United Nations Centre for Regional Development
UNCRD

Implementing Hanoi 3R Declaration and Outcome of Surabaya 3R Forum - Needs for Scientific Cooperation

UNCRD Special Session of 3R International Scientific Conference (3RINCS),
10 March 2014,
Kyoto University, Japan

CRC Mohanty
Environment Programme Coordinator, UNCRD

Shared Understanding & Issues

Ground realities & challenges - urbanization trend and its impacts

Facts and figures

✓ Half of humanity – 3.5 billion people – live in cities today.

✓ By 2030, almost 60 per cent of the world's population will live in urban areas.

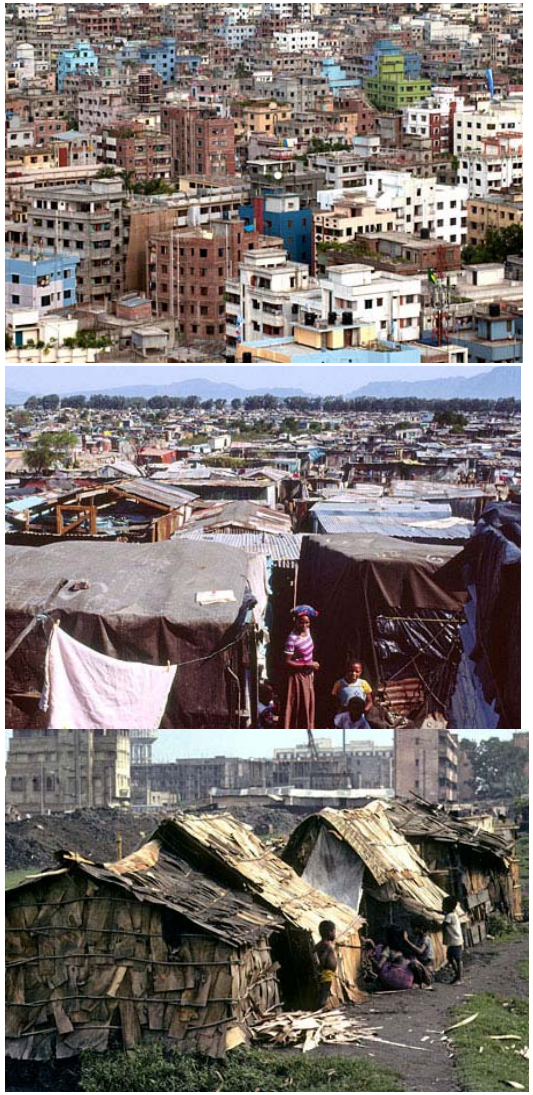
✓ 95 per cent of urban expansion in the next decades will take place in developing world.

✓ 828 million people live in slums today and the number keeps rising.

✓ The world's cities occupy just 2 per cent of the Earth's land, but account for 60-80 per cent of energy consumption, 75 per cent of carbon emissions, approximately 70% of global GDP, and consume 70% of all resources.

✓ Rapid urbanization is exerting pressure on fresh water supplies, sewage, the living environment, and public health.

Source: United Nations 2012
http://www.un.org/en/sustainablefuture/cities.shtml#overview



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Composition of waste becomes more complicated as the economically & industrially grow, which is also compounding the issues …

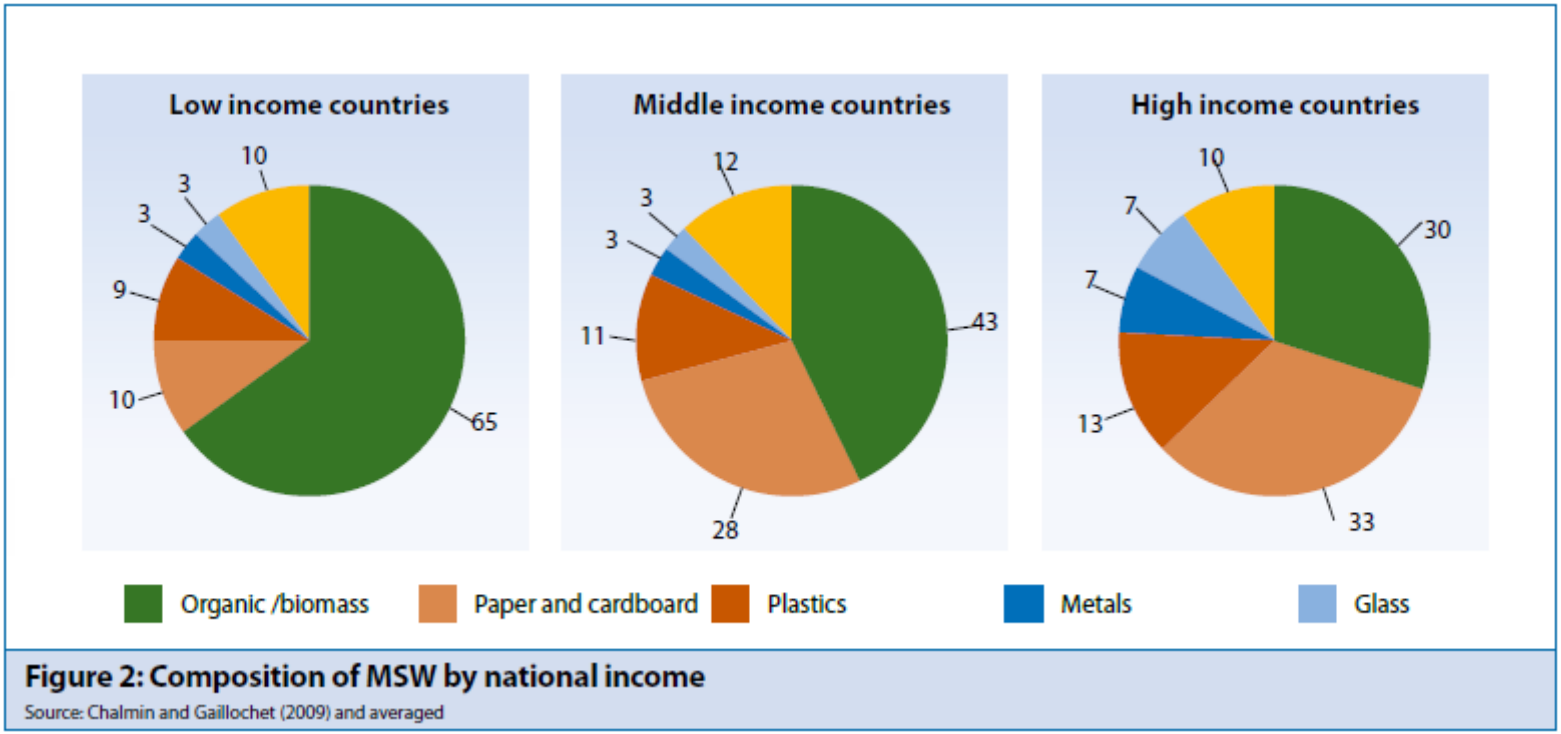


Figure 2: Composition of MSW by national income

Source: Chalmin and Gaillochet (2009) and averaged

Source: UNEP, 2011, Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.

• New emerging waste streams such as **e-waste, and industrial wastes (including hazardous waste construction and demolition waste, end-of-life vehicles, healthcare waste, etc.)** further compound the pressure to the local environment

Relative decoupling has begun in OECD countries

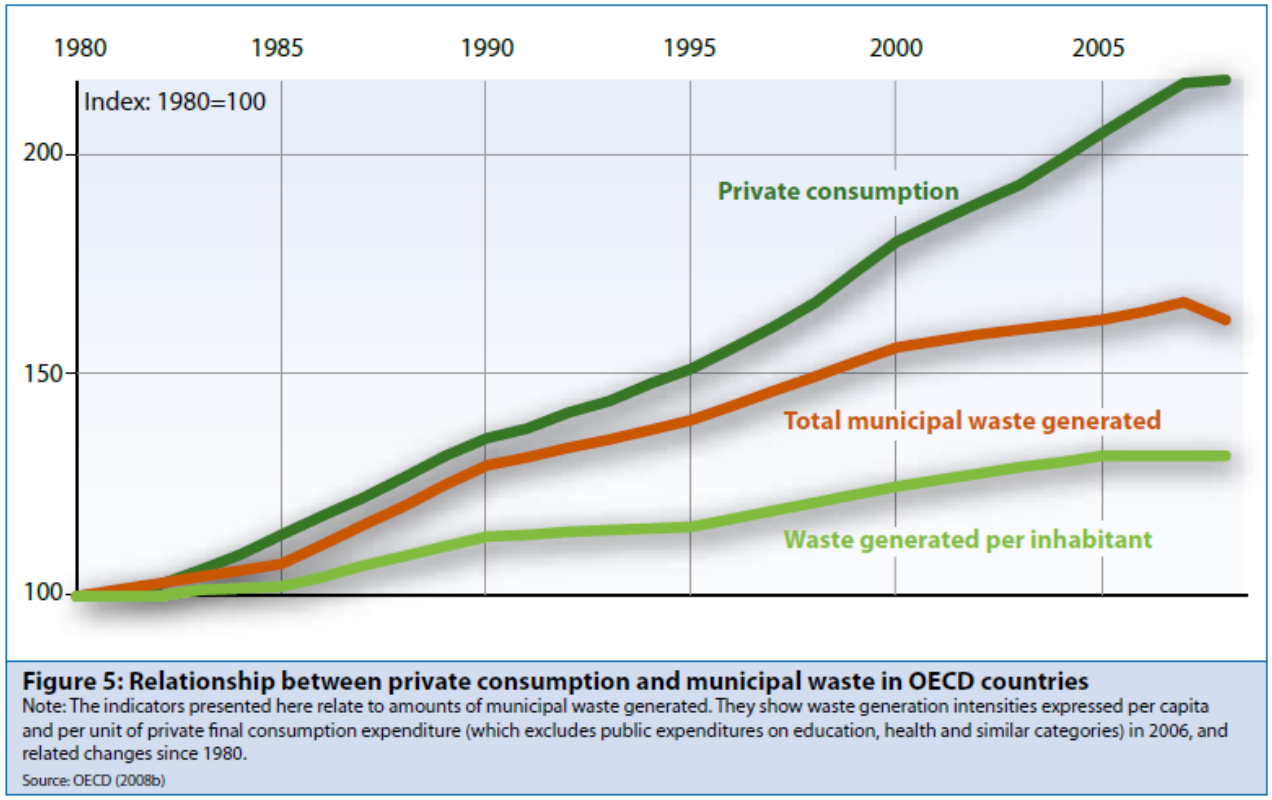


Figure 5: Relationship between private consumption and municipal waste in OECD countries
Note: The indicators presented here relate to amounts of municipal waste generated. They show waste generation intensities expressed per capita and per unit of private final consumption expenditure (which excludes public expenditures on education, health and similar categories) in 2006, and related changes since 1980.
Source: OECD (2008b)

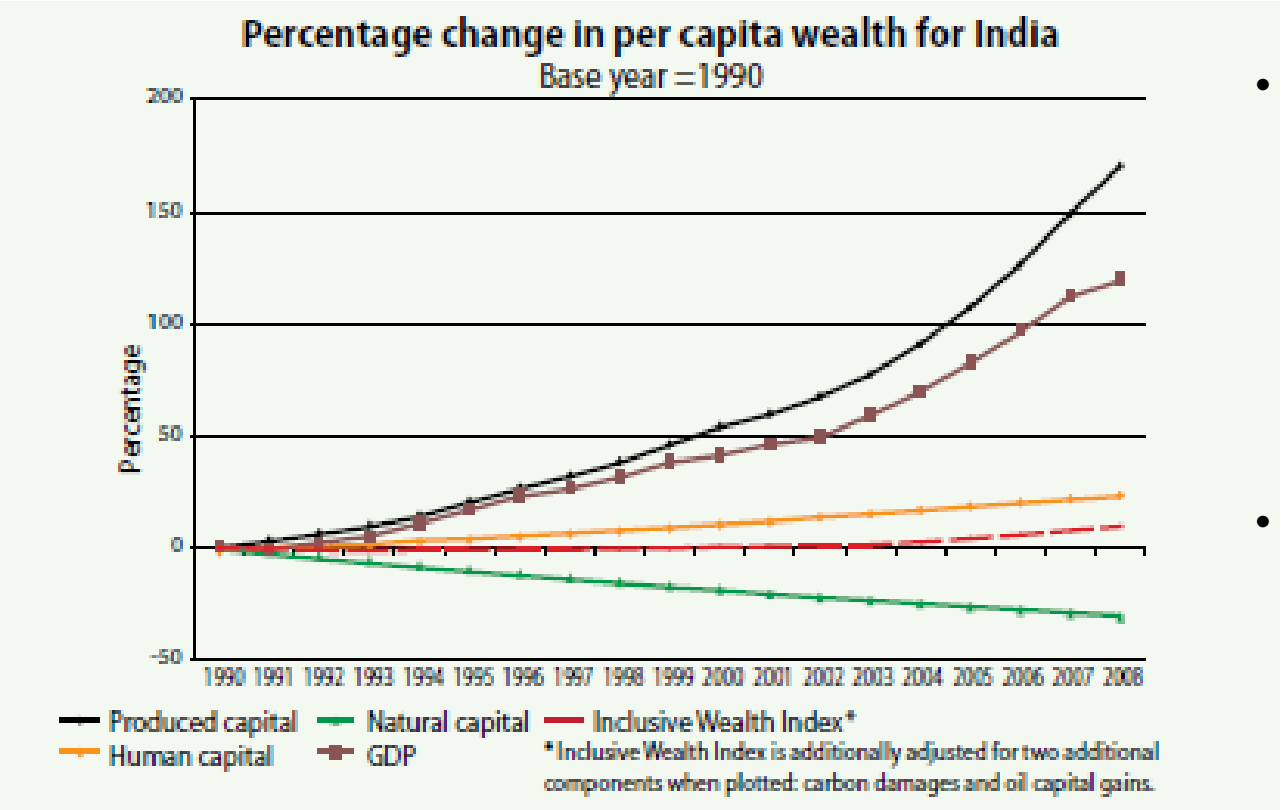
Source: UNEP, 2011, Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.

What can the developing and emerging economies do to decouple waste generation from economic development?

KEY FACTORS

- **Political will/A vision towards zero waste**
- **Awareness/Change in lifestyles**

Economic growth in India 1990-2008 … at the sacrifice of natural capital



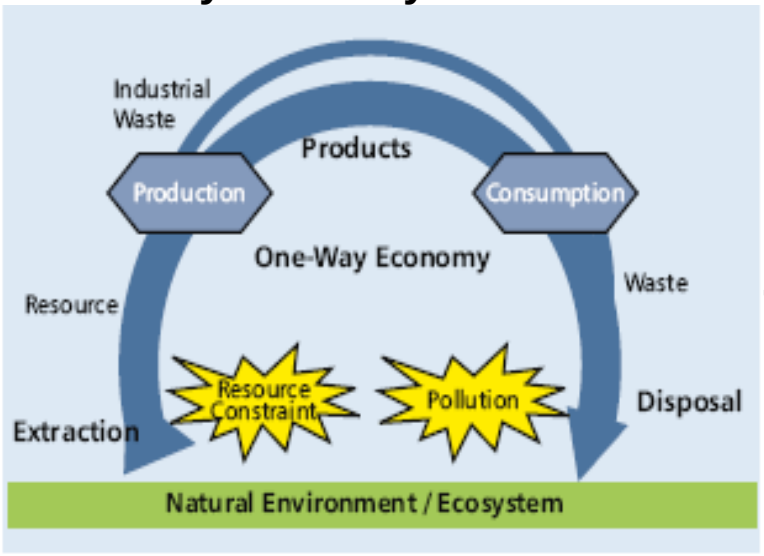
- GDP per capita grew by 120% between 1990 and 2008 in India, while the Inclusive Wealth Index increased by mere 9%.
- Natural capital (i.e., ecological assets) declined by 31% during the same period.

Note: Inclusive wealth consists of three main components: human, manufactured, and natural capital.

Source: http://www.planetunderpressure2012.net/pdf/policy_green_economy.pdf

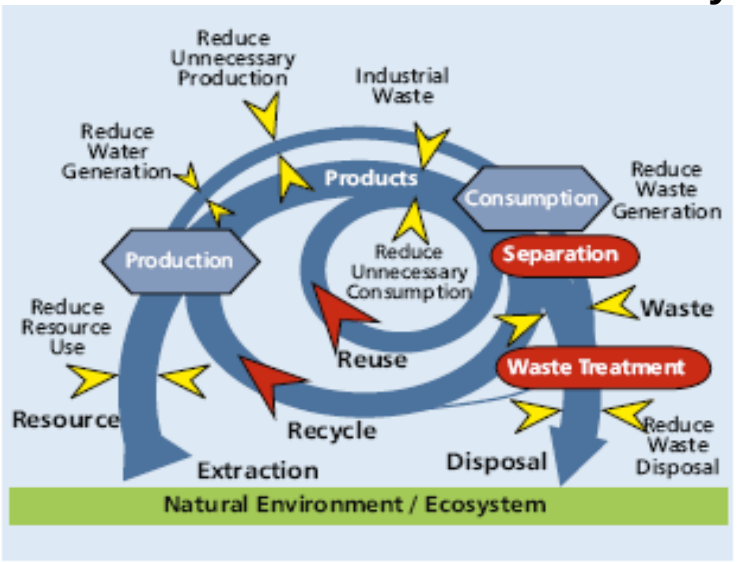
Resource efficiency is not business-as-usual – which development path to follow?

1. One-way Economy?



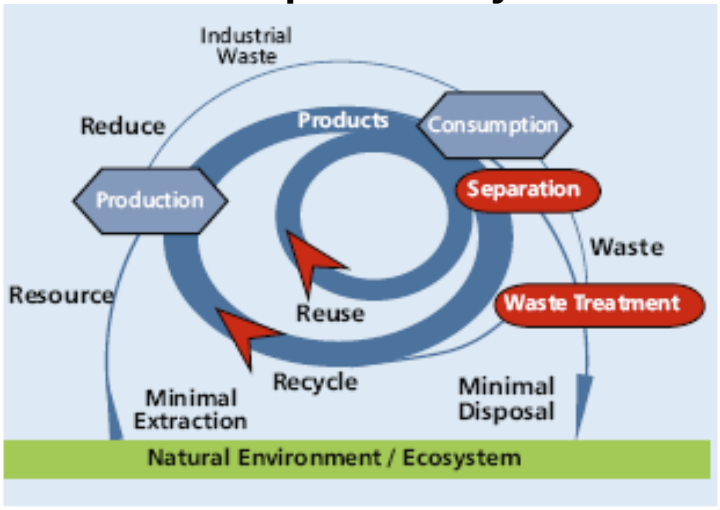
Source: ADB.

2. More resource efficient economy?



Source: ADB.

3. Closed Loop Economy?



Source: ADB.

Resource efficiency => minimize per unit product or services

- Raw material input ⇩
- Water input ⇩
- Energy input ⇩
- Emission, pollution, waste generation ⇩

Rio+20 Outcome – The Future We Want

In the “Future We Want”, the States call for:

- ***Increasing resource efficiency and reduction of waste*** to achieve green economy in the context of sustainable development and poverty eradication to enhance the ability to manage natural resources sustainably and with lower negative environmental impacts
- ***development and implementation of policies for resource efficiency*** and environmentally sound waste management, including commitment to further ***3Rs*** as well as to increase energy recovery from waste with a view to managing the majority of global waste in an environmentally sound manner
- development and enforcement of comprehensive ***national and local waste management policies, strategies, laws and regulations.***
- continued, new and innovative ***public-private partnerships*** among industry, governments, academia and other non-governmental stakeholders aiming to enhance ***capacity and technology*** for environmentally sound chemicals and waste management, including for ***waste prevention***

Rio+20 Outcome – The Future We Want

Sustainable cities and human settlements

(para. 134-137)

Among others, the States ….

- recognize that, if they are well planned and developed, including through **integrated planning and management approaches**, cities can promote economically, socially and environmentally sustainable societies.
- commit to promote sustainable development policies that support a **safe and healthy living environment for all**, safe and clean drinking water and sanitation; healthy air quality; generation of decent jobs; and improved urban planning and slum upgrading.
- support sustainable management of waste through the application of the **3Rs**.
- emphasize the importance of increasing the number of metropolitan regions, cities and towns that are implementing **policies for sustainable urban planning and design** in order to respond effectively to the **expected growth of urban populations in the coming decades**.

Rio+20 Outcome – The Future We Want

Chemicals and waste (para. 213-223)

RIO+20
United Nations Conference
on Sustainable Development

Among others, the States call for:

- ***Sound management of chemicals and waste*** which is crucial for the protection of human heath and the environment.
- ***development and implementation of policies for resource efficiency*** and environmentally sound waste management, including commitment to further ***3Rs*** as well as to increase energy recovery from waste with a view to managing the majority of global waste in an environmentally sound manner
- development and enforcement of comprehensive ***national and local waste management policies, strategies, laws and regulations***.
- continued, new and innovative ***public-private partnerships*** among industry, governments, academia and other non-governmental stakeholders aiming to enhance ***capacity and technology*** for environmentally sound chemicals and waste management, including for ***waste prevention***

Rio+20 Outcome – The Future We Want

Other thematic areas and cross-sectoral issues..

RIO+20
United Nations Conference on Sustainable Development

Ocean and seas/coastal ecosystem:

- commit to protect, and restore, the health, productivity and resilience of oceans and marine ecosystems, and to maintain their biodiversity, enabling their conservation and sustainable use for present and future generations..(para 158)

- commit to take action to reduce the incidence and impacts of various marine pollution such as debris, especially **plastic**, persistent organic pollutants, heavy metals and nitrogen-based compounds, from a number of marine and land-based sources, including shipping and land run-off (para 163).

Sustainable production and consumption:

- recognize that fundamental changes in the way societies consume and produce are indispensable for achieving global sustainable development (para 224).

Regional 3R Forum in Asia and the Pacific

Regional 3R Forum in Asia-Pacific

(a joint initiative of UNCRD and MoE-Japan)

Goal: To achieve low carbon and sound material cycle societies in Asia through facilitating bilateral and multilateral cooperation for increasing resource and energy efficiency through the 3Rs, and for promoting environmentally sound management of wastes in the region; to set in motion a regional mechanism to address 3R issues, needs and priorities in Asian countries, including emerging issues of concern in waste management (Tokyo 3R Statement, 2009).

(Photo: 5th Regional 3R Forum in Asia and the Pacific, Surabaya, Indonesia, 25-27 Feb 2014)

Objectives:

(a) facilitate **high-level policy dialogues** on 3R issues, challenges, & opportunities;

(b) facilitate **improved dialogue and cooperation with international organizations and donor communities** for materializing and implementation of 3R projects at local and national level identified through national 3R strategies;

(c) provide a **strategic and knowledge platform** for sharing experiences and disseminating among Asian countries best practices, tools, technologies, policy instruments on various aspects of the 3Rs;

(d) provide a platform to develop **multilayered networks of and partnerships among stakeholders** such as governments, academia, scientific and research community, private sector, and NGOs;

(e) generate international consensus and understanding on the beneficial aspects of the 3Rs in the context of achieving **MDGs, resource and energy efficiency, resource efficient economy, and climate change mitigation**; and to

(f) provide a platform for **proliferation of national 3R strategies** in developing countries.

3Rs in the context of ***Green Economy***

3Rs in a broader context *- not just about municipal waste management, but is intrinsically linked with* ***resource efficiency*** *in a wide range of sectors with an objective to reduce or eliminate the waste load for final disposal towards transitioning to a resource efficient and green economy*

Multilayer Partnerships and Coalition as the Basis for 3R's Promotion

3Rs in the context of ***Rio+20 outcome – The Future WeWant***

Pacific countries join 3R Forum

1st Regional 3R Forum in Asia — Japan/2009

2nd Regional 3R Forum in Asia — Malaysia/2010

3rd Regional 3R Forum in Asia — Singapore/2011

4th Regional 3R Forum in Asia — Viet Nam/2012

5th Regional 3R Forum in Asia-Pacific — Indonesia/2014

Tokyo 3R Statement

Singapore Recommendation

Surabaya 3R Declaration

Ha Noi 3R Declaration (2013-2033)

33 Goals for Urban/Industrial areas, Rural areas/Biomass, New and Emerging Wastes, Cross-cutting issues

2nd East Asia Summit - Environment Ministers Meeting (EAS EMM), Brunei, 2010 → Endorsed Regional 3R Forum in Asia

RIO+20 United Nations Conference on Sustainable Development

Post-2015 Sustainable Development Agenda

- **3R for Green Economy**
- **3Rs for Sustainable Cities and Human Settelment (Healthy & Safe)**
- **3Rs for Costal & Marine Ecosystem**
- **Needs for Innovative Partnerships**

Ha Noi 3R Declaration
- Sustainable 3R Goals for Asia and the Pacific for 2013-2023

Adopted at the Fourth Regional 3R Forum in Asia, 18 -20 March 2013, Ha Noi, Viet Nam

- aims to provide an important basis and framework for Asia-Pacific countries to voluntarily develop and implement 3R policies and programs, including monitoring mechanisms, towards transitioning to a resource efficient and zero waste society.

Consisting of 33 goals under the following areas:

I. Sustainable 3R Goals (3RGs) for Asia and the Pacific for 2013-2023

II. 3R Goals in Rural Areas

III. 3R Goals for New and Emerging Wastes

IV. 3R Goals for Cross-cutting Issues

Key messages from 4th Regional 3R Forum in Asia-Pacific

Sustainable resource use will be instrumental for Asia to ensure socio-economic development in a world in which resources are more constrained and the absorptive capacity of ecosystems is decreasing rapidly

- **The region is faced with a number of critical challenges when it comes to integration of resource efficiency in overall policy, planning, and development.**

- **Many countries have become net importers of raw materials (fossil fuel, metals, timber, and other natural resources), the rapidly increasing volume, changing characteristics of urban and industrial waste, rising population, increasing consumption and per capita waste generation have posed serious challenges for the sustainability of the region.**

- **Challenge for public policy to achieve a transition to a Green Economy enabled by resource efficiency and systems innovation**

- **Change will not occur spontaneously but will require well designed policies**

- **3Rs, as recognized in CSD-18/19 and Rio+20, are powerful tools to enable resource efficiency in regional development**

- **3Rs and resource efficiency measures provide employment and green job opportunities**

Key Messages and Recommendations of 5th Regional 3R Forum in Asia-Pacific, 25-27 Feb 2014

⇒**Wastes and emissions are intrinsically linked with overall resource use; natural resources and ecological assets are being used at increasing rate enabling economic growth and fuelling unprecedented grow of cities;**

⇒**The goal of improving resource efficiency and reducing the waste and emission intensity for Asia-Pacific economies has become a significant driver of government policies and programs;**

⇒**establishing new forms of cooperation and partnerships between govt, business, community will underpin successful implementation of 3Rs.**

⇒**3R needs to be linked to other policy domain such as climate mitigation and adaptation, energy and water security, urban air pollution, and supply security of critical natural resources;**

⇒**One of the critical challenge is city level policy that mostly focus on end-of-pipe solutions rather than waste prevention and minimization;**

⇒**Eco-parks and eco-towns need to encompass a range of eco-initiatives including biodiversity and resource efficiency and promote it across the region;**

⇒**Triangular cooperation (Govt-Scientific-Private) is key to develop viable and effective business models in 3Rs and waste management;**

⇒**Through the adoption of the *Surabaya 3R Declaration*, Asia-Pacific countries recognized the role of multilayer partnerships and cooperation for advancement and implementation of 3Rs in the region;**

⇒**Establishment of research, innovation and practice (RIP) parks in the region should be established and support Waste to Resource (W2R).**
⇒**Sustainability and resiliency of cities, and thereby the role of 3Rs, are critically important in post 2015 development agenda,**

Surabaya 3R Declaration ~ on Promotion of Multilayer Partnerships and Collaboration for the Expansion of Reduce, Reuse and Recycle (3Rs) in Asia and the Pacific

- **country-country cooperation, with specific emphasis to south-south cooperation, in exchanging valuable experiences and ideas, transferring knowledge and technologies, building 3R infrastructure;**

- **city-city & inter-municipal cooperation in exchanging practical experiences and ideas in realizing sustainable and livable cities with efficient waste management system;**

- **multi-sector partnerships and collaboration, including triangular cooperation (Government-Private-Scientific and Research) for sustainable business models in 3R areas;**

- **industry-industry cooperation for creating local and regional recycling markets;**

- **government-NGO/CSO cooperation to reduce waste management costs and increase municipal cost savings;**

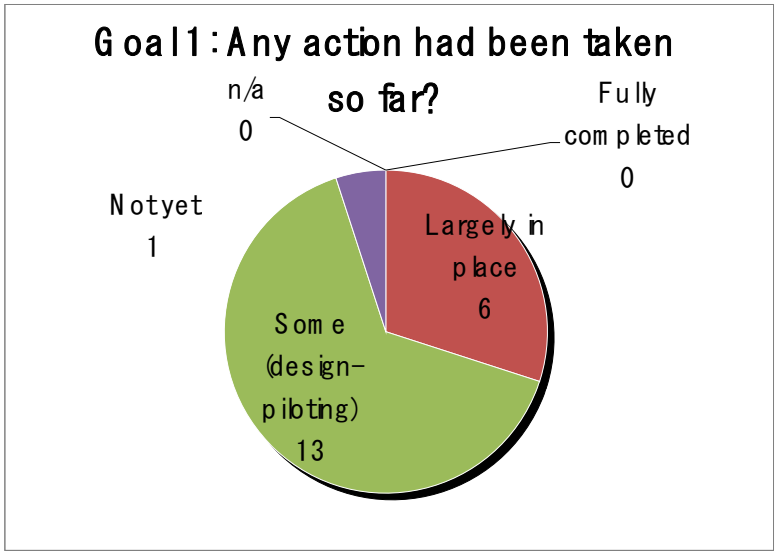
- **a regional cooperative framework among SIDS/PICs to develop self sustaining 3R activities and easily adaptable technologies, including a pool of well-trained 3R practitioners;**

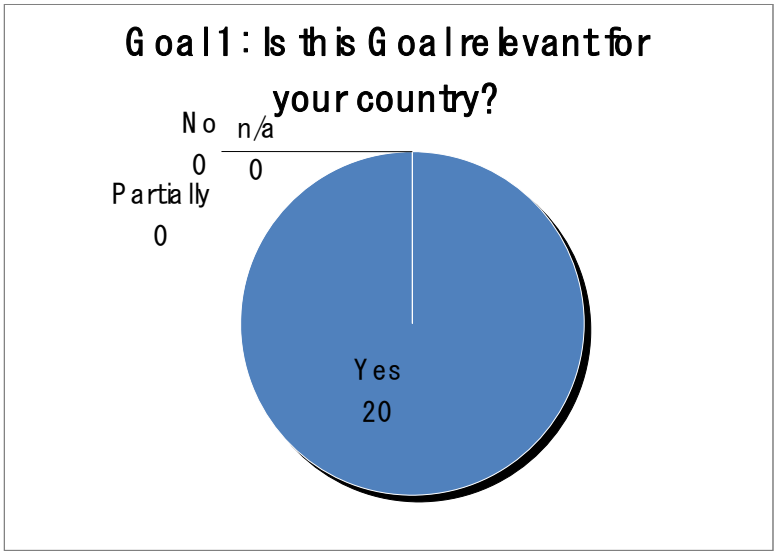
- **a multilayer partnership in the area of disaster waste management in order to provide capacity building for disaster response and strengthen community resilience.**

Conclusion: Pursuing 3R/resource efficiency will help countries..

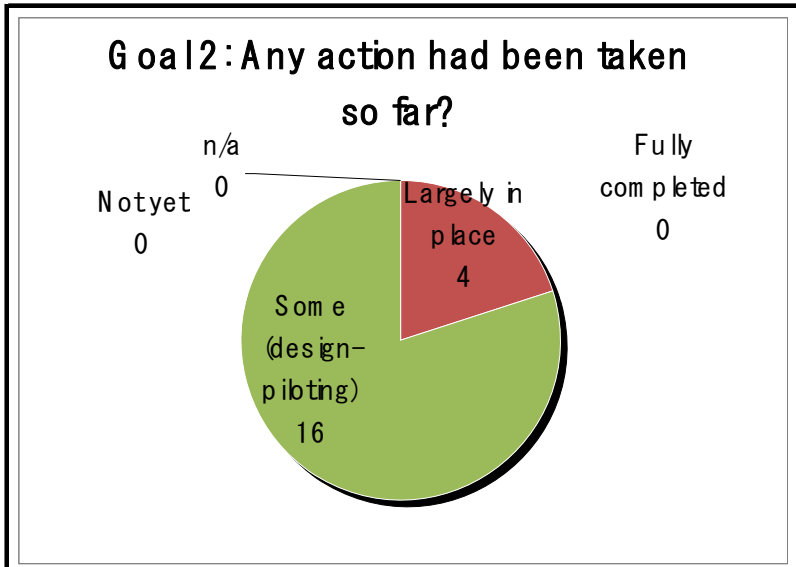
- **Tackling local environmental problems** –> in efficient use of resources lead to environmental burdens;
- **Addressing climate change** –> resource efficiency is key strategy for low carbon path by reducing GHG emissions from energy generation and use, material extraction, processing, transportation, and waste disposal;
- **Ensuring energy security** –> through energy efficiency measures, WtE;
- **Preserving natural capital and avoiding resource conflicts**
- **Improving economic competitiveness of firms and nations** –> better respond to volatility of oil prices, metal prices, etc; improvement of production process brings financial benefits to the producer as well as improvement of product quality;
- **Minimizing disposal costs by minimizing wastes** -> land fills and incinerators are very expensive methods; end-of-pipe disposal is a sunk cost with no financial return;
- **Developing new business opportunities** -> resource recovery, recycling, WtE schemes can create green jobs; biotechnology, nanotechnology, renewable energy;
- **Pursuing social benefits** ->environment industry as potential source of employment and long term natural asset protection; reducing environmental impacts from harmful wastes;

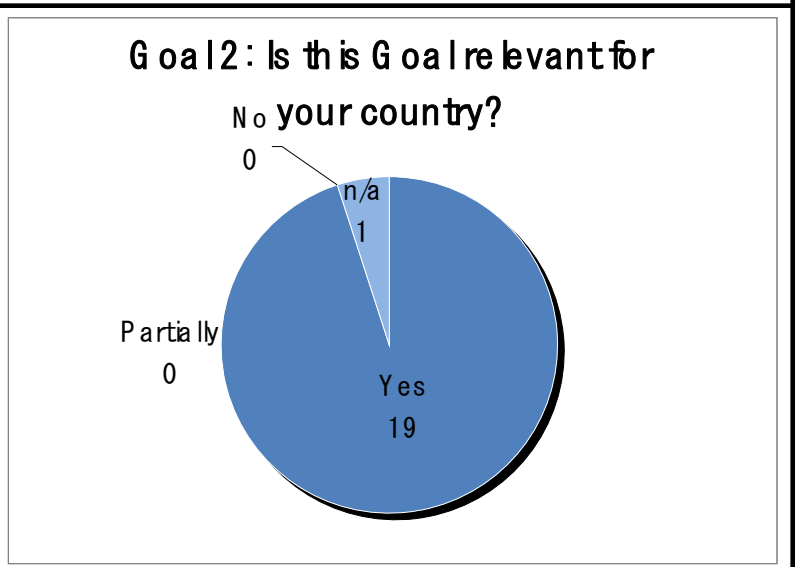
1 Significant **reduction** in the quantity of **municipal solid waste** generated, by instituting policies, programmes, and projects at national and local levels, encouraging both producers and consumers to reduce the waste through greening production, greening lifestyle, and sustainable consumption.



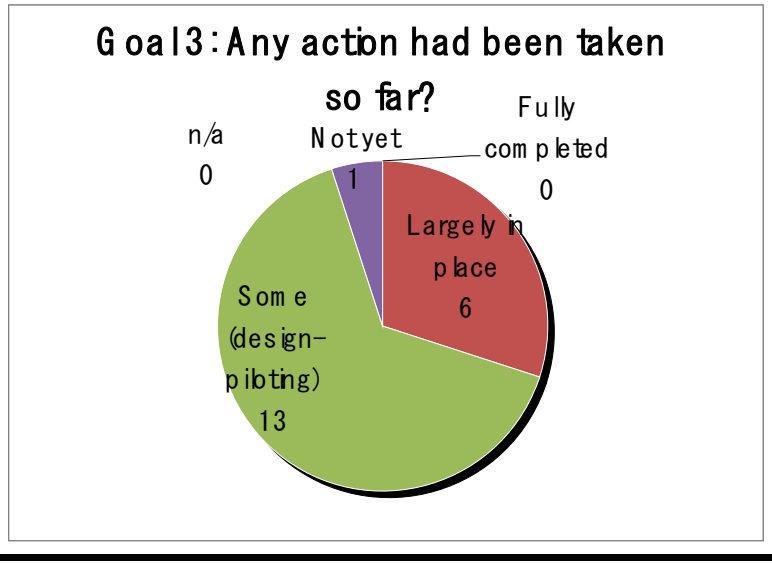


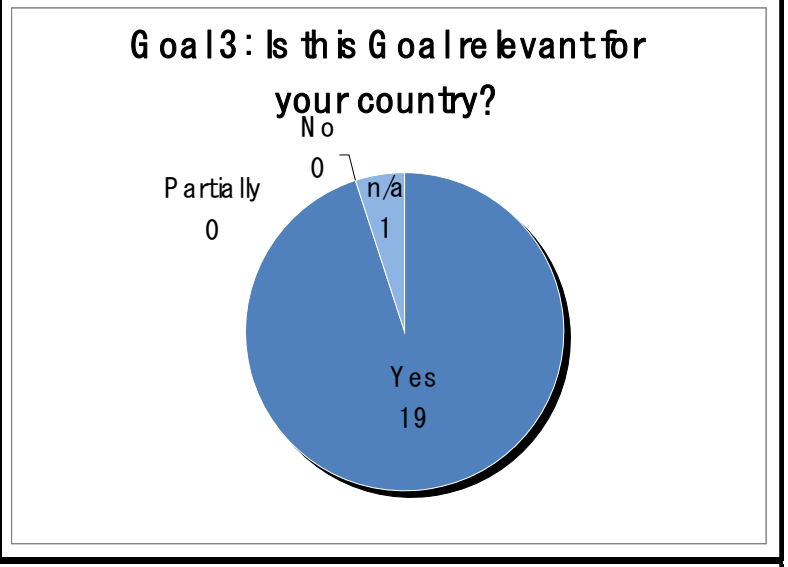
2 Full-scale utilization of the **organic component of municipal waste, including food waste,** as a valuable resource, thereby achieving multiple benefits such as the reduction of waste flows to final disposal sites, reduction of GHG emission, improvement in resource efficiency, energy recovery, and employment creation.



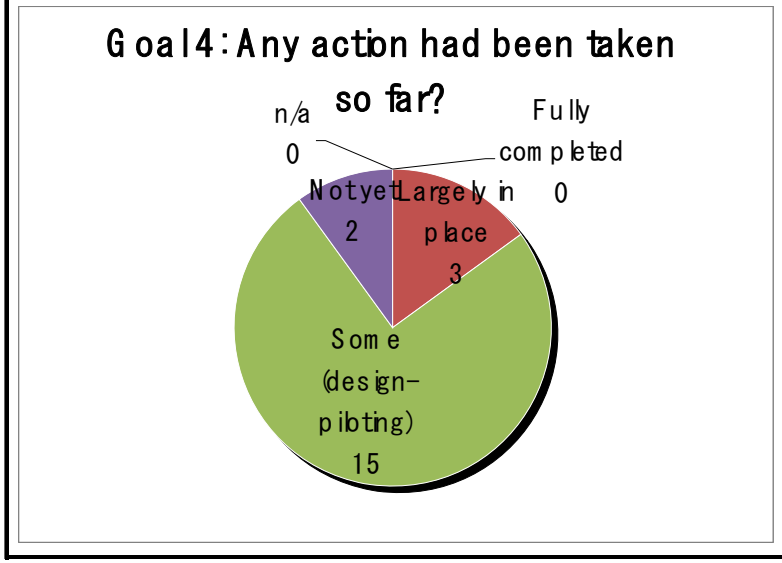


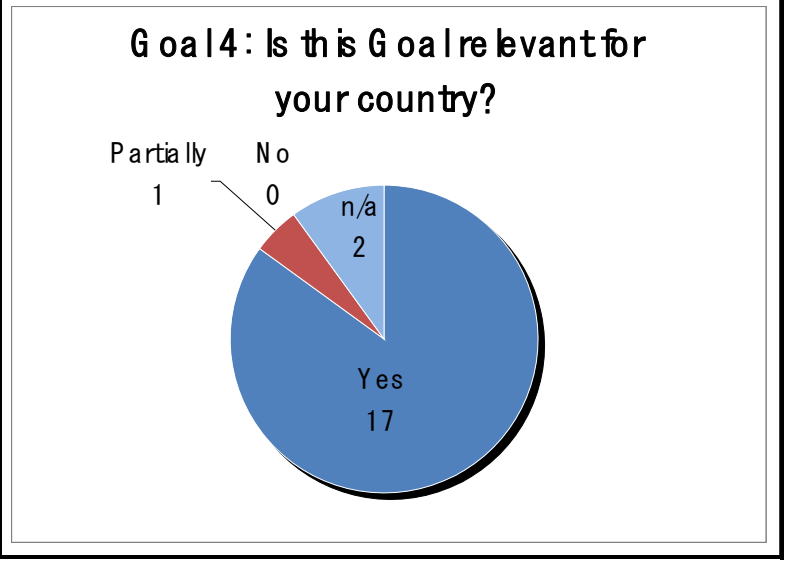
3 Achieve significant **increase in recycling rate** of recyclables (e.g., plastic, paper, metal, etc.), by introducing policies and measures, and by setting up financial mechanisms and institutional frameworks involving relevant stakeholders (e.g., producers, consumers, recycling industry, users of recycled materials, etc.) and development of modern recycling industry.



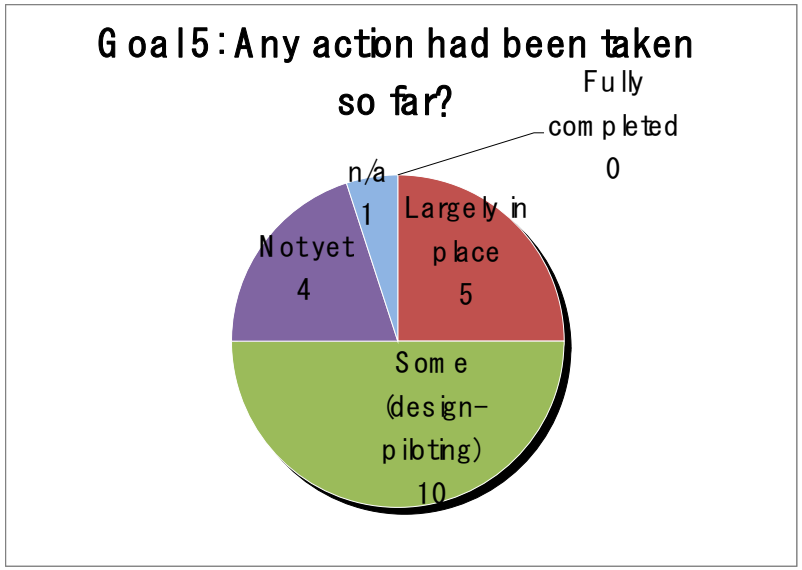


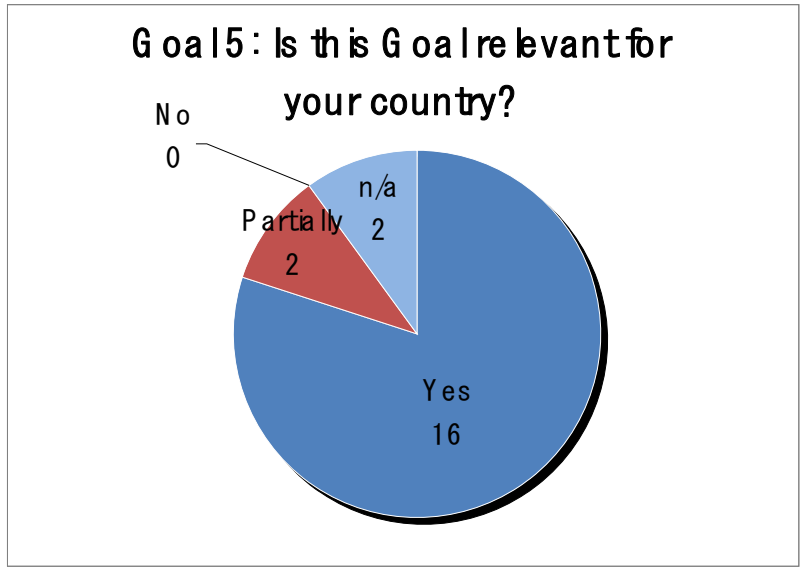
4 Build **sustainable cities /green cities** by encouraging "**zero waste**" through sound policies, strategies, institutional mechanisms, and multi-stakeholder partnerships (giving specific importance to private sector involvement) with a primary goal of **waste minimization**



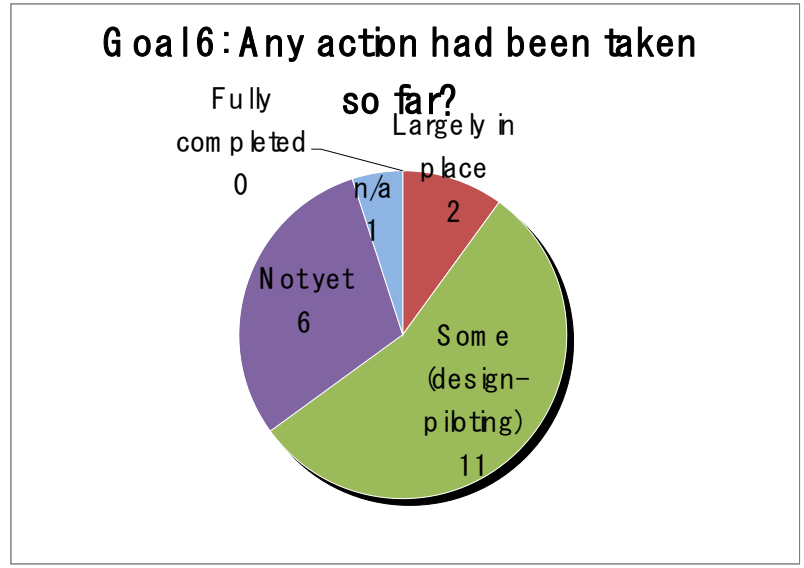


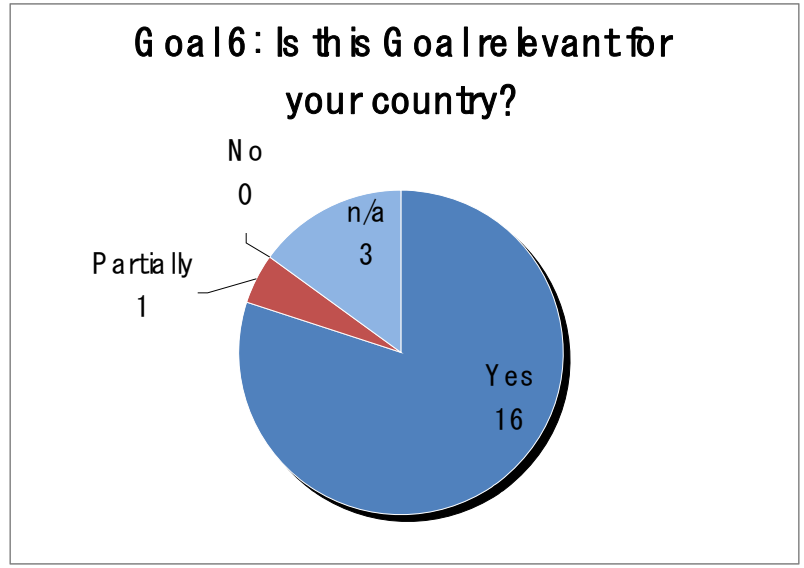
5 Encourage the **private sector,** including small- and medium-sized enterprises (**SMEs**) to implement measures to increase **resource efficiency and productivity,** creation of decent work and to improve environmentally-friendly practices through applying environmental standards, clean technologies, and cleaner production.



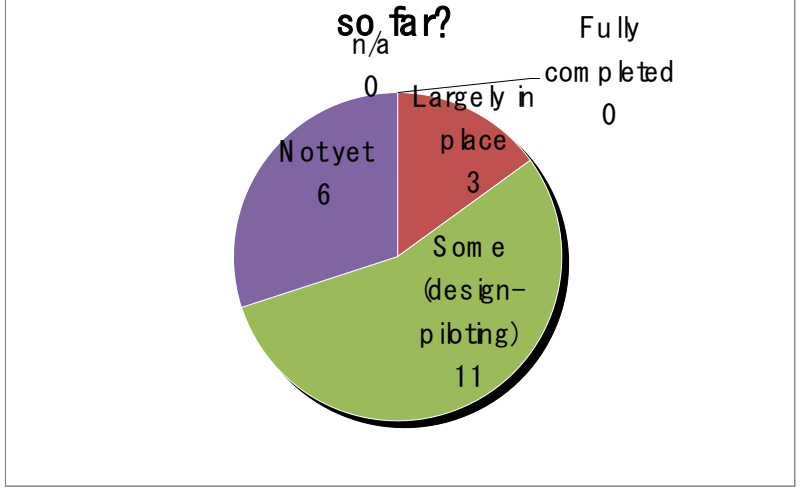


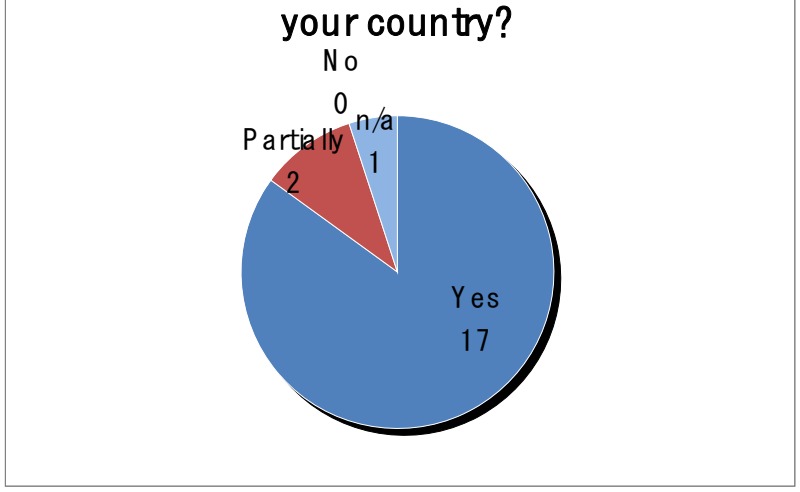
6 Promote the **greening of the value chain** by encouraging industries and associated suppliers and vendors in socially responsible and inclusive ways.



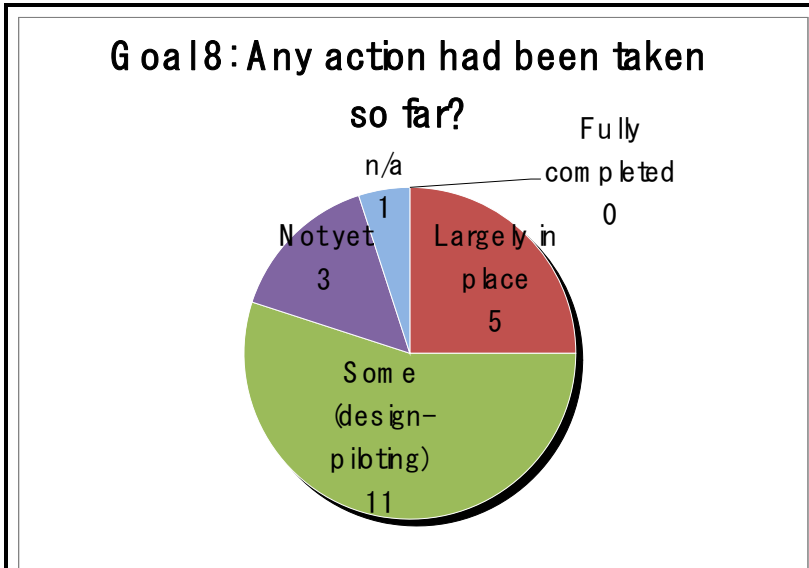


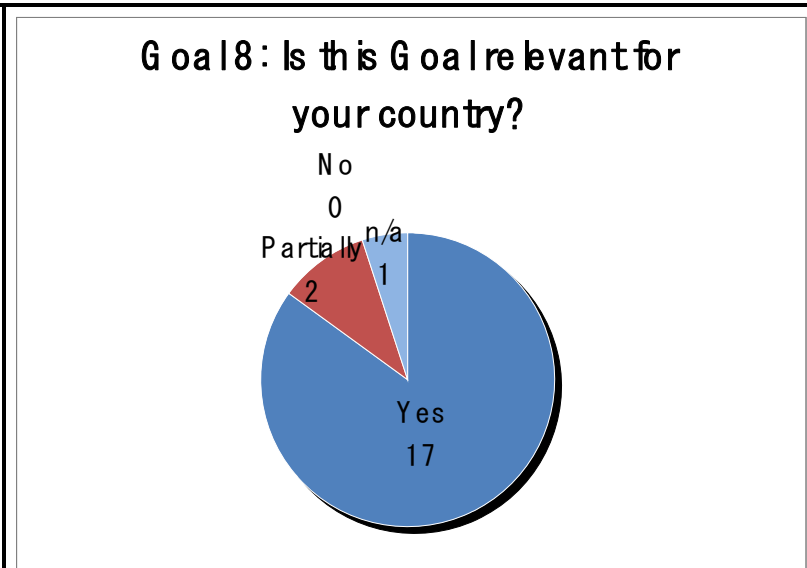
7 Promote **industrial symbiosis** (i.e., recycling of waste from one industry as a resource for another), by providing relevant incentives and support.



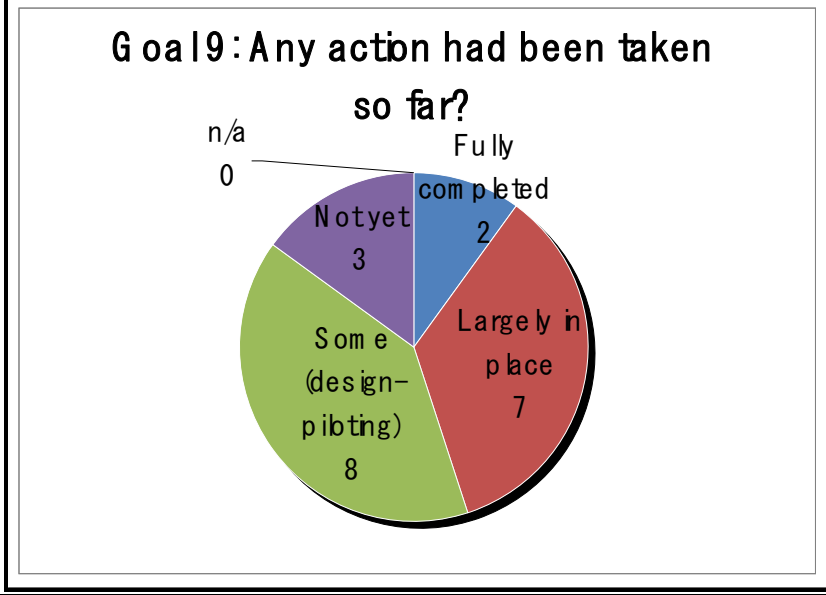


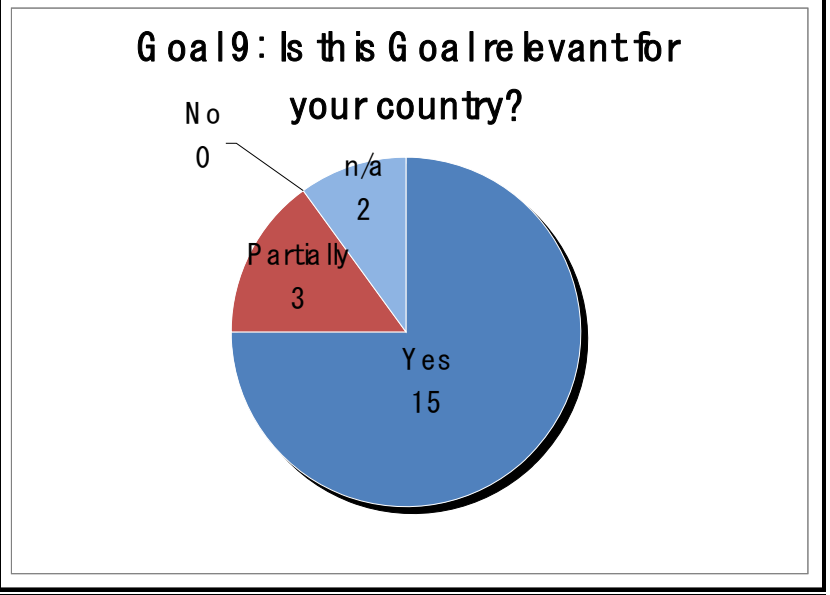
8 Build **local capacity** of both current and future practitioners, to enable the private sector (including SMEs) to obtain the necessary knowledge and technical skills to foster green industry and create decent, productive work.



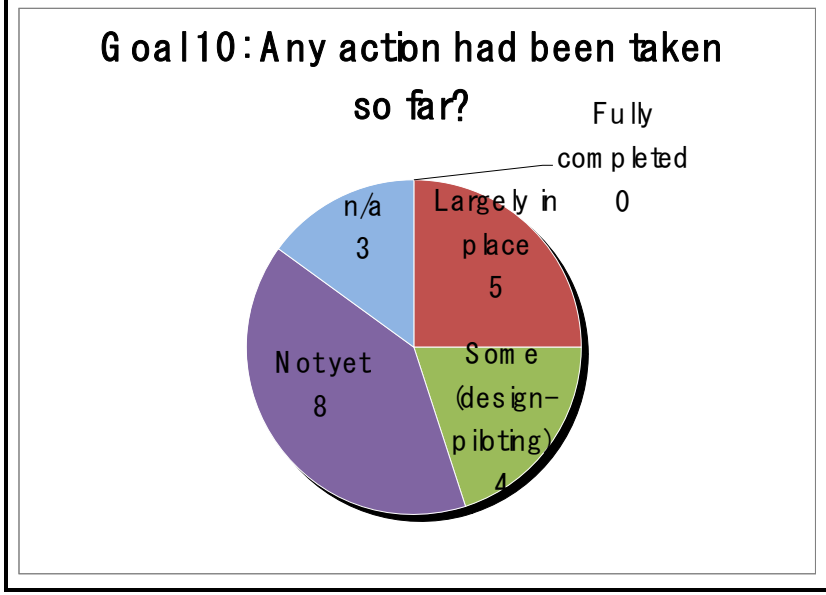


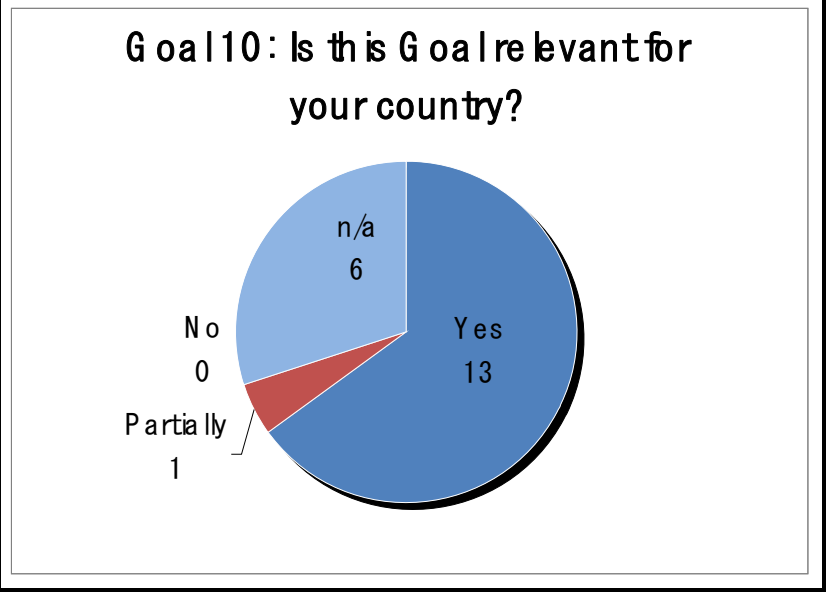
9 Develop proper **classification and inventory of hazardous waste** as a prerequisite towards sound management of such waste.



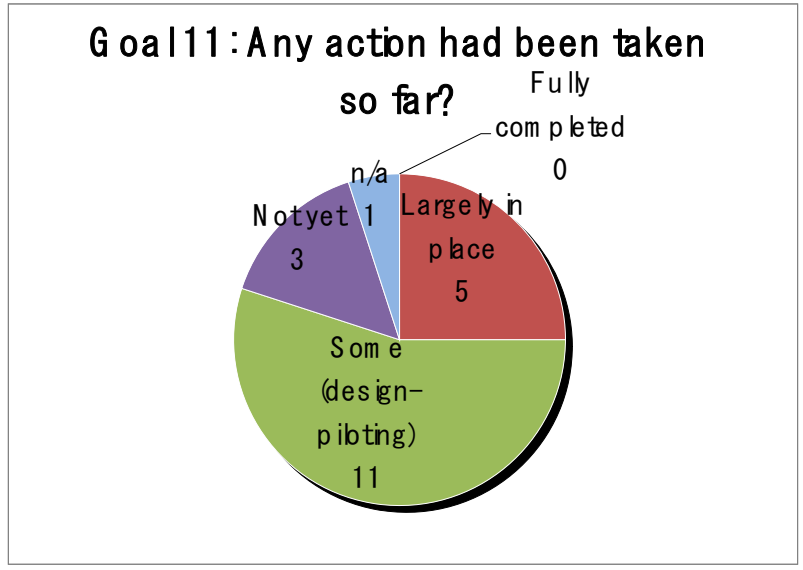


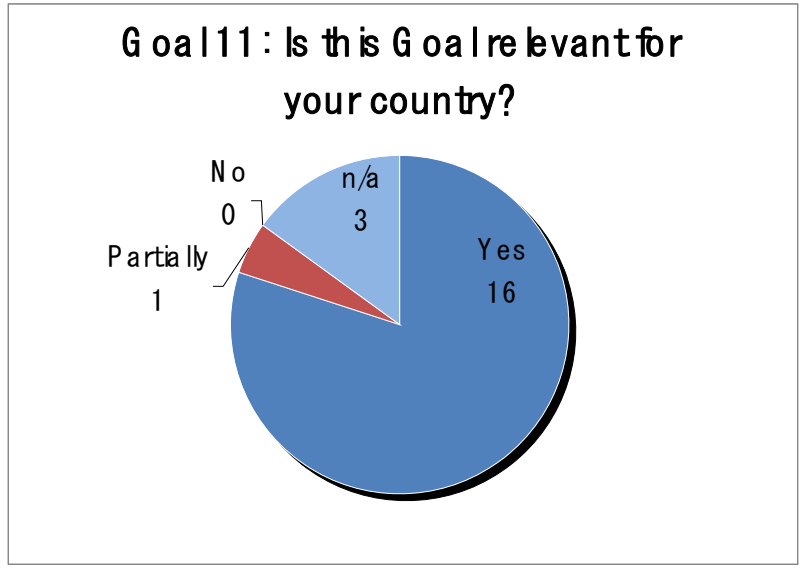
10 **Reduce losses in the overall food supply chain** (production, post harvesting and storage, processing and packaging, distribution), leading to reduction of waste while increasing the quantity and improving the quality of products reaching consumers.



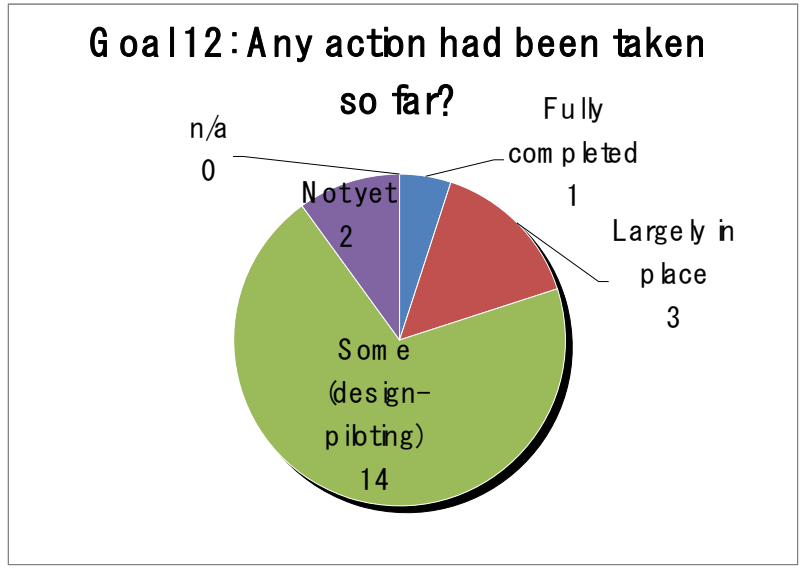


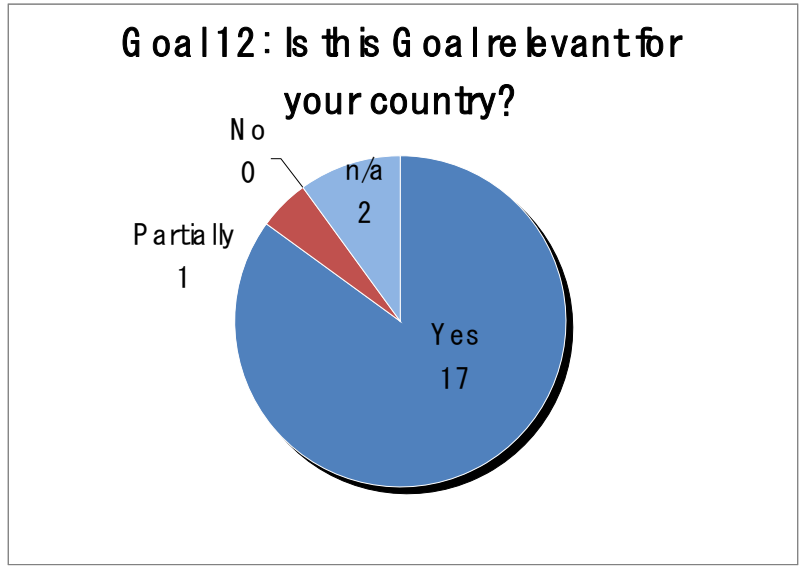
11 Promote full scale **use of agricultural biomass waste and livestock waste** through reuse and/or recycle measures as appropriate, to achieve a number of co-benefits including GHG emission reduction, energy security, sustainable livelihoods in rural areas and poverty reduction, among others.



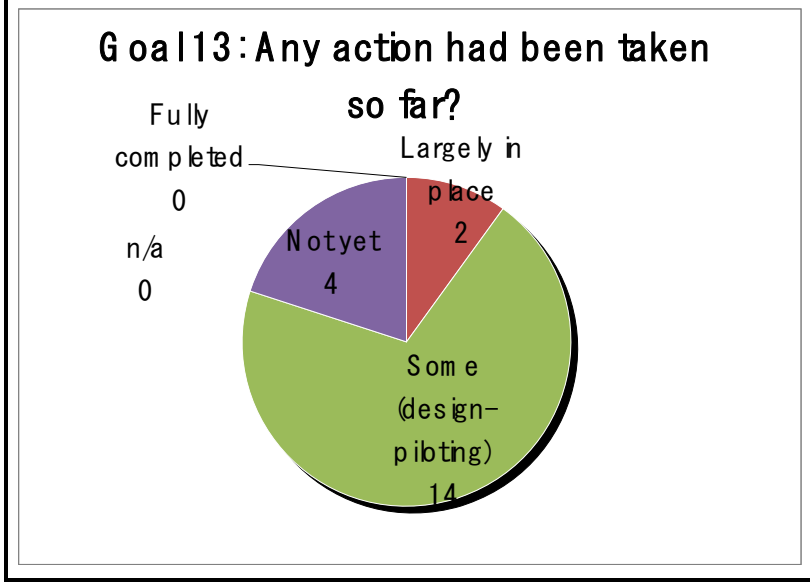


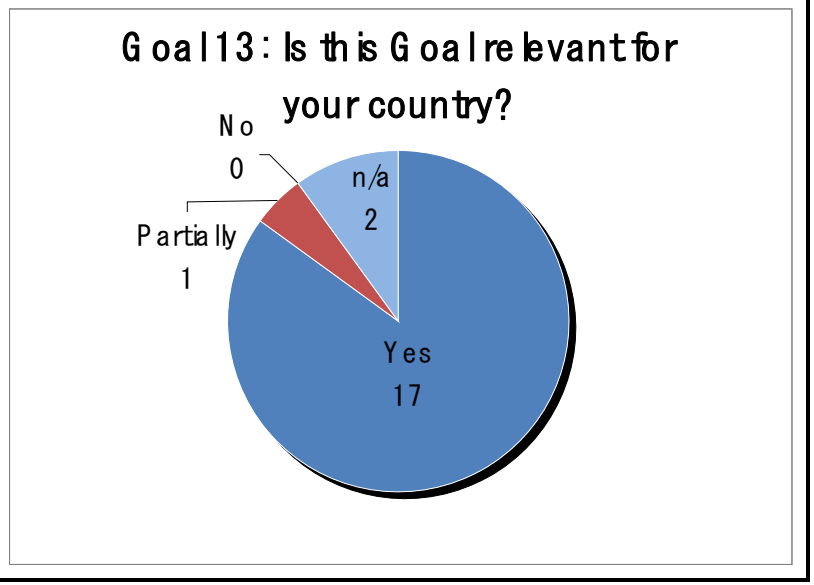
12 Strengthen regional, national, and local efforts to address the issue of **waste, in particular plastics** in the marine and coastal environment.



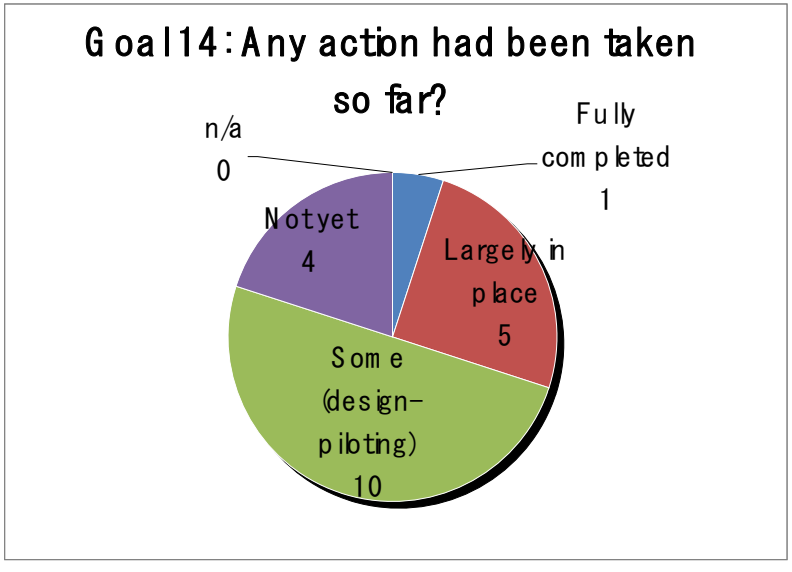


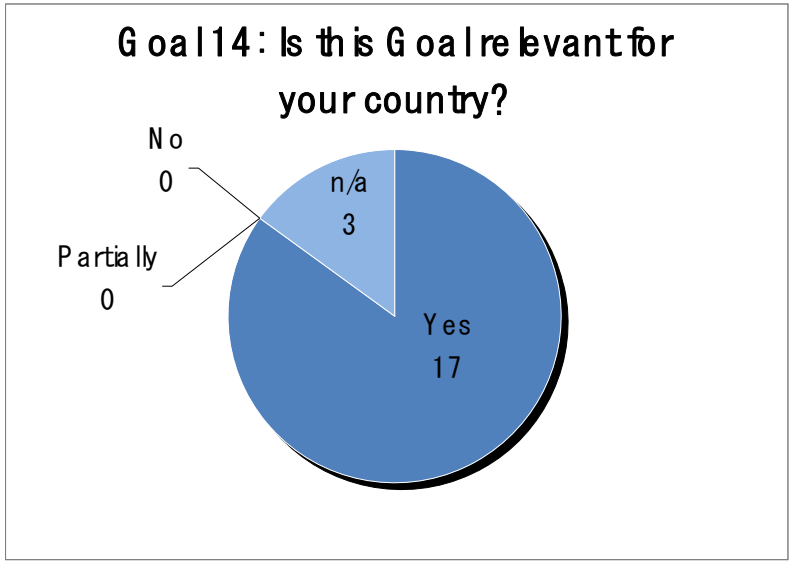
13 Ensure **environmentally-sound management of e-waste** at all stages, including collection, storage, transportation, recovery, recycling, treatment, and disposal with appropriate consideration for working conditions, including **health and safety aspects** of those involved.



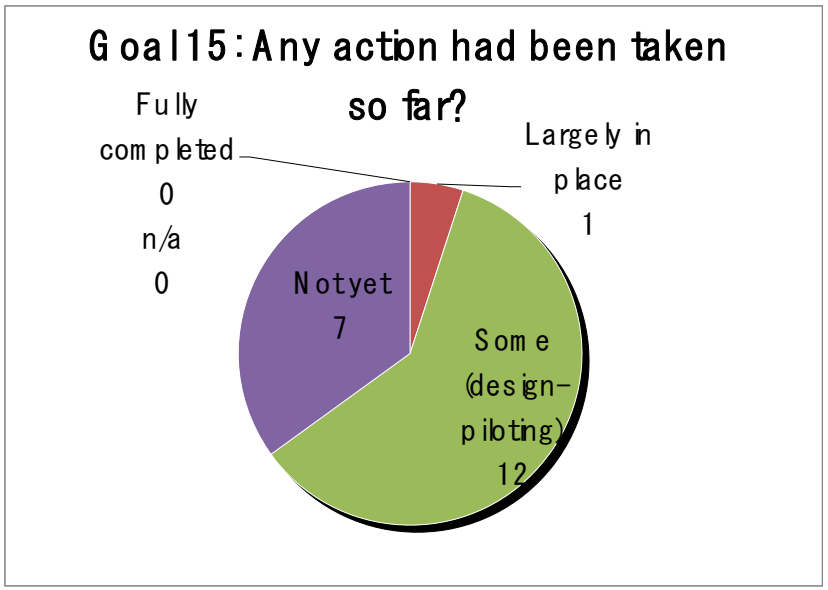


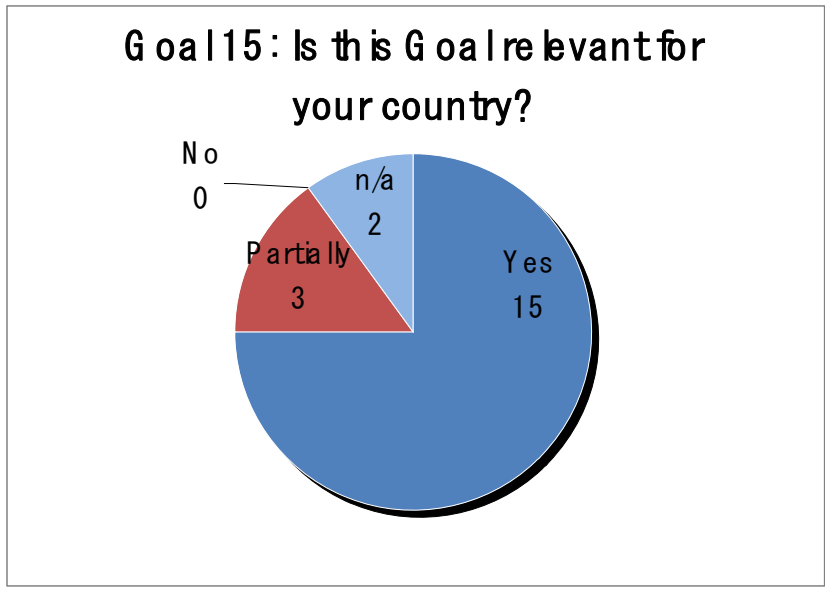
14 Effective enforcement of established mechanisms for preventing illegal and inappropriate export and import of waste, including transit trade, especially of hazardous waste and e-waste.



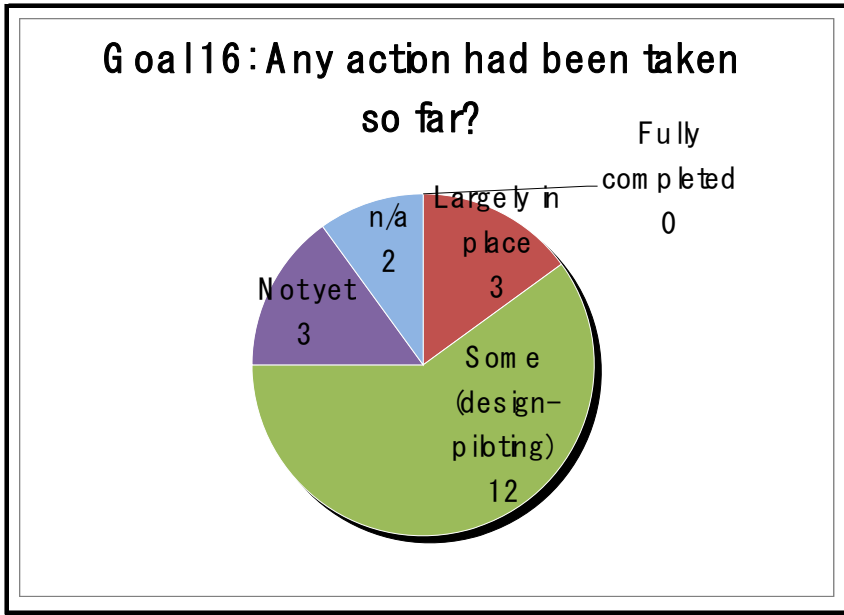


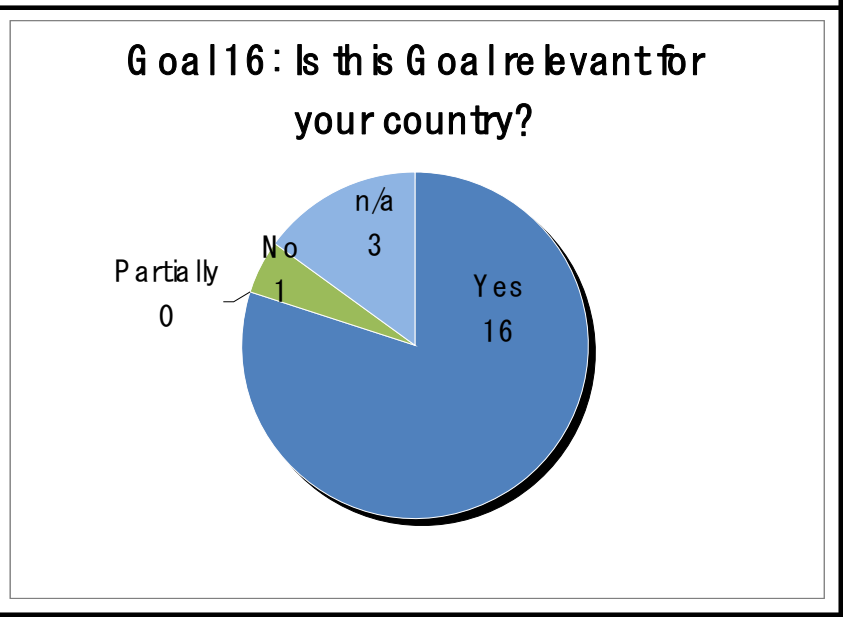
15 Progressive implementation of **"extended producer responsibility (EPR)"** by encouraging producers, importers, and retailers and other relevant stakeholders to fulfill their responsibilities for collecting, recycling, and disposal of new and emerging waste streams, in particular e-waste.



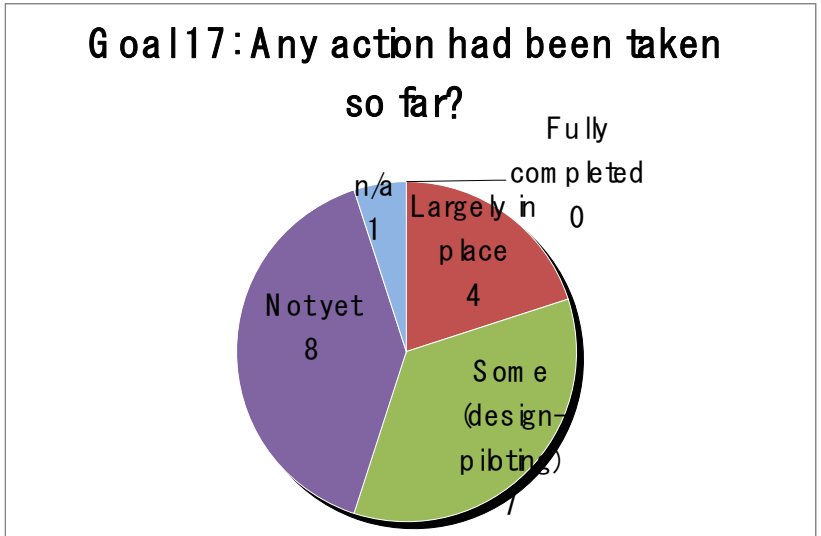


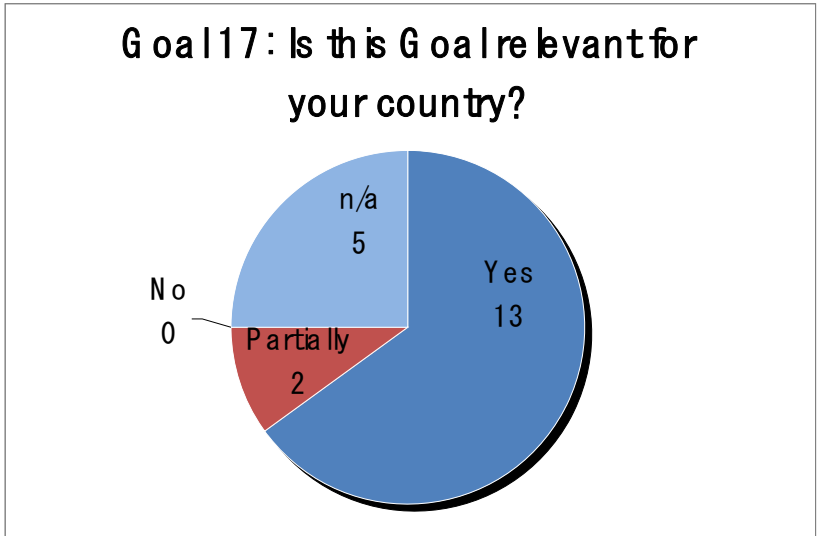
16 **Promote the 3R concept** in health-care waste management.



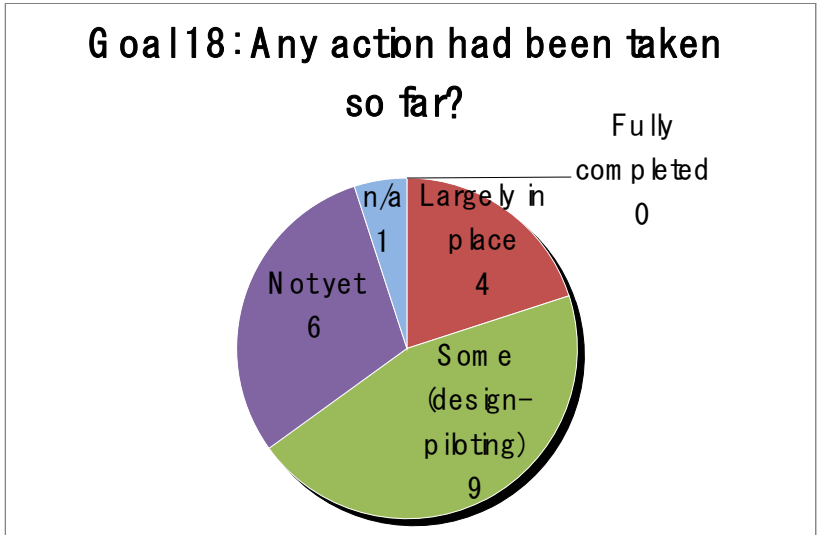


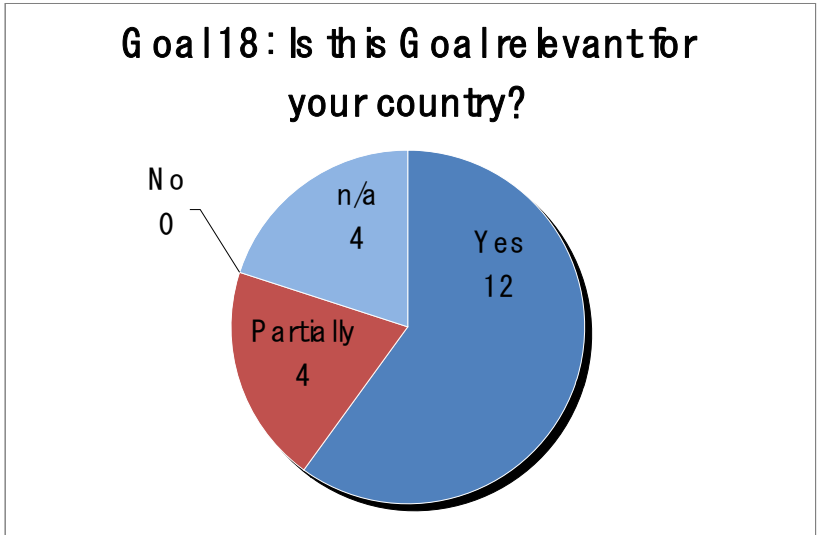
17 Improve **resource efficiency and resource productivity** by greeting jobs nation-wide in all economic and development sectors



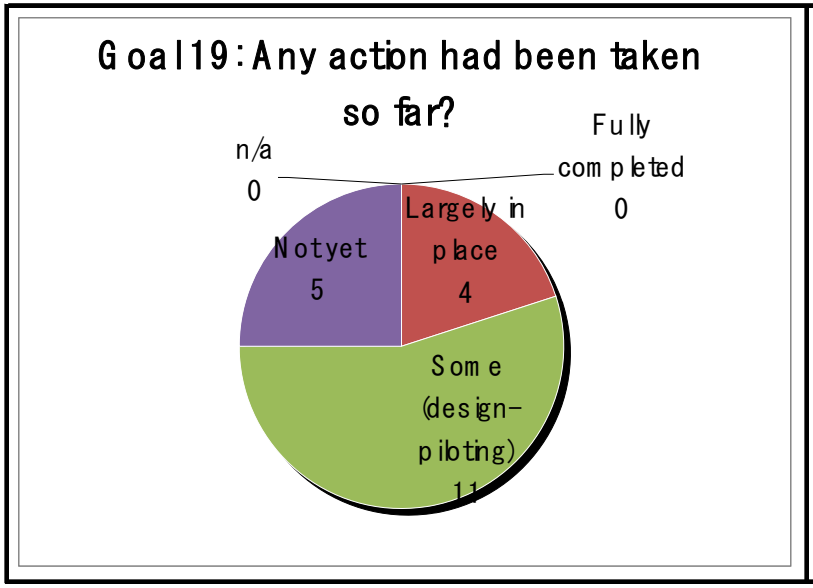


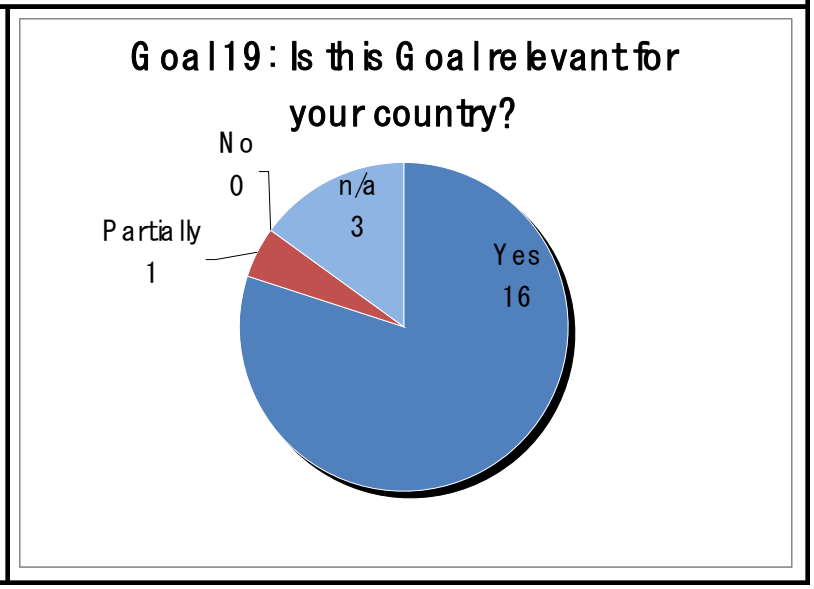
18 Maximize co-benefits from waste management technologies for local air, water, oceans, and soil pollution and global climate change.



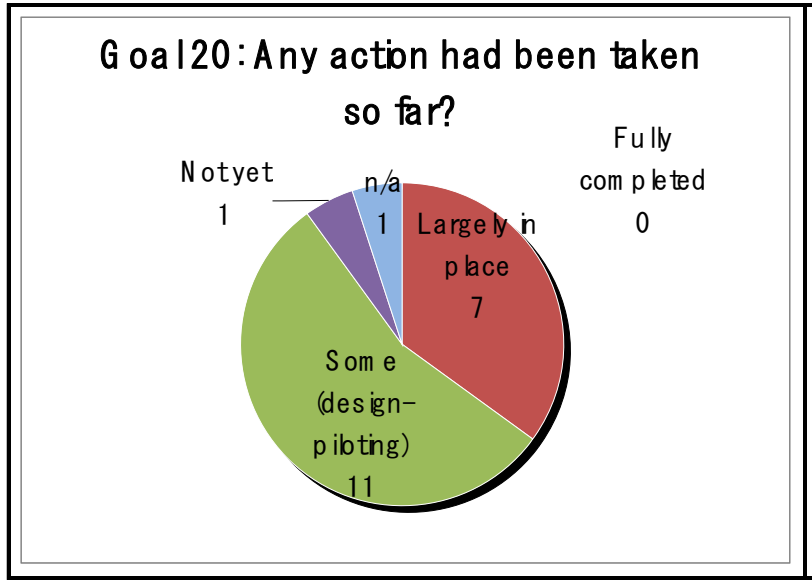


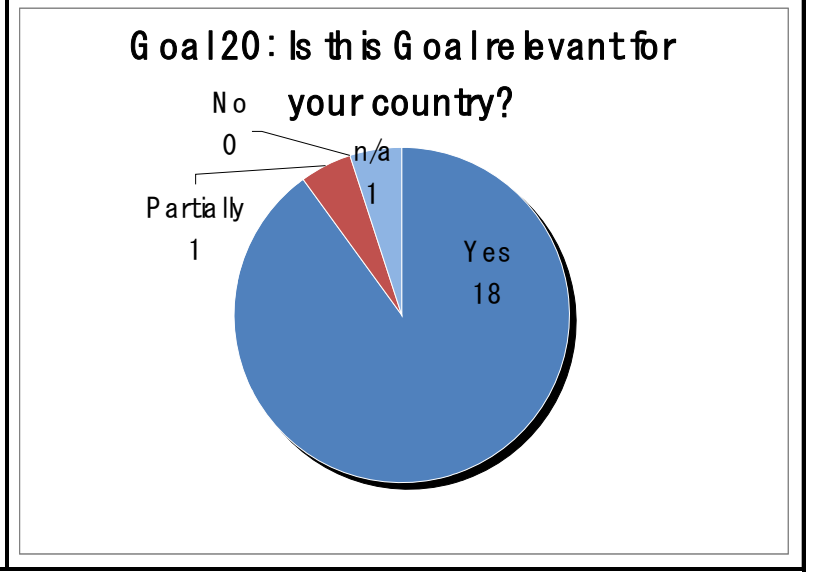
19 Enhance **national and local knowledge base and research network on the 3Rs and resource efficiency,** through facilitating effective and dynamic linkages among all stakeholders, including governments, municipalities, the private sector, and scientific communities.



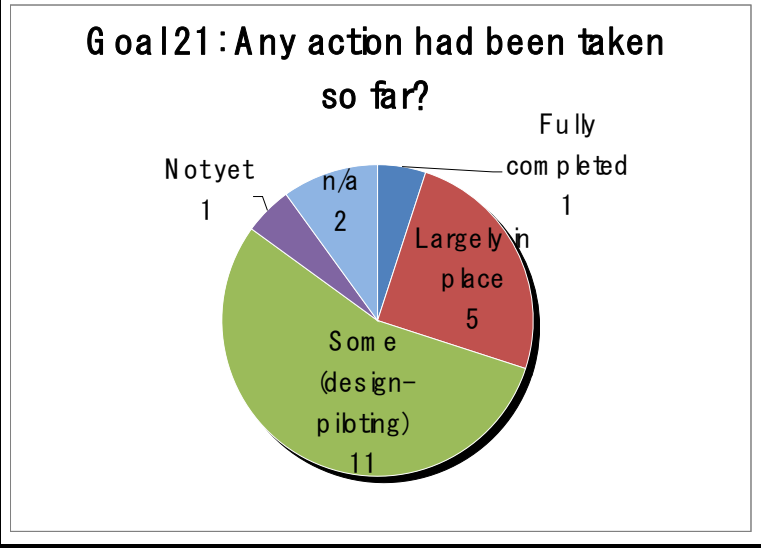


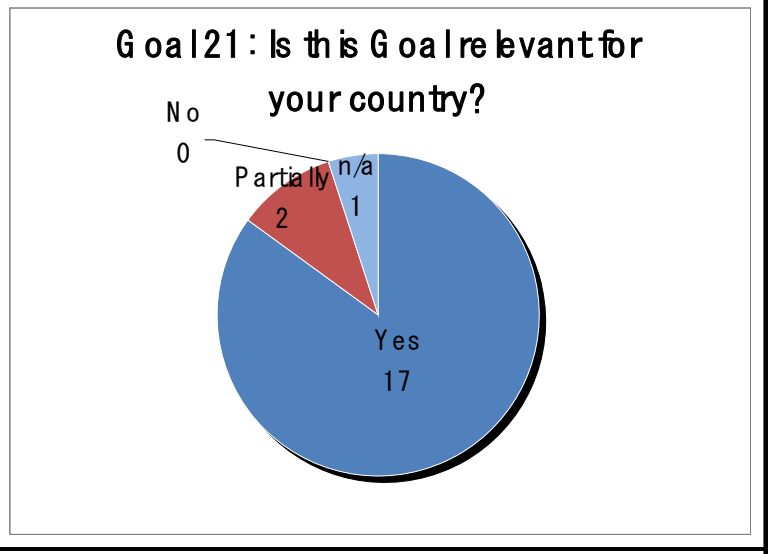
20 Strengthen multi-stakeholder partnerships among governments, civil society, and the private sector in raising public awareness and advancing the 3Rs, sustainable consumption and production, and resource efficiency, leading to the behavioural change of the citizens and change in production patterns.



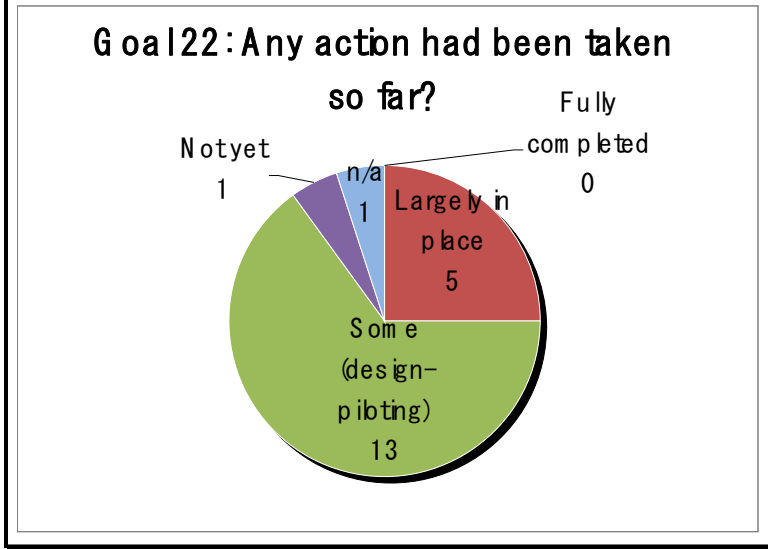


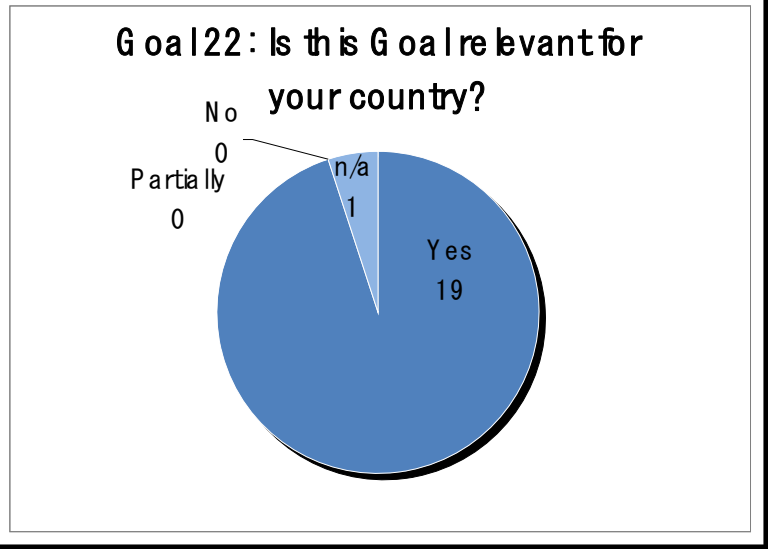
21 **Integrate the 3Rs** in formal education at primary, secondary, and tertiary levels as well as non-formal education such as community learning and development, in accordance with Education for Sustainable Development.



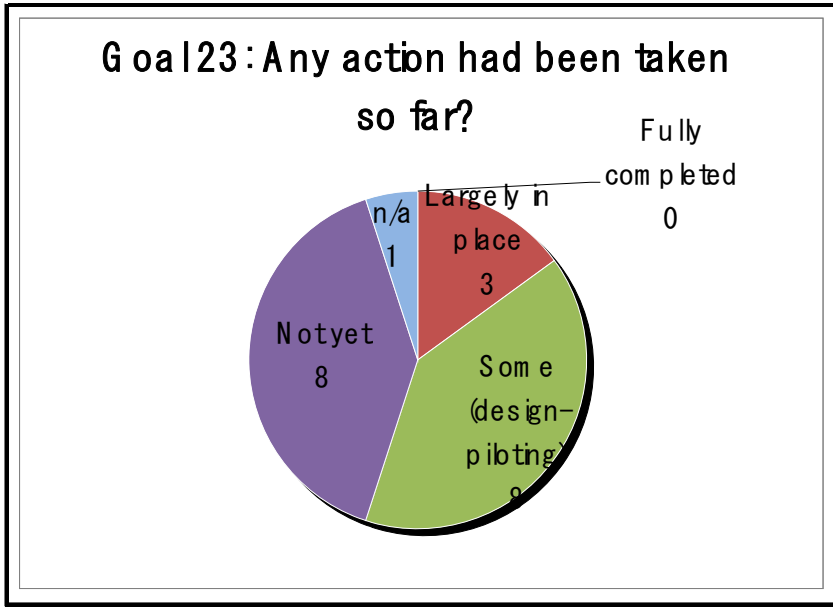


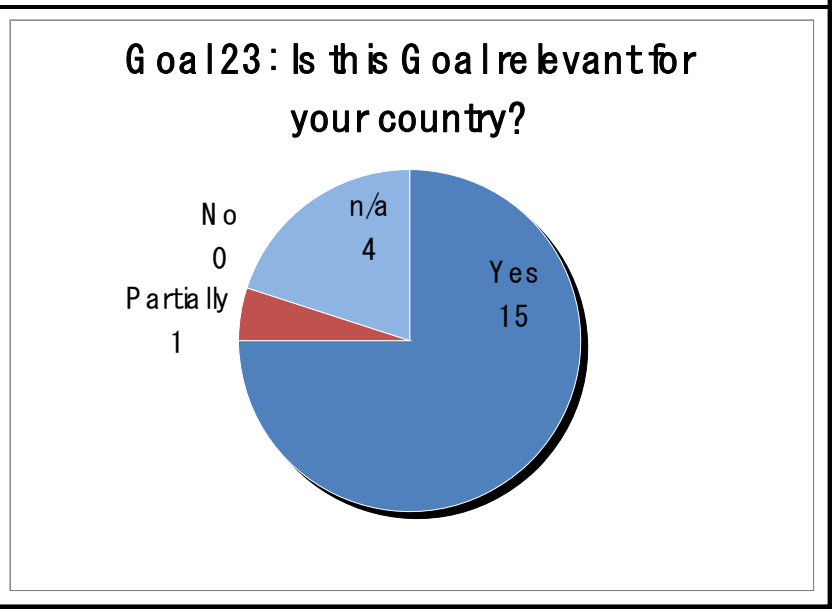
22 **Integrate the 3R concept** in relevant policies and programmes, of key ministries and agencies such as Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries, Ministry of Industry, Ministry of Trade and Commerce, Ministry of Energy, Ministry of Water Resources, Ministry of Transport, Ministry of Health, Ministry of Construction, Ministry of Finance, Ministry of Labour, Ministry of Land and Urban Development, Ministry of Education, and other relevant ministries towards transitioning to a resource-efficient and zero waste society.



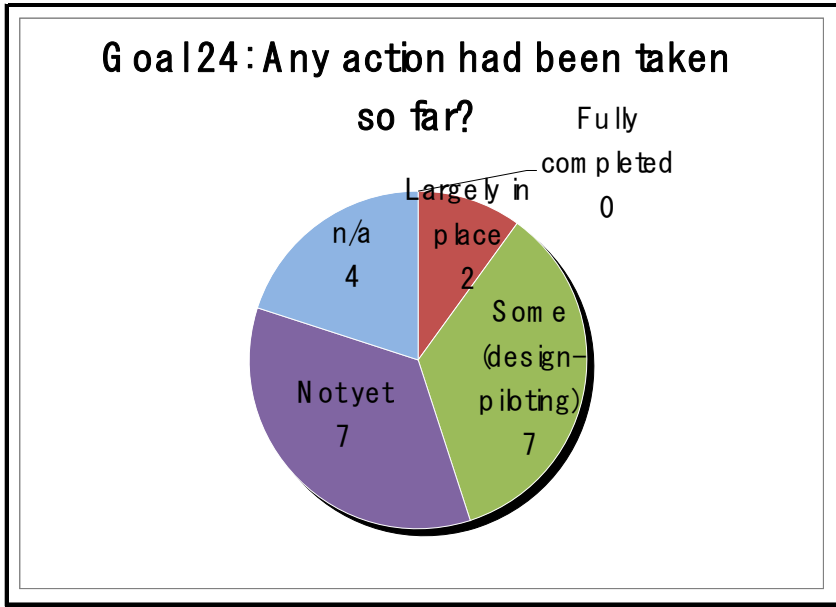


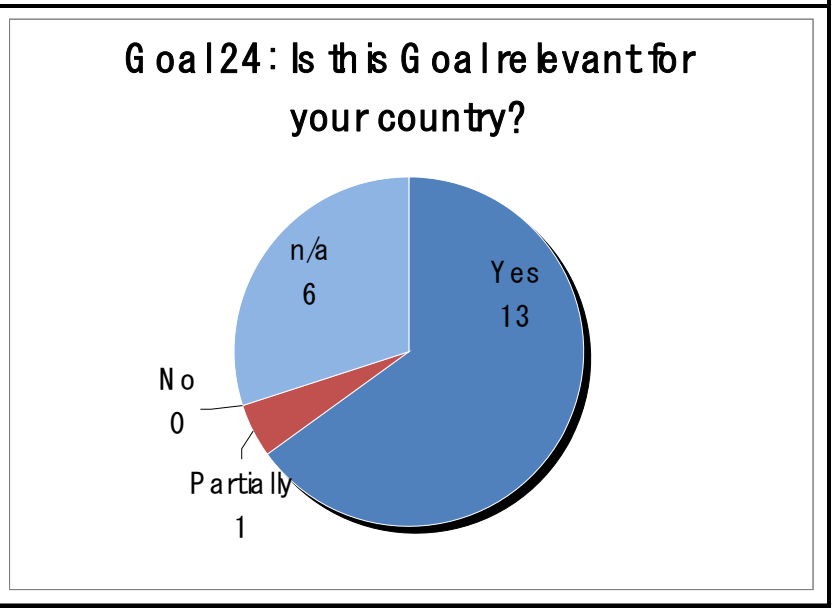
23 Promote **green and socially responsible procurement** at all levels, thereby creating and expanding 3R industries and markets for environmentally-friendly goods and products.



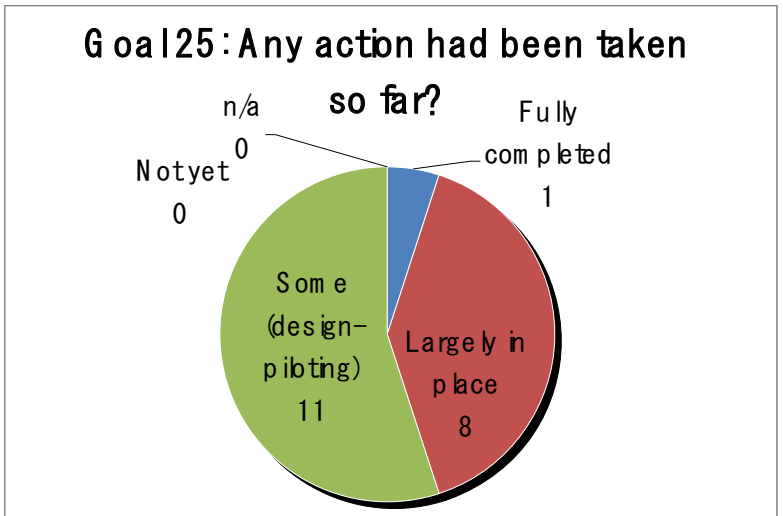


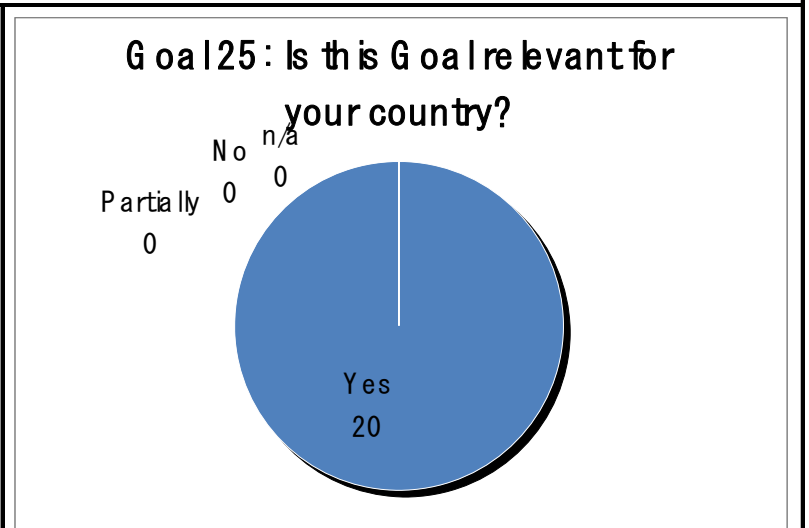
24 **Phase out harmful subsidies that favour unsustainable use of resources (raw materials and water) and energy,** and channel the freed funds in support of implementing the 3Rs and efforts to improve resource/energy efficiency.



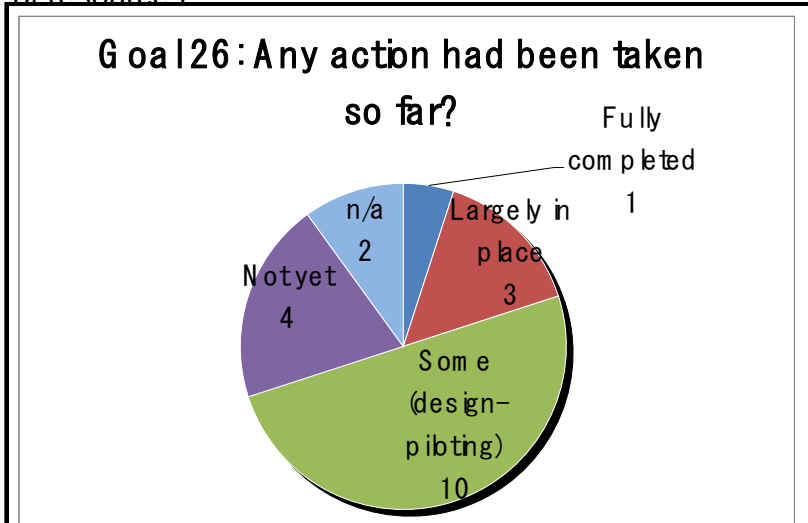


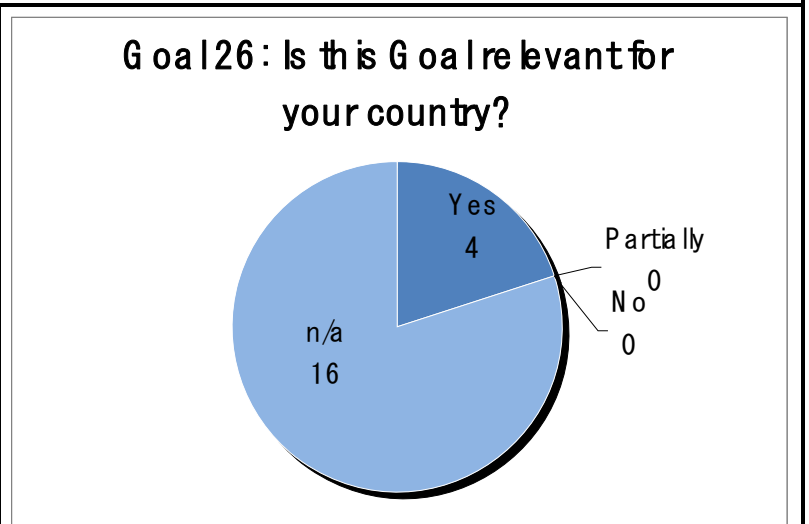
25 **Protect public health and ecosystems, including freshwater and marine resources by eliminating illegal** activities of open dumping, including dumping in the oceans, and controlling open burning in both urban and rural areas.



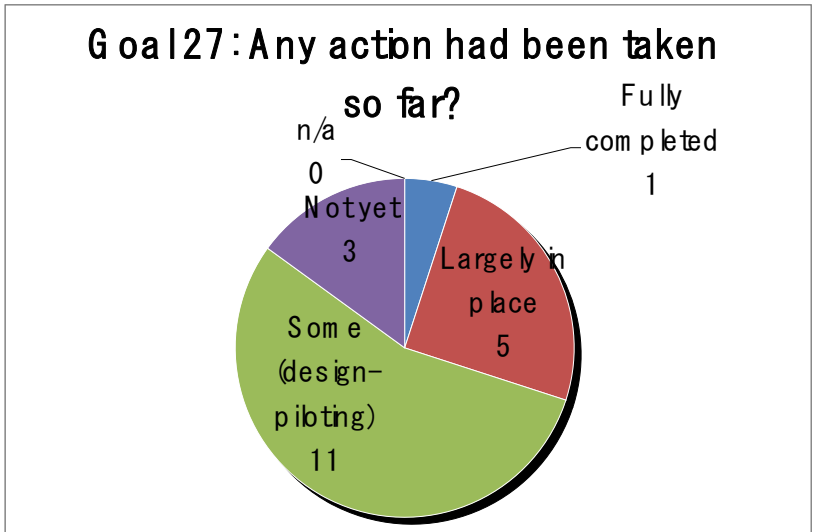


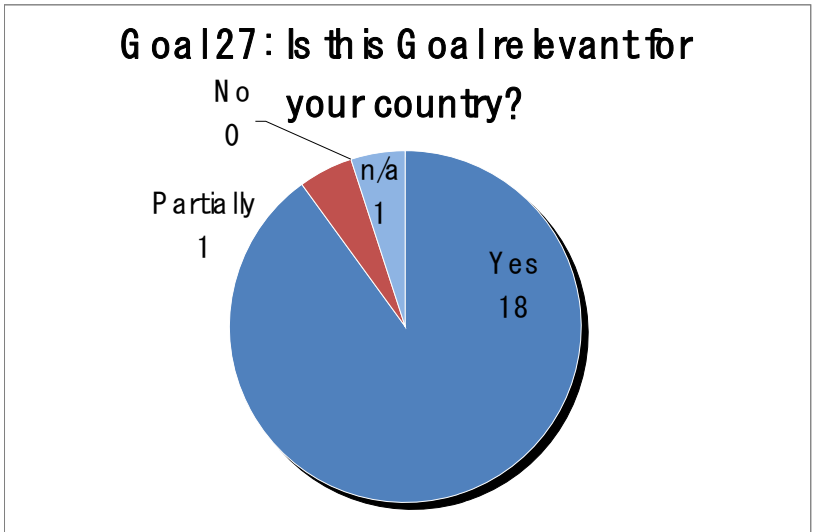
26 Facilitate the international circulation of re-usable and recyclable resources as well as remanufactured products as mutually agreed by countries and in accordance with international and national laws, especially the *Basel Convention* , which contributes to the reduction of negative environmental impacts and the effective management of resources



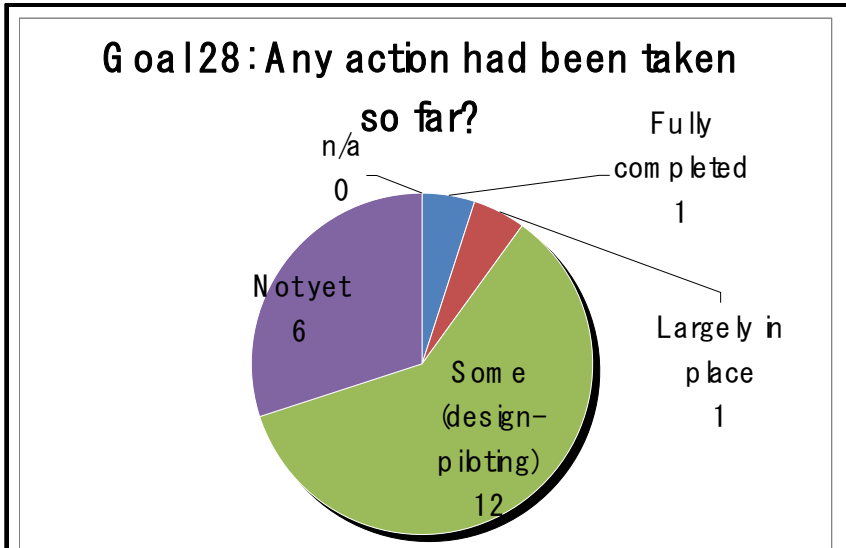


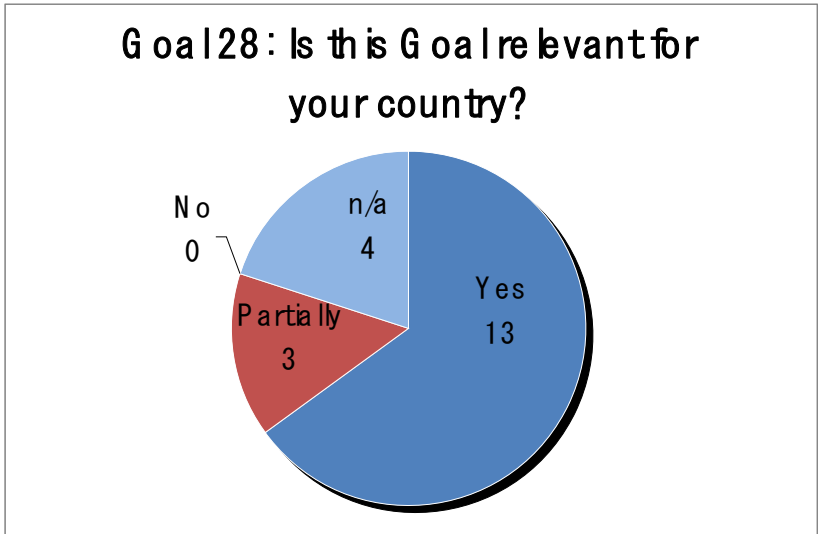
27 Promote data collection, compilation and sharing, public announcement and application of statistics on wastes and the 3Rs, to understand the state of waste management and resource efficiency.



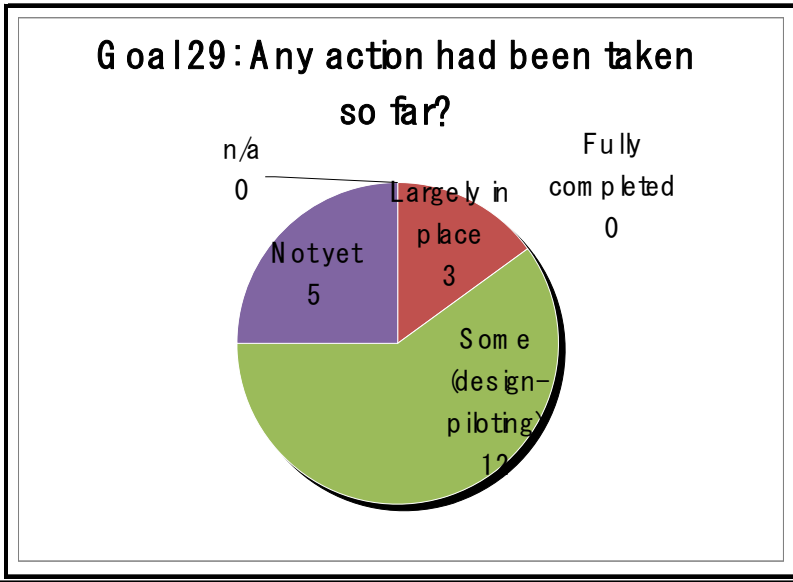


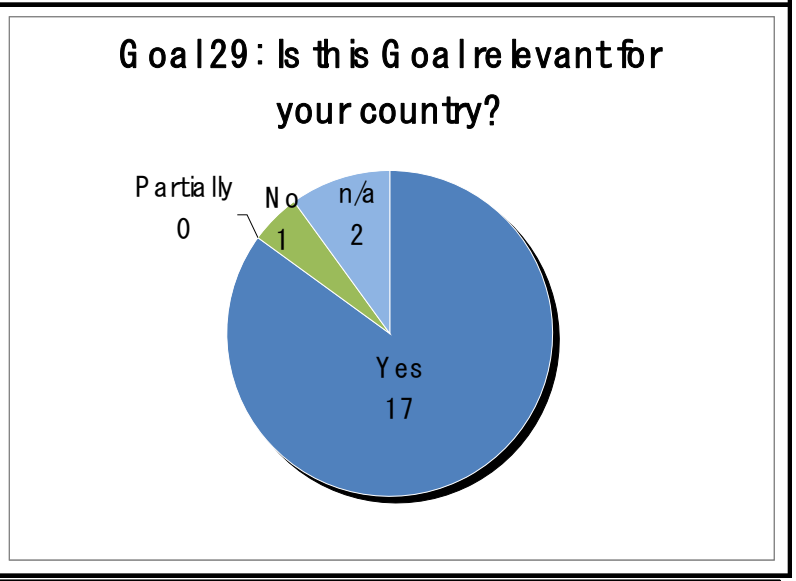
28 Promote heat recovery (waste-to-energy), in case wastes are not re-usable or recyclable and proper and sustainable management is secured.



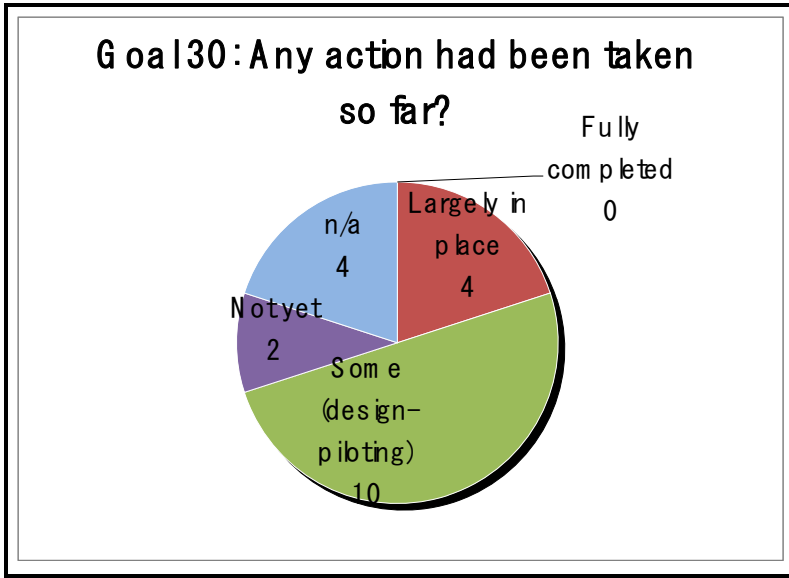


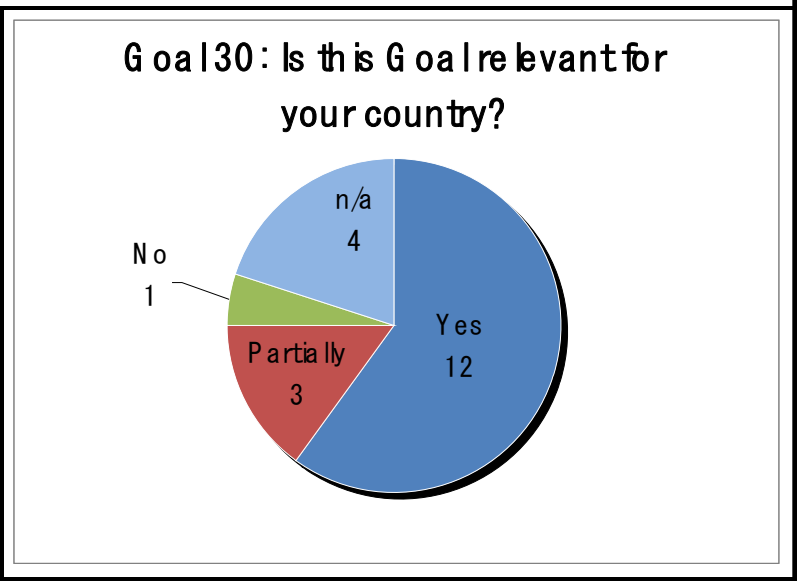
29 Promote overall regional cooperation and multi-stakeholder partnerships based on different levels of linkages such as government-to-government, municipality-to-municipality, industry-to-industry, (research) institute-to-institute, and NGO-to-NGO. Encourage technology transfer and technical and financial supports for 3Rs from developed countries to less developed countries.



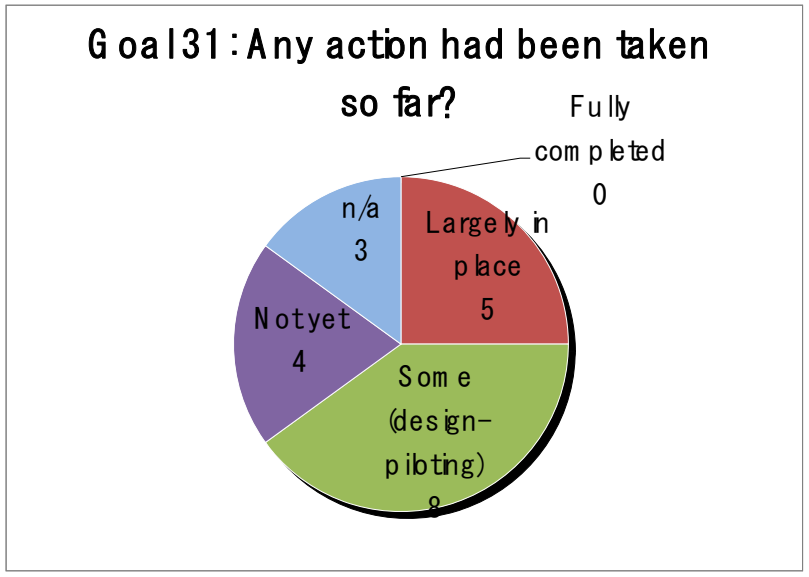


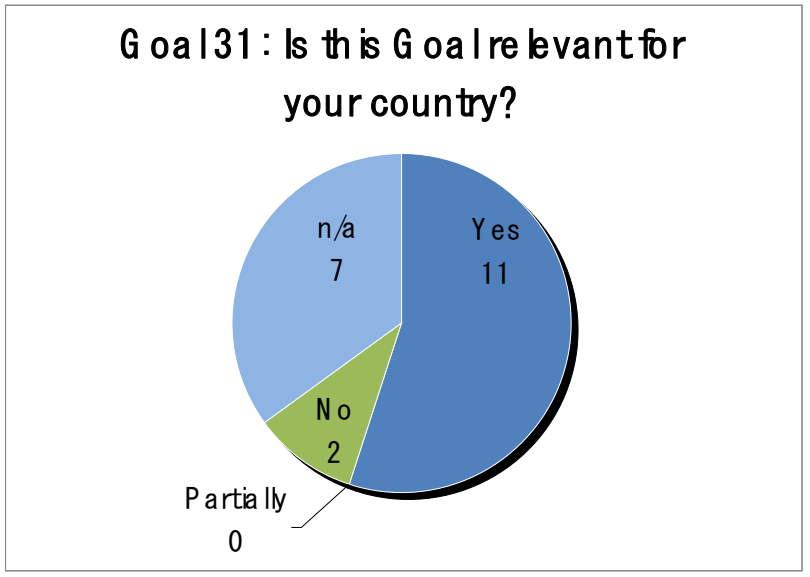
30 Pay special attention to issues and challenges faced by developing countries including SIDS in achieving sustainable development.



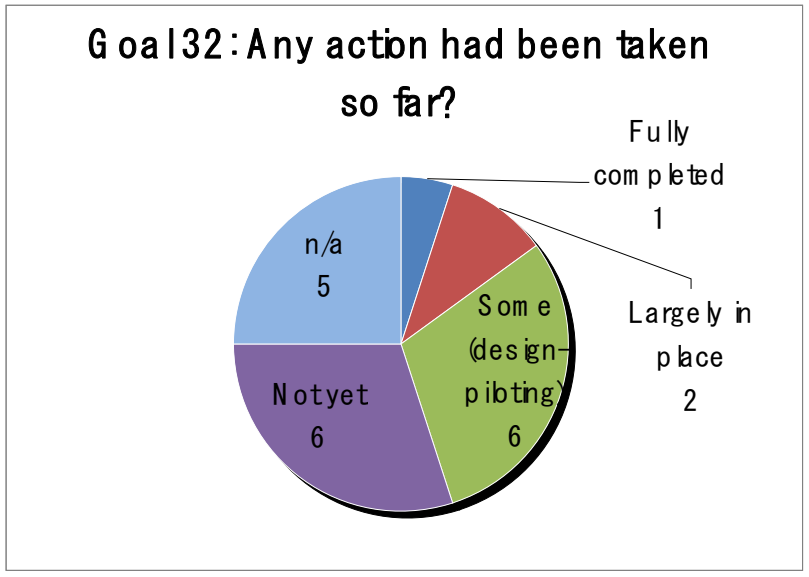


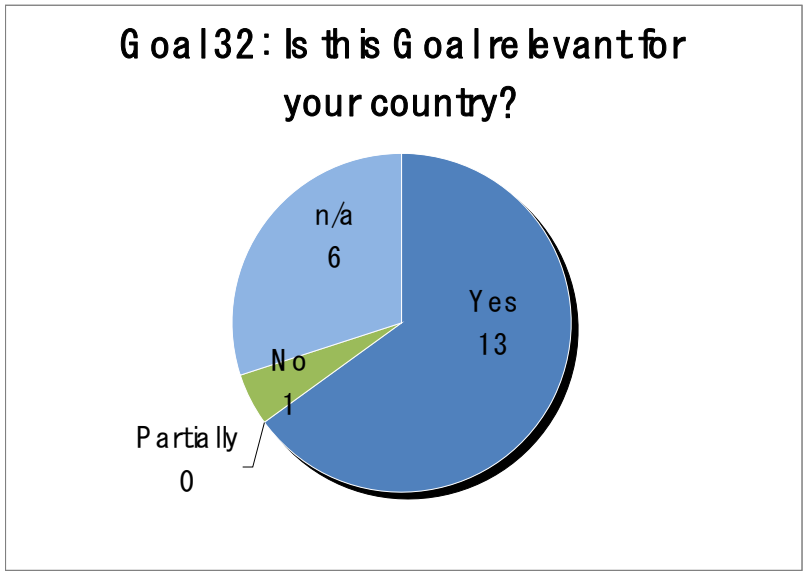
31 Promote 3R + “Return” concept which stands for Reduce, Reuse, Recycle and “Return” where recycling is difficult due to the absence of available recycling industries and limited scale of markets in SIDS, especially in the Pacific Region.





32 Complete elimination of illegal engagement of children in the **informal waste sector** and gradually **improve** the working conditions and livelihood security, including **mandatory provision of health insurance**, for all workers.





33 Promote 3Rs taking into account gender considerations.