

Toyama Framework on Material Cycles

We, the G7 Ministers and high representatives, and European Commissioner responsible for the environment, based on our discussion on resource efficiency and the 3Rs in Toyama, May 15–16, 2016,

Recognizing that the global population is estimated to exceed 9 billion by 2050 and rising demand for resources has caused an increase in resource consumption and waste generation, and that these trends contribute to deterioration of natural environment, including air, soil and water pollution due to hazardous materials and climate change that affect our future generations;

Understanding that appropriate policies on resource efficiency and the 3Rs with the consideration of a resource nexus, can contribute not only to environmental conservation but also to sustainable use of resources, avoidance of business risks, innovation, job creation and green growth;

Emphasizing that the G7 Alliance on Resource Efficiency is a dynamic voluntary platform that benefits from actively engaging relevant stakeholders and supporting networks;

Reconfirming that material life cycles (extraction, design, manufacturing, use, and recycling or disposal) and transactions of materials including secondary ones are often global; and therefore it is increasingly important to ensure cooperation with relevant countries and stakeholders including businesses;

Noting the significance of the 3Rs (reduce, reuse, and recycle) plus other concepts on efficient and cyclical use of resources including sustainable use of renewables, and noting also the significance of sustainable materials management, material-cycles societies and circular economies;

Commit to take the following actions, building upon the Kobe 3R Action Plan, G7 Alliance on Resource Efficiency and other existing initiatives, reflecting the new challenges we face today while also respecting the role of each country to determine policies and other actions in accordance with its own specific circumstances:

1. G7 Common Vision to Enhance Resource Efficiency and Promote the 3Rs

- Our common goal is to realize a society which uses resources including stock resources efficiently and sustainably across the whole life cycle, by reducing the consumption of natural resources and promoting recycled materials and renewable resources so as to remain within the boundaries of the planet, respecting relevant concepts and approaches.
- All this is to ensure that society circulates resources repeatedly, minimizes waste emissions into nature, prevents the diffusion of waste and manages environmental burdens within an acceptable limit so that the material circulation in nature can be kept undisturbed.

- Such a society not only provides solutions to waste and resource challenges, but also achieves a sustainable low-carbon society in harmony with nature that can create jobs, strengthen competitiveness and realize green growth.

2. Ambitious Actions by G7 Members

Goal 1: Leading Domestic Policies for Resource Efficiency and the 3Rs

1-1 Integration of Policies and Policy Mix

- Integrate and promote measures on resource efficiency and the 3Rs, climate change and extreme weather events, hazardous substances, disaster waste, natural environmental conservation, marine litter, access to raw materials and industrial competitiveness and other challenges in a holistic manner, taking into account life cycle approaches and environmental, economic and social aspects of sustainable development.
- Make full use of appropriate policies and measures such as promoting operators' voluntary actions and informational measures in addition to regulatory measures, ensuring transparency and accountability to maximize the potential of various stakeholders including businesses.

1-2 Efficient and Maximized Utilization of Resources

- Promote Reduce and Reuse, in addition to Recycle, from the perspectives of resource efficiency and reduction of GHG emissions.
- Seek minimization and environmentally-safe final disposal of waste by using the most appropriate approach which fits the local situation and type of targeted waste among various measures such as recycling or utilization as animal feed, composting, and energy recovery, in line with the waste management hierarchy.
- Develop and introduce technologies for energy efficient recovery that facilitate more effective utilization of waste in line with the waste management hierarchy.
- Facilitate environmentally-sound disaster waste management to respond to the frequent occurrence and aggravation of natural disasters, by appropriate treatment and recycling of large amounts of disaster waste, and by developing waste treatment facilities resilient to disasters, and facilitating the utilization of the facilities as energy supply hubs.

1-3 Initiatives in Cooperation with Diverse Local Actors (Industrial and Community Symbiosis)

- Facilitate the development of new businesses, job creation, and local revitalization by accommodating and utilizing local resources, goods, and energy based on collaboration among diverse local actors (industrial and community symbiosis) in a region.
- Promote resource circulation at the local level by focusing on local culture and other characteristics, links between residents, and the roles of small and medium-size enterprises.
- Encourage the adoption of resource efficiency and the 3Rs (and relevant other concepts) in local urban development through, for example, facilitating used products collection and utilization of

recycled materials in the community and designating waste disposal facilities for non-recyclable waste as energy supply hubs and disaster-prevention facilities.

1-4 Actions to Final Demands/Consumers

- Enable and encourage the motivation and awareness of final demand side (consumers) to make informed and sustainable choices in order to foster the uptake of sustainable consumption at the household level, *inter alia* through providing reliable, easily accessible and understandable information and eco-design products to consumers.
- Promote increased consumer awareness of the environmental and economic advantages of sustainable consumption; “awareness of sufficiency” - an idea that we should not be greedy, but be satisfied with appropriate amounts; smart purchasing; green public procurement; new services involving reuse, repair, and sharing; and eco-labeling.

Concrete Example: Ambitious Initiatives for Organic Waste Including Food Loss and Waste

- Promote reduction in organic waste, in particular, food loss and waste, effective recycling of food waste, effective utilization as an energy source, and utilization of waste biomass taking into account impacts on other functions for ecosystems.
- Accelerate the initiatives for minimization and effective and safe utilization of food loss and waste in line with target 12.3 of the UN Sustainable Development Goals, such as developing a domestic or regional policy or plan.
- Facilitate sharing each country’s knowledge, through information exchange and cooperation, on the environmental, economic and social benefits of effectively and safely reducing and utilizing food waste, including collaboration on the development of comparable measurement methodologies for food waste and the associated environmental benefits, including climate benefits of reducing wasted food.

Goal 2: Promote Global Resource Efficiency and the 3Rs

2-1 Cooperation with Other Countries

- Share with other countries our best practices/Best Available Technologies (BAT), and useful lessons through appropriate opportunities of international cooperation such as the G7-Alliance on Resource Efficiency.
- Assist developing countries to build the capacity needed for effective resource efficiency and resource circulation policies, including developing scientific and statistical information, in conducting projects in those countries through bilateral or multilateral partnership (e.g., Regional 3R Forum in Asia and the Pacific, Climate and Clean Air Coalition). Such efforts can also contribute to combating marine litter from land-based sources.
- Assist, in disaster waste management countries, or regions that experience significant natural disasters, such as the global hot spot regions in Asia and the Pacific, where frequent earthquakes and other disasters whose impacts are exacerbated due to urbanization and climate change.

2-2 Cooperation across the Global Supply Chain

- Promote the use of sustainable procurement practices that advance resource efficiency taking into account the environmental burdens across the whole lifecycle of materials.
- Advance collaboration and cooperation between upstream and downstream industries, including the appropriate sharing of data across the lifecycle, to promote environmentally-sound business decisions.
- Encourage proactive efforts of upstream industries for reuse and recycling, including the utilization of recyclable resources.

Concrete Example: Management of E-Waste

- Prioritize environmentally sound management of waste within each country or region.
- Share existing approaches, empowering international joint action in particular with E-waste, to distinguish controlled waste from non-waste, and to enhance the effectiveness of enforcement efforts to improve the rate of collection, reuse and recycling via formal routes and the effectiveness of border control efforts to prevent illegal traffic while facilitating resource efficient practices such as remanufacturing of spare parts.
- Recognize that export of hazardous waste, especially by countries without environmentally sound management capacity to countries with the necessary capacity, and conducted according to the relevant domestic and international rules, could make a positive contribution to the environment and to resource efficiency and circularity, allowing countries without sufficient time to develop their own capacity to safely manage their hazardous waste in the meantime.
- Stimulate information exchange on each country's initiatives, standards, environmentally sound management and applicable technologies for proper collection, reuse and recycling of E-waste.

Goal 3: Steady and Transparent Follow-Up Process

3-1 G7's Domestic Efforts

- Consider appropriate science-based and widely acknowledged indicators at the domestic level to provide an orientation on the progress of actions on this Framework.
- Establish a transparent follow-up process domestically including sharing of calculation methods, indicators, and the results of reviews to which other countries can refer.

3-2 Global Efforts

- Support international efforts to identify indicators that can measure the reduction of various environmental impacts and effectiveness of resource stock.
- Continue to share progress, challenges and lessons learned on implementation of the Framework, through workshops and other fora.
- Under the G7 Italian presidency, we will follow-up and discuss policy actions, priorities and next steps to advance resource efficiency and the 3Rs based on the reports and recommendations

submitted by IRP and OECD and lessons from the G7 alliance on Resource Efficiency Workshops.

- Building on the G7 Resource Efficiency Alliance activities, develop a roadmap, also in consultation with stakeholders and relevant international organizations, to prioritize actions that advance life cycle based materials management, resource efficiency, and the 3Rs, including in the supply chain.

Attachment

Table. Examples of Actions by G7 Members

Japan	<ul style="list-style-type: none"> ● Developed Basic Act for Establishing a Sound Material-Cycle Society as a framework law and Fundamental Plan for Establishing a Sound Material-Cycle Society as implementation plan. The plan is reviewed every five years. ● Setting the target on resource productivity(460,000JPY/ton), cyclical use rate(17%), final disposal amount(17mil ton)by 2020. Other indicators also have improved. ● Increased target rate of recycling of Home Appliance Recycling Law, and introduced Small Waste Electrical and Electronic Equipment Recycling Law. ● Achieved over 80% recycling rate of disaster waste generated by the Great East Japan Earthquake. Strengthened disaster waste management measures including reforming waste management law and the Basic Act on Disaster Control Measures, based on recent lessons and knowledge from recent disasters.
Italy	<ul style="list-style-type: none"> ● Developing inter-institutional coordination on Circular Economy ● Environmental law on Circular Economy and Resource Efficiency adopted in February 2016. A comprehensive Green Act, Update of National Sustainable Development Strategy based on Agenda 2030 - SDGs and on MFA as well as an action plan for sustainable production and consumption under development. ● National law to avoid food waste and to facilitate the reuse of other goods under Parliamentary scrutiny. ● Adoption of a National Waste Prevention Program setting specific waste reduction targets for municipal waste and industrial waste (non-hazardous and hazardous). ● Setting targets on TMR to reduce by 25% by 2010, 75% (Factor 4) by 2030, 90% (Factor 10) by 2050 compared to base year 1990 (set in the Sustainable Development Strategy 2002). ● Setting binding targets on separate collection at national level. ● Increasing recycling performance at national level ● Fostering take-back mechanisms for reuse and relations between private companies through models of industrial symbiosis. Stimulate the market of recycled products and secondary raw materials quality, also through wider use of sustainable public procurement (mandatory environmental criteria); Defining mechanisms to incentive consumers, businesses and local authorities to support the purchase of products made with secondary raw materials; Implementing environmental tax reform (e.g. introduction of reduced tax for eco-products and tax credits for eco-efficient companies, incentives for best recycling local authorities, recovering of fuel taxes decreases of the 90s, reduction of EHSs for polluting trucks).

Canada	<ul style="list-style-type: none"> ● Regarding the 3Rs, reducing chemical emissions, strengthening producer responsibility, developing vision and action plan for waste, and developing statistics on waste and chemical emissions. ● Helping advance scientific studies on impacts and cost of resource use throughout life-cycle of materials and conducting data collection. ● Published report on environmentally sound management of e-waste in 2014. ● Endorsed the Canada-wide Action Plan for Extended Producer Responsibility (EPR), currently 160 voluntary and legislated EPR programs and implementing Green Mining Initiative.
France	<ul style="list-style-type: none"> ● Published the Energy Transition to Green Growth Act, which includes goals and actions towards transition to Circular Economy, in August 2015. Planning elaboration of a circular economy strategy revised every 5 years and including a resources program. ● Integrated a resource hierarchy in the Environmental Code and a resource productivity target ● Monitoring the amount of material consumption, MSW generations and treatment, and other relevant indicators. Material productivity has improved 1.5 times in 2012 compared to 1990. ● Established Committee for Strategic Materials (COMES) to identify, to facilitate resource efficiency and recycling, and to consider possible substitutions of strategic materials, and more generally to promote resource efficiency and circular economy implementation in strategic industrial sectors and at local level (industrial symbiosis) ● Introducing the law on redistribution on food that is approaching best-before dates in retailers. ● Develop footprints labelling on a voluntary basis ● Develop extended producer responsibility schemes
US	<ul style="list-style-type: none"> ● Initiate transition to Sustainable Materials Management (SMM) in 2009. ● In 2013, published “Advancing Sustainable Materials Management: Facts and Figures Report”, which includes data on municipal solid waste generation and recycling rates. ● Initiated multiple activities (for example tools development, guidance, pilots, and launch of LCA Research Center) to help incorporate lifecycle thinking into policy and business decisions. ● Continue to promote SMM approaches particular to the food, electronics, and built environment sectors.
UK	<ul style="list-style-type: none"> ● Monitoring Raw Material Consumption (headline indicator), recycling rate of household waste, and recovery rate of construction and demolition waste, as sustainability indicators. ● Implementing various economic instruments related to waste prevention such as landfill tax and plastic bag charge. ● The UK has Waste Prevention Programmes in place. These include a range of measures which can be applied by government, businesses, third sector, consumers and others to prevent and reduce waste, improve resource efficiency and help us move to a more circular economy. Examples of measures are: <ul style="list-style-type: none"> ➢ We have in place voluntary agreements, led by WRAP, with resource efficiency at their core, covering food and packaging; clothing, and electrical and electronic equipment. ➢ Since 2007, large scale interventions in place aimed at reducing food waste across both supply chains and within households. Based on the success of earlier agreements, WRAP launched the Courtauld Commitment 2025 in March 2016. This is an ambitious

	<p>voluntary agreement that brings together organizations across the food system – from producer to consumer – to make food and drink production and consumption more sustainable,</p> <ul style="list-style-type: none"> ● The UK Government is committed to procuring more sustainable products as part of the its Greening Government Commitments (GGCs) on reducing the environmental impact of government's operations.
Germany	<ul style="list-style-type: none"> ● Resource Efficiency and the 3Rs relevant policies such as Circular Economy Act(1996), the ban on direct landfill(2005) and Raw Materials Strategy (2010). ● Launched German Resource Efficiency Programme (ProgRess) (2012), to be reviewed and further developed every four years, for the first time in 2016 (ProgRess II). ● Set the target to double raw materials productivity by 2020 compared to 1994 and launched a new indicator and target including the use of raw materials for imports (indirect imports) ● .Launched German National Program for Sustainable Consumption (2016) to encourage and strengthen sustainable consumption within most relevant areas. ● Established Material resource efficiency agency(2006) , Center for Resource Efficiency (2009).
EC	<ul style="list-style-type: none"> ● Proposed a Circular Economy package in December 2015, in addition to the existing Resource-Efficient Europe Flagship initiative and Roadmap. The package consists of legislative proposals enhancing recycling rates of MSW and packaging wastes, phase-out of landfill, prevention of food waste generation, and an Action Plan with measures to "close the loop" of the circular economy. The Action Plan tackles all phases in the lifecycle of a product: <ul style="list-style-type: none"> ➢ production (e.g. eco-design) ➢ consumption (e.g. green public procurement) ➢ waste management ➢ Boosting the market for secondary raw materials and promoting water reuse. ● The Action Plan also foresees targeted actions on nutrients, plastics, critical raw materials, construction and demolition waste and biomass, as well as measures to promote innovation and investments in the circular economy to make the transition happen on the ground. ● Eurostat calculates and compiles material flow indicators and resource productivity for EU member countries. Published EU Resource Efficiency Scoreboard. ● Developing a monitoring framework for circular economy building on the Resource Efficiency and Raw Materials Scoreboards.

※ Drafted by the Ministry of the Environment, Japan and the Institute for Global Environmental Strategies based on materials of workshops in February, 2016 in Yokohama, Japan, and revised based on the G7 members' comments.