

## **Combining knowledge for a fundamental innovation of land use to combat global environmental challenges**

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### **Program objectives**

To mitigate and adapt to global environmental problems, the relationship between various regional socioeconomic activities and natural capital need to be substantially improved. This program strives to present a new vision of land ownership and use while developing a general-purpose and science-based institutional framework and policies. It aims to achieve social implementation and the adoption of scaled-up mechanisms that drive changes in land use. Finally, the program aims to build and share its findings internationally.

### **Mission**

Land use generates a variety of socioeconomic benefits, and as a foundation for socioeconomic activities, it plays a major role globally in addressing population growth and reducing poverty. However, both socioeconomic activities on land and changes in land use create core global environmental challenges, such as greenhouse gas emissions and the depletion of ecosystem services. Drastic improvements in land use and management practices, such as sustainable intensification, are required in certain geographic areas. Some of these areas may be experiencing extreme depopulation, which hinders the capacity for innovation in land use. For example, changing the sites or methods of land use in rural or urban areas can enhance ecosystem services, flood control capacity, and soil carbon sequestration, while stimulating the deployment of renewable energy. These science-based innovations are required while the remaining time for us is limited.

Challenges must be confronted to substantially improve land use. One is to resolve the conflict between regional collective actions and the actions of individual actors, including private sectors in the current socioeconomic system. For example, it is particularly difficult to design a system that promotes collective action by diversified farmers while under the influence of various downstream actors in the food system. In addressing global environmental concerns, policies for mitigation and adaptation often affect individual actors, which impedes unified action from an entire region. Another challenge is the need to develop organizations and strategies that address issues arising from the varied relationships between socioeconomic activities and natural capital in diversified contexts and geographical areas. Furthermore, there are additional perspectives to coordinate in new strategies. As examples, land use forms the basis of

local culture, and the population in each region is drastically changing. Additionally, land use is often accompanied by water use. Rural and urban areas further complement and interlink with each other as well.

This program aims to propose initiatives for improving the use of land and its associated water resources, as well as the institutional frameworks and policies for scaling them up. Additionally, it should contribute to the establishment of international standards for institutional frameworks and policies; the program will do so by facilitating an international policy ecosystem for the exchange and generation of innovative ideas. Specifically, the program will center around the following objectives: ① to reconceptualize “ownership” over land and water resources and present new institutional frameworks based on relevant novel concepts; ② to propose strategies and organizations for coordinating land use, while creating and integrating evidence-based incentives from the national government, local governments, and private sector; this would result in the establishment of institutional and policy frameworks supporting these incentives; ③ to build an institutional framework to visualize scientific data on the outcomes of policies, share them with various actors, and reflect on how to improve and scale up policies; ④ to establish international rules and norms for the sustainable use of land and water in harmony with market and trade systems.