

**Recommendations  
of the  
EU-Japan Business Round Table  
to the Leaders of the European Union and Japan**

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**Working Party E  
Innovation, Environment and Sustainable Development**

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## List of Abbreviations

EITI	Extractive industries Transparency Initiative
EU	Water Initiative
IPCC	Intergovernmental Panel on Climate Change
MBR	Membrane Bio-Reactor
MDG	Millennium Development Goals
ME	Multi-Effect
MSF	Multi-Stage Flash
NGO	Non-Governmental Organizations
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
RO	Reverse Osmosis
UN	The United Nations
WP	Working Party
WTO	World Trade Organization

## Recommendations to the EU and Japan

### 1. Global warming and water problems

It is forecast that due to the effects of global warming and climate change, glaciers will melt, sea levels will rise, desertification will occur due to drought, and increased damage will be caused by torrential rain, floods and tidal waves resulting from changes in the amount of precipitation. The 4<sup>th</sup> Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) states that 11 of the last 12 years (1995-2006) have witnessed the highest temperatures of the period from 1850 until the present day, and that over the last 100 years (1906-2005) temperatures have risen 0.74 degrees. The temperature rise over the last 50 years amounts to 0.13 degrees per decade, corresponding to double the rate seen over the last 100 years as a whole. Over the 20<sup>th</sup> century, sea levels rose by an average of 17cm, and it is forecast that by the middle of this century, while rivers' annual water volume and useable water volume will rise by 10-40% in high altitude zones and some humid and arid zones, it will decrease in most medium-altitude zones and some arid/semiarid tropical zones.

While this development poses a huge risk for potential conflicts and human misery, there will also be enormous business opportunities worldwide. All predictions come to the conclusion that the international water market will increase significantly over the next decades. The worldwide turnover in 2007 was estimated to amount to around €360 billion and estimates see the turnover in 2020 at around €805 billion. Nearly all countries around the world need to invest, either in modernisation of, new technologies or in gaining access to new and additional resources of freshwater.

#### 1.1 Economic development and the problem of water shortage

It is forecast that global demand for water by 2025 will be around three times that of 2000 due to population increase, urbanization and the development of industry. While these factors increase the demand for water for lifestyle needs and industrial needs, they also trigger the depletion of subsurface water, the loss of green places which form water sources, and increased pollution of water sources, particularly in developing countries. This makes water shortages more serious and has aroused concerns about

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increasing numbers of environmental refugees caused by water stress. Most of the world's water resources exist in the form of seawater, and only 0.8% of the total water is usable and only 0.01% are usable water taking the form of subsurface water, river water and lake water. With the spread of waterworks and drainage facilities in Asia and Africa lagging behind, coupled with problems such as high rates of leakage and poor durability, and in some areas problems such as ground subsidence caused by water pumping have a constant presence. The United Nations (UN) reports that of the world's people who are unable to access safe water and potable water and whose living situation lacks appropriate hygiene measures such as treatment of contaminated water, the majority are concentrated in Asia and Africa.

## 1.2 Water, food and energy

As water is connected closely with food, energy and ecological systems, a harmonious balance with these elements is crucial to realizing sustainable development. Looking at the world's water intake volume broken down by application, agricultural use makes up 70% of the total, and there are concerns that the depletion of water sources could become more severe due to increased food production in Asia, Africa and other regions experiencing rapid economic development. In addition, with increasing use of bio-fuels using sugarcane, maize and cellulose as fuel in response to global warming, environmental pollution and high crude oil prices, increased production of such bio-fuels is resulting in competition with food crops. When considering sustainable economic growth, it is clear that we must view water-related problems as part of a package which includes food and energy as well. Furthermore, water shortages and water pollution are also causing damage and destruction to ecological systems and biological diversity.

## 1.3 International efforts

Against this backdrop, the following goal was set out in the Millennium Development Goals (MDGs) which were brought together by various countries at the United Nations Millennium Summit in 2000: "By 2015, reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation." Various activities are underway with the aim of attaining this goal. Consensus was reached on promoting integrated management of water sources and greater efficiency at the Johannesburg Summit in 2002, and efforts which broke down the borders between the UN, various countries and non-governmental organizations (NGOs) took full-fledged form at the 3<sup>rd</sup> Water Forum held in 2003. Problems relating to water were also discussed as an agenda item at the G8 Hokkaido Toyako Summit in 2008.



In order to bring about international expansion and international cooperation towards resolving water problems, market mechanisms, at times, need to be made to function through both policy and budgetary support, including establishing frameworks for joint activities with governments and companies as participants, research and development, technological licensing, standardization, the popularization of systems and the like. Through joint development and model experiments with each region and country, we must establish technological setups and systems suited to the area in question and work to realize local production for local consumption. The most desirable approach to take is that of the “sector-wide approach” in which companies, academics and other participants cooperate in government-centered programs. The Japan Water Cooperation Initiative is a basic policy for undertaking comprehensive cooperation through use of Japan’s Official Development Assistance (ODA), while the EU Water Initiative (EUWI) which takes both an overall and a cross-sectoral approach sets out goals for achieving the MDGs in developing countries and for promoting the introduction of integrated water source management.

## 1.4 The water business

### 1.4.1 Chances and risks

The business domain of the water business covers a vast range, including waterworks, water supply for industrial use and agricultural use, seawater desalinization, energy-efficient/low-cost re-use of water, treatment of wastewater, reclaimed water, conservation of watersheds and water districts, artificial precipitation, leakage prevention and water-saving agriculture. Business types too span a wide variety, including surveying, planning, supplying materials such as water treatment membranes, plant construction, engineering, operation and maintenance /administration of facilities and analysis work. With increasing participation of private-sector bodies in the development of waterworks and sewerage infrastructure and in water supply projects in various countries, there are more and more business opportunities in the water-related industry. It is forecast that the combined market for waterworks and sewerage facilities and water for industrial use will reach 80 trillion yen by 2025; combined with the market for seawater desalinization and sewage water re-use, this is expected to reach around 100 trillion yen.

However, water shortages, water quality deterioration and increased demand for water also bring major risks for companies. Risks relating to water usage performance are already growing, including restrictions on allocation of water for industrial use and water in the manufacturing domain, and public opposition to the full cost recovery principle. If a company is to avoid water-related risks, it needs to grasp accurately its

“water footprint” throughout the value chain, and discuss countermeasures against water-related risks to its reputation.

It is also essential to push forward concrete actions in the areas of prediction/evaluation of groundwater storage potential in various regions, evaluation of the impact which water quality has on the environment and people and the establishment of safety standards, the establishment of wastewater standards etc. for wastewater and discharge water from factories, and actions regarding the question of the contents/assignment of economic and technical support for various developing countries. There is a need for cross-border consensus among the countries surrounding each aquifer regarding water intake rights from and pollution of rivers which cross international borders.

#### 1.4.2 Technological cooperation

Although policy-based solutions to water problems are the aim, many problems can also be resolved through technology. Japan and the EU hold most technological elements in the domain of water, and also possess technology relating to system construction and administration. To resolve water problems using technology, it is essential that the relevant organizations, engineers and researchers work in partnership to promote solutions efficiently. Seawater desalination is an effective, but still energy intensive and thus expensive countermeasure for water shortages. Key technologies which have potential for seawater desalination are the evaporation-based methods of multi-stage flash (MSF) and multi-effect (ME), plus reverse osmosis (RO); the problem is that they require large amounts of energy. The membrane bio-reactor (MBR) method which combines the biodegradation and biological process has attracted attention because its equipment costs, installation area and seawater volume requirements are small, and less energy is required. From the perspective of curbing fossil fuel usage and greenhouse gas emissions, the commercialization of seawater desalination methods using reusable natural energy sources such as seawater thermal differences and solar-powered desalination is also underway. Even when there is water, sometimes it cannot be used in its current state because it contains salt, chemicals or disease-causing agents. It is important to survey the water quality in each region and to look at the water composition, climate, weather conditions, usage methods and the like while setting out plans. The development of low-cost seawater desalination methods, the development of membranes which can simultaneously process chemicals and disease-causing agents, low-cost catalytic methods, purification treatment for wastewater and discharge water and re-use of water resources are essential to prevent environmental pollution, prevent the spread of disease and for re-use of water resources.

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## Recommendations to the EU and Japan

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## 2. Fossil Energy and Raw Materials

Given the limited resources of fossil energy and raw materials in Europe and Japan, combined with the growing recourse of some fast growing countries to strategic pricing and acquisition of limited raw materials and fossil energy, the EU and Japan should foster cooperation in pursuing common strategies to keep fossil energy and raw materials markets open, undistorted and stable. This would also be in the interest of sustainable development of most developing countries and emerging economies.

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■ New recommendation

### 3. Promote specific cooperation in industrial and research development

Joint programs enhancing EU-Japan research projects on next-generation technologies should be designed in cooperation between European and Japanese academia and the private sector. Developing and sharing energy efficient technologies worldwide is critically important. Whilst political will, public management, sensible regulation and pricing of energy are most crucial, technology can often provide cost effective solutions to many environmental and developmental problems.

Innovative technical solutions must be developed, which permit development and growth for the majority of the world’s fast growing population. As examples combinatory and micro-chemistry, new production processes for producing base materials like metals and cement, inventions of alternative materials and the development of production processes based on biological and organic principals are challenges, which will determine research and development over the next decades and lead to potentially disrupting developments for many businesses in Europe, Japan and elsewhere.

Energy storage, new mobility concepts and the development of megacities with high quality of living and low emissions will create enormous business opportunities. Japan and the EU with their highly developed public research and development structures must jointly focus on these challenges since only joint efforts will mobilize sufficient resources. The concept of energy efficient buildings is already state of the art. Today we should demand that buildings must be energy-autonomous or even generate electricity and heat. The investments required over the next decades have to be

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initiated today and can be met only jointly by the public sector and private businesses from EU and Japan. It is in these areas where the competitiveness of Japan and the EU will be found in the future.

Such forward looking programs should be designed to include, promote and intensify the exchange and cooperation of Japanese and European students especially in technical and science-related disciplines.

#### Recommendations to the EU and Japan

E-EJ-15 Recommendation on developing common standards for new environmentally friendly products and technologies as early as possible in close consultation with the industries concerned. However, such standards should not hamper the search for alternative solutions or technological advancements and thus may not be applicable in all industries.

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■ New recommendation

#### **4. Continuous cooperation on global warming**

This Working Party (WP) last year placed special emphasis on recommendations on global warming, which are focusing on a Post-Kyoto Framework and reflecting the latest discussions, to the European Commission and the Japanese governments. The COP15 introduced the Copenhagen Accord on fighting global warming and it was a meaningful step forward. The final agreement built on the Copenhagen Accord must include all major emitters with verifiable commitments that establish a level playing field. Since the success of COP 16 negotiations is important, this WP will again reaffirm acceleration of dialogue between EU and Japan on the followings.

Recommendations to the EU and Japan

##### E-EJ-19 Promoting the efficient use of energy

Industry has been a forerunner in energy-efficiency improvements because lowering energy costs is a prerequisite for competitiveness. In addition, industries in the EU and Japan have been developing energy-saving products. To decrease greenhouse gases (GHG), it is important to diffuse higher efficient equipment and products as well as fuel-efficient vehicles by using a front runner approach. This is based on the 3Rs (reduce, reuse, recycle) which minimize energy consumption of products through their total life cycle of procurement, usage and recycling.

##### E-EJ-20 Promoting the reduction of reliance on fossil fuels

###### a. The spread of existing technologies

From a mid-term point of view, it is indispensable to spread existing technologies such as nuclear energy and renewable energy so that they replace fossil fuels. This is necessary not only for low carbon emissions but also for energy security. Spreading the use of nuclear energy more than at present requires the restoration of trust and the establishment of a consensus by citizens from the aspect of safety. In promoting renewable energy, such as solar, wind, and biomass energy, challenges still exist regarding cost and stability of energy supply.

###### b. Development of innovative technologies

The development of innovative technologies such as clean coal, carbon dioxide capture and storage(CCS), hydrogen energy, nuclear fusion, advanced energy

storage and fuel cells require long-term efforts to reduce GHG. It is also essential to increase Governments' expenditure on research and development and to promote international public-private cooperation.

#### E-EJ-21 Diffusing environmental and energy-saving technologies in developing countries

To advance the reduction of GHG emissions on a global scale, it is critical to initiate measures in developing countries. Deploying energy-saving technologies in such countries that are expected to increase their use of energy, such as China and India, is an especially big challenge. Together with European and Japanese businesses providing technical cooperation to these countries, the governments should establish an environment that stimulates financial cooperation and private investments. Protection for intellectual property rights is essential in this regard.

#### E-EJ-22 Continuation of "green policy"

Many countries have expanded fiscal expenditure on "green policy" programs and governments' efforts towards a low-carbon society/economy are highly appreciated. In current and future "green policy", reduction of GHG emissions from the view point of the total life-cycle basis must be promoted.