



**The Second Asia 3R Conference**

**Issues Paper**

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**Ministry of the Environment, Japan  
and  
Institute for Global Environmental Strategies**

## **Background and Objectives of the Conference**

The “three R's (3R)” is an approach to promote the efficient use of resources to harmonize both environmental and economic concerns, through efforts to reduce, reuse, and recycle materials and wastes.

To promote international efforts based on the 3R principles, the 3R initiative was proposed at the G8's Sea Island Summit in 2004, and the initiative formally began at Ministerial Meeting on the 3R Initiative in 2005. The necessity of efforts to improve each nation's resource productivity and to work toward constructing an international sound material cycle society through the 3R initiative has been reaffirmed at the succeeding G8 Summits.

The necessity of international efforts in the following areas has been discussed: (1) Promotion of the 3Rs; (2) reduction of barriers to the international flow of goods and materials; (3) cooperation between developed and developing countries; (4) cooperation among stakeholders; and (5) science and technological development for the 3Rs.

From now on, each country is expected to improve resource efficiency at a global level by leading further advancement of the 3R efforts, and to integrate the efforts of establishing a sound material cycle society and a low-carbon society.

Under this context, at the G8 Environment Ministers Meeting to be held in May 2008, 3Rs will be discussed as one of the key agendas. At the Ministers Meeting, 3Rs is planned to be discussed from a variety of perspectives, including (i) prioritized implementation of the 3R policy and an increase in resource productivity, (ii) establishment of an international sound material cycle society, and (iii) collaboration of countries, international organisations, and stakeholders regarding capacity development of developing countries.

On the other hand, in many developing countries including those in Asia, open dumping is the most common practice for the waste disposal, which leads to water contamination, bad odours, and other environmental, health and hygiene problems. Also, there is a wide spectrum of challenges including heavy metal contamination because of inadequate segregation, rising levels of hazardous substances in industrial waste, the mix of infectious waste and municipal waste, rises in the quantity of E-waste, and adverse health and environmental impacts due to inadequate resource recovery practices. Furthermore, the methane gas generated from the dump sites has a considerable greenhouse effect. Therefore, it is crucial not to bring toxic and hazardous waste or waste containing valuable materials into landfill sites. However, in reality, these wastes are being brought into landfill sites in disseggregated manner. As illustrated above, many countries and local governments are faced with a lack of an integrated solid waste management strategy and are held back by other institutional constraints, such as insufficiency in human resources and budgetary constraints, because solid waste management is seldom given a high priority in the national policy.

Under these circumstances, it is possible to think that the promotion of the 3Rs in Asia contributes to global sustainability. Asia has some of the highest concentrations of production bases in the entire world and the Asian region accounts for approximately half of the world's population and 26% of the world's GDP (UNDP 2005 Human Development Report), and is experiencing rapid economic growth. In Asia, many symptoms of modernization are appearing at a rapid rate, including concentration of population in urban areas, increased production of manufactured products, greater international trade in goods, and increased

demand for natural resources. These changes have led to the emergence of problems such as increased generation of solid waste, qualitative diversification of solid waste, transboundary movement of recyclable resources, materials and products, and the soaring prices of resources.

Against this background, the countries of Asia have participated proactively in policy dialogues related to the 3R initiative and other related activities. Also, domestic efforts on developing waste management policies and other related policies incorporating the 3R concept have become active in these countries.

At the regional level in Asia, there is a shared understanding of regarding the importance of constructing a sound material cycle society through the 3Rs. For example, at the 15th Environment Congress for Asia and the Pacific (ECO Asia 2007), held in September 2007, the importance of constructing a sound material cycle society at national as well as regional level in the Asia-Pacific was recognized widely. Taking the necessity of making a regional policy vision into mind, it was agreed that there is a need to promote further dialogue on 3R-related policies, more efforts to share information on policy and technologies, and to disseminate good practices.

The Second Asia 3R Conference is organized to exchange opinions among the participating countries concerning the issues expected to be discussed at the G8 Environment Ministers' Meeting to be held in May 2008, based on their experience in promoting the 3Rs in Asia.

**Issue One:           Prioritized implementation of the 3R policy and increase in resource productivity, and co-benefits with measures against global warming**

**Background**

Towards the goal of sustainable production and consumption, the 3Rs is regarded as an effort which contributes to the increase in resource productivity and decoupling. At the Senior Officials Meeting on the 3R Initiative held in Bonn in 2007, it was proposed and agreed to show G8's commitment in promoting the 3Rs effectively in accordance with actions against global warming and protection of biodiversity.

Based on the spirit of “Mottainai”<sup>1</sup>, the principle of 3R initiative is to construct a sound material cycle society by preserving limited resources and not wasting valuable materials through cooperation between national governments, stakeholders, and international organisations.

**Current situations and Issues**

**Prioritized Implementation of the 3R Policy**

Although the 3R principle prioritizes the actions in the following order of priority: first reduce, then reuse, and recycle, the efforts for recycling has often advanced substantially than other 2Rs in the actual cases in developed countries. From this reason, there is a need to strengthen efforts of reduce and reuse as priorities of the 3R activities.

On the other hand, developing countries with rapidly growing economies faces serious waste-related problems and growing resource demand at the same time. Thus, it is a challenge for the developing countries to promote environmentally sound waste management and the 3Rs as a concerted effort. While promoting environmentally sound waste management is the largest challenge for such countries, it is also necessary to promote efficient use of resources through activities of reducing, reusing, and recycling as well as enhancing technologies and know-how on the 3R activities. Major activities on the 3Rs in Asian countries are summarized at the end of this paper.

**Improving Resource Productivity by Promoting the 3Rs and Setting Targets**

In developed countries with mature economies, there is a shared understanding of the importance of improving resource productivity and establishing environmentally sound material cycle through efficient use of resources in the entire economy, to realise the sustainable production and consumption,. For example, in recent years the Organization for Economic Co-operation and Development (OECD) has shown a significant progress in research on material flows, and the United Nations Environment Program (UNEP) established an International Panel for Sustainable Resource Management in November 2007. As seen in these efforts, global activities to reduce the environmental impact of resource use are advancing. At the 2006 Saint Petersburg Summit in particular, the G8 leaders agreed to “set targets as appropriate taking account of resource productivity” in furthering their efforts to optimise resource cycles.

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<sup>1</sup> “Mottainai” is a Japanese expression meaning that it is a shame for something to go to waste without having made use of its potential in full. This expression incorporates a respect for the environment that has been handed down from ages past.

On the other hand, in developing countries experiencing economic growth and increase in resource consumption, it would be desirable to use resources efficiently and to reduce the environmental impact of resource use.

Therefore, both developed and developing countries are expected to utilize limited resources in efficient manner and to construct of a sound material cycle society by taking into consideration of social and economic conditions of each country.

### **Pursuit of co-benefits with reduction of greenhouse gas emission**

Effective use of resources, appropriate waste management, and recycling can contribute to the reduced consumption of and effective use of energy, and reduction in greenhouse gas emissions from final landfill. Also there are many waste-related projects of Clean Development Mechanism (CDM). However, when the waste management systems are constructed or upgraded, it is often the case that reduction of greenhouse-gas emissions is not taken into consideration.

Since there may be constraints resulting from the economic costs and energy consumption in relation to segregation, transportation, and disposal of wastes, there is a need to select appropriate disposal and recycling methods from a life-cycle perspective, in accordance with the circumstances of each country and the characteristics of recyclable resources.

### **Questions**

- What kinds of efforts are needed in each country to raise the priority of policies and activities related to environmentally sound waste management and the 3Rs? How can the efforts related to “Reduce” be strengthened as a priority of the 3R-related policies?
- Does sharing the concept of resource productivity among countries contribute to the sustainable development of the world? What can be done to achieve both improvement of resource productivity as well as reduction of environmental impacts of national economic activities, to realise sustainable production and consumption?
- Also, what should be taken into consideration to achieve the co-benefits from the promotion of the 3Rs and reduction of greenhouse-gas emissions?

## **Issue Two: Capacity Development to Support the 3Rs through Partnership with Various Actors**

### **Background**

Since the 3R activities cover the entire product life cycle from production, transportation, consumption, and waste disposal, the partnership between stakeholders such as central and local governments, businesses, nongovernmental organizations (NGOs), and citizens, is an essential element of the 3R promotion.

Capacity development for the efficient resource use and an environmentally sound waste management can not be achieved without the development of 3R-related technologies. To address short-term problems, the application and dissemination of existing technologies for the recycling and eco-design is effective, while more advanced, environmentally-conscious design technologies and totally new technologies needs to be developed and applied to solve medium-term and long-term issues. Cooperation between stakeholders is essential to the development, application, and dissemination of technologies which are suitable to the circumstances of each country.

To promote such cooperation between stakeholders, the importance of information sharing, promotion of research, and needs for the institutional aspect of capacity development have been pointed out.

### **Current situations and Issues**

#### **Development of 3R-related Science and Technology**

Businesses and research organizations can play a significant role in the development of 3R-related technologies and design for the environment. However, in addition to the voluntary efforts of businesses and research organizations to develop technologies and design, it is necessary to establish supporting institutions for the technological innovation such as funding mechanisms, appropriate policy incentives, as well as the development of the human resources who can judge the value of innovative technologies. Also, policy measures to expand new markets for such products are necessary.

#### **Promotion of activities by business, local governments and NGOs**

Cooperation between stakeholders can contribute to improve the sustainability of various activities and institutions for realizing the 3Rs.

In particular, coordination between central and local governments is an essential element in promoting the 3Rs as a national policy.

At the same time, businesses can make international contributions through investment in improving environmental management technologies and design for the environment, and through active utilization of by-products and recycled resources in international supply and production networks.

In addition, in some cases NGO activities play significant roles in areas such as intermediation between stakeholders, raising awareness, capacity development, and increasing the efficiency of project implementation, by acting as an intermediary agent between

communities, public-sectors such as governments and aid agencies, and businesses.

Promotion of the good practices by local governments, businesses, and NGOs will be the first step towards wider application of 3R activities.

### **Promotion of information sharing and environmental education**

To promote cooperation among stakeholders for the 3Rs, important factors include capacity building for each entity through environmental education and enhanced collaboration through information sharing. Examples of environmental education include classes at public primary schools, as well as non-public activities such as awareness raising campaigns through mass media and NGOs. Concrete examples of information sharing activities include the sharing of technology and pollutant information, as well as eco-label systems for products.

### **Questions**

- What kinds of policy measures are needed to promote technological innovation in 3R-related science and technology, and to promote the effective dissemination of and market growth for the environmental conscious products?
- What kind of role should each national government play in upgrading and incorporating individual activities of each stakeholder, especially those of private sectors, local communities and NGOs into the society as a whole?
- How can information sharing and environmental education contribute to change in lifestyle toward sustainable production and consumption?

## **Issue Three: Collaboration towards Sustainable International Resource Circulation**

### **Background**

The international point of view is required for the efficient use of resources by promoting the 3R, to respond to the advancing interdependence of the world economy, expansion of trade in materials and products, and increasing resource demands, and the possibility of resource scarcity.

In addition, in the area of capacity development toward effective use of resources and environmentally sound waste management, collaboration between countries and international organizations can play significant roles. For example, the 3R initiative is being advanced through close and mutual collaboration of a wide range of international organisations including those of the OECD, UNEP, the United Nations Center for Regional Development (UNCRD), and the Secretariat of the Basel Convention. In light of this point, it has been confirmed that it is necessary to promote the concerted efforts at international/regional levels, improvements in the infrastructure for information sharing and research, and capacity development including institutional development.

Furthermore, it has been argued that technology transfer from countries with efficient technologies to developing countries is important for establishing sustainable international resource circulation.

### **Current situations and Issues**

#### **Approach to International resource circulations**

In principle, wastes should be domestically managed in proper manner in the countries in which they are generated. As such, improving domestic capacities for such environmentally sound waste management should be given the first priority. At the same time measures to prevent illegal transboundary movement of hazardous wastes should be taken. Based on this condition, materials difficult to be managed in the countries of the origin might be processed in other countries with appropriate capacity. By appropriately utilizing such materials treated in environmentally sound manner as resources, this may contribute to reduce environmental pollution as well as efficient resource use at the regional level. On the other hand, there is a concern over international resource circulation that this can contribute to negative environmental impact via environmentally unsound management practices. Also, it involves the complex issues on how to distinguish waste from non-waste materials. Regarding international resource circulation, one should understand these positive and negative aspects and to confirm the significance of international resource circulation as supplement to domestic resource circulation.

#### **Promoting international distribution of 3R-related goods, raw materials, and products**

Under the Doha Mandate of the World Trade Organization (WTO), progress is being made in preparation of a list of environmental goods and services, and the WTO Non-Tariff Barrier Initiative to Eliminate Barriers to Trade in Remanufactured and Refurbished Products is also being discussed. To promote 3Rs internationally, one should consider the potentials of utilising businesses for ensuring the environmentally sound international circulation.

## **Strengthening the collaborative efforts of countries and international organisations**

Developing countries share the recognition that the environmentally sound waste management is a significant issue. In particular, there is a need to raise the priority of environmental policies as a whole, including environmentally sound waste management. In addition, there is a need to develop the institutional capacities of central and local governments. To promote international cooperation to raise the priority of such issues, it is necessary to keep social and economical impacts in mind by incorporating the concepts of the 3Rs, and effective utilization of resources in addition to promoting environmentally sound waste management,.

Except for several cases including those in Asian countries, there are limited applications of 3R elements in most of the projects in developing countries worldwide by international organisations and individual countries. In addition, there is a growing need for information sharing on international cooperation on the 3Rs for the effective collaboration and operation of the projects. Especially, there are areas in which multilateral collaboration can lead to improved efficiency; such as development of policy measures of promoting 3R activities, development of technological guidelines and indices that can be used to compare 3R progress, and development of guidelines for promoting sharing of information

As one of the major issues of international cooperation, it has been argued the needs for technology transfer from countries with efficient technologies to developing countries by keeping in mind step-by-step approach is important, its suitability to the level of economic development, cost-effectiveness of the technology, and needs for social system which can enhance the impact of technology.

### **Questions**

- What kind of fundamental approach should be shared on efficient use of resources and raw materials, and realizing sustainable resource circulation at an international level that will contribute to minimizing the environmental impacts of production and consumption?
- How one can utilize progress in multilateral trade into the promotion of the 3Rs?
- What kinds of international activities should be implemented in response to the transboundary waste issues caused by international trade of goods?
- What kind of support is desirable for promoting effective multilateral cooperation and appropriate cooperation with international organisations?

## Appendix: Highlights of 3R-related policies and activities of the selected Asian countries

Bangladesh	<p><b>Community-based Composting</b> (operated by Waste Concern)</p> <p>Impacts of the project</p> <ul style="list-style-type: none"> <li>-Creating new employment (can be created 90,000 new employments for the country)</li> <li>-Integrates informal labors into the production process of composting</li> </ul>
China	<p><b>Place the Development of Circular Economy as Central Agenda for Chinese Government</b></p> <p>Integrate circular economy activities into new five-years social and economic plans at both national and local level.</p> <p>Circular Economy Law (2007)</p>
	<p><b>Strengthen E-wastes Management</b> (formulate laws, regulation &amp; policy)</p> <p>Management regulations on pollution control for the production of electronic and IT sectors. (Mar. 2007)</p> <p>The national regulations on E-wastes management in China (draft)</p>
	<p><b>Eco-industrial Park Policy</b></p> <p>Develop about 20 national pilot eco-industrial parks. In addition, 8 national pilot regions to build regional-level circular economy.</p>
India	<p><b>Established National Environment Policy</b> (2006)</p>
	<p><b>Registration Schemes for Recyclers/Re-processors and Actual Users of Hazardous Wastes</b></p> <p>Environment (Protection) Act (1986)</p>
	<p><b>Plastic Recycling:</b></p> <p>Volume recycled - 1.7 million tons (2004-2005)</p>
Indonesia	<p><b>National Action Plan 2008–2015</b></p> <p>Regulation arrangement: Many regulations must be prepared in the next 2 years as follow up of MSW Management Act.</p>
	<p><b>Action of Micro, Small &amp; Medium Enterprises</b></p> <p>Almost 35% of hazardous wastes that were produced by industries has been reused and/or recycled.</p> <p>Good practices: cleaner production in home tofu industries (reuse/recycle of solid wastes/residues)</p>
	<p><b>Composting Subsidy Program</b></p> <p>Compost subsidy project in 19 cities has increased the composting/recycling rate by 2%.</p> <p>The project has produced 217 tones/day compost (the target was 200 tones/day).</p>
Malaysia	<p><b>National Recycling Program</b> (2000)</p> <p>Long-term objective to inculcate the habit of recycling among the population</p>
	<p><b>National Strategic Plan for Solid Waste Management</b> (2005)</p> <p>A comprehensive approach to develop the waste reduction, reuse and recovery elements of SWM</p>
	<p><b>Development of National Waste Minimization Master Plan</b> (2006)</p>
Philippines	<p><b>National Legislation:</b> The 3Rs National Policy</p> <p>Sets the mandatory waste diversion goal of at least 25% by 2006</p>
	<p><b>Backyard Composting/Processing of Organic Wastes</b></p> <p>25% of the compostable wastes are recovered and recycled to organic fertilizer.</p>

	<p><b>Advocacy Campaign to improve the Recovery and Recycling of Used Lead-acid Batteries</b> Set target recovery rate of used lead-acid batteries as 3,600 tons (398 tons had been recovered in 2004)</p>
Republic of Korea	<p><b>Food-waste Minimization and Recycling</b> Increase in recycling rate: 2.1% in 1995, 41.1% in 2000, 93.8% in 2005 Extension of life span of the landfill site: 7 years to 11 years</p>
	<p><b>Volume-based Waste Fee System</b> Decrease in urban solid waste generation by 0.62% from 1994 to 2004</p>
	<p><b>EPR</b> Increase of recycling rate for EPR target items (WEEE and end-of-life vehicles)</p>
Singapore	<p><b>Recycling</b> Overall rate of recycling for 2006 is 51%, up by 2% from 2005 Promote construction &amp; demolition waste recycling; wood wastes recycling; plastic wastes recycling</p>
	<p><b>National Recycling Program</b> Launched recycling program for households in 2001 Put recycling bins at public places Promote construction &amp; demolition waste recycling (more than 90% of recycling rate)</p>
	<p>90% of incinerable wastes are treated at four incineration plants 10% of non-incinerable wastes are disposed at one offshore sanitary landfill</p>
Thailand	<p><b>Take-back Program for End-of-life Products</b> As of 2005, used lead-acid batteries are returned up to 85% Take-back program of fluorescent lamp has been implemented in cooperation with Government of Japan.</p>
	<p><b>Initiatives of Recycling-oriented Society</b> Over 200 communities implement the 3Rs, some municipalities reduce waste up to 30-50%</p>
	<p><b>Industrial Waste Exchange Program</b> Over 450 industries registered as members in 2005</p>
Viet Nam	<p><b>3R-related Policy and Legislation</b> The 2005 Law on Environmental Protection: 14 new articles were established to promote 3R and other related activities.</p>
	<p><b>The 3R National Strategy</b> 3R Targets by 2020: 30% of total collected waste volumes are recycled At-source, wastes are segregated by 30% for households and 70% for enterprises.</p>
	<p>Need for upgrading recycling systems at craft villages</p>