MINISTERIAL CONFERENCE ON THE 3R INITIATIVE

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ISSUES PAPER

Ministry of the Environment

Government of Japan

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INTRODUCTION

Necessity of Shifting from a Mass Consumption to a Sound Material-Cycle Society

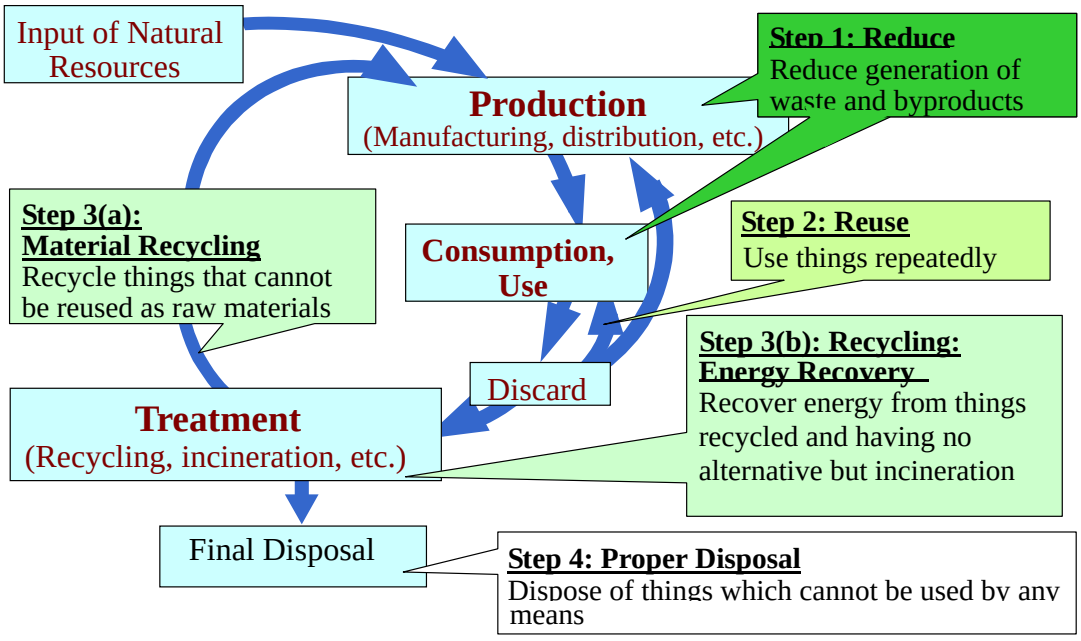
Socio-economic activities expanded in the 20th century, contributing to greater material prosperity for people. However, this also led to increases in the volume of generated waste, difficulty of waste treatment due to diversification of types of waste and environmental pollution caused by inappropriate waste management. Moreover, from a global viewpoint, there was growing concern over the depletion of natural resources, while global environmental issues such as global warming became more serious.

These problems stem from mass production, mass consumption and mass disposal patterns rooted in the current socio-economic system. In order to solve these issues, it is necessary to rethink at a fundamental level the socio-economic activities which have brought us to this point, not only in developed countries but also in developing countries, which are experiencing a deepening of the degree to which the environment and the economy are mutually dependent.

The Plan of Implementation (JPoI) adopted at the 2002 World Summit on Sustainable Development in Johannesburg stipulated that all countries should promote sustainable consumption and production patterns to bring about sustainable development at the global level. The JPoI also encouraged all countries to develop a ten-year framework of programs to accelerate the shift towards sustainable consumption and production and to take action at all levels.

In order to bring about in the 21st century sustainable development which integrates the environment and the economy, it is necessary to establish a sound material-cycle society, in which consumption of natural resources is reduced and environmental impacts are minimized. In both developed and developing countries, the key to achieving this lies in the promotion of the 3Rs (i.e., reduction, reuse and recycling of waste) in addition to ensuring the sound disposal of waste.

Concept of the 3Rs in a Sound Material-Cycle Society



Background to the Launch of the 3R Initiative

The 3R Initiative was endorsed at the G8 Summit held in June 2004 at Sea Island. It was decided to officially launch the 3R Initiative at a ministerial meeting to be hosted by the Government of Japan within a year from the summit, with the purpose of the Initiative being to disseminate 3R activities on a global basis. The materialization of efforts and directions necessary for the international promotion of the 3Rs is expected to substantially contribute to the G8 Summit Meeting in 2005, to be hosted by the United Kingdom.

Objectives of the 3R Initiative

The 3R Action Plan set forth the following five points to be pursued through the 3R Initiative:

1) To reduce waste, reuse and recycle resources and products to the extent economically feasible;

2) To reduce barriers to the international flow of goods and materials for recycling and remanufacturing, recycled and remanufactured products, and cleaner, more efficient technologies, consistent with existing environmental and trade obligations and frameworks;

3) To encourage cooperation among various stakeholders (central governments, local governments, the private sector, NGOs and communities), including voluntary and market-based activities;

4) To promote science and technology suitable for the 3Rs; and

5) To cooperate with developing countries in such areas as capacity building, raising public awareness, human resource development and implementation of recycling projects.

ISSUE I: NATIONAL POLICIES TO IMPLEMENT THE 3Rs

Expansion of economic activities and continued growth in population has stimulated higher consumption of resources globally. Improvement in the efficiency level through technological developments and structural changes in the economy has been offset by an even higher increase in absolute production levels throughout the world, and the environmental pressure posed by the utilization of resources is even greater. It is forecast that the volume of landfilled wastes and the amount of hazardous wastes generated will continue to increase until 2020 in most OECD countries. Decoupling of environmental degradation from population growth and economic development is needed to bring down environmental pressures regarding resource utilization to sustainable levels.

In OECD countries, efforts for the promotion of the 3Rs have been strengthened since the late 1980s as a result of the increased recognition of waste minimization. In 1990s, the concept of Extended Producer Responsibility (EPR) was introduced. EPR refers to the thinking that producers bear a certain responsibility for the proper recycling or disposal of the products they manufacture even after those products are used and are discarded. Through the dissemination of EPR, business entities have been induced to take a life cycle assessment (LCA) based approach to their products in order to minimize environmental impacts through the entire life stage of a product, not only in production and use but also in recycling and disposal.

Activities contributing to the promotion of the 3Rs can be classified into four types of policy approaches such as i) development of systems for integrating environmental considerations into socio-economic activities (e.g., framework instruments, direct regulatory instruments, economic instruments, voluntary instruments, informational instruments, procedural instruments), ii) support for 3R-related activities, iii) environmental education and iv) science and technology. Various 3R-related activities have been carried out on a national, regional and global basis, by taking into consideration their own characteristics and conditions.

To promote the 3Rs, it is necessary to advance a broad range of activities in order to cover both the entirety of the operations necessary to create a product and its life stages, taking a “cradle to cradle” viewpoint. Thus, it is desirable to formulate comprehensive visions and/or plans for establishing a sound material-cycle society through the participation of various stakeholders and to develop approaches based on those visions and plans. Care should always be taken with regard to the fact that the promotion of the 3Rs aims at the development of sustainable consumption and production patterns.

It is important to incorporate preparedness systematically into measures to treat wastes generated during a large-scale disaster. Local governments must make coordinated efforts with neighboring local governments in implementing measures before a disaster, such as stipulation of waste treatment plans for a disaster. In addition, central governments must support development of a cross-jurisdictional cooperative system. Also it is important to make an international cooperation among countries.

Visions and plans for the promotion of the 3Rs need to incorporate the following items and viewpoints:

i) Systems for reviewing efforts
- Establishment of a PDCA cycle, referring to formulation (Plan), execution (Do), inspection and assessment (Check) and review (Action)
- Setting specific targets in individual categories and others which assist in understanding overall trends regarding the connection between economic activities and the material flow towards recycling or disposal

ii) Identification of the roles of stakeholders
- Awareness of the distinct roles of various stakeholders
- Activities which are rooted in the responsibilities of the entities generating the wastes with respect to wastes accompanying industrial activities

iii) Expansion of market for products with low environmental impact
- Efforts by manufacturers such as designing products that facilitate recycling, manufacturing products using recyclable resources, and reducing the volume of hazardous chemical substances in products in the product manufacturing stage
- Shift of the demand to more environmentally-friendly products by actively embracing green purchasing in the consumption stage
- Securing of the conditions necessary for fair competition that contributes to development of 3R-related businesses

iv) Awareness raising
- Initiative of public agencies and industry in developing partnerships among relevant entities
- Promotion of environmental education that enables people to realize the necessity of 3R activities

v) 3R research and development
- Promotion of research and development aimed at mitigating environmental impacts in all processes, from extraction of resources to production, distribution, consumption, recycling and disposal

vi) Infrastructure for 3R-related activities
- Establishment of facilities to collect used products and facilities for processing and utilizing recyclable resources

QUESTIONS

1. *Does your country have any visions of a future society where integration of the environment with the economy can be made towards the achievement of sustainable production and consumption patterns through 3R promotion?*
2. *What roles has a ten-year framework of programs as encouraged in the JPoI been playing in promoting the 3Rs?*
3. *What kinds of instruments and approaches are important for promoting the 3Rs? What approach is appropriate to promote the global sharing of information on 3R activities?*

ISSUE II: REDUCTION OF BARRIERS TO THE INTERNATIONAL FLOW

As global economic growth and free trade advance, the volume of the international flow of goods, products and technologies has been expanding very dramatically. In the Asian region, there has been a sharp increase in demands for recyclable resources shipped from developed countries. On the other hand, electronic appliances have rapidly become popular in developing countries, most of which cause difficulties in disposal. The Basel Convention already has created a global management system for hazardous wastes, however, illegal exports/imports of recyclable resources and cases of environmental pollution caused by transboundary movements has still been a growing concern.

In order to promote the establishment of a sound material-cycle society internationally, it is necessary to reduce barriers to the international flow of goods and materials for recycling and remanufacturing, recycled and remanufactured products, and cleaner, more efficient technologies, consistent with existing environmental and trade obligations and frameworks. International distribution of those goods/products and technologies could contribute to efficient use of resources and to prevention of environmental pollution associated with de novo extraction and transportation of primary resources and production of materials and products. Furthermore, the benefit is large not only from environmental aspects but also from economic aspects. For example, remanufacturing businesses, which have been expanding their activities internationally, remanufacture goods equivalent to new ones from used products, providing their remanufactured products at reasonable prices to second-hand market. A number of multinational companies also utilize this network to take back their own products, remanufacture them and reuse them on a global basis. Those activities contribute greatly to job creation, efficient use of natural resources and conservation of the environment.

However, there are some barriers to trade in the international distribution of 3R-related goods and materials, products and cleaner, more efficient technologies. In fact, some countries are subject to differentiated treatment in tariffs during the importation of those goods and materials, products and cleaner technologies. Recognizing that there are various reasons behind this, there is an understanding internationally that it is necessary to reduce such differentiated treatment as much as possible and to eliminate it, if appropriate, and multilateral and bilateral frameworks have taken up various efforts in this area.

With respect to the reduction of barriers to environmental goods and services, in 2001, the WTO Doha Ministerial Conference agreed to conduct negotiations on the reduction or elimination, as appropriate, of tariff and non-tariff barriers. Currently the WTO Committee on Trade and Environment is working on developing a list of environmental goods, and it is expected that promotion of these actions undertaken through the WTO will result in the realization of the early reduction of barriers to the international flow. Moreover, bilateral efforts contributing to the promotion of the 3Rs have also been launched under the framework of free trade agreements, which aim at promotion of bilateral trade liberalization, and further acceleration of this approach is desirable.

With respect to the international distribution of waste, emphasis should be placed on the fundamental idea of minimization in the country in which the waste is generated. To this end, maximum efforts should be made for the reduction of waste generated and the promotion of reuse and recycling in each country. Thus preparation of a system for

separate collection and recycling is necessary. This is particularly important in the case of hazardous wastes. Sound management of wastes that result even after minimization of waste generation is required within the country of origin; however, in cases in which sound reuse or recycling is practiced outside the country, the international flow of those wastes can be permitted from the viewpoint of effective use of resources and the avoidance of environmental pollution that would be caused by the extraction and transportation of additional primary resources or by the manufacturing of materials. Needless to say, prevention of environmental pollution must be a prerequisite to international reuse and recycling, and it is necessary for both exporting and importing countries to strive jointly to prevent the creation of environmental pollution from transboundary movements of wastes. Except for special cases, including exports of wastes from countries that do not have sufficient environmentally-sound technologies or facilities for recycling to countries that have them, recycling should be based mainly on utilization of domestically-generated recyclable resources.

In order to ensure that an international flow of recyclable resources be based on proper environmental management in the future, it would be crucially important to make efforts for i) securing of proper utilization and disposal of imported recyclable resources, ii) data collection concerning the transboundary movement, utilization and treatment of recyclable resources, iii) strengthening of management systems concerning transboundary movement of recyclable resources, iv) sufficient information exchange and information sharing concerning each country's transboundary movement control systems and v) awareness raising among operators involved in the transboundary movement of recyclable resources. In this regard, application of a region-wide approach will yield effective results.

QUESTIONS

1. *What kinds of social system(s) should be established for ensuring the effective utilization of resources with the prevention of environmental pollution resulting from the international flow of goods and products?*
2. *It is becoming important to promote strategically actions towards sound material-cycle society on the regional level. What efforts are being taken to achieve this?*
3. *What kinds of approaches are required to promote in order to reduce barriers to the international flow of recyclable resources?*

ISSUE III: COOPERATION BETWEEN DEVELOPED AND DEVELOPING COUNTRIES

As a result of progress in the global economy, developing countries are also rapidly transforming into consumer societies centered around major cities. As income levels increase, an expansion in volume and a diversification of the type of wastes generated in daily life, such as the increased ratio of waste containers and packaging in the total amount of waste, has been taking place in these cities, just as it has in developed countries. There are countries where reuse and recycling are currently carried out by the informal sector. Meanwhile, issues are arising such as ensuring sound means for the collection, transportation and disposal of wastes. Early development of a sound material-cycle society is important in the medium and long term for ensuring environmental protection and economic growth. Also, efforts towards establishment of a sound material-cycle society are useful in improving other areas of sustainable development, including poverty reduction, access to safe water and sanitation. However, policy priorities in developing countries still tend to lean towards those development projects that will produce poverty reduction or sustainable growth in the short term.

The JPoI calls for financial and technical support to be provided to developing countries in order to accelerate their shift towards more sustainable production and consumption patterns. To achieve this goal, international organizations and institutions have been promoting various projects in developing countries, including efforts to promote the 3Rs. For example, under the UNIDO/UNEP Program for National Cleaner Production Centres being implemented by UNEP and UNIDO, the establishment of cleaner production centers and preparation of databases in developing countries is now underway. In addition, UNEP has been promoting the Lifecycle Initiative (aimed at the development and diffusion of tools for assessing opportunities, risks and tradeoffs associated with products and services) and the Sustainable Consumption and Production Programme (facilitating information provision, training implementation and network building). Furthermore, as activities relevant to the Basel Convention, some partnership projects, including the development of an environmentally friendly management mechanism for used lead-cell batteries and the Mobile Phone Partnership Initiative, are being carried out.

The creation and appropriate implementation of systems for establishing a sound material cycle-society constitute the basis for realizing sustainable production and consumption patterns. Developing countries need to enhance efforts to develop systems for implementing the sorting and collecting of domestically-generated waste, implementing reuse and recycling and undertaking appropriate treatment of residues, and it is key to promote cooperation among various stakeholders, including governments, private sector entities, NGOs, local communities and academics. In this regard, developing countries should systematically promote implementation of various measures suitable for their national conditions in cooperation with the international community, clarifying their positions for developing a sound material-cycle society in their national policy agenda through the formulation of national plans and strategies.

Great attention should be given to the following:

i) 3R-related policies and institutions
While some developing countries are promoting systems for addressing the 3Rs, in almost

all developing countries, legal systems regarding the 3Rs have yet to be established. Insufficient institutional capability to support 3R measures is a common issue for all developing countries to address. It is particularly important to train persons in local governments and strengthen their capacity. If reuse and recycling are being carried out by the poor as part of the informal sector, utilization of that sector needs to be studied as appropriate, keeping in mind the impacts on the lives of the poor.

ii) 3R technology, systems and facilities

The recycling or proper treatment of kitchen waste, wastepaper, and waste plastics is an issue common to developing countries, yet the necessary technological human resources or systems are not sufficiently established. Caution should be given to the needs of developing countries that reflect their national conditions in the introduction and dissemination of waste management and recycling technologies. More sophisticated recycling and treatment technology for used electrical and electronic equipment, clean technologies for reducing waste generation and the promotion of the use of environmentally sound products are future issues to be addressed.

iii) Awareness of the 3Rs

Production and consumption are the prime concerns of people in developing countries and awareness of citizens, corporations and governments is still low towards waste issues. In order to establish waste sorting and collection systems, cooperation among all relevant parties is essential, and it is necessary to enhance common awareness of the issues as well as enhance recognition of the importance of actions through the implementation of environmental education and the dissemination of information regarding successful inter-stakeholder (e.g., local governments) partnerships.

iv) Sound material-cycle business

Even though the developing countries have a cost advantage in the resource recycling business, some of them do not have sufficient capability from technological or legal standpoints to address the issue. In some cases, business entities do not have sufficient awareness with regard to compliance with environmental regulations, leading to damage to human health or environmental pollution during the collecting and reprocessing of recyclable resources. Establishment of environmentally-sound management systems by the entities in charge of recycling businesses is necessary.

QUESTIONS

1. *Which of the areas indicated as i) to iv) above needs international efforts most in terms of the global promotion of a sound material-cycle society through promotion of the 3Rs?*
2. *What are the roles to be fulfilled by the developed countries and international organizations/institutions in solving the issues faced by developing countries? What kind of support for capacity building is important?*
3. *What kinds of measures are needed in order to raise the priority level of the creation of a sound material-cycle society in the fundamental national policies of developing countries?*

ISSUE IV: COOPERATION AMONG STAKEHOLDERS

It is essential that stakeholders, including the central government, local governments, private sector entities, NGOs, and local communities establish cooperative relations and promote the 3Rs throughout all of society. The fundamental roles of each stakeholder are as follows.

As for the central government, in addition to undertaking fundamental preparations, such as preparing the legal framework and other institutional systems, inducing the private sector through subsidies and tax incentives to construct recycling facilities, providing support for research and development, and providing citizens and NGOs with support and relevant information to foster voluntary activities, it also sets the pace by implementing its own measures, thus enhancing partnership among various stakeholders and promoting 3R-related measures at the national level. Local governments have a role to play as local coordinators, ensuring enforcement of laws and regulations related to the 3Rs and promoting actions suitable for local conditions, including the stipulation of specific action plans, promotion of green procurement, awareness raising, information disclosure, ensuring participation by local communities in decision-making processes regarding relevant policies, and development of hubs for recycling businesses. The central government and local governments also have the role of leading markets in desirable directions through economic measures such as the introduction of charges for garbage collection and the collection of landfill taxes.

The private sector has the role of promoting the 3Rs by implementing environmentally-sound operations to develop and supply environmentally sound products and services, developing technologies and providing them to the market, taking back a certain amount of waste, reusing used materials in new products or reusing materials as raw materials or fuels in keeping with EPR, and ensuring sound waste management. Also, in keeping with the concept of corporate social responsibility (CSR), private sector entities can be expected to take on the tasks of developing and promoting environmental management systems as well as disclosing information on the 3Rs, to promote environmental management systems, and to provide information on raw materials and recycling methods so that consumers are able to choose products with lower environmental impact.

Local communities should play a role by actively participating and cooperating in 3R activities by reviewing their lifestyles, purchasing environmentally-sound products and implementing thorough sorting of wastes, being aware of their own responsibilities as waste generators. Communities also should take an active part in the decision-making processes concerning 3R promotion conducted by central and local governments. Meanwhile, NGOs are responsible for promoting environmental conservation activities on a local basis and improving awareness concerning both the significance of the 3Rs and concrete actions, as well as for monitoring the progress of governments and the private sector and recommending policy options.

A number of stakeholders are involved in the various stages of resource recycling, ranging from extraction of resources to manufacturing and use of products, recycling and disposal of used goods. Cooperation among various stakeholders is necessary to reduce the volume and the hazardousness of wastes in each stage of the product's life. Improvement

of awareness and development of partnership among stakeholders is a key issue for the promotion of the 3Rs.

Building public-private partnership is particularly important. Local public entities can be expected to take on the role of local coordinators under the leadership of local governors in order to promote 3R activities that are rooted in local communities. For the promotion of the 3Rs concerning products distributed in the international markets, the development of partnerships between exporting and importing countries is necessary. While refurbishers and repairers play important roles in terms of reuse and recycling, and further development of their activities is expected, how to apply the concept of EPR to these new stakeholders is an issue which needs further consideration. In promoting cooperation among different stakeholders, it is important to identify appropriate cost burdens after considering the environmental benefits and economic costs of operating recycling systems. The introduction of LCA and other assessment methods is desirable.

Linkage among different sectors would enable expanded provision of opportunities to reduce waste through having waste products from one company used as raw materials for another. Win-win relations can be realized by establishing linkages between different sectors, with waste dischargers reducing treatment costs while users of recyclable resources reduce both procurement costs for raw materials and environmental impacts. Furthermore, as part of the Eco-Town Project in Japan, efforts are underway to develop hubs to enable recycling of various wastes in terms of quantity and quality and to reuse stably and effectively waste products and exhaust heat generated from certain business categories as raw materials and energy sources in other key industries. It is also beneficial to proactively promote linkage among different sectors in terms of creating new industries and enhanced employment opportunities.

Information sharing among stakeholders regarding products is critically important for promotion of the 3Rs with linkage among shareholders. For example, products designed to facilitate recycling should have such information conveyed accurately from manufacturers to consumers and to recycling businesses and waste treatment entities. With respect to globally-distributed products with environment-polluting potential, such as mobile phones or computers, information on those products should be shared between exporting and importing countries to ensure environmentally-sound recycling and disposal, paying due attention to protection of intellectual property rights.

QUESTIONS

1. *In which of the inter-stakeholder actions listed above is the further strengthening of the partnership among stakeholders for establishing a sound material society through implementing the 3Rs?*
2. *What obstacles exist for building partnerships among stakeholders? What are the keys to success?*
3. *What are the best approaches in the international setting for sharing good practices to promote partnerships?*

ISSUE V: PROMOTION OF SCIENCE AND TECHNOLOGY SUITABLE FOR THE 3Rs

Scientific and technological developments have brought about the modern material society. As represented by home electrical appliances and automobiles, science and technology have provided major impacts on all aspects of life, improving convenience and amenity as well as providing materialistic satisfaction. At the beginning of the 20th century, mass production through conveyor belt assembly lines in the automobile industry improved production efficiency, supplying large quantities of products at low prices. Subsequently, this technique of production was introduced to other industries, thereby enabling ordinary people to acquire products that had hitherto been reserved for a few persons of wealth. Mass production and mass consumption inevitably generated mass waste, and the introduction of newer models spurred by rapid technical developments has encouraged repurchasing of products and contributed to the mass disposal of usable products.

In the 21st century, the promotion of research and technical development aimed at reducing environmental impacts in all processes from the extraction of resources through production, distribution, consumption and disposal is now called for. Progress has been made in developing and applying LCA techniques in order to assess environmental impacts across all stages of a product's life. New technologies and systems that will contribute to the promotion of the 3Rs have been proposed through the development and application of state-of-the-art sciences such as nano-technology and biotechnology. Revision of manufacturing processes by utilizing these technologies and systems leads not only to reductions in the cost of treatment of industrial wastes but also improvements in the extraction rate and reductions of raw material usage, enabling improvements in profit-earning ratios for businesses.

Rather than undertaking remedial measures after environmental pollution occurs, science and technology suitable for the 3Rs, having outstanding effectiveness in improving the environment from the perspective of LCA, need to enable society as a whole to take a systematic approach and thereby make possible the prevention of problems before they occur. Science and technology suitable for the 3Rs not only contribute to environmental conservation, but also create new economic added value to bring out latent demand in the society and promote increased sophistication of the overall industrial structure.

Promotion of science and technology suitable for the 3Rs requires accumulation of knowledge covering a wide and diverse field, from natural sciences through the humanities and social science. In particular, efforts should be made to promote research and technological development in such fields and issues as i) research on local cyclical systems in order to bring about sound material cycles in local areas, ii) research concerning the cyclical material flow to assess whether and how well the actual material flow is being transformed into a cyclical flow, iii) development of 3R clean technologies and iv) technological development for 3R designing.

In order to promote 3R measures at the global level, it is necessary for technological development and research to be advanced cooperatively, incorporating mutual information sharing. For example, methods for analyzing material flow have already begun to be addressed through international joint research, with the OECD serving in a central role.

In order to improve mutual understanding and ensure cooperation among stakeholders towards the promotion of the 3Rs, information sharing regarding 3R activities and communication among governments, the private sector and local communities are crucial. As one of the fundamental aspects, it is important to provide, in ways that are accessible, easy to understand, and shared in common among stakeholders, information that can assist stakeholders in reaching decisions with regard to science and technology (e.g., the current status of the research or technology, the results of the science or technology, its effectiveness in improving the environment, cost efficiency when reflecting it in government policies, or feasibility with regard to societal systems). Furthermore, local universities and research institutes conducting research and development in collaboration with local industries, local governments and communities is effective for introducing technologies to promote the 3Rs in a manner that is rooted in communities.

QUESTIONS

1. *How do you assess the potential for science and technology to promote the establishment of sound material-cycle society through advancement of the 3Rs?*
2. *What actions have been taken in order to promote science and technology suitable for the 3Rs? What actions should be taken for further promotion?*
3. *It is desirable to further promote international research cooperation (e.g., information exchange, exchange of researchers, joint research) in order to promote science and technology. What kind of specific approaches should be taken for this?*

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