

Final Chair's Summary

10th Regional 3R and Circular Economy Forum in Asia and the Pacific (Series of Webinars)

(Theme: Advancing Circular Economy in Asia-Pacific towards the SDGs under COVID-19 Pandemic)

Webinar I: 24 November 2020 | Webinar II: 1 December 2020 | Webinar III: 8 December 2020 | Webinar IV: 14 December 2020 | Webinar V: 17 December 2020 | Webinar VI: 22 December 2020 |

I. Introduction

1. In recent years, the circular economy has gained increasing prominence as an approach which offers solutions to some of the world's most pressing crosscutting sustainable development challenges. A circular economy is a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing energy and material loops. By addressing the root causes, the concept of a circular economy provides much promise to accelerate implementation of the 2030 Agenda to achieve the SDGs. However, due to the emergence of the COVID-19 virus, lives of millions of people have been directly affected which will have an indirect impact on the progress of the SDGs. Before the COVID-19 pandemic, the world was already facing challenges in many sectors including waste management, where over two billion people lack access to waste collection services and over three billion people lack access to safe and sound waste disposal services. Hence, the emergence of the COVID-19 pandemic and its corresponding social distancing measures amplify the already burdened sector. The various containment measures are affecting hundreds of millions of people and their livelihoods. The aggregate effect at the national and global levels will persist for a long time. COVID-19 has slowed economic growth, increased unemployment, and raised poverty and hunger. The global output is estimated to shrink sharply in 2020, with a downside estimate of about 7-8 per cent contraction in several developed economies, should the lockdowns continue into the second half of the year. Not only this, but the decline in world gross product could lead to an additional 25 million people unemployed worldwide. In the shadow of the COVID-19 pandemic and its continuing impact, IMF envisions a sharp 4.4% drop in global growth for 2020. That would be the worst annual plunge since the Great Depression of the 1930s.
2. The containment of the spread of COVID-19 pandemic and limitations on commercial activities, mobility and manufacturing sector have significantly affected waste management. Sustainable waste management is critical to human development, health outcomes and resilience to economy and society as a whole, especially during the COVID-19 pandemic. The invaluable service provided by the waste management sector ensures that the unusual heaps of waste that pose health risks and escalate the spread of COVID-19 is avoided. The impact of COVID-19 pandemic on waste management by observing lockdown and observing the social distancing measures increased the quantities of waste across countries. The intensification of single-use products and panic buying have increased production and consumption, hence thwarting efforts towards reducing plastic pollution. However, several countries have thus far instituted 3R and circular economic policies to ensure sustainable management of resources

and waste while protecting the safety of waste handlers. Research by the UN Development Programme shows that implementation of climate-friendly circular economy approaches can reduce the current greenhouse gas emissions gap by as much as half, and such approaches have a potential upside of over \$26 trillion growth opportunity and 65 million new jobs by 2030.

3. The 10th Regional 3R and Circular Economy Forum in Asia and the Pacific (Series of Webinars) with the theme of ***“Advancing Circular Economy in Asia-Pacific towards the SDGs under COVID-19 Pandemic”*** was co-organized by the Ministry of the Environment of the Government of Japan (MOEJ), and the United Nations Centre for Regional Development (UNCRD) of Division for Sustainable Development Goals (DSDG) / UN DESA. The Forum was supported by a number of organizations such as the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP), United Nations Environment Programme (UNEP), the UN-HABITAT, the International Society of Waste Management, Air and Water (9th IconSWM-CE 2019 of ISWMAW), the Global Sustainable Technology & Innovation Conference (G-STIC 2020), the 15th International Conference on Waste Management and Technology (2020 Global Waste Forum), Institute of Global Environmental Strategies (IGES), Economic Research Institute for ASEAN and East Asia (ERIA), the United Nations Industrial Development Organization (UNIDO), the Secretariat of the Pacific Regional Environment Programme (SPREP), Organization for Economic Co-operation and Development (OECD), Ellen MacArthur Foundation, and the Global Forum on Human Settlements (GFHS).
4. The objective of the Forum was to illustrate several pathways to achieve the Sustainable Development Goals (SDGs) under different scenarios. It aimed to address streamlining of resource recycling in the Asia-Pacific region; to contribute towards SDGs; to identify and discuss environmental and economic effects in eco-town projects; to address various environmental, social and economic benefits of advanced resource recovery and recycling technologies in considering SDGs. The Forum also aimed to discuss, among others, the importance of 3R technologies and Public-Private-Partnership (PPP) for a circular economy approach towards SDGs and to review and evaluate countries’ progress, initiatives, achievements, and best practices in implementing the Hanoi 3R Declaration – Sustainable 3R Goals for Asia and the Pacific (2013-2023).
5. The Forum was attended by 254 participants comprising of high level government representatives and policy makers from relevant Ministries such as Ministry of Environment, Ministry of Urban Development, Ministry of Industry, Ministry of Water, Ministry of Energy, Ministry of Climate Change and Ministry of Natural Resources and Environment, Ministry of Rural Development, City Mayors and Local Government representatives, experts and international resource persons, including representatives of scientific and research and development (R&D) institutions in the areas of 3R, resource efficiency, waste management, life cycle assessment and management, representatives of UN and international organizations, including international financial institutions, multilateral development banks and donor agencies, representatives of the private and business sectors and NGOs etc., as well as other stakeholders from thirty countries including Afghanistan, Australia, Bangladesh, Belgium, Bhutan, Cambodia, Federated States of Micronesia, Fiji, France, India, Indonesia, Japan, Kiribati, Malaysia, Maldives, Mongolia, Myanmar, Netherlands, New Zealand, Pakistan,

Papua New Guinea, PR China, Samoa, Singapore, Sri Lanka, Thailand, the Philippines, the Russian Federation, United Kingdom and Vietnam.

6. Details on Pre and Parallel Events of the 10th Regional 3R and Circular Economy Forum in Asia-Pacific are given in Annexure 1.

II. Opening ceremony

7. Welcoming the participants, H.E. Mr. Shinjiro Koizumi, Minister of the Environment, Japan expressed his deep appreciation to the United Nations Centre for Regional Development (UNCRD) for jointly hosting the event with the Ministry of Environment, Japan. He mentioned two current global crises, i.e., COVID-19 pandemic and climate change. He introduced Japan's devotion in extending the green society to focus on the cycle of economic growth and environmental protection as a view of growth strategy. He expressed Japan's new commitment to go carbon neutral and be a green society by 2050, incorporating the objective into larger ambitions of promoting environment-friendly economic growth. He expressed that post COVID-19 approach should shift towards a more sustainable and resilient society by re-designing the socio-economic structure. He focused on three transitions that need to be accelerated, i.e. transition to decarbonizing society, circular economy, and decentralized society. He introduced Japan's initiative of resource circulation strategy for plastics with the concept of "3R+renewable" to raise a momentum towards the circular economy.
8. Mr. Kazushige Endo, Director, UNCRD -DSDG/ UN-DESA, Japan in his welcome remarks extended his sincere gratitude to the Ministry of the Environment, Japan for the continuous support. This forum has been acting as a platform for member countries to advance their country's SDG targets along with the targets mentioned in the Hanoi 3R Declaration. The aspect of "circular economy" has been added to this year's forum because of the growing recognition of circular economy as one of the key drivers in achieving the SDGs. He said that a wide range of topics revolving around the central theme of 3R and circular economy, the role of ecotowns as a neutralizer to the industry emissions including the latest technological advancement in the field of waste management will be discussed across a set of six webinars.
9. Delivering the keynote address, Mr. Andrew Morlet, Chief Executive, Ellen MacArthur Foundation, United Kingdom, said that objective of the circular economy is to keep the materials in the biosphere in use for as long as possible. To achieve a circular economy approach by change in design, there are three aspects that are extremely vital. Firstly, there is a need to eliminate waste and pollution, keep the products and materials in use and finally regenerate natural systems. Additionally, the shift to an economic system that is based on renewable energy and materials is also important. Circular economy should represent a model that is more resilient, diverse and inclusive. The CE approach is multi-trillion-dollar opportunity. Ellen MacArthur Foundation in 2014 explored plastics as a material in the global economy and came up with several models. Presently, there is 78 million tonnes of annual plastic production and only 14% of the total is collected for recycling, out of which 4% is lost in the process. 40% of the total plastic that is produced ends up in the landfills.

10. The New Plastics Economy set a common vision and focus on three key actions; eliminate, innovate and circulate. There is a need to eliminate all problematic and unnecessary plastic items; there is also a need to innovate to ensure that the plastics that are in use are recyclable, or compostable and there is an urgent need to circulate all the plastic items we use to keep them in the economy and out of the environment. The problem of plastics should be looked at as a system by bringing together all the actors of the value chain. Circular economy can also aid in tackling climate change and achieve the 1.5-degree climate target. While the focus on renewable energy and energy efficiency represents only 55%, the remaining 45% needs to be addressed through fundamental changes in production and consumption. Finally, there is a need to look at circular economy as a bigger idea, a design led system solutions framework that represents better growth. It presents a huge value creation and investment opportunity, with better societal outcomes and growth that is more resilient, distributed, diverse and inclusive. It also presents rapidly scalable solutions that are driven by global business innovations and powered by digital technologies.

III. Role of eco-towns in advancing 3R and circular economy- International experiences of eco-town projects on 3R (Webinar-I)

11. The Forum recognized the important role of eco-towns in advancing 3R and circular economy and highlighted the symbiotic material flow in eco-towns or eco-industrial parks. Industrial and urban symbiosis is widely considered as among the most effective policies and business concepts in Asian metropolises to realize sustainable resource circulation through collaborative networks among industries as well as between industries and the urban sector. Japan's eco-town program has been unique in expanding its focus, initially from site-specific initiatives, to industrial symbiosis and urban-industrial interactions. The eco-town program shows a demonstration project towards a sound material cycle society.
12. The Forum discussed a wide range of opportunities and benefits of advanced resource re-circulation society including the advanced circulating project. The case of Osaki city showed the successful Osaki Recycle System and elaborated the various international projects such as project of sustainable community-based recycling society and project on transferring technology from Osaki city to Indonesia. Kitakyushu city presented the concept of green growth to develop an economy concept based on recycling and green industries. Since the 1990s, Kitakyushu has started the Kitakyushu Eco-Town project as a new type of environmental industry and the international environmental cooperation activities in its quest to become an eco-friendly city.
13. The Forum recognized that the green industry is a key driver of circular economy, that includes re-designing the product and minimizing the waste generation by shifting the 3Rs to 6Rs and then further to 12Rs (Reduce - Reuse - Recycle - Repair - Refurbish - Remanufacture - Repurpose - Redesign - Research - Reskill - Reverse - Re-vision). Implementation of resource-efficient cleaner production activities and circular economy are keys to improve the productivity and resource efficiency in industries. The industry agendas should shift to

extended business models that focus on value creation, value preservation, and value recovery from natural resources. The small and medium-sized enterprises face numerous challenges in moving towards low carbon industrial development. To overcome the environmental and social challenges, several countries in Asia-Pacific have initiated projects related to greening the economy.

14. The open waste burning, and the use of polluting collection vehicles emit black carbon, a key component of particulate matter (PM_{2.5}) air pollution. For many cities, the disposal and treatment of waste is a growing burden that is becoming increasingly difficult to tackle. As a result of population growth, urbanization, and changing consumption patterns, waste is expected to nearly double, from 1.3 billion tonnes to 2.2 billion tonnes per year by 2025. The Climate and Clean Air Coalition's Municipal Solid Waste Initiative works with a network of cities around the world to advance waste sector mitigation practices. The initiative's ultimate goal is to enable these cities and their national governments to track emissions and reductions, and self-fund to obtain sustainable financing for capital projects that reduce and prevent emissions and scale up actions beyond the existing network.

IV. Lessons learned from COVID-19 pandemic situation towards building resilient cities (complementing SDG 11)- What can 3R and circular economy offer at local, national and regional level? (Webinar II)

15. COVID-19 pandemic has posed many challenges for the future sustainability of waste management services of cities. The emergence of COVID-19 has challenged socio-economic systems, public health, and the environment. On the environmental aspects, the disease has impacted waste management systems by increasing municipal and biomedical wastes. The pandemic has highlighted the vulnerabilities of current waste management systems and infrastructures to fluctuations in waste generation resulting in more wastes disposed of in landfills, accumulation of hazardous wastes, and improper waste disposal. Waste generation amid COVID-19, mostly discarded personal protective equipments (PPEs) in health care and home care settings and single-use plastics, has been an environmental and public health crisis worldwide, particularly in the countries with developing economies and those in transition. The pandemic has adversely challenged various measures undertaken during the pre-COVID-19 era to tackle the plastic waste problem.
16. COVID-19 situation presents an increased personal risk for informal waste collection workers, who face transmission exposure when picking up and sorting waste. Their job typically involves visiting numerous residential and commercial locations. Many workers are exposed to frequently touched surfaces and may be at higher risk of contracting the virus when transporting and sorting waste. The pandemic has exposed and exacerbated pre-existing problems such as inequalities and inadequacies in urban areas, which have manifested as spatial inequalities, over-crowding, inadequate housing, limited access to health services and other urban essential services, especially water, sanitation and hygiene (WASH), urban transport and insufficient public spaces.

17. The Forum recognised the need for regional cooperation and commitment to green recovery and natural resource management to overcome the challenges faced by the countries due to COVID-19. On the national level, these responses can be translated to supporting measures related to SDGs like access to water and sanitation, building resilient and sustainable infrastructure, and promoting public and private partnerships in sustainability initiatives.
18. A sustainable approach that promotes green sectors, supports resiliency and climate goals, adopts circularity in growth, and creates localized responses tailored to the unique settings of communities and societies is urgently needed. CE that minimizes resource extraction, increases resource use efficiency, prolongs resource recirculation, and brings resiliency in responding to climate change and global pandemics like COVID-19 could be an opportunity to “Build Back Better” and “Rethink” on our production and consumption patterns.
19. Current Circular Economy discourse builds on predecessors: CE 1.0 mainly focussed on closing the end of the pipe thinking (reduce landfilling); CE 2.0 attempted to connect the design and producer side with the output side of the value chain. Current CE 3.0 further maximizes value retention by replacing all virgin material inputs with secondary resources and relying on new business model incentives. The Forum recognized 10-Rs (Refuse, Reduce, Resell or reuse, Repair, Refurbish, Remanufacture, Re-purpose, Recycle materials, Recover energy, and Re-mine) which acknowledge the existence of two types of life cycles: 'produce and use' life cycle and the 'concept and design' life cycle.
20. The three transitions concept developed by the Japanese Government: (a) transition to decarbonization, (b) circular economy, and (c) decentralized society to redesign the socio-economic structure could be beneficial to the region in the recovery from the COVID-19 pandemic. Also, Japan's “Resource Circulation Strategy on Plastic” to solve worldwide resource and environment issues could help countries and cities make the socio-economic system redesign sustainable and resilient. Further this strategy shall contribute to sustainable development, and creation of “Ecological Circular and Ecological Sphere” to maximize the local resource and achieving SDGs including the utilization of recovered energy from waste management facilities.
21. COVID-19 provides an opportunity to improve the working lives of thousands of people involved in the informal waste sector. This improvement can take many years if we are unable to focus now on providing the type of green jobs that bring decent working conditions to the industry while at the same time increasing the capacity of cities and regions to keep their citizens safe. Ending the destruction of biological habitats and ecosystems by adopting a resilient land use planning and policy will help address the systematic challenges in building resilience in cities. Land use policy should distribute and share risk with other city stakeholders and institutionalize resilience by integrating it into various sectors' planning and policy across the city.
22. Multi-functional and adaptable buildings are of great value in combating epidemics such as COVID-19. With the adaptable design, structures can be easily renovated, repurposed, and reused, thus supporting green recovery and resilience of buildings. The governments, policy makers, businesses, and academic community have to review the way everyday life of the people is organised. The society must take note of changes in the new environment and the way people live,

get around, organize food, energy and water and the beneficial outcomes for value creation, employment and environmental benefits and cannot afford to return to business as usual.

23. The 3R and Circular Economy are the most beneficial approaches to manage COVID-19 waste that mainly includes additional healthcare waste, plastics and packaging waste including personal protective equipment and home deliveries, and E-waste mainly due to ICT related equipment and batteries for work from home and home schooling. The Executive Director, UNEP has rolled out COVID-19 response and one of the key responses relates to COVID-19 waste management. Government of Japan has also supported UNEP to produce a publication on COVID-19 waste management through UNEP's International Environmental Technology Centre (UNEP-IETC). Circular Economy and clean energy offer new regional economic development opportunities based on new business models and innovative technologies. The Forum recognised many short-term, economically attractive opportunities for resource efficiency, clean energy, and waste reduction. In the long-term, an economic strategy with a focus on recycling, circular economy, and clean energy is superior to business-as-usual approach.
24. Inclusion of urban health professionals in planning processes will be essential for going forward, not only to ensure services but to better plan and manage infrastructure investments to adequately provide fundamental water, sanitation and hygiene (WASH) to vulnerable and informal communities. Effective waste management practices are resilient enough to withstand disruptions. Unfortunately, the relaxing of standards due to COVID-19 pandemic has resulted in increased plastic waste. In the future, waste policies must be designed to ensure that there is not backtracking against environmental practices when shocks or stresses occur.
25. To move forward, it is essential to tackle inequalities in socio-economic systems, strengthen capacities of local actors such as local governments, bridge the digital divide, and pursue a resilient, inclusive, gender-equal, and green economic recovery. At the regional level, it is essential to strengthen regional supply chains and ease regional barriers to trade of critical goods to prevent delays in pandemic response, foster regional commitment to a green recovery, and coordinate regional action on the environment and natural resource management. In this regard, the Forum recognised the role of ASEAN Regional SCP Framework and ASEAN Resource Panel.
26. To meet the current and future challenges posed by pandemics such as COVID-19, countries must ensure access to safe water and sanitation for all, prioritize and invest in green sectors in national economic recovery packages, embrace sustainability with projects, initiatives, with national policies, plan for the resilience of systems and infrastructures, and use sustainability metrics in choosing and implementing solutions to the pandemic.

V. 3R and Circular Economy as the basis for moving towards zero plastic waste in coastal and marine environment (complementing SDG 14) (Webinar III)

27. In order to achieve zero plastic waste in coastal and marine environments, there are various good practices of plastic waste management. There are many opportunities offered by the recycling of plastic, possibilities of job creation and other economic aspects. There are also concerns about the data management of plastic waste in marine environments and strengthening partnership on data sharing. Only 9% of plastic waste is recycled while 79% goes to landfill and marine environment. Asia's fishing sectors are losing approximately US\$ 2-3 billion annually. There is also the need for avoidance of single use plastics, innovation in recycling and priorities of CE into policy for closing the plastic loop. The Forum recognized the need for economical ways of treating plastics with business models, inter-municipal-national-regional and global co-operation, uniform standards, reducing mismatch in plastic production consumption and improved waste management infrastructure for better plastics waste management.
28. The urban population is expected to be 5.08 billion by 2050 from 4 billion in 2017. Major drivers for plastic consumption in Asia and the Pacific are economic growth, growing purchasing power and domestic private consumption. The net change in material footprint from 2000 to 2017 for East and North East Asia is 141%, South East Asia 130%, and for Asia and the Pacific 124% whereas the plastic consumption ranges from 0.13% to 0.75% of material consumption. Approximately 40-50% packaging is responsible in a big way for increasing the trend of plastic consumption.
29. The Forum noted the strong correlation between GDP growth rate and plastic consumption. The increase in per capita income is resulting in per capita plastic consumption. In order to integrate 3R approach to achieve circularity in all sectors, the Hanoi 3R Declaration proposed 33 goals with corresponding indicators. First priority in 3R approach should be to reduce waste generation followed by reuse of used material repeatedly and recycle things that cannot be reused as secondary raw material and also recover energy from materials which can no more be recycled and have no alternative but incineration. Major challenges in implementation are lack of policy and regulatory frameworks, economic instruments, technology, data and information base, etc.
30. There is a mismatch between an increase in plastic production and consumption and available waste management infrastructure (especially in developing countries). This is particularly true in the case of remote and/or rural areas that receive plastic products but do not have adequate collection and recycling infrastructure.
31. The integrated approach at a local level that addresses both waste management and marine plastic litter by combining upstream and downstream measures are widely missing. The cases do not address the link between marine plastic litter and cities. There are still no technical resources explicitly addressing new business models or alternative distribution systems (e.g., to reduce overpackaging). Industry design and consumption systems are not prioritized along the 3R waste hierarchy - reduce, reuse, recycle.
32. The mapping of waste flows is extremely important. To achieve the circular economy in plastic waste, there must be control over open dumping, selective ban on single use plastic, implementation of extended producer responsibility (EPR) and use of biodegradable material.

To reduce the leakage of plastic waste into the ocean, waste collection, recycling and proper disposal should be expanded to medium and small cities as well as rural areas and to increase recycling rate in rural and remote areas, reducing transportation cost for recyclable waste is important. To reduce the transportation cost it is important to invest in shredding, baling and compressing machines.

33. There are various approaches being practiced for sustainability and plastic recycling. Plastic makes life better if manufactured, reused and recycled in a better and efficient manner. Minimizing the resource input as well as waste along with required recycling critical. To achieve this, use of bio-base plastic, bio-degradable plastic and marine degradable plastic is important. In a country like Japan around 20% of plastic waste is mechanically recycled, around 65% is incinerated and remaining is landfilled. Chemical recycling is another approach for managing plastic waste which converts waste plastic into plastic with the same performance as new plastic.
34. Most of the raw material of plastic is fossil based and after uses they go to either landfill or incineration and some of them gets mismanaged to land up in the ocean. 80% of plastic waste can be reduced by adopting land-based solutions as a strategy for reduction of marine plastic wastes. There may be time bound strategies - short-term (to mitigate plastic waste leakages into the environment), medium- term (for increasing plastic waste recovery and recycling) and long-term (establishing sustainable plastic production and customer society). Key factors affecting the recycled plastic supply chain in low, middle and high-income countries are – (a) collection; (b) primary sorting; (c) recycling. Waste collections in middle income countries are high when compared to low-income countries but still the main coverage is from urban areas only. Informal sector still plays a key role in plastic waste collection and recycling. Manual sorting is common in low-income countries. High income countries have some mechanical sorting. Developed nations such as Japan and many European countries generate significant amounts of per capita plastic waste, but the rate of plastic leakage into marine environment is relatively low due to high rate of waste collection, sorting, recycling, treatment and disposal. Globally available data reveals that rapidly developing economies in Southeast and South Asia have not been able to keep pace with solid waste management policies and infrastructure resulting in significant contribution to marine plastic litters.
35. The Forum noted that the cities and countries can enhance their contribution towards achieving SDG 14 (life below water) through 3R and circular economy approach in plastics waste. In order to implement 3R and CE policies and program towards prevention of land-based pollution, including waste plastics into the ocean, there is an urgent need for (a) inter-agency cooperation (among line Ministries and between national and city governments); (b) developing institutional mechanisms; and (c) public-private-partnerships (PPP). To address plastics waste issues in coastal and marine environment, the Forum noted a number of sound policy, institutional, financing and technology options in 3R areas, but owing to several limitations, most countries and cities in the region have not been able to effectively monitor plastic wastes in coastal and marine environment. There is no doubt that the level of awareness at public and municipality level is also very low. Similarly, the level of cooperation between city and national government authorities in addressing this issue needs more attention. The scientific and research community has taken some interesting and innovative measures on

the issue of plastic wastes which can be addressed by the policy makers. The Forum also noted the adverse impacts of plastic wastes in the livelihood security of Small Island Developing States (SIDS). SIDS can pursue 3R and CE as an economic industry in protecting their tourism sector as well as preserving their natural ecosystem. There is a need to identify good cases of public-private-partnership and international cooperation models that have worked well and may help the SIDS.

36. The Forum launched the “State of Plastics Waste in Asia and the Pacific - Issues, Challenges and Circular Economic Opportunities” as part of the on-going assessment of state of 3R and circular economy policy implementation in Asia-Pacific. The full report is available at – https://sdgs.un.org/sites/default/files/2020-12/UNCRD_10th%203R%20Forum_State%20of%20Plastics%20Report%20-%202009Dec2020-FINAL%20FINAL%20FINAL_0.pdf

VI. Role of triangular cooperation (government-scientific & research organization-private sector) in advancing 3R and circular economy in Asia-Pacific (session on IPLA - a SDG partnership (Webinar IV))

37. Triangular cooperation (government-scientific & research organization-private sector) is a major driver in advancing 3R and circular economy (CE) in Asia-Pacific. Conceptually, linear economy is individualistic while circular economy is collaborative, and thus challenging and complex to implement as it involves various stakeholders. However, circular economy is a profitable business, and it generates green jobs, ensures quality improvement and scientific management of various waste streams and inclusiveness. Conceptually action towards circular economy requires promotion of effective utilization of resources and maximization of customer value by creating circular economy business and evolving recycling-oriented manufacturing. Therefore, there is a need for triangular cooperation not only at city level but at national, regional and global level with involvement of all the stakeholders. Clear, ambitious, long-term visions or targets setting should be the common basis on which various stakeholders can discuss such cooperation. The Forum recognized the role of partnerships like the International Partnership for Expanding Waste Management Services of Local Authorities (IPLA) – a SDG partnership. IPLA involves public sector, private, academia partnerships as the basis to move towards zero waste and circular society. The Forum noted the role of International Society for Waste Management, Air and Water (ISWMAW) in India as the new Global Secretariat of IPLA, which closely coordinates with and complements the Regional 3R and Circular Economy Forum in Asia-Pacific and its objectives.
38. Triangular cooperation requires contributions of policy, regulations, technology, knowledge base and capacity building by R&D and academic institutions, and implementation and innovation from private sector with intervention of technologies such as IoT, robotics, nano technology, green chemistry, and smart plastic waste management systems, etc. For example, usage of block-chain and multi-sensored powered artificial intelligence (AI) interfaces and radio frequency identification (RFID) tagged bins in waste segregation have been successfully

demonstrated by the private sector. Public policy making process in Japan often creates conducive environment for better cooperation among the three stakeholders viz. scientific and academia, private sector and government.

39. Triangular cooperation should address the current gaps such as lack of enabling policy and regulatory framework, reliable data, limited access to funding, and changing the perception of circular economy in business environment. Policymakers have a key role to play in advancing circular economy practices at regional, national and city level by enacting effective regulations or eliminating regulatory hurdles to circular economy practices and providing incentives to companies engaged in such practices. Science should be the basis to generate the reliable data for developing enabling policy and regulatory framework, which will influence the policy makers towards promoting more circular centric businesses. Cities and metropolitan areas which are globally acknowledged as ‘engines of growth’ have a role to strengthen their local economy, invest in local economic development to foster technological innovation and support the green and circular economy. Sector-specific rules can help catalyse circular business models. Various strategic approaches by local governments of many different cities have helped mainstreaming the circular economy. Some of the good examples are from Europe such as Circular Flanders and the European Topic Centre for Waste and Materials in a Green Economy. Various approaches and actions are followed for 3R and CE implementation at policy level in Japan.
40. The Forum recognized that the private sector is custodian of many new technologies, hence should play an important role in promoting smart and efficient waste management. Similarly, the research and academic institutions should provide technical guidance to enhance capacity at government level. Currently, huge gaps exist in scientific and technological base between developed and developing countries. There is an urgent need to adopt new age technologies and practices for sustainable resource utilization and waste management in Asia-Pacific countries. Research and development around resource efficiency measures is a basic source for addressing circularity and sustainable development. Digital technology and innovation interface offer a new opportunity to accelerate the transition from linear to circular economy. However, the innovation potential varies across the regions, sectors and need flexibility to be localised. Measuring the readiness to absorb those new technologies are needed. The scientific and research community should help in the transformation of knowledge into development of processes, products and services that promote economic growth. In India, for instance, the Department of Science and Technology (DST) has been supporting required research around circular economy by primarily channelling resources to the Council of Scientific and Industrial Research (CSIR) of India.
41. The Forum recognized that partnership mechanisms and technological interventions should harness economic opportunities through wide scale application of 3R and resource efficiency in all development sectors. 3R science-policy-business interface should attempt to turn the wastes into resource and create potential for economic opportunities at national, regional and local level. Incentives for industry to implement new policies should be either market or policy driven that could help creating markets for circular products and services through public procurement and driving innovation and investment. Therefore, facilitating financing and adapting financing methods should be used for circular economy activities.

42. Asia Pacific region needs a robust mechanism for strengthening the triangular cooperation for promoting 3R and circular economy. The Forum recognized the importance of formulation of appropriate legislative framework and policy instruments evolved through a collaborative consultation that are implementable and continually improved by the intervention of all major stakeholders such as, local governments, industries, academia, research organizations, NGOs and bilateral and multilateral organizations. A joint and cooperative effort is needed to fill the major gaps in Asia-Pacific region countries in terms of policy, institutions, technological interventions, investment and financing and availability of credible data and information in achieving the true potential of circular economic utilization of various waste streams. Developing a city, national and regional road map on circular economy is a pre-requisite, which should be driven by the governments at all levels, relevant scientific and research organizations and private sector, for realizing zero waste and resource efficient society.
43. Promotion of circular economy and a zero-emission society necessitates a global change of consumption and production patterns that would go well beyond climate action. An ecological transition needs to be led and owned by the communities for its full success.

VII. Scope and coverage of 2nd State of 3R and Circular Economy in Asia and the Pacific (Webinar V)

44. Professor Shinichi Sakai of Kyoto University and CRC Mohanty of UNCRD jointly introduced the background and scope of 2nd State of 3R and Circular Economy in Asia and the Pacific. A short history of waste management from one-way disposal to 3R & Circular Economy, the idea of “3R Plus” as basic principles for plastic use of Reduce, Reuse & Recycle plus Renewable & Recovery were shared. There has been a paradigm shift in the waste management from the 20th century approach of uncontrolled landfill and incineration and microbial fermentation to one-way flow end-of-pipe treatment to remediation to the current century of moving towards 3R and Circular Economy. 3R policy needs to be prioritized in every situation. With the start of a full-fledged establishment of a sound material-cycle, Kyoto city area experienced big reduction in the waste volume from the later part of 20th century to 21st century. The world is experiencing negative impacts of marine plastic pollution. 3R Plus principle is important specifically for plastic material while the perspective of renewability, heat recovery and recovery of marine plastics are important to avoid greenhouse gas emissions, and to prevent micro-plastic pollution.
45. The Forum recognized the need to establish broad complementary relationship between the objectives of the 2nd State of 3R and Circular Economy in Asia and the Pacific and that of the 2030 Agenda for Sustainable Development and SDGs, Paris Agreement, Nairobi Mandate 2016, Addis Ababa Action Agenda 2015 and New Urban Agenda 2016, among others. The 2nd State of the 3Rs & CE in Asia and the Pacific will focus on advancing Circular Economy in Asia and the Pacific towards achieving the SDGs. The report will be launched at Regional 3R and CE Forum in 2023, which will mark the end of the Hanoi 3R Declaration (2013-2023). The discussion revolved around the table of contents for the 2nd State of the 3Rs & CE in Asia and the Pacific. The Forum was shared the table of contents of the report having five chapters

namely – a) Background and Scope of Work; b) Urgent Needs and Multiple Benefits of Improving 3R Approach in Asia and the Pacific; c) Trends of 3R & CE in the Region; d) Experts’ Assessment of Policy Readiness for Related Ha Noi 3R Goals and Progress at Regional Level; and e) Way forward and Recommendations.

46. The discussion in the Forum revolved around - (a) the overall outline of 2nd State of 3R in Asia-Pacific and its relevance in the context of evaluating the implementation of Hanoi 3R Declaration (2013-2023); (b) important missing aspects from the outline and additional areas to be covered; (c) 3R and CE linkages with the SDGs for various waste streams such as - plastics, e-waste, chemical and hazardous waste, construction and demolition waste (including disaster waste), agriculture biomass waste, food waste; (d) “Way Forward” to look beyond 2023 and the need for a successor of the Hanoi 3R Declaration (2013-2023), i.e., a new 3R and Circular Economy Declaration (2024-2030) with goals aligned with the SDGs; and (e) collaborative arrangements with other relevant institutions and organizations for their inputs to the 2nd State of 3R and Circular Economy in Asia-Pacific.
47. The Forum noted the ‘Carbon Neutralization Challenges’ vis-à-vis what 3R and circular economy can offer. The zero waste strategies and some improvements would aim to turn the carbon footprint of the waste management system into a neutral value, such as increased separate collection of recyclables and enhanced biogas production. The Forum also recognized some of the new emerging challenges of 3R and circular economy due to enhanced medical waste, lifestyle changes by COVID-19 pandemic, end-of-life battery waste, wastewater treatment and decarbonization technology. The Forum recognized the importance of informal sector in the developing countries and the need to provide social security of informal waste workers.
48. The Forum also agreed to discuss in Chapter 5 on the main recommendations and add sections on awareness and capacity building on circular economy in the region, perspectives on partnerships including PPP and international and triangular cooperation to eliminate gaps in developing countries. The Forum took note of the importance of health and medical wastes as well as application of smart technology including artificial intelligence (AI). It was agreed that health care wastes should be addressed as one of the emerging issues.
49. Recognizing various challenges in developing countries including lack of waste segregation at source, the Forum agreed in principle to add areas such as the role of informal sectors, carbon neutralization, microplastic management, transboundary problems, and EPR. The Forum also noted several other suggestions, viz. (i) presentation of a policy achievement table in 3.4.1. as in the 1st State of the 3Rs; (ii) suitable addition of policies on wastewater treatment including faecal sludge and septage management along with appropriate proven technologies with illustrations and case studies from countries like India; (iii) End of Life Vehicles (ELV) to promote disposing of ELVs in an environmentally friendly manner based on ‘shared responsibility’ involving all stakeholders. Financial and policy frameworks including financial innovations for supporting circular economy and 3R policy implementation should be considered.
50. The Forum also noted that the 2nd report will not be a statistical abstract or an exercise in preparing a data compendium rather it would provide technical inputs for policy formulations

by the Regional 3R and Circular Economy Forums along with contributing knowledge and capacity building support to the member countries. The report shall include evidence-based case studies on new emerging issues which could be presented in the form of boxes. The case studies from various institutions would fill the data gaps. The Forum also recommended to recognize the good works done by international organizations such as the International Solar Alliance (ISA) and different NGOs in the field of carbon neutralization.

51. The Forum also agreed for harmonization of sections 3.2 (emerging waste streams and issues) and 3.3 (conventional and frontier technologies). In the technology sub-section 3.3, the importance of decarbonization approach could be considered. The problems of Small Islands Developing States (SIDS) such as lack of finance and technology were also highlighted. In addition, the Forum also noted the challenges faced by them due to geographical isolation and natural disasters due to climate change. The importance and the need for public-private-partnership (PPP) for expanding their waste management services and 3R policy implementation was also emphasized.
52. The Forum further recognized two emerging situations – lifestyle changes as an aftermath of COVID-19 pandemic and carbon neutrality goals, and what circular economy can offer to that regard. The Forum also recognized a number of sectors which hold high potential for circular economy such as agriculture, automotive (end of life vehicles and batteries) and electronic sector. The Forum agreed to look beyond 2023 on the need for a successor of the Hanoi 3R Declaration (2013-2023), i.e., a new Declaration on 3R and circular economy with goals aligned with the SDGs.

VIII. Major Achievements and Initiatives by Countries on the Implementation of Hanoi 3R Declaration (2013~2023)

53. There is clear evidence from the progress made by participating countries that the Regional 3R and Circular Economy Forum in Asia and the Pacific is assisting and guiding them to mainstream 3R and circular economy policy in member countries. The participating countries in Asia and the Pacific have been regularly submitting and reporting their country reports until the 10th Regional 3R Forum in Asia and the Pacific which are uploaded in the Forum website: <https://sdgs.un.org/events/tenth-regional-3r-and-circular-economy-forum-asia-and-pacific-series-webinars>

IX. The Way Forward

54. The 3R & circular economy is focused on designing out waste and pollution, keeping products and materials in use, and regenerating natural systems, so that the resources of the planet do not get exhausted. Changing the way, the products are made and used, can contribute to addressing 45% of global greenhouse gas emissions, making a critical contribution to mitigating the impending climate crisis. As per World Economic Forum, reducing the reliance on scarce resources increases the economic resilience, and building a circular economy offers

a \$4.5 trillion economic opportunity by avoiding waste, making businesses more efficient, and creating new employment opportunities. By creating a circular economy, a stronger system can be created that will flatten or even reverse some of the trends that now threaten the existence of future generations. The best way to build resilience against future pandemics and the impact of climate change is to move to a circular economy.

Advancement of circular economy aligned with SDGs, Paris Agreement, NUA etc.

55. The concept of circular economy, an economy in which waste and pollution do not exist by design, products and materials are kept in use, and natural systems are regenerated, provides much promise to accelerate implementation of the 2030 Agenda. Circular economy has been repeatedly mentioned as a key solution in the Expert Group Meeting and in-depth review of SDG 12 on Sustainable Consumption and Production (SCP) during the 2018 High-Level Political Forum, including in the areas of SCP and climate change, ocean action, and food waste and loss. The circular economy holds particular promise for achieving multiple SDGs, including SDG 7 on energy, SDG 8 on economic growth, SDG 11 on sustainable cities, SDG 12 on sustainable consumption and production, SDG 13 on climate change, SDG 14 on oceans, and SDG 15 on life on land. Circular Economy is also coined as one of the key mechanisms to establish and achieve carbon neutrality targets by many countries announcing to be carbon neutral by 2050, 2060 and so on.
56. The transition from a linear to a circular economy requires a joint effort by stakeholders from all sectors. Policy makers can support the transition by promoting the reuse of materials and higher resource productivity by rethinking incentives and providing the right set of policies and access to financing. Major Groups and other Stakeholders also play an important role in promoting the transition to a circular economy by mobilizing broad forces to carry out practical actions and putting pressure on businesses and governments to accelerate implementation.
57. The circular economy is relevant to all sectors of the economy. Examples of its successful implementation exist in different countries and sectors, such as the automobile industry, the food industry, the textile industry, the chemical industry, and wastewater management. A circular economy is equally indispensable in reducing emissions by transforming the way products are designed, goods produced and used. The world can maximise chances of avoiding dangerous climate change by moving to a circular economy, thereby allowing societies to meet the goals of the Paris Agreement on Climate Action. Greenhouse gas emissions are not falling quickly enough to achieve climate targets and switching to renewable energy can only cut them by 55%. Renewable energy is not enough. The remaining 45% of emissions come from how products are made and used, and how food is produced. There needs to be a fundamental shift in the global approach to tackling climate change and that is where the circular economy can play an essential role.

Impact of 3R and Circular Economy towards SDGs:

58. Improved sustainable waste management contributes to the Sustainable Development Goals (SDGs) by:
 - Improving access to basic services (SDG 1)

- Reducing food waste (SDG 2)
- Enhancing public health and well-being (SDG 3)
- Eliminating dumping (SDG 6)
- Generating locally available renewable energy (SDG 7) & providing green jobs (SDG 8)
- Contributing to resource-efficiency and sustainable infrastructure (SDG 9)
- Decreasing the adverse environmental impact of cities (SDG 11)
- Increasing sustainable consumption (SDG 12) & mitigating greenhouse gas emissions (SDG 13)
- Decreasing marine litter pollution (SDG 14) & protecting terrestrial and inland freshwater ecosystems (SDG 15)
- Building partnerships (SDG 17)

Circular economy towards urban resilience (towards SDG 11)

59. Several developing countries in Asia face a number of daunting challenges in the twenty-first century, including population growth, rapid urbanization, food and water scarcity, environmental pollution, infectious diseases, and climate change. In this turbulent era, there is a need for resilience at every level. Achieving resilience will require both enlightened government policies and successful initiatives by social and environmental innovators that demonstrate the capacity for adapting to these challenges. Such practical first steps can serve as models for creating a more resilient and sustainable economy in Asian countries. One way to stimulate rapid progress is development of circular economy solutions that create innovative pathways for utilization of discarded materials, thus seeking to eliminate waste. Evidence shows that application of 3R & CE policies and many such initiatives reduce environmental pressures and improve community resilience, while stimulating the regional economy.

Circular Economy for Sustainable Consumption and Production (towards SDG 12)

60. Resource efficiency should be increased to reduce the pressure on natural resources and also to control waste by recirculating back for sustainable consumption and production. Circular economy has been established as one of the key mechanisms for decoupling the economy from environment by regenerating and recirculating the resources through circular supply chains based on life cycle assessment (LCA). All the SDG 12 targets are the focus and drivers of circular economy including achieving resource efficiency, reducing food loss and food waste, recycling and recovery of materials and energy, and environmentally sound management of hazardous waste, implementing sustainable public procurement, promoting sustainable lifestyles, and institutionalizing sustainability reporting in all the sectors including housing, tourism, mobility, agriculture, energy and so on. Through SDG 12, the Circular Economy can help in achieving all the other SDGs starting from no poverty, zero hunger, and good health to clean water, clean energy, sustainable cities, climate action, life below water, life above land, and partnerships including with private sector and consumers.

Circular economy & plastics free coastal & marine environment (towards SDG 14)

61. Asia lies at the center of the global plastic pollution crisis resulting from this linear economy. In 2015, the Ocean Conservancy estimated that up to 60% of marine plastic pollution comes from five countries in Asia: the Philippines, Indonesia, Thailand, Viet Nam, and the People's Republic of China (PRC). One approach to reducing single-use plastic packaging waste is transitioning to a circular economy. A circular economy redefines current production and consumption patterns in a way where business and growth support positive economic, social, and environmental benefits throughout supply chains, business models, and life cycles, from the choice of raw materials, design of products/services, to recycling and end-of-life. Like a linear economy, a circular economy still aims to meet basic human needs and generates economic benefits but leaves minimal environmental impact. According to ADB, effective resource management in a circular economy could create nine to 25 million jobs.
62. The COVID-19 pandemic has not only hit the pause button on global economies and daily life, but also disrupted the waste value chain and significantly increased medical and plastic waste. This presents an opportunity to rebuild using more sustainable models, create green and resilient livelihoods, and advance technology innovation. Technology innovations can help businesses, governments, and communities' transition to an inclusive circular economy faster and more efficiently. The People's Republic of China has made significant headway in this regard. Since 2016, its Extended Producer Responsibility (EPR) plan has been engaging the electronics, automobiles, lead-acid batteries, and packaging industries. The law requires producers to establish a system for recycling used or end-of-life products by themselves or third parties. The amount of materials recovered and recycled must match the producers' sales volume.

Circular economy and carbon neutrality / net zero emissions

63. A carbon-neutral circular economy is an economic system that works on carbon neutral basis i.e., produces net zero emissions and has adapted to the earth's carrying capacity and the planetary boundaries. The objective of the 3R and Circular economy is to move towards a society based on the limits of the earth's carrying capacity. The world today is ravaged by the climate crisis, diminishing natural resources and biodiversity, and population growth. This means that the well-being of the people can no longer be based on overconsumption of fossil fuels. There is a need to act more swiftly and efficiently to lower emissions. 3R and Circular Economy provides the way forward. Japan has committed to go carbon neutral and be a green society by 2050, incorporating the objective into larger ambitions of promoting environment-friendly economic growth. Other countries need to replicate the example of Japan.

Circular economy & Frontier Technologies

64. Direct frontier technologies aim at reducing societal greenhouse gas emissions in line with scientific trajectories and fostering a circular economy. Frontier technologies - such as automation, robotics, electric vehicles, renewable energy technologies, biotechnologies, and artificial intelligence - can transform social, economic, and environmental spheres. These can offer better, cheaper, faster, scalable, and easy-to-use solutions for everyday problems including waste management. Industries and businesses should use their power to lower their

own and societal emissions and support the circular economy. This requires coherent policies that discourage polluting practices while scaling business models and solutions that are inclusive and eco-friendly. Frontier technologies should be leveraged to increase learning at all levels and spread successful policies.

Application of frontier technologies in 3R & Circular Economy

65. Frontier technologies - including 3D printing, the internet of things and big data - have the potential to improve how people see, work and live with waste –
- offer the opportunity to drastically change the way waste is produced and disposed,
 - new materials can significantly reduce the adverse impact on the environment from waste,
 - can be used to gather accurate data on the waste flows in cities, leading to more informed decisions,
 - have the potential to significantly improve efficiency in manufacturing and reduce waste if linked to a circular economy,
 - Innovative approaches to promote sustainable waste management need to address every step of the waste hierarchy- reduction, reuse, recycling, recovery and disposal
 - Reducing the waste generated in the first place will create the biggest impact.

Technology divide between developed & developing countries: Inequality in technology accessibility; need to bridge the divide to advance circular economy in Asia-Pacific

66. There exists a big global digital divide. It is a fact that "Internet has developed unevenly throughout the world causing some countries to fall behind in technology, education, labor, democracy, and tourism. The global digital divide also contributes to the inequality of access to goods and services available through technology. Computers and the Internet provide users with improved education, which can lead to higher wages; the people living in nations with limited access are therefore disadvantaged. This global divide is often characterized as falling along what is sometimes called the North-South divide of "northern" wealthier nations and "southern" developing nations. To advance circular economy in Asia-Pacific, it is important to bridge this divide.

3R infrastructure development and 3R technological interventions should go hand in hand

67. Moving towards a resource efficient and sound material cycle based society will require considerable and sustainable investment and resource mobilization, including technological interventions, institutional capacity-building, and development of 3R infrastructures, programmes and projects (eco-industrial zones, science parks, eco-cities, waste recovery facilities, waste-to-energy schemes, greening small and medium enterprise (SME) operations, green products and eco-labelling schemes, biomass to composts and energy in rural areas, etc.), which is inherently a multi-stakeholder process calling for multilayer partnerships and collaboration within and between communities, businesses, industries, all levels of

government, scientific and research institutions, international organizations, development banks, academia and the United Nations system. Country to country cooperation such as cooperation between Osaka city and Indonesia for transferring technology is essential in exchanging valuable experiences and ideas, transferring knowledge and technologies, including development of collaborative projects on 3R infrastructure development, such as eco-industrial zones, science parks, eco-towns, waste-to-energy schemes, waste recovery and recycling schemes, composting schemes in rural areas, etc. Kitakyushu city developed the concept of green growth based on recycling and green industries. Since the 1990s, Kitakyushu has started the international environmental cooperation activities in its quest to become an eco-friendly city. To overcome waste management issues, including technical barriers and technological gaps, to achieve waste prevention, minimization, and reduction at the source of waste, there is a big need for developing human resources.

3R & Circular Economy: Future Challenges

68. The world's cities produce 7 - 10 billion tonnes of waste every year out of which about 2 billion tonnes are municipal solid waste. Municipalities in low-income countries spend on average 20% of their budgets on solid waste management and < 3% on sanitation. Solid waste collection reaches less than half of the population in cities in low-income countries. 16% of urban dwellers lack access to basic sanitation services. Globally, 1/3 of the generated solid waste is still openly dumped. Only 1/5 goes to material recovery, i.e., recycling and composting; 80% of all wastewater is discharged untreated in the world's waterways. Lack of adequate waste management has resulted in excessive air, soil and water pollution. Plastics entering the oceans are estimated to kill 100,000 marine animals every year. About every 30 seconds a person dies due to diseases caused by mismanaged waste. There is an economic loss of \$375/t.

3R & Circular Economy: Future Opportunities

69. Through 3R & CE cities can create employment, promote economic growth, improve public health and ecosystems.
- contribute to happier, greener and healthier cities
 - can create enormous savings for cities and municipalities
 - Water remains one of the most precious resources
 - wastewater is an affordable and sustainable source of water, energy, nutrients and other recoverable materials
 - wastewater reuse for food production can off-set the costs of synthetic fertilizer production
 - Cities can become pioneers in conserving precious resources and combatting climate change
 - Energy savings through recycling can be up to 95% compared to converting virgin materials
 - 5 % of anthropogenic greenhouse gas emissions are caused by waste management

- Mitigation potential through adopting sustainable waste management practices including the 3Rs and Circular Economy is estimated at 15-20% of worldwide anthropogenic greenhouse gas emissions

Adoption of 3R & Circular Economy practices will lead to (a) Public savings, (b) Healthier people & planet, (c) Happier sustainable cities, (d) Mitigate 15-20% of global GHG-emissions, (e) Up to 95% less energy, (f) Green jobs and (g) Green economic growth

Promoting 3R and Circular Economy: Key messages to local governments

70. The city and local governments could consider a number of measures to advance 3R and circular economy such as -

- Support the collection of data on sources and links of waste in the city.
- Commit to integrated sustainable waste management.
- Apply inclusive frontier technologies and innovative approaches to turn waste into wealth while reducing environmental and health problems.
- Develop internal digital skills and build capacity related to the use of new technologies and data.
- Establish policies that ensure universal access to technologies, build digital literacy, reduce the digital divide and ensure privacy and security.
- Commit to transparency, accountability and non-discrimination of data, digital content and algorithms.
- Establish open and ethical digital service standards.
- Engage with and support bottom-up approaches that enable communities, youth, women and disabled people to become innovators in the circular economy and the use of technologies in waste management.
- Rethink waste - change the mindset of people and acknowledge waste as a valuable resource.
- Create and implement a legislative environment that envisions a circular economy.
- Research new frontier technologies that have the potential to substantially improve existing waste management.
- Commit to digital rights, ethical standards, non-discrimination, openness and transparency in the use and development of frontier technologies.
- Invest in alternative solutions to reach a circular economy through innovative partnerships

X. Discussion and finalization of consolidated Forum's Summary of 10th Regional 3R and Circular Economy Forum (Webinar-VI)

71. In his opening remarks, the webinar session chair Mr. Yutaka Matsuzawa, Deputy Director General, Ministry of the Environment, Japan appreciated the officials of the governments of Asia, international organisations, private sector, civil society organisations and experts for their active participation in the webinar series of the 10th Regional 3R and Circular Economy Forum. He also appreciated all the session chairs, moderators, rapporteurs and participants from the private sector, NGOs and experts for their great inputs and for their background papers.

Special Announcement by Moscow Government, the Russian Federation

72. Making the special announcement, Ms. Evgenia Semutnikova, Deputy Minister of Environment, Moscow Government, the Russian Federation, mentioned that the 10th Regional 3R and Circular Economy Forum which was scheduled to be held in the Russian Federation in 2020 could not take place due to COVID-19 pandemic. Hoping that in 2021 the countries worldwide will be able to overcome the pandemic, the Russian Minister while expressing their intention, made an announcement to avail the opportunity to host the 11th Regional 3R & Circular Economy Forum in Asia-Pacific in Moscow in 2021 in an international face-to-face format and hoping to meet the Forum participants in the capital of the Russian Federation. She further elaborated that despite the pandemic situation, the Russian Government and the Moscow Government promptly paid the priority attention to the economic, social and environment issues. She highlighted the National Project "Ecology" which was adopted in 2018 with an aim to reduce the amount of landfills, to develop waste management facilities, and implement best available techniques. Federal projects as "Clean air", "Clean water", "Clean country" are developing in all regions with "circular economy" becoming the Government's policy focus. Russia is developing resource-saving programs in accordance with the Presidential orders. The government is working on the Law on secondary resources and on the concept of extended producer responsibility (EPR), which aims to involve the secondary resources into the economic turnover with an objective to achieve resource efficiency in all spheres of economic and social activity. Moscow occupies a leading position in this process in Russian Federation. Moscow is developing various programmes with a goal to make the capital city cleaner – such as planting trees, improvement in infrastructure, to reduce traffic congestions, switching to eco-friendly fuel to reduce vehicular pollutions. Moscow also implements separate waste collection programmes to promote 3R and circular economy.

Closing Session:

73. In his closing remarks towards the end, Mr. Yutaka Matsuzawa greeted all the participants on behalf of his ministry for their fruitful and lively discussion. He also had sincere appreciation of UNCRD for drafting the Forum Summary for adoption and for the successful conduct of the 10th Regional 3R and CE Forum. Plastic waste was a major common issue in the region. He was happy that the Forum launched the report on State of Plastics Waste in Asia and the Pacific - Issues, Challenges and Circular Economic Opportunities as part of the on-going

assessment of state of 3R and circular economy policy implementation in Asia-Pacific which will be highly useful for the countries in the region. Post-Covid society should be more sustainable by adopting 3R and Circular Economy approach and transition to CE. Referring to the Japanese Minister Mr. Shinjiro Koizumi's opening remarks that post COVID-19 approach should shift towards a more sustainable and resilient society by re-designing the socio-economic structure, he said that Circular Economy was a key element for addressing the challenges both during Covid-19 and beyond for achieving the SDGs. He welcomed the announcement by the Russian Federation for hosting the 11th 3R and CE Forum in 2021 in Moscow. He said that Japan will continue taking interest in promoting 3R & Circular Economy agenda in Asia and the Pacific by sharing the knowledge, technology and best practices with the participating countries in the region.

74. Mr. Kazushige Endo, Director, UNCRD expressed his appreciation of all the participating countries and organizations for their excellent support during the 10th Regional 3R and Circular Economy Forum in Asia and the Pacific. He said that the objectives of the Forum are fully aligned with the SDGs where circular economy will contribute to the achievement of the SDGs. He expressed his happiness that the Forum discussed the scope and coverage of the 2nd State of 3R and CE in Asia and the Pacific and hoped that all the participating countries will be contributing to completing the assessment report. Green industries will be the key drivers in pushing the agenda for 3R and Circular Economy. He referred to the current pandemic and the growing bio-medical waste as well as the plastic waste which present the major challenges. He felt that the 3R and Circular Economy Forums will help the countries in Asia to address these challenges. Thanking the Russian Federation for their announcement to host the next Forum in Moscow, he said that UNCRD shall be preparing for the 11th Regional 3R and Circular Economy Forum in 2021.

Annexure 1:

Reporting on Pre and Parallel Events of the 10th Regional 3R and Circular Economy Forum in Asia-Pacific:

- 1. 9th International Conference on Sustainable Waste Management towards Circular Economy.** (9th IconSWM 2019) was held from 27-30 November 2019 in Bhubaneswar, India. The Conference was organised by IconSWM one of the biggest conference platforms of ISWMAW established in 2009 in India. The Conference deliberated on various issues related to innovations and implementation in solid and liquid waste management including policies & strategies, segregation, collection, transportation, biological and thermal and mechanical treatment technologies, LCA, climate change, circular economy, research, business opportunities etc. 525 delegates from 21 countries including UNCRD and UNIDO participated in the conference and the exhibition in 9th IconSWM. Mr. C. R. C Mohanty in his inaugural speech expressed that developing countries need to establish business models for handling the waste management issues in respective countries focusing on reduction of resource consumption and enhancing resource efficiency. The Conference also aimed at setting up research collaborations between Indian and Foreign universities and industries in the areas of waste management & circular economy.
- 2. The 15th International Conference on Solid Waste Management and Technology (ICWMT15)** was the official pre-event of the 10th Regional 3R and Circular Economy Forum in Asia and the Pacific and was successfully held online from 28 to 30 June 2020. The conference, themed with “To Build a Zero-waste city Systematically”, was organized by Basel Convention Regional Centre for Asia and the Pacific, Beijing Economic-Technological Development Area Administrative Committee, and Chinese Research Academy of Environmental Sciences. The supporting organizations of ICWMT15 include United Nations Center for Regional Development (UNCRD), International Solid Waste Association (ISWA), SWITCH-Asia Regional Policy Advocacy Component funded by European Union (EU), implemented by UNEP Regional Office for Asia and the Pacific. 188 officials, experts and scholars at home and abroad were invited to attend the meeting and deliver reports. In total, 4,563 people from 42 countries participated the conference online. The plenary meeting and 23 branch sessions were held including Zero-waste City High Level Forum and UNCRD Forum themed ‘IPLA-a SDG partnership’.
- 3. Sustainable Solid Waste Management during COVID-19.** 3R WASTE Foundation in partnership with All India Institute of Local Self Government organised this webinar as a pre-event of 3R and CE Forum. Solid waste is the world’s second biggest producer of greenhouse gases like carbon dioxide. The COVID-19 pandemic has brought the issue of health and sanitation workers’ safety to the forefront, revealing the unsafe and unsanitary conditions that they work in. With an ever-growing urban population, the ever-expanding volume and complexity of solid waste and the changing household consumption patterns, particularly during COVID-19, solid waste management has become a nightmare for numerous

governments. The pandemic has also caused an increase in some waste streams and a decrease in others. Municipal corporations around the world are now facing an unprecedented crisis in waste collection, segregation and disposal. In the post-COVID world, waste management services may move aggressively towards automation, an extensive use of technology, while governments will move towards adopting circular economies to drastically reduce the total waste generated and resources wasted.

- 4. The Challenges of Plastic Waste Management.** 3R WASTE Foundation in partnership with All India Institute of Local Self Government organised this webinar as a pre-event of 3R and CE Forum. India is witnessing a rise in production and consumption of plastic. India generates more than 20,000 tonnes of plastic waste each day. The plastic generated finds its way to the water ecosystem through soil, pipelines, or drainage system. Plastic gets transported to the riverbanks and rivers become major carriers of plastic waste into the marine ecosystem. Inadequate waste management leads to leakage in the Plastic Value Chain, implying that there are major issues in the collection, transportation, waste treatment, and disposal, which need to be ramped up. Plastic waste is not a waste but wealth if properly managed and recycled appropriately. Circular economy is an economic means to address the environmental harm of plastic pollution. The governments and the private sector need to increase investment in plastic waste management by bringing adequate machinery, practicing a seamless plastic value chain. This will create a circular plastic economy and an opportunity for the plastic industry to grow without harming the environment.
- 5. 10th Asia-Pacific 3R Citizens Forum Empowerment and Initiative of Civil Society Organizations and NGOs – Advancing Circular Economy to Achieve SDGs.** Ms. Yuko Sakita, Co-chair of the Asia and the Pacific 3R Citizens Network reported outcome of 10th Asia and the Pacific 3R Citizens Forum, Empowerment and Initiatives of Civil Society Organizations and NGOs Advancing Circular Economy to Achieve SDGs at Webinar VI held on 22 Dec 2020. Ten organizations from 4 countries gathered together to share their experience and knowledge on NGOs' challenges in respective regions under the COVID-19 pandemic. They also discussed how the activities of NGOs promoting the 3Rs have been recently established as a social business while creating a mechanism for resource circulation and energy circulation in the community. The Citizens Forum discussed, among others, various efforts of citizens and NGOs in countries such as Maldives, India and others on topics around "marine plastic countermeasures" and "promotion of food waste reduction and recycling".