

# Readout

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## A Paradigm Shift in Business Operations

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## ***A Paradigm Shift in Business Operations***

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and  
Atsushi Horiba

What obligations do the world's enterprises have in the constant battle to preserve the environment and halt global warming, and what steps need to be taken? What role can Horiba play as a leading maker of measuring and analyzing equipment? Professor Takamitsu Sawa, Director of the Institute of Economic Research at Kyoto University, and Atsushi Horiba, president of Horiba, Ltd., discuss these issues. Professor Sawa gives us his thoughts on possible solutions in the lead-up to the 21st century to economic, environmental, and energy—the so-called 3Es—problems and the paradigm shift to a “metabolic civilization”, while President Horiba shares his views on how Horiba can contribute to the protection of the global environment through advancements in technology, new innovations, and globalization.

### **Moving from an Industrial Society to a “Metabolic Civilization”**

**A.H.:** Global environmental issues, in particular the pressing problem of global warming, continue to attract strong interest from people around the world. At the COP3 meeting that will be held in Kyoto, lively debate will take place on such pressing environmental issues as the reduction of carbon dioxide (CO<sub>2</sub>) gases and the need to set specific targets. My view is that we should always consider the value of economic growth in conjunction with that of environmental protection.

**T.S.:** Economics, the environment, and energy make up what is now being called the 3E's. As we speak, there are people who call for the tightening of controls to protect the environment, while others insist that more environmental restrictions will only serve to damage the global economy and unnecessarily burden industry. Do economic growth and environmental preservation necessarily have to conflict? I, for one, have never believed that resolving global environmental issues should have any negative effects on the economy. People who do should take a moment to think back to the oil shocks of the early 1970s. At that time, the price of oil shot up fourfold. Certainly during those crises many Japanese felt that Japan was in dire straits but by taking advantage of unique opportunities that presented themselves and learning from the oil shocks, Japan's economy grew even stronger.

**A.H.:** I agree. The oil shocks gave us an opportunity to develop energy-saving technologies and export Japan's energy-efficient products around the world.

**T.S.:** By 1987, the per capita GDP of Japan had overtaken that of the United States. In retrospect, it could be said that the energy restrictions placed on Japan in the wake of the oil shocks helped to strengthen Japan's economy. Debate is now being raised on the setting of specific targets to reduce the amount of CO<sub>2</sub> emissions entering the atmosphere as a way of halting global warming. However, the situation we face today is different than the oil shocks. Now, restrictions will be adopted by all the countries in the world with emphasis placed on changing lifestyles, economies, and social systems worldwide.

**A.H.:** Japan is proud of its wide array of world-class energy-saving and environmental protection technologies. Horiba is also proud of the vital role it plays in developing measuring



*The discussion was held on September 4th  
at Horiba, Ltd. in Kyoto, Japan.*

and analyzing technology. Undoubtedly, Japan will continue to play an increasingly important role in the world in the field of environmental protection technology. Until now, Japan's global contribution has been considered minimal, but Japan now has a golden opportunity to improve its reputation worldwide.

**T.S.:** In Japan, we often use the expression "ōbei" to mean both Europe and the United States; however, particularly when discussing environmental problems, there are fundamental differences between the U.S. and European cultures. Such officials as Robin Cook, Britain's foreign minister, have expressed the opinion that U.S. and British cultures differ greatly in the way Americans take a rather loose and free attitude toward using the world's precious resources. Just like the United States, Japan is receiving criticism for its lack of resolve in facing the problem of reducing CO<sub>2</sub> emissions and other pressing environmental issues, but just where does Japan stand on these issues?

**A.H.:** I would say that Japanese culture has more similarities to that of Europe than America. Until recently, Japan has been a country that has held saving as a virtue and has developed a unique culture over its long history. Despite this, after World War 2 Japan began to look too much toward America for guidance. Japanese companies set out to establish themselves first in the United States in an attempt to succeed. As a result, we unconsciously began to see the American way of doing things as the best way and even became obsessed with trying to emulate Americans.

**T.S.:** During the 1910s and 1920s, America gave birth to a 20th century industrial culture. In the 50 years since the end of World War 2, Japan's efforts to imitate the United States helped achieve a high level of growth that resulted in it overtaking the United States in terms of per capita GDP. Japan's ability to catch up with and overtake the United States economically resulted in widespread praise for Japan's superior management system. At that time, it was widely viewed that the countries' roles had reversed and it was time for the United States to take lessons from Japan. However, with the collapse of Japan's bubble economy and the ongoing Heisei economic recession we have realized that our domestic management systems are not workable either at home or abroad. Confidence concerning the Japanese economy has been badly shaken, and this uncertainty has led Japan again to look to America as the strongest economy in the world.

**A.H.:** Certainly from the position of corporate management, I have a strong sense that we are nearing a period of great change unprecedented in our history. In the area of personnel, development, sales, production, globalization, etc., most Japanese companies recognize the need to shift away from the old ways of doing business, but unfortunately management is having trouble deciding on which way to turn.

**T.S.:** Addressing such pressing environmental issues as global warming reveals the desire to free ourselves from the yoke of 20th century values in areas covering everything from individual lifestyles and corporate philosophies to national consciousness. The 20th century has been an age of innovation. Man's seemingly limitless ability to create was realized through the exploration and uses of oil and electrical power that began in earnest in the late

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19th century. We can also say that the 20th century was the beginning of our CO<sub>2</sub> emissions problem, which now must be seriously addressed in light of global warming.

**A.H.:** As we enter the 21st century, I believe we have reached a crossroads where executives like myself are obligated to present clear business philosophies. Of course, executives in every industry believe in making a profit, and management cannot ignore this when carrying out business strategies. When Japan was a rapidly growing economy, it was like a child growing up, but now it is approaching middle age. Instead of taking an excessively serious approach to business, the time has come for Japan to reassess its activities and establish a more relaxed business culture in tune with the needs of the world. On this point, I have taken a great interest in your concept of a “metabolic civilization”.

**T.S.:** Metabolism, in a purely biological sense, is the chemical changes that take place in living cells. However, in an economic sense, I envision a shift from the 20th century-style industrial culture—one that has emphasized large-scale production, consumption, and waste—to a “metabolic civilization” that places value on moderate consumption, minimal waste, recycling, energy conservation, and increased product life cycles. In short, you might call it a “Waste-Conscious Civilization.”

It is easy to point a finger at the United States when one speaks of a high-production, high-consumption society, but I also feel that Japan ranks among the top offenders when it comes to excessive waste. In the rapid growth period following the World War 2, Japan maintained a shortsighted policy of repeatedly building up and tearing down. Therefore, Japan must now take a more responsible position in the world and propose a new framework for society as it enters the 21st century.

### **Environment Monitoring Meters for an Environmental Conscious Society**

**A.H.:** Despite the obvious need for environmental preservation, government and business leaders as well as average citizens have again become passive about the pressing need to tackle global environmental problems. The business community needs to confront these issues, but unfortunately the top echelon of the business community is represented by executives whose industries are most responsible for the discharge of CO<sub>2</sub> emissions. After a relatively short-lived period where environmental awareness was on the rise, community interest in preserving the environment seems to have waned.

**T.S.:** Five countries in Europe, including Sweden, have introduced a special carbon tax aimed at reducing pollution levels. However, questions arise as to how these countries can continue to afford such a tax. Paul Kennedy [Professor of history at Yale university and author of *The Rise and Fall of the Great Powers*] has made some interesting observations on this subject and has noted some important similarities among these countries. Mr. Kennedy points out that the countries that support such a tax are affluent enough to do so and the level of education of the average citizen is quite high. Looking at how this relates to Japan, it is fair to say that Japan has one of the highest GDP's in the world, but I question if it really is an affluent country. Second, despite the fact that over 50 per cent of our young people enter university, I would contend that this is not necessarily reflected in the awareness

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**Professor Takamitsu Sawa**

*Takamitsu Sawa is Director of the Institute of Economic Research at Kyoto University. He has lectured and written widely on economics in contemporary society, and has been visiting professor at the University of Illinois and other institutions. In recent years, he has focused on the interplay among the environment, society and economics.*



of the average citizen.

**A.H.:** Yes, education is quite a serious problem. Horiba has recently acquired ABX Inc., a French company that specializes in the manufacture of blood-cell counters, and through this I have had many opportunities to visit France. I truly believe that ideas there about environmental protection are different from those in Japan. Despite the added costs and possible reduction in efficiency necessary to preserve the environment as well as maintain the beauty of the landscape, the government, companies, and citizens in France all seem to be in agreement that the benefits of environmental protection outweigh the costs. I was deeply impressed by their sensitivity to the needs of the environment.

**T.S.:** It is interesting to note that while the art department is included in the university structure in Europe, such study is not offered at four-year comprehensive universities in Japan. Take architecture, for example; while in Europe it is considered a part of the art department, in Japan it comes under the heading of engineering. As a result, structures in Europe are looked upon as works of art and are built to last for hundreds of years. In Japan, a building is a product that quickly wears out and needs to be replaced. I have heard that buildings in Japan have an average lifespan of around 35 years. This is probably the most glaring example of Japan's scrap-and-build mentality.

**A.H.:** Despite our desire to place importance on preserving the environment and protecting the landscape, the harsh competition in the business world makes it difficult for us to justify the high cost. Thus, we find ourselves in the dilemma of choosing between protecting the environment or staying competitive.

**T.S.:** It is important to raise the public's awareness of environmental issues to encourage companies to promote environmentally sound business activities. That's why I support the idea of a carbon tax in Japan. The goal of the tax would be to reduce CO<sub>2</sub> emissions, and everyone would play a part in protecting the environment. A gasoline tax of ¥2 per liter is a small price to pay and would enable the government to collect ¥10 trillion per year. Collecting a tax on gasoline would, I believe, help raise everyone's awareness of environmental issues.

**A.H.:** At Horiba, we developed and sell pH meters, as well as Raingoround and other kits for collecting acid rain that are now being used as teaching materials. Our relationship with educational institutes has enabled us to participate in creating a network for measuring acid rain in every region of Japan, which has helped to raise the level of awareness of the dangers of acid rain. Some time ago, a university professor proposed using Horiba's engine emission analyzing technology to equip passenger vehicles with a device to measure and display the car's engine emissions. This so-called "environmental meter" can be mounted on the dashboard or on the outside of the car. I think it is quite an interesting idea.

**T.S.:** Consumers need to become more educated and understand that environmental considerations are one element of product quality. At the same time, it is essential that environmental protection measures put forth by the government support activities undertaken by companies. I feel that the introduction of a special tax aimed at addressing environmental

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problems—such as a carbon tax—is a step in the right direction. Moreover, the proceeds from the carbon tax will support such environmental projects as solar-heated housing and the development of technologies that protect the environment, which will, in turn, raise the level of environmental awareness of both business leaders and average citizens.

### **The Accumulation of New Technologies and Innovations**

**A.H.:** Because the activities of companies are generally focused on the pursuit of profit, those that fail to offer products and services that maintain their marketability are doomed to failure. Therefore, from a company viewpoint, there must be an incentive to produce and sell environment-friendly products. As a way to approach their business operations, companies constantly develop new technological innovations as well as epoch-making technologies and products that are marketable worldwide. One could say that this is their corporate mission.

**T.S.:** The progress of industrialization is one example of technology and innovation. Unfortunately, since industrialization is responsible for the global problems we face today, it is natural to look for new innovations to tackle these problems. As I previously stated, the oil shocks of the early 1970s prompted Japan to focus on developing energy-saving technology, which, in turn, have been a principal reason behind the growth of the Japanese economy. There are some who feel that because efforts are already being made to develop technologies to solve these pressing environmental problems, it is not necessary to establish an environmental policy. I, for one, do not share this view.

**A.H.:** I agree. New technology is not developed overnight but takes years of effort and the daily accumulation of much R&D. But whether or not companies have the ability to maintain the R&D necessary is an important question. Let's take Horiba's products for example. It might take 10 years for the public to fully understand and appreciate the importance of the technologies we produce, and, furthermore, these technologies are constantly updated and transferred to new uses to meet the changing needs of society.

I'll give you an example. Horiba's engine emission analyzers were originally developed to measure vehicle emissions as a way of reducing pollution. However, these analyzers are being used more and more as measuring devices to help improve engine efficiency. Improvements in engine performance, reductions in the levels of CO<sub>2</sub> and nitrogen oxide (NO<sub>x</sub>), and better fuel efficiency are all closely related. Companies are working night and day in pursuit of new technologies to build cars with superior engine performance and fuel efficiency while reducing the levels of hazardous emissions. In terms of all these factors, I would say that there has been an astounding leap in the efficiency of vehicles produced today as compared with those made 20 years ago.

**T.S.:** Measuring technology is certainly a fundamental to the development of energy-efficient products. Speaking as a researcher, I would say it is crucial to begin with the collection of materials, testing, and analysis carried out from a variety of angles to develop epoch-making ideas and inventions. Therefore, it is only through the increased sophistication of testing and analyzing technologies that these new ideas and inventions can be introduced.

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**Atsushi Horiba**

*Atsushi Horiba is the President of Horiba, Ltd. Mr. Horiba joined the company after graduating from Konan University, and was sent to the United States, where he received a Master of Science degree from the University of California. Since becoming president in 1992, Mr. Horiba has focused on promoting R&D and global operations with such keywords as 'High Productivity', 'Quick Response', and 'Global Perspectives'.*



**A.H.:** In Japan, there are still places where air and water pollution are not being measured. If we could create a network of locations for measuring air and water pollution throughout Japan, an accurate assessment of air and water quality as a whole not only would be possible, but it would also be easier to locate the causes of pollution if levels were to suddenly rise in a certain area of the country. By being able to quickly locate and analyze the problem, we would be able to quickly establish a concrete plan of action. The need for a system to accurately accumulate data will continue to rise in importance.

**T.S.:** Not only Japan but also throughout the world. Without sufficient data, well-informed discussions on environmental issues are impossible. At times of disasters, much of people's tendency to panic is due to a lack of information. In the same way, the appropriate information is necessary to coordinate and devise a microplan and a macroplan for dealing with global environmental problems.

**A.H.:** Going back to my example about automobiles, the car is a 20th century product that continues to increase in popularity. Furthermore, people continue to demand cars with more functions that are easier to drive. In the rapidly growing economies of Asia, automobile use is increasing by leaps and bounds. From a global environmental viewpoint, not only the increased use of automobiles but the rapid economic growth of certain countries will add new urgency to environmental protection. What is your opinion on this, Professor Sawa?

**T.S.:** Certainly one of the fundamental issues confronting the 21st century is the rapid industrialization of developing countries resulting in excessive production capacity for manufactured goods on a worldwide scale—the so-called Keynes problem—and the ongoing depletion of the World's natural resources—the so-called Malthus problem. The crisis brought about by the rapid industrialization of Asia, whose population represents around 60% of the world as a whole, will demand fundamental reforms to the structure of Japan's economy and increase the call for unified worldwide standards for products.

Having said that, Japan does not have the right to impose restrictions on the industrialization of developing countries. In the current economic environment, the Japanese economy will only continue to grow if it can move away from low-tech production and instead develop products incorporating technologies that can be utilized by these developing countries to facilitate their industrialization. Japan's advanced technologies in the area of energy efficiency, including environment-friendly technologies like Horiba's measuring systems and devices, are just such technologies that Japan should vigorously pursue.

As previously mentioned, the government must also play a major role in providing incentives for companies to develop innovative technologies in these fields. To compete with the rapidly developing countries of Asia, it is important for Japan to not only look to economic development, but also choose a slightly different path to success.

**A.H.:** The environmental damage we have regrettably caused through our progress has surely had its cost. Developed countries, as the world's economic leaders, are now being forced to pay the price for their neglect.



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### **Stewardship of the Earth**

**T.S.:** “Stewardship of the Earth” has become a key phrase for companies hoping to survive the business conditions of the 21st century. In short, this concept asserts that mankind has a responsibility to safeguard the earth’s precious resources. Those countries and companies that ignore their responsibility will not only be subject to world criticism, but, because of the new 21st century paradigm that stresses the world as a community, will have trouble competing on the world market.

**A.H.:** Stewardship of the Earth? A suitable phrase I think. In short, it will be insisted upon that companies like ours adhere to the meaning of this key phrase for the 21st century and establish clear environmental goals and put in place a schedule for achieving these goals based on the prevailing conditions. For this reason, there have been calls for a corporate structure capable of further tying together our expertise both internally and externally. In closing I would like to thank you for giving me the opportunity to speak with you about these important topics. Our discussion on the key points of technology, innovation and globalization has served to strengthen my resolve to make Horiba more challenging company for the 21st century.

**T.S.:** The pleasure was mine. Thank you.



