

---

## Opening remarks 1

---

Akio Morishima

Chair, board of directors, Institute for Global Environmental Strategies (IGES)  
President, Central Environment Council, Japan

Good afternoon, everybody. I'd like to thank Mr. Ido, Governor of Hyogo Prefecture, and everybody else for taking time out of their busy schedules to be with us here today. As we open the International Symposium on "Sustainable Management," I'd like to say a few words as an organizer.

Having received enthusiastic support of Hyogo Prefecture and reassuring support of businesses and many other related organizations in the Kansai area, we were able to open the Kansai Research Center in June this year. The Kansai Research Center was established in the IHD Center Building, at Kobe Eastern City Center as a symbol of reconstruction from the Great Hanshin-Awaji Earthquake. I would like to once again thank everyone for their cooperation in establishing the center.

The Institute for Global Environmental Strategies was established by recommendation of the Ad Hoc Commission on Global Environment in the Twenty-First Century to the then Prime Minister Murayama, submitted on the day of the Great Hanshin-Awaji Earthquake on January 17, 1995. That commission compiled a report that a research center for policy studies must be created as one of the foundations for sustainable development of the environment of Asia. As a unique research institution that had been lacking in Asia, it was established three years ago with the support of the government of Japan and Kanagawa Prefecture. This year, Hyogo Prefecture offered to help as well.

If you refer to the IGES pamphlet for details, you will find six projects carried out during the first period of three years. The objectives of IGES include strategic research, training programs, application of results to policy decisions and actions, and dissemination and exchange of information. We were able to put together the results of the projects conducted during these three years. We successfully held various symposiums and research gatherings both in Japan and overseas during that time. We also presented reports to international political conventions such as Eco Asia. We would like to extend our gratitude to everybody involved in enhancing IGES's recognition both in Japan and overseas in these three years. We owe this entirely to everybody's

support.

The second phase of the strategic project has started this year, and at the same time we succeeded in establishing the Kansai Research Center. At the Kansai Research Center, one of the six projects of this phase, Business and the Environment project, is being conducted with Professor Amano as the director and Professor Kokubu as a project leader.

Today's theme, "Sustainable Management," is a part of the activities of the Business and the Environment project. We are therefore thinking of a broad theme, "Business and the Environment," that considers impact of industry on the environment, influence of environmental problems on industry, and what industry should do to contribute to the preservation of environment. In establishing Kansai Research Center, we received a dedicated support from Hyogo Prefecture. We also received a great deal of cooperation from Kansai economic circles, academic circles and NGOs. With the Kansai Research Center as a sort of core, we would like to work together with businesses in the Kansai area to achieve environmental industry and environmental business management.

With "Business and the Environment" as a main theme, we are currently involved in concrete research themes such as "environmental accounting." Experts on environmental accounting primarily from the Asia-Pacific region will attend the international workshop tomorrow. More detailed research reports and exchange of information for the field of "environmental accounting" are scheduled. We hope you will also be able to take part in the workshop.

Always in rivalry with the Kanto area, as it seems, the Kansai area has been involved with environmental problems and seems to have high spirits and the energy to create a new industrial structure. We therefore hope the theme "Business and the Environment" can promote this initiative with your cooperation.

Taking this opportunity of the center establishment ceremony today, we would like to ask you to continue supporting the IGES, and at the same time, consult various things with the center. We would appreciate your continuous cooperation in sustainable development in the 21st century. Thank you very much.

---

## Opening remarks 2

---

Toshizo Ido  
Governor of Hyogo Prefecture

Good afternoon, everybody. It gives me great pleasure to congratulate on this forum to commemorate the opening of the Institute for Global Environmental Strategies' Kansai Research Center which began its operation this June.

We have just heard from Chair Morishima about prehistory up to the establishment of Kansai Research Center. When IGES was established, I conducted activities to invite the headquarters to Kobe New Eastern City Center where Kansai Research Center is currently located. The key things we talked about were the fact that Kobe has many research institutions and universities, and most of all, it is blessed with an abundance of environmental activities. I visited all those involved, including Professor Morishima, and asked for their cooperation. Unfortunately for us, the headquarters was established in Shonan International Village in Kanagawa Prefecture.

It was very comforting for me to know that IGES considered cooperation form Kansai area was indispensable in a number of senses, and they would undoubtedly consider its linkage with Kansai. Former Governor Kaihara definitely wanted to build the research center in Hyogo prefecture and it finally began operating in Kobe in June.

This is a forum commemorating the establishment of the Kansai Research Center, which holds "Business and the Environment" as a theme for the next three years. The program of the forum shows rich content suitable for its title.

In the Kansai area, there are various environmental research institutions and many businesses carrying out activities related to the environment. In this region, we are blessed with many fields for application of strategic researches. If you take Hyogo Prefecture for example, environment-related businesses in Hyogo Prefecture account for ten percent of the total sales of environment-related industry for the entire country. In many senses, we hold a great deal of expectations for the activities of the Kansai Research Center.

Hyogo Prefecture also has experienced many environmental problems. In 1967, the Public Nuisance Countermeasures Basic Law was created by the

national government, and the Environment Agency was established in 1971. Hyogo Prefecture became the first prefecture in the nation to promulgate anti-pollution ordinance in 1965, six years before the establishment of the Environmental Agency. While coming up with and implementing countermeasures against sources of pollution, Hyogo Prefecture did its best to promote environmental conservation policies such as preservation of the Seto Inland Sea. The most recent and crucial experience came six years ago when the Great Hanshin-Awaji Earthquake occurred. Although it was in a state of emergency, we experienced having to dispose of masses of rubble while allowing problems with the environment to remain.

I should have mentioned it earlier, but let me express my sincere sorrow and condolences to the people who became victims of or were harmed by the coordinated terrorist attacks of September 11, and I pray for the swift recovery at the sites of the attacks. When I saw the news broadcasts of the victims buried under the rubble, it was an exact replica of our area when the earthquake occurred six years ago. I was therefore overtaken by a sense that this was not something happening to strangers. I express my sincere condolences once again.

Having experienced environmental problems caused by the Great Hanshin-Awaji Earthquake, we have entered the 21st century, so-called “century of the environment”. We can hardly imagine how greater is the importance of each of our activities to the global environment going to be. Every time I hear news reports that global warming caused by carbon dioxide is growing worse, I am overcome with a feeling that something must be done. In this sense, together with the residents of Hyogo Prefecture, we are planning to call for an “eco fund” to support use of renewable energy for example, in hope of moving forward.

I truly wish that IGES Kansai Research Center will continue endeavoring to produce good results in the Kansai area as well as in Hyogo, where it has accumulated the experiences in pollution and environmental conservation. By building a strong linkage among the entire Kansai area, I really hope the center will perform productive researches, surveys and activities. I also ask for your guidance and cooperation in this regard.

Finally, I pray that this forum, which is to be held today and tomorrow, is a huge success, and that it provides an opportunity for a great leap forward in terms of the environment of the 21st century. Thank you very much.

---

## Opening remarks 3

---

Nobutoshi Miyoshi  
Director of Environment and Economy Division,  
Environmental Policy Bureau, Ministry of the Environment, Japan

First I'd like to thank everybody for their continuous understanding and generous cooperation for the environmental administration.

As you already know, today's environmental problems such as global warming and large quantities of waste are produced in conjunction with everyday living and conventional business activities. Structural reform from the standpoint of the environment will be required to solve these problems. Voluntary and thorough environmental conservation initiatives by the various components of society are indispensable. Especially businesses, which are responsible for principal economic activities, must take effective measures for the environmental conservation.

We at the Environment and Economy Division are responsible for measures more deeply related to business than any other division of the Ministry of the Environment. We promote economic measures such as environmental tax, corporate behavior concerned with environmental conservation such as environmental accounting, which will be the main theme for tomorrow, and environmental reporting, and promoting measures that aim to integrate environment and economy such as green procurement, eco-labels in order to disseminate the idea of environmental conservation.

For example, in Japan, the number of businesses that engage in environmental reporting and environmental accounting as an environmental communication tool between society and business is increasing year by year. In a survey we conducted in 2000, we found that more than 400 companies published environmental reports and more than 300 companies had introduced a system of environmental accounting. The number of these companies has shown a tendency to continue to grow, and we sense that there is increasing social interest in such activities. The recognition that providing environment-friendly products and services is indispensable has also seems to

have caught on with business management.

It is a great pleasure that we have such a large number of participants in this forum to be held today and tomorrow with “Business and the Environment” as a theme. In this forum, having invited distinguished guests from Japan, the Asia-Pacific region and other nations of the world, corporate initiatives geared toward sustainable growth and future management strategy will be discussed. As a person in a position to promote environmental measures, I am encouraged by the fact that this shows growing concern of corporations for the environment, more than ever.

IGES Kansai Research Center, the organizer of the forum, is going to continue its activities with “Business and the Environment” as a theme. We would like to seek closer cooperation for obtaining better results, both for IGES Kansai Research Center and for measures of the Ministry of the Environment.

I hope that all of you participating in the forum today will deepen your understanding of environmental problems and measures for solving them and continue to be involved with environmental conservation activities. That will contribute to solve the serious environmental problems we are facing today.

We at the Ministry of the environment will continue studying such measures for improving reliability and comparability of environmental reports and environmental accounting in order to help corporations with conducting environmental conservation activities.

As a tool for supporting your efforts, we are passing out environmental report guidelines and environmental accounting guidebooks created by the Ministry of the Environment. Please take them with you when you leave and use them for your future reference.

Finally, I would like to thank everyone involved with the event, the Institute for Global Environmental Strategies, Hyogo Prefecture, International Center for the Environmental Management of Enclosed Coastal Seas and the Hyogo Environmental Advancement Association. I hope that the forum holds great significance for all of you. Thank you very much.

## Keynote speech

# “Building of an Environment-Conscious Society and Sustainable Management”

Akihiro Amano

Director, Kansai Research Center, IGES/Director, IGES  
Institute for Global Environmental Strategies  
Professor of Economics, School of Policy Studies,  
Kwansei Gakuin University, Japan

---

---

### Contents

---

---

1. Two Major Trends: Deterioration of global environmental resources; and globalization of economic activities; and Three Sub-Trends: Environmental resources bearing economic values; shift in environmental policy measures; and transformation of sustainable management
2. Puzzles and Paradoxes in Transition Period
3. Relation between Sustainable Management and Environmental Performance

---

# “Building of an Environment-Conscious Society and Sustainable Management”

---

Akihiro Amano

Director, Kansai Research Center, IGES/Director, IGES / Professor of Economics, School of Policy Studies, Kwansai Gakuin University, Japan

Honorable guests, Dear members of our supporting institutions, Ladies and Gentlemen! It is a great pleasure for me to have an opportunity of making the address at this international symposium, a commemorative event for our institution. The main theme of our research in the first three-year period is Business and the Environment, meaning that we must address a set of pressing policy issues that arise at the combined phase of two complex systems, the eco-system and the human, socio-economic system.

1. Two Major Trends: Deterioration of global environmental resources; and globalization of economic activities; and Three Sub-Trends: Environmental resources bearing economic values; shift in environmental policy measures; and transformation of sustainable management

For some time, we have been proceeding in two major trends: one is the long-term problem of the degradation of environmental resources in various media and eco-systems, and the other is the globalization of economic activities. These two mega-trends have been inspiring some clear and interesting sub-trends, and I would like to focus on three of them.

First, following the degradation of environmental resources, those resources, which have been freely available for a long time, are now bearing economic values. Clean air and water around us that were once quite abundant now have price tags in our daily lives. More recently, even the stratospheric atmosphere is going to carry a user fee such as carbon taxes and GHG emission-permit prices. Rapid increase in the world population, modernization of production and consumption patterns worldwide through economic globalization, and delays in human responses to the worsening environment are projected to strengthen this trend. The increasing scarcity of environ-

mental resources complicates matters because it involves the problem of allocating so far undistributed property rights among world peoples. However, it is fairly certain that rising scarcity will raise current and future costs and prices of those resources, and that people and organizations must base their decisions on this fact. This can have a tremendous change in the current economic and management systems.

Second, we have witnessed in the past ten years or so a clear shift of environmental policy measures in developed countries. (This is also true to some extent in developing countries as well. (World Bank (2000).) In most countries, environmental policies first took the form of direct control (or command-and-control) measures. These countries have successfully controlled industrial pollutions through these measures to protect health and safety of people. However, these measures have limitations with respect to such problems as municipal wastes, non-point source hazardous materials, and greenhouse gases due to high implementation costs. To address this situation, economic measures such as environmental taxes and charges and emissions trading have been devised to alter the behavior of a large number of people and organizations in the direction of reducing environmental pressures. Also, so-called information measures like Pollutant Release and Transfer Registers, Environmental Management and Audit System are being developed with similar objectives. These new measures involve the elements of decentralized, voluntary, and participatory characters as contrasted with those of centralized and coercive characters of direct regulations. (Cf., e.g., Kettl (1998) and Berkhout et al. (2001).)

Another important feature of these indirect measures is that they enhance economic efficiency through encouraging more efficient use of environmental resources. This is important because as a corollary to the previous statement, rising environmental pressures will necessitate the society to look for the ways and means to reduce policy implementation costs and make the system more efficient. I therefore, expect that environmental policies would be formulated more in terms of packages including economic and information measures as well as direct regulations.

Third, business management itself has been rapidly transforming. Initially, greening firms primarily meant compliance with environmental standards and

nothing more. Now, we have a long list of objectives including (a) more ambitious environmental targets (reductions of environmental damage costs), (b) reduction of abatement costs, (c) capturing market opportunities emerging from changes toward more environmental-conscious society, and (d) development of new management tools and business models to reform internal structure of organizations including value-chain innovations.

Economic globalization has, of course, intensified competition among private firms. It has also promoted the competition among nations that attempt to encourage inflows of economic activities via high mobility direct- and portfolio-investments. As the speed of environmental degradation increases, environmental regulation needs to rely more heavily on producers' and consumers' active participation. This necessarily leads to the tendency on the part of regulators to avoid interventions that cause higher business costs or adverse effects on competitiveness.

On the business side, as the seriousness of global environmental degradation has increasingly been recognized, business leaders have begun to shift their strategies from compliance-driven to market-capturing ones that entail forward looking decisions to attain more efficient utilization of environmental resources in line with their rising scarcity, or to attain eco-efficiency in short.

## 2. Puzzles and Paradoxes in Transition

I personally believe that these three tendencies will continue for some time in the future. To recapitulate, they are: (a) transformation of environmental resources into public economic resources, (b) shifts of environmental policies toward policy-packages involving more elements of information-intensive and participatory measures, and (c) eco-efficiency oriented business strategies. At present, however, the full implications and systemic significances are yet difficult to evaluate, and certain puzzles and paradoxes are recurrently mentioned.

For example, Allen White of Tellus Institute states:

“A Survey of voluntary corporate disclosure practices reveals remarkable progress in the last decade but also the emergence of a troubling paradox. The very growth of such disclosure, which is embodied in hundreds of

environmental and sustainability reports, has led to an enormous volume of inconsistent and unverified information. If the information of interest to stakeholders is not presented in a coherent, uniform framework, the resulting confusion and frustration may well stall the momentum toward greater disclosure achieved during this decade.” (White (1999, web-site version, p. 5.))

One way of coping with this type of paradox might be standardization. Various attempts have been pursued nationally and internationally. However, there are many kinds of stakeholders who have different objectives and interests: managers, banking and insurance corporations, fund managers, regulators, environmentalist groups, neighboring residents, citizens in general, researchers, and so on (Berkhout et al. (2001).) It would be much more difficult to fully satisfy the needs of various stakeholders than to prepare a report fully complying with a set of guidelines, because the necessary information in the former case could well contain mutually conflicting requirements. Ultimately, the resolution depends on the relative speeds of increase in the pressure on the environment on the one hand, and of improvement in the over all eco-efficiency on the other.

Stefan Schaltegger and Roger Burritt made a similar point in their co-authored book from a somewhat different angle:

“A key paradox for management seeking to anticipate the importance of environmental opportunities and constraints for their company is that if they establish eco-efficiency-oriented information, they not only create more information and knowledge for their own and their stakeholders’ benefit, but they also generate more knowledge about their own lack of knowledge.” (Schaltegger and Burritt (2000, p. 408.)

In fact, this paradox is the driving force for research activities in social as well as natural science studies on the environment. It will also stimulate “social learning and innovation” that can help decelerate the speed of global environmental degradation. (Metz et al. (2001), p. 8 and pp. 635-650.)

### 3. Relation between Sustainable Management and Environmental Performance

Let me finally discuss one problem, which has attracted interests recently.

We can find a set of contrasting views regarding a controversial question: whether high environmental performance of a corporation is correlated with high economic performance.

One view is presented by Borghini et al. (2000). The study is based on Environmental Reports Monitoring of FEEM (Fondazione Eni Enrico Mattei). The study used the data from environmental reports of 22 corporations from three sectors (petroleum, natural gas, and chemicals) during the period from 1993 to 1996. It examined the statistical significance of the association between the quality of environmental information in the report, on the one hand, and environmental performance of the reporting corporation on the other. The quality of environmental information is measured by the evaluation score developed by FEEM, which is in turn based on the degree of conformity with the FEM (Forum on Environmental Reporting) guidelines. The corporate environmental performance is measured by the volume of emissions of SO<sub>x</sub> and NO<sub>x</sub> per unit of output of the reporting firms. They found a statistically significant positive association. That is, corporations with high information quality tend to exhibit low emission intensity. This study also concludes that the increase in information diffusion and quality varies substantially according to the sector, country, corporate dimensions, etc., but that voluntary environmental information produced by firms is increasingly becoming more accurate.

Another view is represented in a recently released final report of MEPI (2001) and an associated paper by Berkhout et al. (2001). This is a result of a large-scale joint research by seven European institutes commissioned by the EC Environment and the Climate Research Programme. The final report presents many interesting analytical results based on a database collected from six countries (Austria, Belgium, Germany, Italy, Netherlands, and UK), six sectors (electricity generation, pulp and paper, printing, fertilizers, textiles, and computer manufacturing) with physical and management information data. In relation to the topic under discussion, the report concludes the following: they do not find that those companies with a registered/certified EMS perform significantly better than those without. In some cases, they found, registered companies appear to perform worse than those without an EMS. The only one exception was found in fertilizer production. The report attributes the reason for such an unexpected result to such factors as the time

lag in obtaining environmental performance benefits and to a “catching-up effects” in which companies perceiving their poor performance seek to implement an EMS to reach the best practice frontier. This led them to conclude that more evidence is needed before giving favorable regulatory relief for certified firms. The need for a better information base is also underscored for evaluating the impacts of voluntary and information-based policy instruments.

Irrespective of whether positive or negative association is found significant, the two studies derived a common conclusion that environmental performance varies widely depending on sectors, countries, and corporate dimensions. Although not mentioned so far, similar puzzles and variations have also been found in relation to the link between environmental performance and financial performance. Apart from the introduction of EMS or compliance with reporting guidelines, some researchers consider it important that decision-making on environmental management be in the hands of senior management rather than of middle managers. (Cramer (2000.) In passing, Dr. de Janosi, a member of the IGES board of directors, made the same comment at an informal meeting preparing for the establishment of our institution.)

The current situation as depicted so far can generate various interesting research questions such as:

- To what extent will environmental information disclosure go, or should go?
- To what extent do preventive measures really benefit companies?
- Will total cost assessment technique become widespread?
- How far can we pursue the economic valuation of environmental benefits?
- Are market-based incentives and voluntary programs sufficient?
- How do we share responsibilities among market participants, and among market, government, and the civil society?
- Who determines the target levels of environmental protection, and how?

(For these questions, refer to the papers cited above, Macve (2000), and Wubben (2000).)

In the first research period of three years, we decided to proceed with three sub-topics: environmental management accounting, environmental information disclosure, and monetary valuation of environmental benefits. We

take note that our research should be pursued with these larger questions in mind. I hope that our research center will become a real center of social learning and innovation with this international symposium as a start. Thank you.

## REFERENCES

- Berkhout, Frans, Julia Hertin, Jerome Carlens, Daniel Tyteca, Xander Olsthoorn, Marcus Wagner and Walter Wehrmeyer (2001). “Environmental Indicators in Industry - the MEPI Experience,” <http://www.environmental-performance.org/outputs/Berkhout.PDF>.
- Borghini, Stefania, Marcella Fantini, Frederica Ranghieri, Domenico Siniscalco and Giorgio Vicini (2000). “Corporate Environmental Information and Public Policy,” in Emiel F. M. Wubben, ed., *The Dynamics of the Eco-efficient Economy* (Cheltenham, UK: Edward Elgar), pp. 95-114.
- Cramer, Jacqueline (2000). “Strategic Environmental Management as an Economic and Ecological Challenge,” in Emiel F. M. Wubben, ed., *The Dynamics of the Eco-efficient Economy* (Cheltenham, UK: Edward Elgar), pp. 115-132.
- Kettl, Donald F. (1998). “Environmental Policy: The Next Generation,” Policy Brief #37, The Brookings Institution, October.
- Macve, Richard (2000). “Accounting for Environmental Cost,” Working Papers in Accounting and Finance, London School of Economics and Political Science. Reprinted from: D. Richards, ed., *The Industrial Green Game: Implications for Environmental Design and Management* (Washington D.C.: National Academy Press, 1997), pp. 185-199.
- Measuring the Environmental Performance of Industry, MEPI (2001). EC Environment and Climate Research Programme: Research Theme 4: Human Dimensions of Environmental Change, Contract No. ENV4-CT97-0655, February. <http://www.environmental-performance.org/outputs/Final Report.PDF>

- Metz, Bert, Ogunlade Davidson, Rob Swart, and Jiahua Pan, eds. (2001). *Climate Change 2001: Mitigation, Contribution of Working Group III to the Third Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, UK: Cambridge University Press)
  
- Schaltegger, Stefan and Roger Burritt (2000). *Contemporary Environmental Accounting: Issues, Concepts and Practice* (Sheffield, UK: Greenleaf Publishing Ltd.).
  
- White, Allen (1999). "Sustainability and the Accountable Corporation: Society's Rising Expectations of Business," *Environment*, Vol. 41, No. 8, October, pp. 30-43; quoted from <http://www.globalreporting.org/News/EnvironmentArticle.PDF>.
  
- World Bank (2000). *Greening Industry: New Roles for Communities, Markets, and Governments, A World Bank Policy Research Report* (Oxford, UK: Oxford University Press).
  
- Wubben, Emiel F. M. (2000). "The Eco-efficient Economy: Threat or Opportunity for Companies?" in Emiel F. M. Wubben, ed., *The Dynamics of the Eco-efficient Economy: Environmental Regulation and Competitive Advantage* (Cheltenham, UK: Edward Elgar), pp. 1-32.