENT
AND
DEVELOPMENT ASSISTANCE

JICA

SEMINAR ON ENVIRONMENT AND ASSISTANCE

Dr. kennedy

Seminar in Progress

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Opening Address

I would like to express our deep appreciation to Dr. Kennedy for joining us and complying with our request to give us a lecture. I don't think there is any need for me to dwell on the topic of development, but there are a variety of issues connected to development. Deforestation, desertification, soil erosion are serious problems now, and there are also concerns over over-concentration of population in the cities, which have brought about water problems and air quality problems. These are all related to environment, and they are assuming facets of seriousness, so it's important that we address ourselves to these issues or else we will not be able to have a sustained development. People who are working in the area of development are united in this field.

We in our organization consider environmental assessment a very important topic which we should address. Last year we invited a number of experts in this area, from both in and out of JICA, and conducted a study on environment and development assistance. Through this study we have come to the awareness that it is important to grapple with environment issues in a systematic and organized fashion. As a conclusion of this study, we have come up with a report citing the needs of addressing environmental issues, and this report has been distributed to you. It is in fact a document which has given serious consideration as to how we should try to address ourselves to the issues of environmental problems. Based on the recommendations of the report we hope to be able to further carry on research of how we would be able to specifically implement these necessary measures to cope with environmental problems. And we hope to be able to conduct further study next year as well.

As you know, in 1986 there was a recommendation issued by the council in OECD, and based on this recommendation, DAC and the Environment Committee of OECD is now grappling with environmental problems in development assistance by OECD member countries. Dr. Kennedy

is a person who is very much instrumental in promoting this project, and I'm sure you can see from his past history that he has very long experience in the field of environmental issues and, particularly, he is very well versed in the area of implementation of environment assessment. Dr. Kennèdy will give us about one and a half hours of his time to talk to us about the manner in which OECD has been grappling with the environment issue, as well as common issues which the aid agencies are faced with. He will also give us illustrations of the environmental assessment that he observed in Indonesia. And after his one and a half hour speech we hope to be able to ask him to give us some more time for questions and answers, and so we hope we will be able to solicit your participation in this Q & A session too. I would like to conclude my greetings thanking you for your cooperation in our daily activities.

Thank you.

Kiyoshi Kato
Director,
Institute for International Cooperation, JICA

ENVIRONMENT AND DEVELOPMENT ASSISTANCE

BY **William V. Kennedy**

Background

Dr. William V. Kennedy

Current position
Dutch civil servant

Education

Ph. D.	Political Science, Free University of Berlin (1981)
M. A.	Political Science, University of Colorado (1972)
B. A.	Political Science, The Colorado College (1967)

Related Work Experience

1986 to Feb. 1989	Administrator,Environment Directorate, OECD (He has resigned from OECD in the middle of February immediately before his visit to Japan.)
1983 – 1986	Senior Policy Advisor, Environmental Impact Assesement Department, Ministry of Housing, Physical Planning and Environment, The Netherlands
1980 – 1983	International Liason Officer, Office of Federal Activities, US Environmental Protection Agency, U. S. A.
1976 – 1980	Research Fellow, International Institute for Environment and Society, West Germany
1972 – 1974	Assistant Director, Environmental Education, Western Pennsylvania Conservancy, U. S. A.

CHAIRMAN :

Before asking Dr. Kennedy to give us his presentation, I would like to explain briefly how we plan to organize this meeting today. As Mr. Kato has mentioned, Dr. Kennedy's address will revolve around three major topics: the first is OECD's approach to environmental issues ; the second has to do with common issues facing development assistance-giving examples of member countries in OECD, and lastly he will talk to us about a case study in environment assessment. Dr. Kennedy will address his two major topics first, but before his presentation on the case study we would like to have a coffee break. After he has concluded his total presentation, we would like to have a Q & A session. We have planned to have the session run in this way and hope to conclude at 12 : 30.

In the invitation that we have sent you for this lecture session we mentioned that Dr. Kennedy is a specialist on the environment in OECD, but actually he was just resigned from his office last week, and starting from March he will be joining UNEP at its headquarters in Nairobi. Therefore, in that respect he will be able to give very freely his views concerning OECD activities on the issue of development and environment and its problems. I hope that we will be able to have your full participation until 12 : 30. We at JICA are trying to seriously take on the issue of environment and development assistance and therefore we have been looking forward to the presentation by Dr. Kennedy. Dr. Kennedy please.

Environment and Development Assistance

— Dr. Kennedy —

Ohayo gozaimasu — that is the extent of my Japanese. I would like to thank Mr. Kato and Mr. Sudo for those warm words of introduction. It's a great honour and privilege for me to be here today and I would like to thank JICA and the Institute for International Cooperation for inviting me to be with you here today.

As Mr. Sudo pointed out I have been with OECD for the last three years working in the area of environment and development aid which is the topic of my talk today, but as he also mentioned I officially left OECD last week and am now between two jobs, as I will be going in several weeks to the UNEP headquarters in Nairobi, and this should make it very easy for me to be here today and speak to you because I have left one master and have not yet joined the new one so I feel somewhat more relaxed about giving my own opinions. I would however like to point out that my paper prepared for today and my remarks have to do with work carried out by OECD, and that factual work is what I want to present to you today. The opinions expressed are my own and not that of OECD or of individual member governments.

I would like to begin by pointing out very briefly the environmental problems in developing countries, although I think that one thing we must always keep in mind when talking about environmental problems in developing countries is that of course there are a great many types of developing countries, and often a mistake that is made when talking about this topic is assuming that all developing countries are the same. However, they are of course very different and therefore the environmental problems and challenges they face are very different. Generally speaking, however, one can say that the environmental problems of developing countries can be grouped into two basic categories which are listed here.

The second group is similar to the kinds of problems facing OECD countries, facing the industrialized countries such as Japan. These are the environmental problems associated with industrial development, basically air, water and soil pollution which have arisen through urban and industrial

activities, through waste disposal. These problems which we know well in the industrialized countries are also problems facing the developing world. In developing countries, however, there is a second group of environmental problems, here listed under Roman numeral I, which are those environmental problems associated with development itself and which are usually not associated with OECD countries. These are problems related to the degradation of renewable natural resources, particularly such problems as soil erosion and loss fertility, the destruction of tropical forests and wetlands and other critical habitats. In other words the loss of biological diversity. These are environmental problems that are very pressing in the developing world but that are not as important in the industrialized countries now. I'm not going to spend time going into detail about the particular problems or their causes. I think most of you are familiar with them and indeed in the last year or so there has been much more attention paid to them in the popular press in OECD countries. But what I want to talk to you about today is primarily the responses to these problems that are being taken by OECD member countries.

I should perhaps preface that by saying that of course the environmental problems of developing countries must in the long run be solved and managed by the developing countries themselves, but many times they do not have the resources, both financial resources and human resources, that are needed to solve these problems, so there is a responsibility on the part of industrialized countries to help the developing world solve these problems. What I will be talking about today are the ways in which OECD member countries, through their bilateral development assistance agencies, have begun to address the environmental problems of developing countries.

There are basically three elements of an environmental policy for development aid or for development assistance and they are listed here (see Appendix I – i). These three elements have been basically agreed to by DAC or the Development Assistance Committee of OECD.

Perhaps I should take just a moment to say a word about the organization of OECD for those of you who may not be familiar with it. In many ways OECD is structured in the same way that the governments

of its member countries are structured, so that in the same way that Japan, Western European countries, the United States or Canada have an environment agency, a development assistance agency, a ministry for agriculture, a ministry for trade in OECD there are committees which correspond to these ministries or agencies in the individual countries. So in OECD we have a development assistance committee made up of representatives from the aid agencies of OECD member countries and also an environment committee which is made up of representatives of the environment agencies of OECD member countries, and over the last three to five years in OECD these two committees have worked together in the area of environment and development aid and have identified three main areas of, or three main elements of, an environmental policy for development assistance which are listed here.

These are the ways in which aid agencies can deal with the problems of the environment : the first is through environmentally beneficial projects — that is to say aid agencies can undertake projects in developing countries whose specific aim is to upgrade or rehabilitate the environment. Some examples of environmentally beneficial projects are reforestation and waste water treatment facilities for third world cities. So environmentally beneficial projects, projects designed to help the environment, are one part of an environmental policy. A second aspect is the environment impact assessment of traditional or normal development aid projects. This is to say that through environmental impact assessment, the negative effects of a traditional project such as a dam, a highway or an irrigation project are assessed before implementing the project, so that it can be carried out in the most environmentally beneficial way. The third element of an environmental policy involves measures for strengthening the capability of developing countries to deal with environmental issues. This last area involves helping developing countries help themselves. So that under this aspect of an environmental policy, aid agencies are helping developing countries to develop institutions for environmental protection. They are helping train people in developing countries to manage their own environments. So these three elements make up an environmental policy development assistance.

Now we've seen in OECD that the aid agencies of OECD countries

are at various stages in implementing this kind of policy. Five years ago only the United States Agency for International Development, USAID, had an environmental policy. Since then, and through the work of OECD, most of the other aid agencies are now developing an environmental policy along these lines but they are in various stages of implementation. One could say generally that aid agencies are implementing these three aspects in a certain order. First they address the issue of environmentally beneficial projects. Second, they consider the environmental impact assessement of traditional projects, and third they devise measures for helping developing countries help themselves. Now, why are they looking at this in a step-by-step fashion? My own opinion is that for aid agencies the whole environment issue is a new one, and the easier way to deal with the environment in its broadest terms is by the first step — to carry out environmentally beneficial projects. This is easy for aid agencies to do because basically they are in the business of designing projects, spending money and implementing things in developing countries. So if one defines environment as a new kind of project, environment projects can be added to the list of normal kinds of projects which aid agencies do. Thus most aid agencies are carrying out environmentally beneficial projects. The second step is a bit more difficult because carrying out environmental assessment impact of traditional projects means creating new procedures, new regulations, new ways of planning and looking at normal projects, and this is a bit more difficult for aid agencies to do because it can mean hiring new staff, it can mean a new way of working, it is not as clean cut an issue as environmentally beneficial projects. The third step is the most difficult of all because it's involved with long range, long-term kinds of activities.

When aid agencies are involved in the first step they can see an immediate feedback, an immediate result of an environmental project. Then, number two and number three stages involve working in areas that are more long-term and one does not see the visible, immediate results of this activity. In OECD we have looked primarily at number two on this list, the environmental impact assessment of development aid projects and that's what I would like to turn to now.

Environment and Development Assistance

In 1983 the Environment Committee and the Development Assistance Committee of OECD decided to form a special ad hoc group on environmental assessment and development assistance. I see now that I should make a statement. About environment assessment in my paper and in these OHP materials I use the term environmental assessment and environmental impact assessment interchangeably, because OECD uses them interchangeably. In many individual countries these two terms have different meanings, but today if I say EIA or environmental impact assessment or environmental assessment I mean the same thing : a way of examining a project or an activity for its negative environmental impacts before implementing it.

In 1983 OECD established this group to look at environmental assessment of development aid projects. It invited representatives from member countries, from aid agencies and environmental agencies to come to Paris to discuss a programme of work. There was something very interesting about that first meeting in that two individuals came from almost every OECD country — two from Washington, two from Tokyo, two from Bonn, two from London — but these representatives met each other for the first time in Paris. In their own countries they had had no contact with each other but in OECD a dialogue began between the environment and the aid agency representatives.

This group identified four objectives for a programme of work (see Appendix I – ii). The first was to identify those types of development aid projects which are most in need of environmental assessment. In carrying out this work, we in the secretariat who were working with this group, looked first at OECD member countries to see what kind of environmental assessments were carried out in their own countries, not those for development aid but in their own countries. There we found that there were two approaches to environmental assessment. There were two ways in which OECD countries carried out environmental impact assessment. Some countries have a formal, explicit approach. A formal, explicit approach means that environmental impact assessment is based on a specific law or regulation and it requires the preparation of an environmental impact statement, a special report. Countries that have the formal, explicit approach to EIA

include the United States, Canada, the Netherlands and France. Other countries have taken an informal, implicit approach to EIA, meaning that the requirement for EIA is based in a sectoral law or regulation but is carried out on an ad hoc basis and that usually an environmental impact statement itself is not prepared. Countries such as the Federal Republic of Germany, Italy, the United Kingdom, and Japan for the most part I think have an informal, implicit approach to EIA. So we looked at, in both these approaches, OECD countries to see what kinds of projects in their own countries must be assessed for environmental impact assessment. We also looked at developing countries to see if they had laws requiring environmental impact assessment, and we surveyed the literature generally on the kinds of projects that were causing the most environmental damage in developing countries.

As a result of this research, the group, this ad hoc group, came up with a list of seven types of projects which are most in need of environmental impact assessment (see Appendix I – iii). Perhaps I should stop here by saying that the work of this ad hoc group which resulted in two OECD Council recommendations that were referred to earlier and that were published by OECD in an environmental monograph, Environmental Monograph Number 4 on environmental assessment and development assistance. I know there are copies of this here but you can obtain them free of charge from OECD in Paris if you would like a copy.

So the first objective was to identify the types of projects most in need of environmental assessment or environmental impact assessment and we decided upon those kinds of projects which are most carried out, most frequently carried out by aid agencies. The first type involves substantial changes in renewable resource use. Examples of projects in this category would be, for example, changing forestry or forested areas to pasture land or to agricultural use. The second groupe, substantial changes in farming and fishing practices, would include projects for introducing new types of crops or for applying pesticides or other chemicals for agricultural production. The third, exploitation of hydraulic resources, include projects for hydro-projects for electricity, dam or large irrigation schemes. The fourth, infrastructure, includes projects for roads, or railways, bridges, airports,

harbour development, these kinds of things. It is basically these first four which represent the kinds of things most aid agencies are involved in, and OECD has said for these kinds of activities you should do an environmental impact assessment.

Five, six and seven are also considered to be important activities and should be assessed but five and six, for example, are not the kinds of projects that most aid agencies are involved in. Industrial activities such as chemical plants or wood processing plants or extractive industries such as mining or oil and gas are indeed taking place in developing countries, but usually they are not funded by aid agencies ; they are carried out by the private sector directly. And the last category, waste management and disposal is according to many people,in itself an environmentally beneficial project and therefore you would not need to assess whether it is helping to improve the environment. At any rate this was the first job of this group — to identify the kinds of projects — and this was the list that was agreed upon.

The second objective of the group was to examine the constraints or the problems faced by developing countries in ensuring that environmental aspects are taken into account at any early stage in the planning process. Here again we have a list of seven problems or constraints that exist in developing countries for carrying out assessments and at the same time ways in which aid agencies could overcome these constraints (see Appendix I – iv). Here we listed them as constraints to carrying out EIA but in actuality this list could be viewed as general constraints for environmental management in developing countries and not simply environmental impact assessment. The first on the list, for example, is insufficient political awareness of the need for environmental assessment. A problem in developing countries is simply that at the highest political levels there is no awareness that environmental assessement is needed or any kinds of environmental protection measures are needed. The group identified a number of ways in which aid agecies could help overcome these constraints in developing countries to increase awareness. Sometimes it can be done through public education programmes, other times through specific training situations etc. One of the most innovative approaches, I think, to overcoming insufficient political

awareness is the idea of an environmental patron saint. What I mean by that is that Aid agencies have found that in many developing countries it is often important to find a high ranking official or recognized personality in the developing country to become excited about environment. It might be the brother of the prime minister or it might be the sister of the King or the Queen. In other words someone who has a national presence. When this person begins to talk about the need for environmental assessment and environmental protection this can raise the level of awareness in developing countries.

A lot of times the awareness has to be raised in developed countries as well, and I can give you an example. In the United States, the present secretary of state, Mr. Baker, was in the last administration secretary of the treasury. As secretary of the treasury he had a lot of control over the World Bank and the way in which funds were spent in the World Bank. He himself is not an environmentalist but people on his staff knew that the bank was going to be deciding on a big project for Botswana in Africa, a project which would change wilderness areas into areas for cattle raising and would have lots of negative impacts on the environment. They also knew that Mr. Baker had spent his honeymoon in Botswana and that he had pleasant memories of the environment there, so they showed Mr. Baker a film about environmental destruction in Botswana and he became so upset about this that he gave instructions to the U.S. representatives at the Bank that they should not allow funding for cattle raising in Botswana until an environmental impact assessment had been carried out.

One of the other constraints that were identified was insufficient public participation. It was found that in OECD countries oftentimes the result of a good environmental impact assessment is the role of public, non-governmental groups. Environmental groups in OECD are able to participate in the process, but in developing countries this public participation is often lacking. The public is not informed, they have no way to influence the decision, and oftentimes the public is not even considered when an environmental assessment is carried out, and this can make the assessment a very bad one. I can give you one example. In Brazil an environmental

assessment was carried out on an aluminum plant on a coastal area on how the effluent from this plant was going to affect a mangrove swamp along the coast. Now an environmental assessment was carried out but it did not involve local people. There was no public participation. The assessment was carried out by scientific teams from Europe and North America. These teams decided that there would be no negative impact on fisheries or fish species in the mangrove swamps because there was no endangered species there. The fish were all common types, common species that could be found anywhere in Brazil, so there could be no negative impact. What they didn't know was that there was a common species of shellfish called in Portugese "esururu" which is very common and is the source of protein for 70% of the local population. They gathered this shellfish from the mangrove swamps. Now this was not considered an important impact because the shellfish,"esururu", is not on a list of endangered species. When the plant was built, all the "esururu" were killed and the government had a very difficult problem in feeding many numbers of people who before could collect this shellfish very easily. This example points out the need for public participation, for talking to the people in developing countries. Manytimes they have more important knowledge about the state of the physical environment than scientists do from outside the country.

I won't spend time going through this whole list (see Appendix I – v) but all of these are things that are lacking in developing countries and that aid agencies need to take steps for to help them overcome. Maybe just to mention one more : Number four, the lack of an institutional base (see Appendix I – iv). Many times a developing country has an institution for the environment. It can be a Ministry for Environment, such as Indonesia has, sometimes it's a joint ministry for environment and housing such as exists in Nigeria. In many South American countries, the Ministry of Agriculture has established a separate environmental unit. In other countries there are presidential commissions on the environment. But generally speaking, in all developing countries, whether they have created a ministry or a section on the environment, we can say these ministries or agencies are very small. They have very small budgets, they have few people working

for them and it is difficult for them to influence decisions in their countries. For example, in Indonesia. Indonesia is often cited as a country which has a very strong Ministry of Environment. The Minister of Environment, Mr. Saleen, is often quoted in the environmental organization. The Minister of Environment in Indonesia is considered very strong and that's why I was very surprised when I first went there to discover that no one in the Ministry of Environment in Indonesia, including the Minister himself, works full-time at the Ministry. The salaries are so low, they must all have two or three other jobs, so they are perhaps one day a week or two days a week in the Ministry and the rest of the time they are teaching at a university or they are working for a consultant firm. And, as I say, this is in Indonesia which is often cited as an example of having a strong Ministry of Environment. In other countries there's almost nothing. So this is another area where OECD has said to its aid agencies : "You must do something to overcome this constraint in developing countries, this lack of an institutional base."

The third objective of this group was to examine the experience of aid agencies with environmental assessment to look at what aid agencies have actually done in the field, to assess their projects for their environmental impacts (see Appendix I – vi). In looking at the experience of aid agencies we carried out sixteen case studies of environmental assessments on aid projects. When I say we, I should point out that we in the Secretariat prepared guidelines for the case studies. The guidelines mentioned these kinds of things. We said to the aid agencies,"We would like to know how you have assessed the negative impacts of projects in this way. What was the form of the assessment? Was it an environmental impact statement or was it something else? How was it prepared? What was its content? What kinds of things did you look at in this assessment? And lastly what was the effect of this assessment on the decision to implement the project?" We provided detailed guidelines along these lines and the aid agencies themselves carried out assessments. We had sixteen initially, later three to four others were prepared. Of this first group six of the case studies were provided by USAID, which as I mentioned before, has had the most, the longest experience with environmental assessment.

I should perhaps mention that the reason that USAID has had a long experience is not particularly because the agency itself is more environmentally aware than agencies in other countries. It is because the environmental movement in the United States was much stronger and at an earlier time, in the mid 1970's, and it was able to exert influence through the U.S. Congress on USAID to change its procedures ; moreover, environmental groups in other countries were not as active and forceful initially. So in these case studies it was the United States which provided six because it has had most of the experience. JICA provided us with three case studies, one an environmental assessment of a highway project in the Phillipines, the second on a steel mill and power station in Singapore and the third on waste water treatment facilities in Bangkok. We also received case studies from the Dutch aid agency, the U.K., the Germans, and the Australians, but most of these case studies from these other agencies represented their only experience in the field because they had not yet begun to carry out assessments. So in some cases there was an environmental impact statement. For others environmental information was spread out in other project documentation, in other planning or engineering or technical feasibility studies. In looking at the way it was prepared, we found that there were basically two ways in which the envrionmental impact assessment was carried out. In the first way, through consultant firms, the aid agency simply hired an engineering consultant firm and requested them to carry out an environmental assessment of the project. Sometimes the consultant firm was simply an individual. For example, one of the American case studies was an assessment of a meat packing plant in Bangkok and they hired a single individual, an American, who had much experience on the environmental effects of these kinds of projects in the United States. He simply, on his own, looked at the plans for this project, visited the site and prepared on his own an environmental assessment. In other cases large firms were hired to carry out very detailed studies. For example, in another U.S. study on a highway and rural development project in Peru, USAID hired a large engineering environmental consultant firm to carry out an assessment. This firm sent a 17 member team to Peru for six months. The team was

made up of an ecologist, a fisheries biologist, a wildlife biologist, a geographer, a wildlife specialist, two botanists, two foresters, an epidemiologist, a hydrologist, an agronomist, an anthropologist, a livestock specialist, a land use ecologist and two zone mapping technicians. This group of 17 people spent six months in Peru carrying out studies and assessing the effects of the highway on the environment of Peru, so you can imagine the range of detail.

Sometimes the assessment was done by one person, very quickly, in other cases, larger projects, many more people were, involved. One thing that I should mention too is about the consultant firms. In the Canadian case study, there was an assessment on a small hydroelectric project in Indonesia, not the project I will talk about later this morning but a smaller one. At the time this project was being planned, Canadian CIDA, the Canadian International Development Agency, had no procedures for environment, for environmental assessment or anything to do with the environment. It was interested in carrying out an engineering feasibility study for a project in Indonesia. It announced the project and accepted offers from engineering consultant firms who were interested in carrying out the engineering feasibility study. One of these firms, a very large firm in Canada, submitted a bid, and in their offer they said to Canadian CIDA,"you have not asked for an environmental assessment here. You have only asked for an engineering feasibility study and we can do that, but if this project were going to be built in Canada you would need an environmental impact assessment and we know how to do environmental impact assessments because we have done them in Canada. So in our bid for this project, in Indonesia, we are offering to do not only an engineering feasibility study but we will also include an environmental impact assessment because we think it's a good idea." This was a big surprise to Canadian CIDA because they had not thought about this but they decided that it was a good idea and this consultant firm got the job even though their bid was higher than the others. And I mention that story because I understand that there are some people here from consulting firms and I think oftentimes consultant firms think that they are very passive, that they cannot actively support things. They must only follow the instructions of their employer and I think this is an example

of how a consultant firm can take an active approach to promote environmental assessment and how it can pay off.

Going on down the list (see Appendix I – vi) : when we looked at the content of the actual environmental assessments, we found that most of them dealt almost exclusively with a description of the existing environment. They were descriptions of water quality, of soil quality but were weak in terms of what the actual effects on the environment would be under alternatives. Indeed we found that most of the assessments did not look at various alternatives. The project was defined because of an engineering study and the environmental assessment looked at the possible environmental effects of a single project but not alternatives to it. Exceptions were the road projects, the highway projects, which looked at the environmental effects of various routes, of various alternative highway routes.

Under identification and assessment of environmental impacts, we found something very interesting. As those of you who have been involved in environmental assessment know, there are a great many methods and techniques which have been developed to identify, assess and predict environmental impacts. These range from checklists — simple checklists — to matrices, to sometimes very sophisticated computerized simulation models. So we were interested to see what kinds of methods or techniques were used to identify and assess the impacts. And here we found, to our surprise, that as in OECD countries themselves, the most commonly used methods are best professional judgement and previous experience, which of course in a strict sense are not methods at all. What we found was that when an environmental assessment was carried out and when a decision had to be made about what will the effect of this project be on the water, on the land, on the air, it was not a method that was used, it was best professional judgement or previous experience. For example, scientific experts were called in to examine the documentation, look at the project, and when these noted experts said "This will be the result," that was considered the word. In the same case, many times aid agencies had built similar projects elsewhere so in assessing the present project they said "The impacts will be not so great because of our previous experience. We have built things like this elsewhere, in other

countries, in other environments, and based on our previous experience we can say this and this."

Another point we were interested in was mitigation measures. That is to say what kinds of things were suggested to reduce or to lessen the negative environmental effects of projects. Here we found that there were two kinds of mitigation measures employed. One was what we called mitigation design measures. These are usually employed in projects such as a road projects, where once a road has been decided upon, design measures such as noise barriers are constructed to reduce the negative impact of excessive noise. In other kinds of projects mitigation is much larger. It's not only mitigation design but whole mitigation programmes. For example, one of the projects assessed was on the Mahaweli Development Project in Sri Lanka. This was a large project involving the British Overseas Aid Agency and the American Aid Agency and the Canadian Aid Agency. In a large environmental assessment carried out by a consultant firm, it was pointed out that this project, a series of dams, would remove large areas of wild life habitat, particularly for elephants, and so a mitigation programme was proposed that after the construction of this project another area in Sri Lanka be set aside as a wilderness preserve to compensate for the land taken for the project which was used by the elephants.

In the last topic, the effect of the assessment on project and programme decisions, we wanted to know what actually happened in the project as a result of carrying out the environmental assessment. Here we were a bit disappointed because in most cases there was an assessment carried out that pointed out negative impacts, things that could be done, and there was a decision to do the project but not much link between the two. We could not see if the decision had anything to do with the assessment carried out. There were some examples where changes were made. For example, the project in Indonesia I mentioned — a small hydro project, a dam in Indonesia for which the consultant firm had suggested an environmental assessment.

In the initial design for this dam, the dam was to be constructed on an existing lake but it was to dam the outflow, the river leaving this lake.

It was to dam it, to raise the water level of the dam and to create electricity. Now, the original design, engineering design, would have raised the level of the lake by 20 meters. But on the shore of this lake, near this lake, there was a local tribe which had built their houses on the lake, and they got their living from the lake — from fishing. Had the dam been built as originally planned, these people would have lost their livelihood and would have had to be moved. But because of the environmental impact assessment, changes were made in the design — the engineering design of the dam — so that the water level could be regulated and these people would not have to move. So that was a positive effect of the environmental impact assessment. But in most cases we could not see any connection.

Secondly, another problem was that even though oftentimes local people were consulted in carrying out the assessment, they were never involved in carrying out the assessment themselves, and it's for this reason that now many countries such as Indonesia are requiring that when an aid agency carries out an environmental impact assessment, that it must use local people, local firms in doing the work because it is important for local people to get training in how to do environmental assessment. One thing I should mention, too, that we were interested in before when I mentioned preparing guidelines for these case studies. We wanted to know what the constraints were to carrying out this assessment, what were the problems. And the kinds of problems we had in mind were things like not enough money to do it, or lack of baseline data, lack of information — problems such as these. So in the original guidelines which we gave the aid agencies, we said : "Tell us what the constraints were to actually doing this assessment?" — such things as these. Now, when we discussed this with several aid agencies, including JICA, there was a strong representative of this who said to us : "You have left out a very important constraint to carrying out environmental assessments." And we asked,"What is that?" They said : "The most important constraint is the attitude of the developing country itself. Most developing countries are not concerned about environment, they are not concerned about environmental assessment, and these are independent countries. We cannot force them to do this."

So at that point we added that as a constraint and said,"Indeed if this was a problem in carrying out the environmental assessment please tell us, and tell us how you overcame it?"

At the end of the work, when the case studies were all submitted, we found out something very strange. For example, in the three case studies from JICA. In all three cases — in the Phillipines, in Thailand, in Singapore — it was the host government that requested JICA to carry out the environmental assessment, and in many of the other cases too, which led us to think perhaps this constraint is not so big, that one couldn't say the developing countries are not interested in protecting their own environment. Here we have examples of where they specifically made the request. Often the problem I think with aid agencies dealing in developing countries is that the aid agency generally negotiates or talks to the Ministry for Planning or the Ministry for Finance. They do not talk to the Ministry of Environment or local groups and so often what they assume to be the wishes of the government, of the people, is the wishes of certain sectors. And that's why we have now, in OECD, recommended to member governments that they expand their contacts in developing countries, and in planning projects, talk not only to Ministries of Planning and Finance but to the Environmental Ministry or unit, which may be very small and whose representatives may not be in their office all the time as I mentioned because they are at their second job.

As a result of carrying out these case studies, the group identified five elements for a successful environmental impact assessment (see Appendix I – vii). These elements were later incorporated into OECD recommendations on this topic. The first element for a successful environmental assessment is timing. We discovered that for an environmental assessment to be effective, it must be carried out at the very beginning of the planning process. Oftentimes alternatives are only carried out after everything else has been finished. The engineers have designed the project, design plans are made and at the last miniute before construction someone says,"Maybe we should look at the environmental effects. What will this do to the environment?" But of course by then it's too late — there is very little that an

environmental assessment can do. So it is important that an environmental impact assessment be carried out in the early stages of project planning and that feasibility studies are carried out.

A second important element, an element for a successful EIA, is personnel. We saw that each case that we examined was unique. It was impossible to define the perfect EIA maker. There is no such thing because in some cases an environmental impact assessment can be carried out by one person while in other cases a much larger amount of people is needed with interdisciplinary kinds of skills. But the important thing is, we saw, that one of the real bases for a successful EIA was not the method, was not the form, it was the people who carried it out. When there were qualified individuals involved in making the assessment, it was a good assessment. When there were people who were not qualified or not familior with the local environment, it was not a good assessment regardless of a particular method or checklist that was used.

The third element for a successful EIA is scoping. Scoping is a word that sounds a bit technical but is actually very simple. Scoping refers to the process of limiting the scope or the breadth — the limits — of an environmental impact assessment to the most important elements. Often environmental impact assessements that are carried out are lengthy documents because they follow a checklist and look at many, many, many elements of the environment that might not be necessary in a particular case. Scoping is a way of talking to people involved in the projects and deciding on the most important environmental assessments to those particular major issues.

A fourth element for a successful EIA is information, and here we come again to a difference between carrying out an environmental assessment in an OECD country, such as Japan, and in a developing country. Often, in OECD countries — industrialized countries — information on the environment is readily available. There are good supplies of maps, there are studies, there are satellite photographs, there are informed people so that one can very quickly get information, baseline information, on a particular environment where a particular project is going to take place. But in many developing countries that information is not there. If it is, for example, a new road

— a penetration road — that will go through a tropical forest or a wilderness area, there is no information about what's growing in this forest. What is the characteristic of the soil? What kind of vegetation is there? What is the flora and fauna? That is not in the library, and therefore the information must be obtained in the field. Even then, there is often not enough time to send scientists into the forest to spend a year collecting samples or making studies because there is pressure to build the road, to build the dam, whatever.

So the only way around this is to work quickly with local people. Not only local inhabitants but also local experts in universities and study centres. The example I will give after the coffee break will point out how important this is — that strictly from the point of view of information, it is necessary to deal with and work closely with local experts and native populations.

The last element we identified for a successful EIA is monitoring. That is to say, once a project has been assessed for its environmental impacts and is constructed, it is important to monitor it, to watch it, to measure the effects, to see if indeed the predictions made in the environmental assessment about the impacts are correct or not. It's also important to see if mitigation measures which are incorporated in a project actually work or not, and monitoring is one of the biggest needs of an environmental impact assessment everywhere, not only in developing countries, but also in developed countries. In the United States and Canada which have formal, explicit procedures for EIA, they have been carrying out environmental assessments— in the United States now for almost twenty years, and in Canada for about fifteen. But in neither country is there a requirement to monitor the project after it has been constructed. If projects built twenty years ago had been monitored, we would have today information on what the real effects had been so that the next environmental assessment would be easier to carry out. But since monitoring does not take place, each assessment on the same kind of project begins again with the same kind of guesses — the same kind of predictions — about what the effects on the environment will be. So monitoring, we identified, is a very important element for environmental impact assessment.

We also looked at — it is not listed on this sheet — the time and cost involved in carrying out an environmental impact assessment. Here we could draw some conclusions, although there were not as many and they were not as strong as we wanted.

First of all it has to be said that the time and cost of carrying out an environmental impact assessment depends upon the size, the nature and the location of a project. You cannot simply say an EIA costs $ 100,000 or it takes two months. It depends. For small kinds of projects it can cost very little and be done very quickly. For large, major development projects, such as large hydroelectric dams or rural development schemes involving highway development, the environmental impact assessment correspondingly will take more time to prepare and will cost more money.

Another factor affecting the time and cost is the amount of information available. If there are experts available, if there is data, then an assessment can be done much more quickly than if one has to do original research, so to speak, or go into the field. Secondly, regarding cost, it depends upon whether a consultant firm is used or if it is done internally. Now we see, in looking at OECD member country aid agencies, that those who have been involved in environmental assessment work the longest, have larger staffs. For example USAID has 41 people working full-time on environmental matters, carrying out environmental assessments, doing environmentally beneficial projects. This not only involves a certain number of people in Washington, but also people connected with AID missions in developing countries. The Canadians have eight, a staff of eight full-time people, working on environment in Othawa, and they have five to six scattered around their aid missions in developing countries to work on environmental issues. This has partly developed for financial reasons, because in both these cases, the larger the staff in the agency, the fewer consultants that have to be brought in. In other agencies such as the ODA, that's the Overseas Development Administration in the United Kindgom, there's one person for environment. In the Dutch Development Aid Agency there's only one person for environment, and they are just beginning to do that so it is of course necessary to hire consultants because there is no in-house expertise. The

Canadians and the Americans can do more on their own because they have developed this in-house capability.

Another factor in the time and cost involved in EIA is at what point it is done in project planning, and how it is integrated. If the environmental assessment is considered to be part of the entire planning process, along with engineering feasibility and financial feasibility, then the cost and time involved in an EIA is much less than if the environmental assessment is somthing added on at the end of everything else, because, of course, everything stops while the environmental assessment is done, and it costs more money than if it wave incorporated at the beginning with other studies.

Despite all these provisions which make it difficult to say how much an EIA costs or how long it takes, despite these problems, we are able to say, generally speaking, that an environmental assessment can be done in one to two months. This is a very general figure assuming that it's incorporated early on and assuming that it's not such a very big project. As I say, it can be much shorter than that or much longer, but two months is a good average figure to take. It is more difficult to come up with any cost figures. Of the assessments that we looked at, the most expensive one was for the Mahaweli Development Project which I mentioned, in Sri Lanka. A consultant firm spent ninety-five man months, over a two-year period, doing this. The final assessment was a three-volume document about this thick. The total cost was $ 775,000.

The cheapest environmental assessment was one done on a rural electrification project on the island of Dominica, in the Caribbean. This was a small project involving the construction of power lines, transmission lines. The assessment there was carried out by one person, an environmental specialist with USAID in the Caribbean. He spent five or six days on the island, looked around, talked to government officials, and said,"Well, if you do it this way, the environmental effects will probably be this. If you do it this way, it will probably be this," and that was the environmental assessment. So, in a way, it cost nothing because he was a full-time employee for the United States Agency for International Development. He spent a few days there and that was it. So you have these two extremes. On the one

hand one individual working very quickly, on the other hand as man months, $ 775,000. Again the actual cost of an environmental assessment may not be so important because the higher the capital cost of the project, the lower the cost of the EIA in terms of percentage. And generally speaking, the cost of an EIA, in terms of total project costs, is between one and two percent — usually less than one percent of total project cost.

As a result of these first three objectives, the fourth objective of this group was based on the case studies and other work that we had done to determine the procedures, organization and resources that are needed to undertake an environmental impact assessment process in the best possible way. The result of this last objective took the form of two OECD reccommendations. I understand that they are included in your materials here. They are also included as annexes to this report.

The first OECD recommendation made in 1985 recommends that member governments — that aid agencies — undertake assessments on the types of projects that we listed, but it does not give any other information. The second recommendation issued a year later suggests specific ways of carrying out an assessment process and it also lists specific things that aid agencies should do to help developing countries carry out their own environmental assessments.

As I mentioned at the beginning, there are three elements to an environmental policy (see Appendix I – i). I have been talking up until now only about number two — about environmental impact assessment of traditional projects. That is because, as I mentioned, this has been the focus of the work in OECD. But of course, number one — environmentally beneficial projects — and number three — measures for strengthening the capabilities of the developing countries — are also important elements, and I want to talk briefly about those and what we're doing in OECD in that regard.

This is a list of environmentally beneficial projects or programmes (see Appendix I – viii). Officially, it is a list that has been developed by Switzerland, by the Swiss Directorate for Development Cooperation. These are the kinds of projects which the Swiss are now actively undertaking to upgrade or rehabilitate the environment, and I put it here because I think

it is probably a fairly inclusive one. Indeed almost all aid agencies are beginning to undertake aid projects of this kind. The most popular category if you will, is the first two : soil conservation, erosion control, desertification control, and forestation and fuel wood production. This is the area that most of the aid agencies are now giving attention to for improving the environment, and I should also mention, a lot of money. Sweden, for example spent $ 7,000,000 in 1987-1988 on projects of this kind. Norway spent $ 8,000,000 on projects of this kind during the same period. So as I say, one and two are the most popular of environmentally beneficial projects.

Protection of species, parks and reserves has been given particular attention by the United Kingdom. I don't know why, but they are viewing this as their major effort in environmental protection projects. The U.K., for example, last year spent $ 1,000,000 to help Cameroon develop its first national rainforest park of over 125,000 hectares. Pest control is another area that is being given more attention, particularly integrated pest management. Whereas before, pest management was looked at simply as the use of chemicals, now aid agencies, particularly the Americans and the Canadians, are promoting integrated pest management; that is to say, perhaps the use of chemicals, but together with biological pest control and other ways of controlling pests. Waste management is also getting more attention, particularly, waste water management. It is one of the areas that is a particular urban problem, which brings up another point I should make.

As I mentioned at the beginning of my talk, the types of environmental problems in developing countries are of two types : those associated with the degradation of natural resources and those associated with industrial and urban development. So of course, if an agency has environmentally beneficial projects, it should be related to these two kinds of environmental problems. In actuality, however, most aid agencies work in the field of rural development. They are concerned with agriculture, with helping rural populations, and so their environmentally benefical projects are, for the most part, identified with rural areas. But some of the most pressing problems are urban problems, and one of them is waste management, particularly waste water management, and here, agencies, again the U.K. and USAID, are mostly

in the forefront in providing sewage disposal services and this kind of thing.

The third element of an environmental policy is measures for strengthening the capability of developing countries to deal with environmental issues. Here OECD has identified the three main areas that the aid agencies were beginning to undertake. Again, as I mentioned before, this is perhaps the — how should I put it —, the least developed of the three areas. Environmentally beneficial projects are getting the most attention, second, environmental impact assessment, and third, the kinds of measures that are listed here (see Appendix I – ix).

The first is environmental profiles and national conservation strategies. Environmental profiles are something, or at least this term "environmental profile," first used by USAID. USAID has prepared over fifity of what they call Phase I profiles for countries in Africa, Latin America and Southeast Asia. And in the last few years, about twenty of those have been updated and improved.

Basically, an environmental profile is an environmental picture of an individual country. It's a report describing what the natural resource base of the country is, where its ecologically sensitive areas are. The purpose of an environmental profile is to help both aid agencies and the developing countries themselves to better plan their development based on the existing natural resource base.

National conservation strategies are similar to profiles but a bit more developed. The idea of national conservation strategies was developed by the World Wildlife Federation together with UNEP and IUCN, the International Union for the Conservation of Nature, and I'm sure many of you here are familiar with national conservation strategies. Basically, again, as with profiles, these strategies relate the national economic goals and the people's needs in developing countries to the quantity, quality and capacity of the natural resource base to meet those goals, and something that aid agencies are now beginning to do is help fund and carry out more profiles and national conservation strategies so that developing countries can use them to better plan their own development.

A second area is institution building. Institution building is happening

through what is called twinning arrangements — twins, as in children who look the same — twins. Twinning arrangements have been set up between authorities in OECD countries and developed countries. For example, the various water authorities in the United Kingdom have arrangements with water authorities in India to help them solve environmental problems. The Netherlands' Ministry of Environment has a twinning arrangemnt with the Central Environment Authority in Sri Lanka. One of the biggest twinning arrangements now being carried out is between Canada and Indonesia. That involves cooperation between the Canadian Aid Agency, the Canadian Environment Agency and Dalhousie University, a large university in Canada, together with the Indonesian Ministry of Environment, other sectoral ministries and Indonesian universities. It involves the transfer of students between Canada and Indonesia and government officials working in both countries to strengthen the institution building and environmental education and training. This ranges from courses on environmental impact assessment that are carried out in the country to bringing people to OECD country. JICA has very extensive courses on environmental administration that brings people here, at various times in the year. But it can also mean education in the broader sense. Germany, for example, is very much involved in environmental education in public schools and in universities in South America and in Africa.

Now, I think I can end this section by saying that in terms of looking at the future work of OECD, basically what that future work involves is how the aid agencies of OECD countries can better coordinate their activities in the aforementioned three areas. One step that is being taken is that very likely within the development assistance committee — within this next yearqa — a special permanent group on environment will be created which will allow the environmental officials from the aid agencies to meet regularly to discuss their problems and to coordinate their activities on this front because we are finding that many aid agencies, for example, with conservation strategies and environmental profiles, are beginning to undertake these on their own without realizing that many have already been carried out by their brother or sister agencies in other parts of the world. And OECD now recognizes

that it must use the DAC so that aid agencies can benefit from each others' experience in this field, and in all three areas do a better job. I think I should stop there. I have an interesting — I think it's interesting — case study but I understand we'll have a coffee break first.

— Coffee break —

CHAIRMAN: Ladies and Gentlemen we would like to now listen to the third part of the presentation — the environmental impact assessment of the Saguling Hydro-electric Dam project in Indonesia. Incidentally, you will have simultaneous interpretation either on Channel 1 or Channel 2 depending on which language you choose. We will entertain questions on environmental impact assessment later on after the Saguling Case study.

— Dr. Kennedy —

Well, I would like to conclude my remarks by describing a bit to you an example of what I think is one of the best environmental impact assessments that's ever been carried out on a development project in a developing country. Having said that I should also say that there were a lot of problems with this assessment. It could have been much better, but I think you'll see that it's a good example of the benefits that can be derived from an environmental assessment. I think you'll also be able to see that it's a very good example of a term that is used very often now in development aid circles as a result of the Bruntland Comission on Our Common Future, and that term is "sustainable development." The idea behind an environmental policy for development aid is that it leads to sustainable development: projects that fulfill their needs in the short term, but do not destroy the environment on which it depends in the long term.

This particular project was not associated with bilateral development aid; it was not one of the case studies that I mentioned earlier. This is a project that was carried out in Indonesia, a large hydroelectric project, a dam called the Saguling Dam. The project was funded by the World Bank, and it was for that reason that an environmental impact assessment was carried out, because at the time that the dam was being planned and funded by the World Bank, Indonesia itself did not have a requirement for an environmental impact assessment. But the World Bank required that some kind of an assessment be carried out.

The dam itself was planned in the late 1970's and early 1980's. The environmental impact assessment in this regard is not a good example of

a good EIA because it was one of those examples of an EIA being carried out too late. After this project had been approved, all the feasibility studies completed, engineering designs set, and the site set, at that point, it was decided that perhaps an environmental assessment was needed. The job of the environmental impact assesssment was given to local groups, specifically the Institute of Ecology at the University of Bandung in Indonesia. The dam itself, the Saguling Dam on the Citarum River, is located about 50 miles from Bandung but, as I say, when the Institute of Ecology was given the job of carrying out the EIA there was very little it could do. It could not, for example, examine all the alternative sites for the dam because the decision had been made as to where the dam was to be located. So that was given for the environmental assessment. The dam itself, the purpose of it is to supply electricity to Jakarta was a very single-purpose dam initially. It was not to, in any way, benefit the local population or even the city of Bandung, but to provide elctrical power to Jakarta, 200 kilometers away. I won't go through this in any detail, but basically, the dam is fairly large ; its output is 700 megawatts of electricity. The dam itself is 97 meters high. It is a rock-fill dam and created quite a large reservoir behind it. Because of the environmental conditions, the area around the dam and the catchment area, the water shed area of the Siturum River is very hilly so that the actual reservoir you can see here was not one large lake, but a reservoir with many fingers, if you will, into the existing landscape. The initial environmental assessment carried out looked at a number of aspects which I have listed here, but I don't want to go through them individually. I've put references in my paper to the actual assessment if you're interested in obtaining later the actual documentation (see Appendix II). Basically there were two or three main impacts identified by those who carried out the assessment, and it had to do with the local population living in this area before the dam was constructed.

There were approximately 2,000 families or about 14,000 people who lived in the area which was later inundated by the dam, and most of these people were rice farmers who had their homes and small plots of land for farming rice there. Now the original idea of the Electrical Generating

Authority regarding these people was simply to compensate them for their land, to give them money and say "We're taking your land and you can go somewhere else," or in other cases actually providing services to migrate them to other islands. But most of the people did not want to leave there; they had lived there for generations. In addition, there was a second problem in that the Electrical Authority identified these 2,000 families because they were the ones who would actually lose their property, but there were another seven to eight thousand families or up to about 50,000 people who would also be affected because these were people who lived above the water level. They were people whose actual property would not be flooded, but who were dependent upon the lower areas for farming. But because their actual, individual houses would not be taken, they were not considered to be affected. It was basically this impact on the local population and how they should be adequately compensated that the team that carried out this assessment concentrated on.

Now one of the main problems with the people losing their land was that they would lose their livelihood. They were basically rice farmers and without the land to farm the rice they would have no income. Those who carried out the assessment were local people, Javanese, who were already familiar with the history and the culture of the people and their patterns of livelihood. And they knew that in earlier times in Java there had been a history and a tradition of fish farming: of individuals who basically had rice farms but had constructed, next to their house, small ponds to raise fresh water fish for their own consumption. And although the practice of doing this had died out over the last several years, those at the Institute of Ecology realized that this was part of the culture of the area, and it could perhaps be taken into account when looking at future lifestyles. So what it suggested when submitting the EIA was that the local authorities look at the possibility of promoting aquaculture — fish farming — in the reservoir after it was completed to allow the people who lived there to remain and not have to move away. I received permission to start a pilot project for setting up one individual fish farm, floating nets on the reservoir, to show people how to carry out aquaculture. This, you will be able to see this in a number of

slides I will show in a minute, turned out to be a very successful element of this project. What started as one individual fish farming project in 1983 when there was one fish farm set up, had grown to 900 by 1985. And what happend was that the people who were compensated for their land, rather than having to move away, were able to take the money they received and buy materials to set up a fish farm. Three years after the construction of the dam, the individuals who had set up their own fish farms were making more money selling fish than they had by selling rice.

So a result of the assessment was — I should go back a minute. The initial purpose of this dam was simply to provide electricity and the reservoir was not to be used for anything else. Indeed the plan was to fence the entire reservoir and not allow any access to it, but the environmental assessment pointed out that a dual purpose could take place here — the reservoir could be used to promote fish farming and not hurt its potential for electrical generation. Start with this.

At the top you see these floating fish nets that were created, and the slides you'll see in a minute will make it a little clearer. These aquaculture units, or fish nets, were set up to enable the people to raise fish. Now, initially this became very successful and the former rice farmers raised fish and sold them in Bandung and had a very profitable business. After a few months, however, the commercial fish food industry in Indonesia saw what was happening and doubled and tripled the cost of the fish food, and suddenly the farmers had to pay much more to feed the fish they were raising and were losing their profits. So they went back to the Institute of Ecology— those who had prepared the environmental assessment — for help, and this diagram explains what happened to meet this situation. It's tied into the environmental impacts of the dam that were identified in the assessment.

One of the problems of the dam that were identified had to do with sedimentation of the dam and also aquatic weeds, particularly water hyacinth, which could grow in the reservoir and eventually block off the dam. And in the assessment both these problems or impacts were pointed out. However, after the problem with the fish, the assessors decided that one way around

this might be to harvest the water hyacinths which are on the right here, to see if that could be used to feed rabbits; it would initially be involved in a cycle of preparing fish food. Unfortunately the rabbits didn't like the water hyacinth and wouldn't eat it, but they were interested in the vegetation which the Institute of Ecology suggested be planted along the side of the draw down area to help stabilize the slopes of the dam. So what has happened, and this within the last year, is this kind of almost ecological cycle, if you like: Rabbits have been given to the local people who have set up the fish farms. They are fed the vegetation that is growing along the slopes. The water hyacinth is harvested and mixed together with earth worms to form a kind of mulch. This, together with the rabbit waste, is used to produce fish food, and now the fish farmers are able to feed their fish in an ecologically sound way. At the same time, the water hyacinth is being controlled in the lake, and an added benefit is that the rabbits, which are reproducing quite nicely, have also become another element in the diet of the local people.

I'll show you now some slides of the dam that illustrate what's happening here. I should start by saying that these are pictures that I took myself, and I am not a very good photographer so I apologize for them. The first slides were taken in 1983 just as the dam had been constructed and the water was beginning to rise in the reservoir. Can you see over my head? This shows the dam itself. As I mentioned before, it's almost a 100 meter-high dam that had been constructed, and the water was building up behind it. Next one — again from the same place — water building up behind the dam. This is the spillway of the dam on the other side. This is the interior of the dam, the electrical generation units, which are from Japan by the way. This is the Japanese input into this project. Here you can see how the water level is beginning to rise. You can, I hope, see the tops of trees. Also there was very little clearing done in this dam project; it was simple flooding. You can also see, I think, here some of the farming going on on the side which, within a month after this picture was taken, was all flooded and this agricultural area lost. There again, the tops of trees. What you see in the background too is an example of a historical

archaeological impact. These steps going up to the side go up to a monument that was built by local people to commemorate the War of Independence against the Dutch, and this monument would be flooded by the reservoir, and so preparations were being made to remove this monument so that it would be above the water level. Here you see one of the floating fish nets for aquaculture. The first one looked very similar to this, as I say a kind of pilot project, and in the background you can see a number of others that have been constructed. Following this model that was presented by the Institute of Ecology, the other rice farmers used the compensation money and constructed their own. Here again, as I said, at the present time there are about nine hundred of these fish pylons.

Here you can see that it's basically carp that is grown, two or three different species. I'm not a biologist so I can't tell you exactly what it is, but they are the fish which are obtained, very small baby fish. And with this particular species, they grow to a very big size in about three months and this fish is very popular in Indonesia, and so they have a very good market for it. There is an example of a big one. Here is a special kind of monitoring unit that was set up by the Institute of Ecology at the University of Bandung to help educate the local people in environmental management, particularly what I've described in terms of preparing the fish food. This is a kind of model centre where rabbits are in cages, and local people are invited to, and this kind of process explained to them.

Here again from inside this house that you just saw, there are a number of educational materials pictures in Bahasa Indonesian to explain to local people how they can go about caring for their fish farms. Here are the rabbits; I think they started with two rabbits and now there are rabbits everywhere as rabbits tend to do, and so local poeple can come to this centre and are given, free of charge, rabbits to start this fish food processing. The last slide shows you this very simplified instrument here, which again local people are given through a grant from the Electrical Power Authority, to help prepare the fish food. I think that's the last slide. With that I will end.

As I pointed out there were a lot more aspects to this environmental

impact asseessment. There were other impacts carried out, studies done, but obviously the most dramatic one was this issue of transmigration of people. In many cases, in large dam projects of this type, the answer to this migration problem is simply to compensate people and not worry about what happens to them ; whereas in reality, this is a good example, whereby one can have a sustainable development in which the original design of the project, the original aim of the project, to provide electricity is maintained, and at the same time local people are allowed to stay there, and the project continues on an ecologically sound basis.

Questions & Answers

CHAIRMAN : We don't have much time remaining but we'd like to make use of the last ten minutes or so for Q and A. If you have any comments, those comments would also be welcome. I should mention that Dr. Kennedy is a linguist in Dutch, French, German, and English and so you can address him in any language. And you can, of course, use Japanese too. But when you raise your questions, please don't forget to state your name and affiliation.

YAMASHITA : My name is Yamashita of the Environment Agency and I would like to ask a few questions. Actually I do have a lot of questions I would like to ask you, but I can only raise one. When development assistance is given by OECD countries, is environment assessment an obligation, is this a mandatory affair now? And what is the trend of the organization when asking for environment assessment? Are they obliging people to conduct environment assessment when they raise a project requiring development assistance through OECD?

KENNEDY : Indeed it is not an obligation. OECD, when it can, acts in one of two ways when it, let's say, when it talks to its member countries. The council of OECD, which is the highest body, can make either a decision — this is a decision with a capital D — or a recommendation. When OECD passes a decision, it is binding ; it is legal on its member governments. So a decision by OECD regarding trade, regarding economics, regarding environment is something that member countries must do. A recommendation is something that they should do, but are not required to, and the work of this group, on environmental assessment and development assistance resulted in recommendations and not decisions. So strictly speaking, member countries are not required to carry out environmental assessment, it's only recomemended that they do so.

However, recommendations of OECD are usually taken very seriously by the member countries. First of all, even a recommendation is not passed quickly or without thought. This is a good example. This work began in 1983. It was carried out by a group of representatives from all OECD countries. It did a very thorough research on assessment and the problems, and after thoughtful consideration and approval by the environment

committee and the Development Assistance Committee, then it went forward, as a recommendation, two years later and the second one three years later. So even though countries are not required to carry out an environmental assessment by OECD, the fact that it is an OECD recommendation means that it is taken seriously...or we hope that it's taken seriously.

CHAIRMAN : Any other questions ?

ENDO : My name is Endo from OECF. Environment issues are considered to be a new frontier in giving development assistance. Japan has the intention of trying to expand its development assistance programme, and therefore we would like to think of the most adequate way in which we would be able to provide assistance by way of environment assessment, and therefore I would like to hear your personal view about what Japan can do by way of strengthening its environment assessment aspect of the environment assistance programme.

KENNEDY : First of all I should point out that I intentionally did not in my talk make too much reference to things JICA is doing or Japanese development assistance as, of course, there are people here in JICA who can answer more correctly than I can about what's being planned and what activities have already taken place. But to answer your question specifically, I think, in one way, of course in my opinion, what the Japanese development assistance should be doing is the same or is no different from what other OECD countries should be doing, namely the three elements of environmental policy I mentioned : environmentally — beneficial projects, environmental assessment, and steps to help developing countries help themselves. I think that if there is a particular advantage that Japan might have, it is in the area of urban and industrial environmental protection that within OECD countries themselves — not talking about development assistance now but simply OECD member countries — Japan has a very good reputation in the environment committe of OECD for its domestic environmental policy, for its legistlation of air quality, water quality etc., and I think this is an area where Japanese aid could play a very strong role in developing countries, helping with urban environmental problems in Southeast Asia for example. I don't know nearly to what extent this is being incorporated in future plans

of JICA, but even though I think Japanese development assistance has been primarily, as with other OECD countries, of a rural development nature, in terms of environmental assistance Japanese aid might be most effective to Third World cities, in cleaning up their environments in terms of their water problems, air quality— that type of thing. That's why I would think Japan has a comparative advantage.

KURODA : I represent an NGO, and I'm engaged in the preservation of tropical forests. My name is Kuroda. I have two questions. I understand that OECD countries do not have many environmental staff members, full-time staff members, in their environmental agencies. I'm kind of surprised. The environmental problem is a very broad problem which covers indigenous people and historical problems as well. We do think it is quite important to pay more attention to environmental problems. Do you think that the U.K. and other countries are trying to expand their facilities and manpower in environmental agencies? This is the first question.

The second question is about the interrelationship between environmenta impact statements and sociaimpact assessment, or to what degree such environmental assessment or social impact assessment should be integrated in project development. Oftentimes dam construction or resettlement problems are not well-handled from the social impact aspect. So how, what kind of trend is going on in the world, and what is your suggestion?

KENNEDY : Regarding your first question, I perhaps was not clear when I talked about environmental staffs. I was referring to the environmental staffs of aid agencies, not environmental staffs of environmental agencies. And this points out a kind of problem. When you look at the structures within OECD countries for environment and development assistance, as in Japan, you have JICA and there's also an environmental agency. Now traditionally, the environmental agency — this is in all OECD countries — is charged with protecting the environment of the particular country. It has no mandate, no power to be concerned about the environment outside its own country. At the same time, the Development Assistance Agency has no mandate or no policy for environment. Its concerned with development. And we're now seeing, over the last few years, a coming together of these two

issues — that environment and development are of course closely related and you cannot separate the two. Now, one way to handle this situation in OECD countries would be for the Development Assistance Agency, which usually does not have qualified staff — traditionally it does not hire environmental people, people working for aid agencies are development specialists — so one way to help the integration would be for aid agencies to work closely with the environmental agency in its country to help institute environmental policy, environmental programmes. But unfortunately, or perhaps fortunately, I don't know what your opinion would be, but in most countries these agencies do not work well together; they are a bit mistrustful of each other. And so, the aid agency, rather than working more closely with the environment agency, will hire it's own environmental staff either through consultants on short-term kinds of arrangements or full-time people to work for the agency itself. So that's why you have, as I mentioned USAID with the largest environmental staff. In the United Kingdom the agency only has one staff but they will probably be increasing it as years go on. But of course an option would be to work more closely with the environmental agency, and in some cases and in some instances that happens particularly through training courses and that kind of thing, but in other areas the relationship is not so smooth.

Regarding your second question I think a difference, a major difference between environmental impact assessment in developed countries and environmental impact assessment in developing countries is that in the latter indeed environmental impact assessment is more concerned with social impact assessment. I think the Saguling Dam case is representative of that. There, the major impact you could almost call a social impact. It had to do with the people living in the area, with land use, with migration, transmigration, and so in this case the EIA in the developing country had to deal with this issue. If you look at EIAs that are carried out on dams in Canada or the United States or Finland or Norway, generally speaking, the EIA looks only at impacts on the natural, physical environment, and it is defined very strictly. But that is because in these countries there are other ways of accounting for social impacts. There are other agencies, there is a more

developed infrastructure, if you will, for taking these needs into account. But often in a developing country it's only the environmental assessment impact that is there, and so it must do a bigger job, if you will, than an EIA done in a developed country.

TODA : I'm Toda of the Institute for International Cooperation JICA. I'm very happy to see that the speaker, Dr. Kennedy, and his case study brought up the very important issue of the displacement of people. I don't find that important issue in OECD recommendations and I just wonder, in what way OECD recommendations address themselves to this important issue.

KENNEDY : I'm just checking the recommendations. I think you're right that we don't mention this impact. A third recommendation of OECD which, if I'm correct, I hope became official just two days ago because it was going to the Council just as I left Paris, is a recommendation that has been developed over the past year and a half, again by the Environment Committee and the Development Assistance Committee. It is in the form of an environmental checklist and this environmental checklist which is about ten questions is to be used by the heads of bilateral aid agencies, and also by the representatives of OECD member countries and multilateral aid agencies, namely the World Bank, the Asian Development Bank etc. And this checklist of ten questions for these high-level decision makers is to be used before deciding on approving a particular project, and it is hoped that they will also ask these questions, and one section is : "How will this project affect local populations? Will there be a forced migration or not, and if, so how have their wishes been taken into account, how will they be compensated?" So it's not something that's been forgotten by OECD, but unfortunately or perhaps fortunately it's a topic of this separate checklist and not in the recommendations by EIA.

CHAIRMAN : We would like to express our deep appreciation with a big round of applause.

Chairman of this seminar :

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Appendix

Appendix - I

(I - i)

Elements of An Environmental Policy for Development Assistance

1. Environmentally Beneficial Projects

2. Environmental Impact Assessment (E.I.A.) of "traditional" development assistance projects

3. Measures for Strengthening the Capability of Developing Countries to Deal with Environmental Issue

(I – ii)

Work of the Ad hoc Group on Environmental Assessment and Development Assistance

1) To identify those types of development aid projects which are most in need of environmental assessment ;

2) To examine the constraints faced by developing countries in ensuring that environmental aspects are taken into account at an early stage in the planning process ;

3) To examine the experience of aid agencies with environmental assessment

4) To determine procedures, organisation and resources needed to ensure a timely, satisfactory and cost – effective undertaking of environmental assessment of projects.

Appendix

(I – iii)

Projects and Programmes most in need of Environmental Impact Assessment

1) Substantial changes in renewable resource use

2) Substantial changes in farming and fishing practices

3) Exploitation of hydraulic resources

4) Infrastructure

5) Industrial activities

6) Extractive industries

7) Waste management and disposal

(I − iv)

Constraints to Carrying out Environmental Impact Assessments in Developing Countries

1) Insufficient political awareness of the need for environmental assessment ;

2) Insufficient public participation ;

3) Lacking or inadequate legislative frameworks ;

4) Lack of an institutional base ;

5) Insufficient skilled manpower ;

6) Lack of scientific and data information ;

7) Insufficient financial resources.

(I – v)

Case Study Analysis of 16 EIAs in

Brazil

Ecuador

Indonesia

Kenya

Malaysia

Mexico

Rwanda

Somalia

Sri Lanka

Sudan

Tanzania

Thailand

(I – vi)

Case Study Analysis

– The form of the assessment ;

– The way it was prepared ;

– Its content, including :

  – Description of the existing environment ;

  – Alternatives considered ;

  – Identification and assessment of environmental impacts ;

  – Mitigation measures ; and

– Effect of the assessment on project/programme decisions.

(I – vii)

Elements of a Successful EIA

Timing

Personnel

Scoping

Information

Monitoring

(I – viii)

Environmentally Beneficial Projects/Programmes

- Soil conservation, erosion control, desertification control ;
- Afforestation, fuelwood production ;
- Protection of species, parks, reserves ;
- Protection and rehabilitation of water resources ;
- Pest control ;
- Waste management ;
- Integrated rural development (with special emphasis on environmental improvement) ;
- Training, research ;
- Environmental policies, strategies ; institution building.

(I − ix)

Measures for Strengthening the Capability of Developing Countries to Deal with Environmental Issues

1. Environmental Profiles and National Conservation Strategies

2. Institution Building

3. Environmental Education and Training

Appendix - II

The Environmental Impact Assessment of the Saguling Hydroelectric Dam project in Indonesia[*1]

The Saguiling dam was planned and designed in the early 1980's. Construction was finished in 1985. In 1979/80 an EIA was conducted by the Institute of Ecology at the University of Bandung at the request of the State Electric Company of Indonesia (PLN). At that time the Indonesian environmental law had not yet been enacted and consequently there was no legal basis for conducting the EIA. However, partly because the dam was financed by a loan from the World Bank, it was decided to carry out an EIA.

The EIA examined a number of direct and indirect impacts of both the dam on the environment and the environment on the dam, many of which are commonly assessed in dam projects.[*2] The following description of impacts is limited to those which were unique to the Saguling Dam and which resulted in changes in the final operation and use of the dam. In essence, the mitigation of the following impacts resulted in changing the project from a single - purpose development project (i.e. the provision of electricity) to a model for "sustainable development."

A. The impact of urban wastes

Urban waste is an example of an impact of the environment on the project. Since the project is located downstream of Bandung and its satellite towns, the urban liquid wastes of these population centres are discharged through the tributaries into the main stream and thence into the lake. The EIA preparers expected that the lake would undergo eutrophication which would stimulate excessive growth of aquatic weeds. Accordingly, they monitored the main stream at a station which was located a short distance from the lake and calculated the nutrient load. It was concluded that from the point of view of water quality it was very likely that there would be

excessive growth of aquatic weeds. In surveys of the area to be inundated and the catchment area of the lake, some troublesome weed species, such as, water hyacinth and Microcystis were identified. Examination of the lake morphology further showed that the lake would be very indented, (i.e. with many bays) and that the shores would, on the average, have gentle slopes. These conditions would be very favourable for aquatic weeds growth.

Because of the high rate of evapotraspiration, aquatic weeds would increase the loss of water from the reservoir. The high rate of production of biomass would reduce the lifetime of the project. They would reduce the aestetic value of the lake and hence reduce the potential for tourism development. They would also interfer with water transportation and could be used as habitats for disease-carrying mosquitoes. Aquatic weeds, however, can also have beneficial effects, i.e. they purify the water and, within certain limits, they are useful for fish.

Monitoring after the lake was formed confirmed the predictions regarding aquatic weeds.

B. The impact of soil erosion

Through visual observations of the colour of the Citarum river it was suspected that the river basin was undergoing high erosion rates. Accordingly, it was assumed that the heavy sediment load would have an adverse effect on the reservoir. Measurements were conducted to estimate the erosion rates of the river basins in the catchment area of the lake and they were ranked according to the levels of erosion.

Another type of erosion would take place on the slopes of the drawdown areas which would be cultivated by people who had lost their farms due to the creation of the reservoir.

C. The impact of inundation

The major impacts of inundation were the loss of agricultural lands and the displacement of the people who reside in the area. The loss of

agricultural land would diminish the land/man ratio and consequently would increase population pressure since the majority of the people were farmers and hence dependent on land for their living. Furthermore, the land which would be inundated contained a large area of fertile irrigated agricultural fields.

Studies showed that most people who would be displaced by the reservoir wanted to resettle in the surrounding areas and only a low percentage were willing to be transmigrated. This, together with the loss of fertile agricultural land, would create grave problems for the people in finding new sources of living.

In addition to the above problems it was also found that a large number of people who lived above the High Water Level (HWL) depended on the resources below the HWL and would consequently also lose their sources of income. Therefore, although they would not be physically displaced, they would suffer from the construction of the dam. these people, however, would not receive any compensation money, since their property was above the HWL and, therefore, not be lost. On the basis of the result of interviews it was revealed that the number of households who would be living below the poverty line would increase.

On the other hand, although inundation would cause the loss of agricultural lands, the reservoir would be a new source which could be used to create new sources of income.

D. Management of impacts

1. Aquatic weeds

Experience has shown that when aquatic weeds grow out of control, it is very difficult to eradicate them. It was therefore recommended to control the weeds from the very beginning, when they were still few in number. This would mean that from the very beginning of the existence of the lake, regular patrols would have to be carried out and measures taken to manually take them out. However, if in spite of these measures they would still invade

the lake, which presumably would occur because of the high level of nutrient load and the favourable lake morphology, efforts would need to be made to develop methods which would make them beneficial for the people living near the lake. If this could be done, the people could utilize the weeds and, by doing so, control their growth. An upper limit of tolerance would have to be established for the occurrence of the weeds. Below this limit the lake authority would allow the weeds to grow to be utilized by the people and only when the weeds exceeded this limit, would control actions be taken. It was also recommended to confine the weeds to the upper parts of the lake to be used as a filter for the purification of the water.

The upper tolerance limit was estimated to be about 1 per cent to 2 per cent of the total lake area.

A method for the utilization of the weeds was subsequently developed by processing them into compost to be used as a medium for growing earthworms, which, together with rabbit dung could be used as fish food. The green matter required to feed the rabbits would be grown on the upper slopes of the reservoir to control soil erosion.

2. Displacement of people

The most difficult impact to be mitigated was the displacement of the large number of people (approximately 30,000). The most promising possibility was to develop fisheries, since studies showed that the people of the area had a deep rooted culture of fisheries, albeit pond and rice field fisheries. The types of fisheries which were thought to have good potential were a) capture fisheries, b) aquaculture of common carp in floating nets, and c) agri-aquaculture in the drawdown areas.

The aquaculture development has proven to be very successful. Over the last two years the number of floating nets has risen from one pilot project to about 950 in operation. The dramatic growth of number of nets was due to the high profitability of this system. The revenue obtained from fish culture has exceeded that of rice which was produced before the lake was formed. It has absorbed increasing numbers of labour.

The capture fisheries has not developed quite as well, partly because of overfishing by the local people. However, experiments for growing fingerlings of the nile tilapia, which can be used to restock the lake, have been successfull.

Another effort to develop capture fisheries is to stock a particular zone of the lake which is presently not utilized by any fish species. The plan is to introduce a fresh water sardine (Clupeichthys aesarnensis) from the Ubolratana reservoir in Thailand which has shown to be very productive and can be caught by fishermen using very simple gear.

Initial experiments have already been conducted to grow plants on the slopes of the drawdown areas for feeding the rabbits. With more people who keep rabbits and earthworms, the need for growing plants for the rabbit feed has already been created and it is expected that when they have seen demonstration plots they can be induced to grow the plants with proper soil conservation methods.

Notes

※1 : The description of the Saguling Dam project is based on visits by the author to the site and extensive conversations with Prof. Otto Soemarwoto, Director of the Institute of Ecology at the University of Bandung, who led the team which prepared the EIA.

※2 : Institute of Ecology, 1979. Environmental Impact Analysis of the Saguling dam. Report to Perusahaan Umum Listrik Negara, Jakarta, Indonesia. Volume IIA : Main Report. Institute of Ecology, Padjadjaran University, Bandung.

Institute of Ecology, 1980. Environmental Impact Analysis of the Saguling dam : Mitigation of impacts. Report to Perusahaan Umum Listrik Negara, Jakarta, Indonesia. Volume IIA : Main Report. Institute of Econology, Padjadjaran University, Bandung.