

## Sapporo Declaration

The Society of Chemical Engineers, Japan  
Declaration on the United Nations SDGs at Sapporo 2019  
- Chemical Engineering for Human Well-Being -

Recognizing the 17 Sustainable Development Goals (SDGs)\* embracing People, Planet, Prosperity, Peace, and Partnership as common regional goals and shared visions in the Asia-Pacific region,

Projecting that the material and energy intensity in the Asia Pacific region will become higher, where the greatest growth in the world is expected,

Witnessing visible consequences of fast-changing climate recently described as “climate crisis” calling for urgent actions to implement global environmental agreements such as the Paris Agreement and Kigali Amendment,

Recognizing the challenges facing Small Island Developing States (SIDS), particularly the acute exposure to natural disasters and economic shocks,

Acknowledging the contribution of the United Nations Industrial Development Organization (UNIDO) to support the drafting process and dissemination of this declaration as a UN agency advocating its circular economy and green industry concepts,

Conscious of Sapporo SDG Future City Plan building a global model for an environmental city in a cold climate that seeks to realize “Eco-Capital Sapporo,” a sustainable city where the next generation of children can live happily,

The board members, individual members and corporate members of The Society of Chemical Engineers, Japan (SCEJ), have declared as follows.

(Objective)

1. The objective of this declaration is to
  - i. Ensure that chemical engineers are engaged in the promotion of human well-being through the evolution of chemical engineering and related technologies;
  - ii. Invite academic communities, the private sector, and governments from diverse disciplines and regions to collaborate with chemical engineers to achieve the SDGs, leading to an improvement in human well-being;
  - iii. Share the commitment and seek partners to support the implementation of the declaration.

(From efficiency to sufficiency)

2. To achieve human well-being, we propose to adopt the philosophical concept of "sufficiency," aiming at establishing the well-being of people by improving their working conditions and the environment in addition to lowering material and energy intensity by increasing process efficiency.
3. We reevaluate conventional engineering approaches to create new frameworks to achieve sufficiency by identifying technologies that enable green and sustainable chemistry to form the building blocks of a sustainable society.

(Emerging technologies)

4. While continuing quality activities in research and development, we increase our emphasis on accelerating the adoption of emerging technologies. This will be done by offering opportunities for creating new linkages within and beyond the existing disciplines of chemical engineering. We strive to play a vital role in orchestrating interdisciplinary and transdisciplinary projects that enhance our profession.
5. We introduce cutting-edge technologies including artificial intelligence, the internet of things, robotics, augmented reality, blockchain, and fintech, in pursuit of a sufficiency economy and society.

(Diversity and inclusion: gender equality, minorities, and refugees)

6. We strive to increase, in the next decade, the number of female faculty members, students, researchers, and engineers who will lead research and development teams in the chemical engineering discipline.
7. We believe reducing gender inequality leads to a better working condition for all and improves overall public well-being.
8. We believe inclusiveness nurtures innovation, and we embrace diverse perspectives, values, and cultural backgrounds of the people we work with.
9. We are committed to mobilizing resources for chemical engineering capacity building opportunities for the economic empowerment of minorities, refugees, and communities that are lacking engineering education and research capacity.

(Education and research)

10. The new and inclusive approaches of chemical engineering that seek to achieve a sufficiency economy and improve human well-being as described above will need to be incorporated into the education and research activities of chemical engineers in the coming decade. Through high-quality education and research that incorporates these new approaches, the chemical engineering discipline will be able to contribute to the SDGs.
11. We make further efforts to encourage youth, through intergenerational and intercultural interactions, to lead and co-design SDG-aligned research in consultation with relevant stakeholders. Using different research methods including technology-centered and SDG issue based approaches will assist in the development of chemical engineering methods that improve human well-being. This research should include an analysis of both positive and negative impacts on the achievement of the SDGs.

(Industry)

12. Industry solves environmental and social problems by supplying safe and affordable products in a competitive market.
13. We actively enhance the sustainability of manufacturing plants by pursuing climate change mitigation and adaptation, improvement in efficiency, and the achievement of human well-being of workers.
14. We recognize that small and medium enterprises (SMEs) and large corporations play an equally vital role in driving innovation, economic growth and job creation toward achieving the SDGs.
15. We proactively encourage youth and junior researchers to interact with SMEs to jointly tackle the problems faced by our region.

(Local to global cooperation)

16. We cooperate in partnership with governments, the private sector, and other organizations, independent of political dynamics, for the goal of achieving sustainability and human well-being.

(Awareness and broadcast)

17. We strive to raise awareness among the public, governments, the industrial sector, and academic communities on the philosophy of this declaration.

(Progress monitoring)

18. We will monitor the progress of the above activities and report the results biennially at relevant chemical engineering meetings.

## Drafting committee

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\* Transforming our World: The 2030 Agenda for Sustainable Development, United Nations 2015



The Society of Chemical Engineers, Japan (SCEJ) <http://www.scej.org/en/>



United Nations Industrial Development Organization (UNIDO) <https://www.unido.org/>



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**SUSTAINABLE  
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