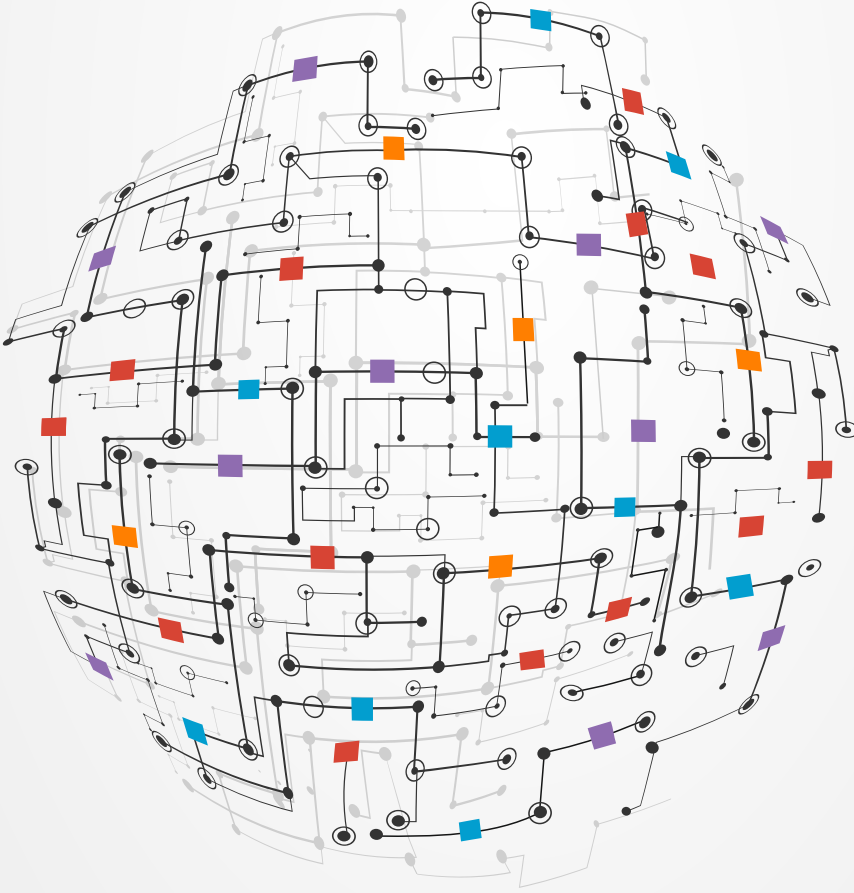




TÜRKİYE BİLİMLER AKADEMİSİ  
TURKISH ACADEMY OF SCIENCES

# SCIENCE DIPLOMACY FOR GLOBAL CHALLENGES



# **SCIENCE DIPLOMACY for Global Challenges**



TÜRKİYE BİLİMLER AKADEMİSİ  
TURKISH ACADEMY OF SCIENCES

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## FOREWORD

Communication skills have been improved by technological developments; however, a complete understanding or detailed explanation of certain global and regional problems is sometimes lacking. Misuse of natural resources, such as food, water, land, and energy, as well as the imbalance between production and consumption in meeting basic human needs, have become critical and long-standing global challenges. These issues have accumulated over decades and can no longer be solved by individual nations acting alone. Scientific encouragement, international collaboration, and strategic planning are now essential. We must recognize that many of the most pressing problems facing humanity today require joint action and shared responsibility.

In the contemporary era of profound global interconnectedness, science has emerged as a discreet yet influential ally to diplomacy. In the context of geopolitical divisions, the establishment of a unified scientific understanding has the potential to serve as a unifying force, fostering collaboration and cooperation across diverse political boundaries. The organization has been found to encourage dialogue, nurture trust, and often lead the way in tackling challenges that transcend nations. Such challenges include climate change, public health crises, food and energy security, and the rapid evolution of technology. In this context, science diplomacy is not merely a conceptual framework, it is an indispensable practice for the collective future of humanity.

This book, "Science Diplomacy for Global Challenges", is the culmination of a collaborative effort between the Turkish Academy of Sciences (TÜBA) and the Association of Academies and Societies of Sciences in Asia (AASSA). This work represents more than a mere publication; it is a reflection of our collective commitment to engage, connect, and co-create across borders.

At TÜBA, concerted efforts have been made to incorporate science diplomacy into the organization's international vision. The progression of our endeavours in recent years in TÜBA has led us to numerous platforms, encompassing both formal and informal settings, where the realms of science and diplomacy converge. TÜBA has contributed to high-level dialogues, including the G20's Science 20 meetings, and has collaborated closely with the InterAcademy Partnership (IAP). Furthermore, we have facilitated enhanced regional collaboration through the International Science Council (ISC) and All European Academies (ALLEA). The institution has formally entered into bilateral cooperation protocols with a number of academies across the globe, and including those in Uzbekistan, Indonesia, and Mongolia. The primary objective of these agreements is not merely to symbolise mutual collaboration, but rather to facilitate collaborative research endeavours, facilitate the exchange of scholars, and encourage the publication of shared research findings. In all instances, the guiding principle has remained consistent: the utilisation of science as a conduit for peace, development, and understanding for each nation.

TÜBA programmes and events have consistently been both full and meaningful on scientific days over the past year. Significant milestones have been commemorated in collaboration with more than 30 sister science academies, and regional symposiums have been convened. Furthermore, the opportunity to celebrate technological achievements has been shared with other nations, as demonstrated by TÜBA's participation in the TEKNOFEST events, where they exhibit stands on scientific communication and publication. Through educational initiatives such as our international summer schools, we have facilitated engagement with young scientists from across the Turkic world, thereby contributing to the development of the next generation of science diplomats.

These actions are not isolated incidents. This initiative forms part of a coordinated, strategic effort by TÜBA to use science as a universal language that can transcend cultural, disciplinary and ideological boundaries. By engaging in global networks, hosting critical forums, and promoting co-authored publications such as this one, we are ensuring that science diplomacy is both real and visible, and that it has a significant impact.

The collaboration with AASSA has been a fundamental aspect of these endeavours. The forum provides a space for the convergence of diverse perspectives, underpinned by a mutual respect framework, thereby fostering a collaborative approach to problem-solving. This book, with its contributions from multiple authors across the region, provides a compelling illustration of the vitality and urgency of the ongoing discourse on science diplomacy. The chapters demonstrate the practical application of science diplomacy, challenging the perception of it as a theoretical concept and showcasing its role as a dynamic and evolving endeavour, ranging from education to environmental resilience, from governance to technological equity.

I would like to express my sincere gratitude to our colleagues at AASSA, the editors, and each author who contributed their perspective to this volume. It is hoped that the book will inform and inspire its readers, encouraging them to view science not only as a source of knowledge but also as a tool for empathy, a force for cooperation, and a path towards a more sustainable world.

World peace and social justice are not easily achieved. Even oxygen and land are limited resources. We must learn to consume only what is necessary, no more. Even in outer space, we must refrain from becoming occupiers and instead remain respectful and peaceful. To achieve peace, we must first be at peace with ourselves and show respect for others. We are witnessing an increasingly uncontrolled use of power. Science diplomacy can serve to moderate individuals, societies, and world leaders, encouraging them to act with restraint and responsibility. Science policy, in turn, can be a vital tool in supporting the pursuit of global peace.

**Prof. Dr. Muzaffer ŞEKER**  
TÜBA, President

# **PREFACE**

## **SCIENCE DIPLOMACY AND SCIENCE ACADEMIES**

*"Science Diplomacy for Global Challenges"* is another valuable work of a successful partnership between the Association of Academies and Societies of Sciences in Asia (AASSA) and the Turkish Academy of Sciences (TÜBA). It discusses how science is changing its role in international affairs and how working together on science can help the global need for sustainable development. It also deals with the contribution of science academies as agents of diplomacy towards science diplomacy and sustainable development. The book brings together different views and real-life examples, which makes it a useful addition to the study of science diplomacy.

Conventionally speaking, diplomacy means the conduct of relations between recognized actors by their agents through public channels and peaceful means. Traditionally, diplomacy has been confined to peaceful interactions among legal-political bodies. Nowadays, diplomacy has come to designate a broad meaning referring to the interactions between not just legal-political bodies of states but also among varied bodies of states and non-state actors. Moreover, the sphere of diplomacy is no longer confined its traditional focus on matters of high politics, it has now widened to include diverse issues among which are scientific cooperation and sustainable development.

The issues regarding sustainability and sustainable development have been subjects of significant discussion in the last four decades. The increase in human population, uneven development among and within the societies, huge disruption caused by epidemics, pandemics, wars, and displacements of large human groups and limits of our resources make sustainability even more urgent in our day. As these issues transcend the legal-political boundaries, it is an imperative that we must embark upon a global mobilization and cooperation to tackle with them. Science being universal and science academies being the most prominent science organizations, science diplomacy carried out by science academies is well positioned to make a significant contribution in this respect.

Science diplomacy should be considered as a distinct and independent field, with its own unique objectives and methodologies. The report encompasses a wide range of collaborative endeavours between scientists and policy institutions. AASSA has consistently emphasised the significance of these meetings in addressing issues of cross-border concern, including climate change, the transition to alternative energy sources, population health, and technological governance. Scientific knowledge has the capacity to facilitate mutual comprehension between states, engender trust, and enable collaborative problem-solving in the context of international relations.

The chapters of this book address a variety of subjects, including the practical implementation of sustainable development goals, effective public communication of scientific research, exploration of polar regions, the formulation of novel policies to promote innovation, and the role of academies within institutional frameworks. Each chapter demonstrates the importance and necessity of science diplomacy in dealing with



the current uncertainties surrounding geopolitics and development. The contributions presented herein are grounded in empirical evidence and informed by the authors' first-hand involvement in the process of integrating scientific knowledge and policy formulation.

AASSA aims at being a platform for science diplomacy efforts and has always been attentive to sustainability and sustainable development goals. It is a non-profit international organization that brings together science academies from countries in Asia and Oceania. AASSA aims at being a platform for science diplomacy efforts and has always been attentive to sustainability and sustainable development goals. AASSA works to bring science and public policy together and encourages academies to play a more active role in international cooperation.

TÜBA is one of the most active members of AASSA' and its involvement has been a significant impetus in the realization of this project. TÜBA has always supported the role of science in diplomacy and has taken real steps to bring together scholars, policymakers, and diplomats. I am grateful for their cooperation and commitment to this shared vision.

I would like to thank the people who contributed to this book, as well as the editors. Their work offers a timely and thoughtful reflection on how science can help to create a better future for the world. I hope this publication will be a useful reference for people working at the crossroads of science, policy and international relations.

**Prof. Dr. Ahmet Nuri YURDUSEV**  
AASSA, President

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