The Republic of Korea's views on the topics for the global and regional dialogues referred to in paragraphs 8 and 9 of decision-/CMA4, in relation to the work programme for urgently scaling up mitigation ambition and implementation referred to in paragraph 27 of decision 1/CMA.3

Pursuant to paragraph 12 of decision-/CMA4¹, the Republic of Korea (ROK) is pleased to present its views on the topics to be discussed at the global dialogues to be held prior to the first and second regular sessions of the subsidiary bodies and also on the topics suitable for discussion at the regional dialogues to be held in conjunction with existing events in 2023.

I. Introduction

The MPW is an undertaking with the clear objective of urgently scaling up mitigation ambition and implementation in this critical decade. A timely fulfillment of this mandated objective, in our view, would require, as the outcomes of the MWP, (1) clear goals which serve as common strategic orientation, (2) actions targeted towards the fulfillment of the goals, and (3) tools to enable the targeted actions. These three things must be commensurate with each other. Goals without proportionate actions will be no more than hollow words. Planned actions without comparable tools will remain planned. Tools without clear goals and targeted actions will be misused, underutilized or unused. In this sense, the MWP can be thought of as a three-legged race, where the success of the race depends on a balanced pace of all three legs, not on outperformance of any one single leg, which is often the cause of a stumble or a fall.

In our view, we should take into consideration the commensurability between the aforementioned three elements when considering the topics for the global and regional dialogues referred to in paragraphs 8 and 9 of decision-/CMA4. The dialogues should be organized in such a way that the three elements are treated in a prudently balanced manner and that the outcomes in relation to the three elements are proportionate. A skewed emphasis on one element at the expense of the other two will likely render the MWP an unfruitful, faltering enterprise. As such, the topics for the dialogues should touch upon all three elements in an intelligently (not mechanically) balanced manner.

1. Selection Criteria

In the view of the ROK, there are a few selection criteria that have to be taken into account with respect to the topics for the dialogues. The ROK sees three of such criteria as particularly crucial: urgency, impact, and feasibility. The topics to be taken up for discussion at this year's dialogues should be those that are urgent, impactful and feasible. We have to find an optimal balance between these three criteria in order for the topics chosen for the dialogues to lead to fruitful discussions, which will in turn result in optimal outcomes in terms of global emissions reduction. Those topics that are urgent and impactful but are relatively less feasible will not likely lead to optimal outcomes and thus discussions on such topics may need to be better timed and deferred to a later time. And the same reasoning applies to the topics that are of high feasibility and urgency but are of a negligible expected impact. Optimal outcomes could be resulted only from an optimal balance between these three criteria. No topic had better be chosen solely on the basis of its strength in regard to just one single criterion.

¹ UNFCCC, Decision-/CMA4. "Matters relating to the work programme for urgently scaling up mitigation ambition and implementation referred to in paragraph 27 of decision 1/CMA.3," para. 12.



<Figure: Three Criteria for Topic Selection>

In our view, a topic is urgent if there are significant negative trends in the topic area that have to be urgently reversed if the Paris temperature goals are to be attained. Furthermore, a topic can be seen as urgent if early and immediate actions have to be taken so as to avoid or minimize the risk of locking-in GHG emissions for decades to come, as is the case with the buildings sector.

A topic can be seen as most impactful if actions taken in such a topic area will likely result in the greatest amount of GHG emissions reductions. Also, a topic could be impactful if actions in the topic area could potentially produce positive spillovers in the form of emissions-reducing changes in other topic areas, leading to greater emissions reductions in other topic areas than otherwise as in the case of consumption-based urban emissions. A given topic's potential impact should be assessed multi-dimensionally.

A feasible topic could be that in which prospects for greater actions and outcomes hinge more on political will and better coordination than on resource availability (technology, finance and otherwise). Moreover, a topic could be seen as feasible if there is a high level of common understanding for greater action. But if for such a topic a high level of sociopolitical resistance is expected at national and local levels and there are significant barriers (technological and otherwise) as in the case of CCS, its feasibility diminishes accordingly. Thus, a given topic's feasibility can be seen as a function of the extent of common understanding for greater action and the magnitude of sociopolitical resistance and barriers to greater action. However, just because there are a high level of sociopolitical resistance and considerable barriers to scaled up mitigation actions does not mean such a topic should be avoided or deferred until later. It means actions should be directed towards working out ways to lessen the level of the existing sociopolitical resistance and to tackle the current barriers. As such, it may call for, in certain cases, immediate and greater actions, not deferred actions.

2. Global and Regional Suitability

Another key consideration in selecting the topics for the dialogues is each topic's relative suitability for global and regional level discussions. For a certain topic area, scalped up mitigation actions may require a high level of enhanced cooperation and coordination at the global level as might be the case for consumption-based urban emissions. Such topics will be more suitable for the global dialogues. For certain topic areas, there could be significant country-specific or region-specific opportunities for and barriers to greater actions and outcomes, as is the case with AFOLU and carbon dioxide removal (CDR). For such topic areas, only after properly taking into account those regional specificities, can we be able to hammer out pragmatic goals, workable targeted actions, and operable enabling tools to produce measurable outcomes.

The global and regional dialogues are not necessarily mutually exclusive in regard to their respective discussion topics, however. For a given topic, there could be relevant sub-topics more suitable for global considerations and some others more fitting for regional considerations. For all major topics, there are certain aspects that need to be addressed at the global dialogues and other aspects that demand considerations from a regional perspective, as is the case for the industry sector. Careful considerations have to be given to the multidimensionality of major discussion topics, such as the energy, buildings, and industrial sectors, demand-side mitigation, consumption-based urban emissions, etc.

Furthermore, for such major topic areas as the energy and industry sectors where feasibility is greatly limited by political and socioeconomic resistance and barriers rooted in such national circumstances as energy-intensive economic structure and scant natural endowments, it might be more effective and constructive to take *a bottom-up approach*. Such topic areas may need to be broken down into subtopics and addressed first at the regional dialogues where more constructive discussions reflecting national and regional circumstances can take place. And the results of the regional dialogues are then aggregated and taken up later at the global dialogues to produce coordinated, global responses. A constant back-and-forth process in terms of exchanging discussion topics and results between the global and regional dialogues should be encouraged and ensured.

II. Topics for Global Dialogues

In view of the aforesaid criteria and the global and regional suitability of potential topics, the ROK suggests the following topics for the global dialogues in 2023.

1. Consumption-based Urban Emissions²

Consumption-based urban emissions call for urgent global responses. There is a gravely negative trend in global consumption-based urban CO2 and CH4 emissions. With moderate mitigation efforts, consumption-based urban emissions are projected to increase from 29 GtCO2-eq in 2020 to 34 GtCO2-eq in 2050 and could reach as high as 40 GtCO2-eq in 2050 with low mitigation efforts. But potentially, with immediate and ambitious mitigation efforts, global consumption-based urban CO2 and CH4 emissions could be reduced to 3GtCO2-eq in 2050. This significant mitigation potential can be captured "only if emissions are reduced *within and outside of their administrative boundaries* through supply chains, which will have *beneficial cascading effects across other sectors*" (emphasis added).

The IPCC WGIII report identifies three broad mitigation strategies:

- Reducing or changing energy and material use towards more sustainable production and consumption
- Electrification in combination with switching to low-emission energy sources
- Enhancing carbon uptake and storage in the urban environment.

² This section is based on Summary for Policymakers (SPM). In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, p. 30.

These mitigation strategies encompass such key sectors as the energy, industry and buildings sectors. As such, ambitious efforts to reduce consumption-based urban emissions are likely to bring about positive spillovers in the form of emissions-reducing changes in those key sectors. Many of the technically and economically viable mitigation options or 'low-hanging fruits' in key sectors can be harvested through a concerted effort at the global level, since the effectiveness of these strategies, as noted by the IPCC report, pivots on cooperation and coordination with various governmental and no-governmental stakeholders, including national and sub-national governments, industry, and civil society.

In terms of urgency, impact and feasibility, consumption-based urban emissions appear to be a fertile topic area where substantial emissions reductions can be had through *a whole-of-society approach* at the global level.

2. Transport³

According to the IPCC WGIII, the transport sector accounts for about 15% of total GHG emissions globally and about 23% of global energy-related CO_2 emissions. These figures prove that the sector's mitigation measures are urgent and critical. There are many feasible mitigation options in the transport sector. Of the nine mitigation options identified by the report, at least six options present substantial net emissions reduction contributions at costs lower than the reference by 2030, as indicated in the report. Several GtCO2-eq of emissions reductions can be obtainable through such viable options as fuel-efficient light-duty vehicles, light-duty electric vehicles, shift to public transportation, shift to bikes and e-bikes, fuel-efficient heavy-duty vehicles, heavy-duty electric vehicles, efficiency and optimization in shipping, energy efficiency in aviation.

These mitigation options are likely to lead to potential gains in terms of emissions reductions in other sectors, such as the energy and industry sectors and emissions-reducing long-term developments, such as sustainable urban design and infrastructure developments. As such, the overall impact of the mitigation actions that can be readily taken in the transport sector could be far greater than its face value. The transport sector appears to be, as it were, one of the keywords in a crossword puzzle to be solved first.

Meanwhile particular attention is needed to Zero Emission Vehicle (ZEV) given that amongst other mitigation options, ZEV has a great potential to reduce GHG emissions in the transport sector as the WGIII has pointed out. Actions toward ZEV are also impactful as it has beneficial effects in reducing air pollutants, thus ensuring better environmental quality globally. Noting that expanding the use of ZEV requires continuous investments in electric charging and related grid infrastructure, it will be useful to exchange lessons learned and explore solutions to address existing obstacles toward that end.

3. Circular Economy⁴

A circular economy (CE) is a system where the cycle of a product starts with producing and using and then goes to reusing or recycling instead of disposal, pursuing sustainability. Importantly, CE is highlighted in AR6 as an increasingly important mitigation approach and is shown to empower new social actors in mitigation action as it involves actions in reducing embodied energy and emissions. To realize a carbon-neutral society, more emphasis needs to be placed on circular economy policies to use more recycled materials and minimize waste. Especially at the global level, laying an institutional foundation is required for building a cyclical production, distribution, consumption and

³ This section is based on Summary for Policymakers (SPM). p. 32.

⁴ This section is based on IPCC AR6 WGIII p.120

recycling system and promote innovation in related industries.

The IPCC WGIII mentions an urgent need to reduce primary material demand and improve material efficiency in the industrial sector and highlights the importance of emissions reduction through a circular economy. It also states that greater effort is needed to realize the full reduction potential of a CE. It will be useful to discuss the mitigation impact of sustainable production and consumption patterns and explore more sustainable choices concerning products and services, as a fundamental tool to achieve sustainable as well as low-emission development.

Since the COVID-19 outbreak, the amount of waste, including disposables and medical wastes, has rapidly increased. Also, recycling plastics and EV waste batteries are currently under active discussion. Pursuing efficient use of resources and utilizing circular economy approaches as a pathway for achieving sustainable production and consumption patterns could also contribute to mitigation in a global manner.

III. Topics for Regional Dialogues

In the view of the ROK, the following topics are suitable for discussions at regional settings. As is pointed out below, in these topics areas – buildings, industry, and energy – there are crucial and substantial regional contexts that have to be addressed in order to arrive at pragmatic goals, workable actions and operable tools. In our view, a bottom-up approach through the regional dialogues will be more constructive and fruitful for these topics.

1. Buildings⁵

The buildings sector appears to be of high urgency, impact and feasibility. In 2019, global GHG emissions from buildings were reported to be 6% of total net anthropogenic GHG emissions (12 GtCO2-eq). But if emissions from electricity and heat production in the energy sector are allocated to the buildings sector, its relative GHG emissions share increases to 16%.

While low ambition policies increase the risk of locking-in buildings' emissions for decades, if right policy packages are timely implemented emissions from buildings could approach net zero GHG emissions in 2050, according to modelled global scenarios. And as the recent IPCC WGIII report points out, this decade (2020-2030) is critical to avoid the risk of locking-in GHG emissions from the buildings sector.

Up to 61% (8.2 GtCO2) of global building emissions, according to the IPCC WGIII report, could be mitigated by 2050. Of the 61%, energy efficiency policies account for 42%, sufficiency policies for 10% and renewable energy policies 9%. There is a considerable mitigation potential to be captured through better and timely responses in terms of developing technical and institutional capacity, building appropriate governance structures, ensuring a sufficient flow of finance, and sharing know-how, as emphasized by the IPCC report.

Different mitigation strategies reflecting diverse regional conditions seem to be required. The majority of the mitigation potential of new buildings exists in developing countries. And the bulk of potential emissions reductions from the retrofit of existing buildings are in developed countries. Systematic considerations at regional settings of many identified mitigation interventions at the

⁵ This section is based on Summary for Policymakers (SPM). p. 31.

construction phase, at the use phase, and at the disposal phase are urgently needed to avoid the risk of locking-in GHG emissions from the buildings sector for decades.

2. Industry⁶

Policy Strategies for Sustainable Industrial Transitions

Global GHG emissions from the industry sector were reported to be 24% of total net anthropogenic GHG emissions (14 GtCO2-eq) in 2019. If emissions from electricity and heat production in the energy sector are attributed to the industry sector, which uses the final energy, the industry sector becomes the highest-emitting sector with its relative GHG emissions share of 34%.

For sustainable industrial transitions to reduce emissions from the industry sector, region-specific national and sub-national policy strategies are required, as underscored by the IPCC WGIII report. The currently identified policy packages for sustainable industrial transitions include:

- Transparent GHG accounting and standards
- Demand management
- Materials and energy efficiency policies
- R&D and niche markets for commercialization of low-emission materials and products
- Economic and regulatory instruments to drive market uptake
- High quality recycling, low-emissions energy and other abatement infrastructure
- Socially inclusive phase-out plans of emissions-intensive facilities

Various combinations of these policy packages adapted to regional contexts could provide a valuable pool of policy strategies that Parties can draw from when formulating their national and sub-national policy strategies for sustainable industrial transitions.

3. Energy⁷

Policy Packages for Sustainable Energy Systems

In 2019, the energy supply sector accounted for approximately 34% (20 GtCO2-eq) of total net anthropogenic GHG emissions. After reallocating emissions from electricity and heat production to the sectors that use the final energy, the share of the energy supply sector emissions diminishes to 12% of global GHG emissions.

Mitigation actions for net-zero CO2 energy systems include:

- A substantial reduction in overall fossil fuel use, minimal use of unabated fossil fuels, and use of CCS in the remaining fossil fuel system
- Electricity systems that emit no net CO2, including renewables and nuclear power
- Widespread electrification of the energy system including end uses
- Energy carriers such as low-emissions hydrogen, sustainable biofuels, and derivatives in applications less amenable to electrification
- Energy conservation and efficiency

⁶ This section is based on Summary for Policymakers (SPM). p. 29.

⁷ This section is based on Summary for Policymakers (SPM), pp. 28-29.

• Greater physical, institutional, and operational integration across the energy system

The most appropriate strategies for net-zero CO2 energy systems, as the IPCC WGIII report notes, will rest on national and regional contexts and conditions, including the availability of enabling conditions and key technologies. In other words, national and regional circumstances are essential elements for effective policy strategies for net-zero CO2 energy systems.