

## **Background: The World in 2050 – Transformations to Achieve the Sustainable Development Goals**

### **A. Background: The World in 2050 Initiative**

1. Prof. Dr. Nakicenovic is the Executive Director of ‘The World in 2050 (TWI2050)’ initiative and the former Deputy Director General/CEO of International Institute for Applied Systems Analysis (IIASA), an independent, international research institute headquartered in Austria with national member organizations in Europe, Asia, the Americas and Africa.
2. The TWI2050 initiative was established by the IIASA to develop fact-based knowledge and analysis to provide information and guidance for policy makers to aid in the implementation of the United Nation (UN)’s 2030 Sustainable Development Agenda. It brings together more than 60 authors from about 20 institutions, and 100 independent experts from academia, the government, businesses, as well as from intergovernmental and non-governmental organizations from around the world, and has produced two reports in 2018 (*Transformations to achieve the Sustainable Development Goals*) and 2019 (*The Digital Revolution and Sustainable Development: Opportunities and Challenges*) which have been presented at the United Nations Science, Technology and Innovation Forums and the United Nations High-level Political Forums.
3. The TWI2050 reports have also been used for the development of Taiwan’s official Sustainable Development Goals (SDGs). Points (B) and (C) summarizes the findings and recommendations in both reports.

### **B. TWI2050 2018 Report – on the Six Major Transformations Required to Achieve the SDGs**

1. The first report of The World in 2050 initiative, on the six transformations required to achieve the SDGs, was released in 2018. The six major transformations were focused on (i) the need to enhance human capacity, so that humans would be endowed with the education and health required to find decent work and generate income to sustain themselves, (ii) the adoption of a circular economy-oriented approach to engender responsible consumption and production, (iii) decarbonization of the energy system by enhancing energy efficiency, increasing the share of renewable energy, adopting electrification as well as carbon-capture and storage, (iv) developing efficient and sustainable food systems while reducing the environmental impact to the world, (v) designing sustainable cities via the integration of high connectivity, smart infrastructure, high quality services while reducing the environmental footprint, and (vi) developing forward-looking

roadmaps and governance structures that take into account the impact of the digital revolution, science, technology and innovations on society, so as to support sustainable development.



2. The report also highlights five major barriers to the successful transformation to sustainable development: (i) resistance from current owners of fossil fuels and beneficiaries of unsustainable land and ocean practices such as those engaged in deforestation, (ii) resistance from elite groups and wealth owners who would be resistant to the increased taxation needed to fund public services and investments, (iii) the limited capacity of governments to plan and implement policies with a long-term view due to a lack of strong planning units and the reliance of policies with short-term payoffs, (iv) the difficulty in finding a balance between private and public interests, and (v) a lack of public understanding on the needed transformation thereby resulting in an overall public resistance to change.
3. Accordingly, the report makes the following three broad recommendations to address the barriers as well as the transformations required. The report highlights some economic instruments, such as corrective pricing (such as carbon tax) and regulations to promote sustainable development transformations (such as energy efficiency requirements), though the political and social policy instruments stand out as being noteworthy. In terms of political instruments, the report highlights the need for (i) integrated planning between ministries such as via an inter-agency task force, (ii) public deliberations such as town hall meetings to elicit public opinion, (iii) public-private partnerships, (iv) independent agencies or commissions to oversee long-term policy implementation, (v) international diplomacy to secure

the benefits of cross-border cooperation, (vi) the setting up of a political institution to provide democratic oversight of science and technology, such as to prevent scientific abuses and enhance public confidence in scientific conclusions, and (vii) the need to maintain and publish the tracking of SDG progress indicators for public accountability and to win public trust. In terms of social instruments, the report points to (i) the need for public awareness campaigns to educate on the SDGs, (ii) the establishment of social norms such as by scoping the concept of sustainable development as one of intergenerational responsibility, (iii) the promotion of grassroots activism, such as via investment activism (e.g. calling on asset managers to divest from fossil-fuel companies), consumer activism (e.g. preferential purchases of goods and services from socially responsible companies) or shareholder activism (e.g. shareholder resolution to require company to report on climate change commitments), and (iv) the engagement of the moral teachings of the world's major religions to join in the global movement for sustainable development and climate justice.

### **C. TWI2050 2019 Report – on How the Digital Revolution Can Help Societies Achieve the SDGs**

1. The second TWI2050 report is focused mainly on one of the major transformations highlighted in the first report: digital transformation. The second report draws attention to the benefits that digitalization can bring to sustainable development, as well as the possible negative impacts, and how these can be addressed. The report also highlights the necessary preconditions for a successful digital transformation, including prosperity, social inclusion, environmental sustainability and good governance.
2. The report emphasizes the importance of adopting a long-term perspective to understand human development. To this end, the report explains that the digital revolution is part of a series of civilizational phases that humanity has undergone, from the Neolithic Revolution which led to agriculture, to the Industrial Revolution which created tools to increase productivity, to the Digital Revolution beginning in the 1950s which has the potential to transform the cognitive capabilities of human beings. Digital technologies such as artificial intelligence and big data analytics can therefore potentially lead to a quantum leap of human civilization and it would be necessary for policymakers, researchers, companies, and civil society to intensify their efforts to understand the far-reaching structural changes that digitalization can bring to our society and sustainability transformations, such as in terms promoting the circular economy and decarbonization, as well as to enhance resource and energy efficiency and

sufficiency.

3. However, in order for humans to tap on the potential of the digital revolution, it is necessary for our society to create an interdependent system architecture, which involves (i) using education to enable people's understanding of the emerging digital shifts, (ii) creating transformative knowledge to integrate digital and sustainability-oriented transformations, (iii) conducting large-scale modernization of public institutions and educational programs to prepare for the new digital age, (iv) creating experimental spaces to nurture fast-learning and innovative thinking, to enable technology and institutional diffusion, (v) modernizing global governance and international institutions like the United Nations, in view of how the digital revolution will impact on how global alliances will be built, and (vi) preparing for a world where there will be new development models as well as new social contracts transformed by digitalization, and how this will impact on our visions on how sustainable development can be carried out.