TRANSFORMATIVE PATHWAYS TOWARDS SUSTAINABLE AND RESILIENT SOCIETIES IN 2030 AND BEYOND – EXPERIENCES OF THE WORLD IN 2050 (TWI2050)

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Today, no science-based pathways exist for successfully achieving all SDGs simultaneously. The global transformations necessary to achieve the SDGs urgently need a robust scientific foundation and fact-based way forward. The World in 2050 (TWI2050, www.twi2050.org) is global multi-year, multi-stakeholder, interdisciplinary research initiative designed to provide a science-based, integrative approach to address all 17 SDGs building on the synergies and multiple benefits while alleviating trade-offs across competing SDGs. This first TWI2050 report was launched at the High-level Political Forum (HLPF) in July 2018. It presents major challenges facing humanity to achieve the transformative changes toward sustainable futures. It used the SDGs and longer term sustainability indicators as a guiding narrative in its framework. TWI2050 has set out to develop sustainable development pathways achieving all 17 SDGs. Rather than projecting into the future, it describes the compelling narrative from a ‘backcasting’ perspective, namely what needs to be done now and in the immediate future to steer the international community, in a cooperative way, toward achievement of 2030 Agenda and good life for all on a healthy planet beyond 2030. To make the SDGs applicable to models they need to be interpreted and translated to indicators and target values. The transformative, model-based Sustainable Development Pathways show how select SDG indicators can be achieved. These pathways are the core of the report presenting an integrative approach that builds on the potential synergies across the 17 SDGs. To this end, Shared-Socioeconomic Pathway 1 (“Sustainability”) and similar scenarios served as basis. However, there are several knowledge and sustainability gaps: several of the SDGs are not covered in the SSPs and others are not achieved in SSP1, even though it is ambitious, calling for interpretation and deviation from SSP1.

The sustainable development pathways show a range of common characteristics, reflecting the notion of the UN 2030 Agenda: advances in education and investments in health infrastructure lead to increases in life expectancy and reduced population growth; reductions in demand (in water, energy, food, etc.) through changes in life-style and harnessing of efficiency potentials decreases pressure on natural resources, freeing capacity to serve populations groups so far excluded from many basic services and returning land to nature, benefitting biodiversity; rapid decarbonization of the energy system supports achieving the Paris Agreement temperature goals.

A range of research needs for advancing model and pathway development are presented in the report, calling for collaboration with researchers from other fields, foremost social scientists to improve representation of SDG related to human development and governance to fill knowledge gaps. During the course of TWI2050 community, building and interdisciplinary work has led to a range of suggestions for enhancing scenarios and models to broaden their scope, test their assumptions and improve the interpretation of results.

In order to provide more actionable policy recommendations, six exemplary transformations are highlighted throughout the report: i) Human capacity and demography; ii) Consumption and production; iii) Decarbonization and energy; iv) Food, biosphere and water; v) Smart cities; and vi) Digital revolution.