

## 1 Introduction

The World in 2050 (TWI2050) is a partnership between science and policy that aims to develop pathways toward sustainable development, which realize human welfare gains while staying within planetary boundaries<sup>1</sup>. TWI2050 aims to address with an integrated and systemic approach the full spectrum of transformational challenges related to achieving the 17 Sustainable Development Goals (SDGs)<sup>2</sup> and reach the desired just and safe target space for people and planet by 2050 and beyond.

Today, no science-based pathways exist for successfully achieving all SDGs. TWI2050 was launched by the International Institute for Applied Systems Analysis (IIASA), the Sustainable Development Solutions Network (SDSN), and the Stockholm Resilience Center (SRC). The initiative brings together a network of leading policymakers, analysts, modeling and analytical teams, and organizations from around the world to collaborate in developing pathways toward sustainable futures and policy frameworks needed for implementing the SDGs, and more importantly, for achieving the needed transformational change.

## 2 Motivation

One of the most pressing challenges currently facing the global community is how to realize the benefits of future global social and economic development within a safe and just operating space of a stable planet. There is still significant inequality between and within societies and overwhelming evidence of rising global risks due to ever increasing human pressures on the planet.

The SDGs set out clear and ambitious global goals across social, economic and environmental areas with important interactions between and among these goals (e.g., between energy and climate, between food security and ecosystems, etc.) (Figure 1). What is lacking, but urgently required, is an assessment of the viability of achieving these multiple goals simultaneously using integrative and systemic methodological approaches.

The grand ambition and scale of the SDGs (achieving good sustainable lives for all citizens in the world by 2030), coupled with rising global environmental risks, all add up to the necessity of identifying global transformation pathways to succeed. The challenge lies in understanding how these complex and sometimes competing social, economic and environmental objectives can be met at global, regional, national, and sub-national scales.

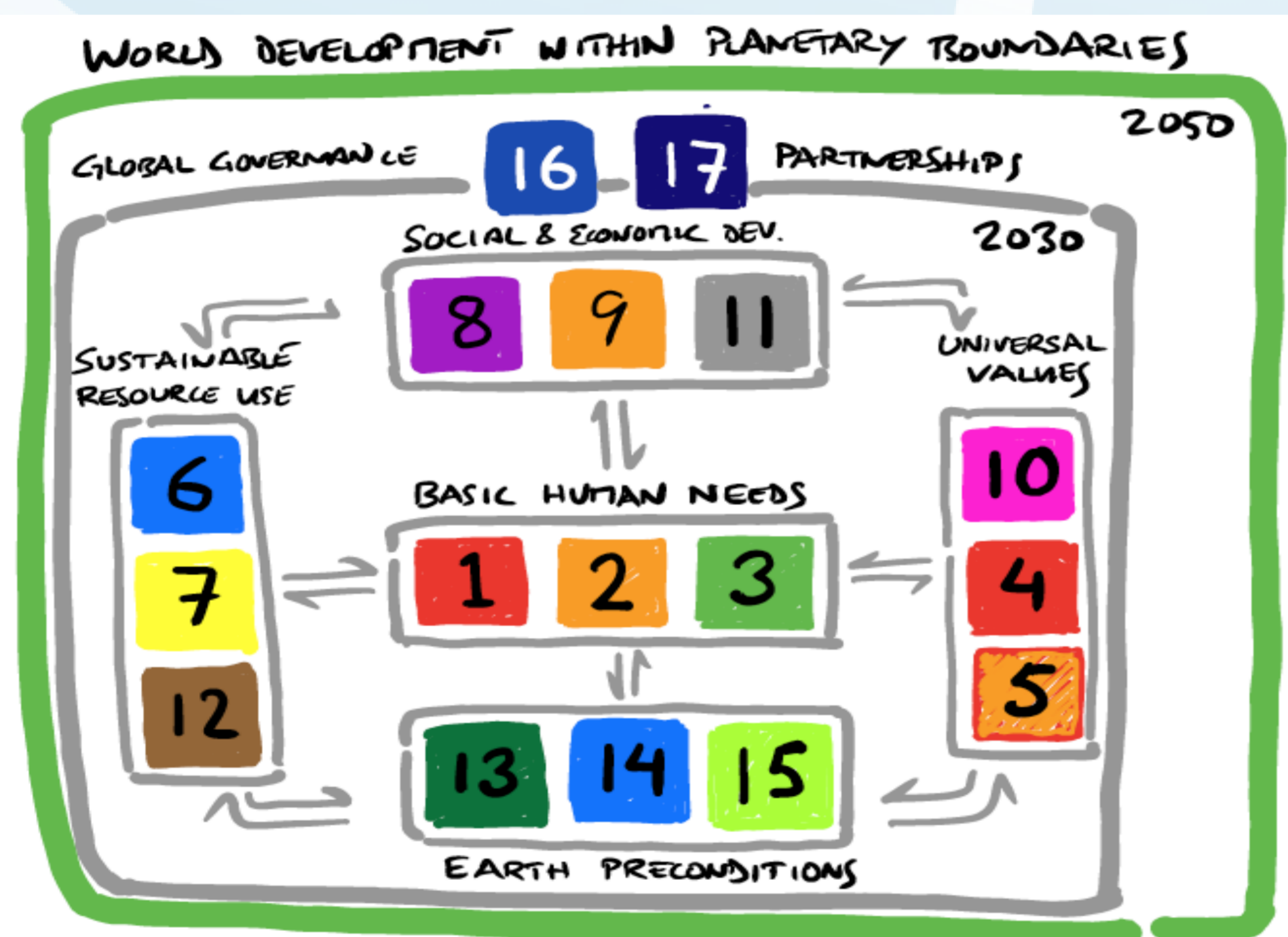


Figure 1: Conceptual framework for The World in 2050 guiding a narrative storyline for a Sustainable Development Pathways (SDP) of attaining the SDGs within Planetary Boundaries.

## 3 Sustainable Development Pathways

Ensuring future sustainable development will require socio-economic development within sustainability limits and budgets for improving human well-being, while preserving natural resources and environmental processes that regulate ecosystem and ensure planetary resilience.

A sustainable development pathway must also take account of the critical drivers of human capacity, demographic changes, opportunities for technological innovation and diffusion, sound institutions and transformative governance capabilities, sustainable diets, and other critical socio-economic developments.

The approach taken by TWI2050 differs from other scenario analyses and integrated modeling because it is goal-based oriented and thus normative. First the target space for 2050 and beyond is to be defined through a set of indicators and those are used to “backcast” development from the base-year and include the achievement of SDGs by 2030 on the way to social and economic sustainability within planetary boundaries (Figure 2).

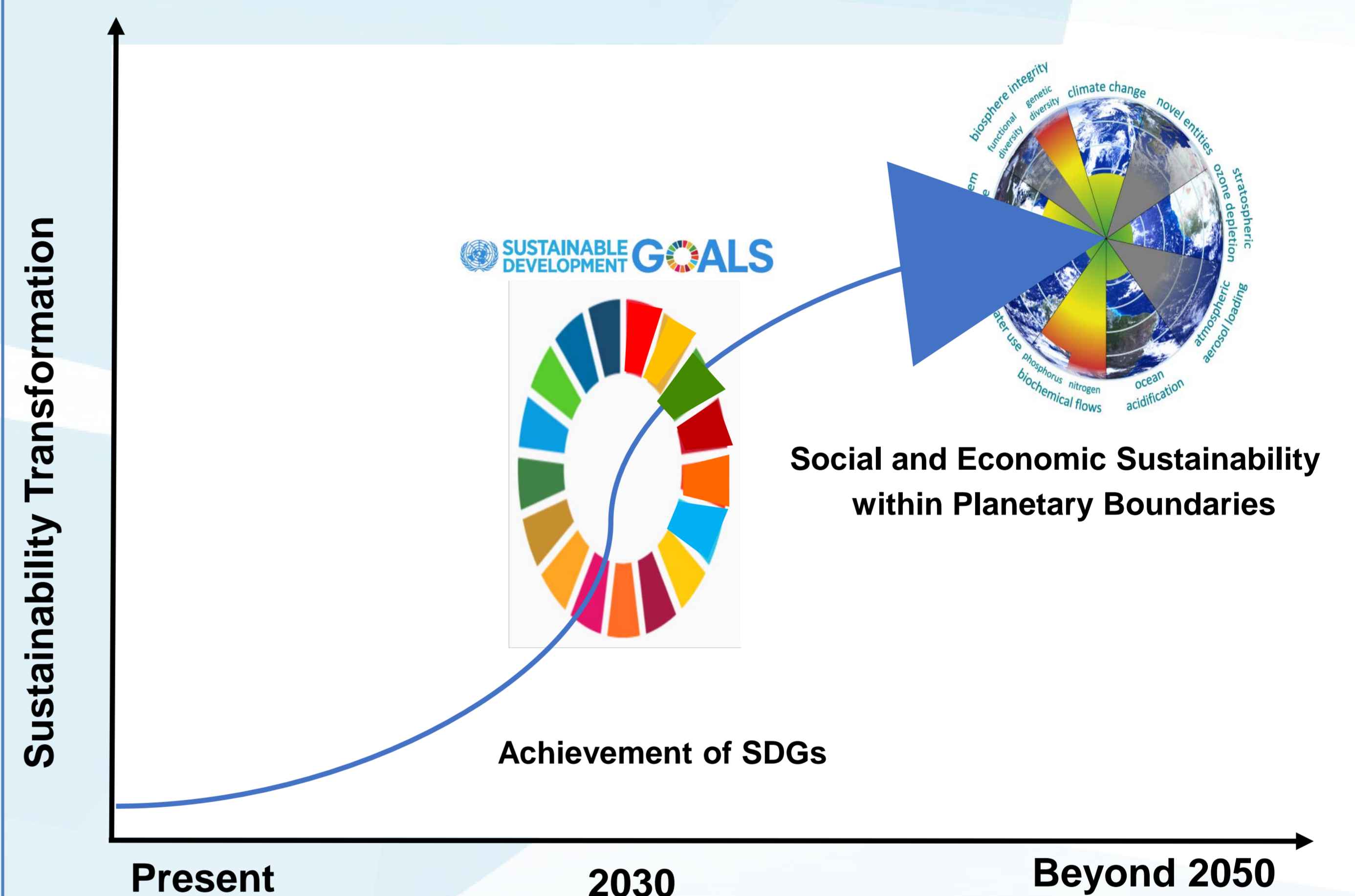


Figure 2: The illustrative graphic shows alternative sustainable development pathways (SDPs) that reach all 17 SDGs and the transformation toward sustainability within planetary boundaries beyond 2050. There are many other pathways, perhaps and infinite number that fail to reach SDGs and sustainable futures. The objective of TWI2050 is to develop a transformational storyline and a number of SDPs with model-based quantification and consistent narratives. Source: based on WBGU 2011<sup>3</sup>.

This new generation of back-casting scenarios would therefore need to explore pathways towards achieving the goals, and exploring possible interactions between SDGs (synergies and trade-offs) and the different steps that need to be taken (including barriers and opportunities). Moreover, the scenarios also need to address some of the key uncertainties involved in our understanding of the future. By taking a long-term perspective TWI2050 allows for an assessment of the interactions across SDGs beyond 2030, ensuring that the long-term trajectories of development pathways indeed respect planetary boundaries and are hence sustainable.

## Founding Partners & Contributors

TWI2050 brings together a network of leading policymakers, businesses, analysts, modeling and analytical teams from around the world to collaborate in developing pathways toward sustainable futures and policy frameworks needed for implementing the SDGs, and more importantly, for achieving the needed transformational change. For an up-to-date list of members and partners, how to join and general information please visit: [www.twi2050.org](http://www.twi2050.org)



## References

- Rockström, J., W. Steffen, et al. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2): 32.
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