

# INTERNATIONAL CONFERENCE

CO-HOSTS: TIFAC & IIASA



# SYSTEMS ANALYSIS FOR ENABLING INTEGRATED POLICY MAKING

AUGUST 10 - 12, 2022

NEW DELHI, INDIA



الجمعية العلمية الملكية  
Royal Scientific Society



Japan  
Committee  
for IIASA



## ABOUT TIFAC

Technology Information, Forecasting and Assessment Council (TIFAC), ever since its inception in 1988 has been making significant contributions as a technology think tank specializing in Technology Information services, Foresight exercises, Innovation support and Technology demonstration programmes. The underlying motto of TIFAC activities during the past three decades has been to guide and catalyse national initiatives in Science and Technology.

Over the last thirty years, TIFAC had a unique track record of not only pioneering preparation of Technology Vision documents for the nation but also of providing technology related market information, setting up models of technology and innovation support be it with risk sharing project mode or under Mission mode.

## ABOUT IIASA

The International Institute for Applied Systems Analysis (IIASA) is a multi-national, independent organization devoted to interdisciplinary, policy-oriented research focusing on selected aspects of environmental, economic, technological and social issues in the context of global change. IIASA's research is organized around fields of policy importance rather than academic disciplines and serves as a neutral forum for sustained investigation and discussion of global and international issues. IIASA researches real world problems using cutting-edge science. It provides practical and independent insights into today's most pressing global issues relating to the environment, society and technology. It has also been a leading contributor for over 30 years to the development and refinement of assessment and decision-support methodologies, global databases and analytical tools.

## ABOUT THE CONFERENCE

As the global economy was focusing on a sustainable development path wherein climate responsiveness along with growth of every nation was a key indicator for progress, the COVID-19 pandemic has brought forth unprecedented economic, environmental, and social change. Increased uncertainty looms in business environments through major loss of incomes, lower growth projections, restrictive expenditure budgets on growth areas, and the need for augmenting new technologies. The heightened complexity of this global crisis bring with them a range of vulnerabilities and opportunities, and calls for an integrated systems approach that will prevent solutions for one problem causing unintended consequences elsewhere. There is urgent need for large-scale system literacy to enable participation of at-risk population and duty-bearers to deal with intractable problems such as climate change, environmental degradation, unplanned urbanization etc.

With the imperative of tackling climate change and responding to a radical paradigm shift toward the post-COVID-19 global technology, consumption and population patterns, there is growing consensus that sustainable development is the only way to avert environmental and social disasters. Systems analysis is a powerful tool that can be used to find integrated solutions and inform policy-making that maximizes co-benefits and minimizes trade-offs of a sustainable transition to achieve the Sustainable Development Goals (SDGs). Rightly so, big data analytics, for long been billed as a solution space but the capacity for small data analytics to fuel real-time decision making at local level has remained a significant gap. Potential areas of interest in the region include the development of the agricultural sector, urban systems management in post-carbon cities, expanding new edge technology, growth initiatives that depend less on fossil fuel energy and more on block chain technology.

This conference, co-hosted by the Technology Information, Forecasting and Assessment Council (TIFAC) and the International Institute for Applied Systems Analysis (IIASA) with partners from China, Iran, Japan and Jordan will build on the expertise and interlinkages between the system analysts' communities in Asia to discuss and analyze transformative approaches to achieving sustainability across multiple stakeholders, sectors and regions. Topics to be discussed will include a qualitative approach to gain an in-depth understanding of social issues and their application to regional challenges.

## Conference Objectives

*Sharing regional experiences on the use of systems analysis to provide conceptual frameworks for assessing potential risk of climate induced challenges.*

*Sharing regional experiences on the use of systems analysis to provide integrated solutions to governance issues, decision making and policies.*

*Highlighting examples of global and national case-studies on tools and techniques of systems thinking.*

*Sharing Advances in system Analysis for future applications in impacts, vulnerability & adaptation planning space.*

*Identifying effective ways of collaboration and exploring examples of networks, cooperation, processes, partnerships and stakeholder engagement activities in Asia.*

*Identifying regional gaps and opportunities to develop and implement projects in partnership with IIASA.*

## Why Participate?

*This conference will try to build upon the expertise and interlinkages between the system analysts' communities in Asia to discuss and analyze transformative approaches to achieving sustainability across multiple stakeholder, sectors and regions.*

***Together towards a sustainable future!***



## Target Audience

*The conference is expected to be attended by academicians, researchers, practitioners, government officials, IIASA representatives, and other international delegates. This event provides an opportunity for participants to learn about national and international perspectives on how system analysis could bring transformational changes and also reflect on the operationalization of the existing conceptual frameworks for assessing SDGs.*

 <b>Conceptual Framework</b>	 <b>Events</b>	 <b>Regional Collaborations</b>
<i>Sharing regional experiences on the use of systems analysis to provide conceptual frameworks for assessing potential risk of climate induced challenges</i>	<ul style="list-style-type: none"><li>• <b>5 Overarching themes</b></li><li>• <b>22 Sessions</b></li><li>• <b>22 Keynote Addresses</b></li><li>• <b>85+ Lectures</b></li><li>• <b>Digital Posters Presentation</b></li><li>• <b>3 Panel Discussions</b></li></ul>	<i>Identifying effective ways of collaboration and exploring examples of networks, cooperation, processes, partnerships and stakeholder engagement activities in Asia.</i>



# THEME : 1

## SUSTAINABLE DEVELOPMENT - SYSTEMS ANALYSIS APPROACH

The 2030 Agenda for Sustainable Development outlines 17 individual SDGs that represent commitments to reduce poverty, hunger, ill health, gender inequality, environmental degradation, and lack of access to clean water and sanitation. The objective of this session is to understand the fundamental dynamics, linkages, and feedbacks between the SDGs and identify leverage points to effectively influence intentional and minimize unintentional changes in the system.



# THEME : 2

## A SYSTEMS ANALYSIS APPROACH FOR COMPLEX GLOBAL PROBLEMS

With trends of the growing global population, growing urbanization, and climate change impacts, the tightly interconnected water, energy, and food systems are facing further pressures. The increasing demands for all three puts the water-food-energy nexus at the center of sustainable development. This session will discuss how knowledge, tools and methodologies from different disciplines can be integrated to understand the inextricable linkages between water, food, and energy systems. Furthermore, this will also discuss how such challenges can be addressed with active participation and engagement of multiple stakeholders from government, industry, private, and public sectors to deal with complex problems such as poverty, climate change, ecosystem restoration, sustainable livelihood standards and thereby endorse local and global partnerships that will undoubtedly drive implementation and innovation in engineering practice, public policy, institutional and market mechanisms, research, and development around the world for several decades.



# THEME : 3

## DIGITALIZATION AND SUSTAINABILITY

The convergence amid sustainability and digitalization brings untapped opportunities by bridging numerous SDGs research gaps by providing new data sources and enhanced analytical capacities. Artificial Intelligence (AI) is the ally that sustainable development needs to design, execute, advise and to plan the future of our planet and its sustainability more effectively. Combining AI with sustainable development will help all stakeholders to design better policy framework, addressing current needs without compromising future generations due to climate change or other major challenges. This session explores the interplay between digitalization and sustainability unfolding and underlining bright opportunities for shaping a greener economy and society, paving the way towards the SDGs.





# THEME : 4

## RESILIENCE TO CLIMATE CHANGE IN AGRICULTURE & DISASTER RISK REDUCTION

The link between pollution and health is usually explored by analyzing the bilateral relationship between the dominant cause of pollution and its most significant effect on health outcomes. The theoretic and technical challenge of using multivariate features can be overcome by using climate modelling as an investigation tool and also as an approach towards solutions. This session will focus upon how a multivariate approach of closely observing climate changes and processes can help us in climate modelling and address the limitations of the conventional approach.





# THEME : 5

## SUSTAINABLE ENERGY TRANSITION IN ASIAN COUNTRIES

The provision of energy services – such as illumination, thermal comfort, cooking, communications and mobility – is critical to both social and economic good. But the use of fossil fuels in meeting these needs can also lead to higher greenhouse gases emissions, potentially becoming a threat to our well-being. Ironically, the greatest threat is to underdeveloped nations and populations of the most vulnerable geographies of Small Island developing States. They are either constrained by extreme poverty or limited by expensive energy access. This session analyses and suggests operational areas for agro-meteorology, sustainable water management, energy transition and also deals with the status of renewable energy with a special context to Asia.



# ADVISORY COMMITTEE



**DEVANG KHAKAR**  
TIFAC Chairman



**SRIVARI  
CHANDRASEKHAR**  
DST Secretary



**PRADEEP  
SRIVASTAVA**  
TIFAC Executive  
Director



**ALBERT VAN  
JAARVELD**  
IIASA Director  
General



**LEENA  
SRIVASTAVA**  
IIASA Deputy Director  
for Science

# ORGANIZING COMMITTEE



**SANGEETA BAKSI**  
Scientist F, India-  
IIASA Program,  
TIFAC



**GANSEN PILLAY**  
IIASA Head of  
Communications and  
External Relations



**BALAJI SINGH  
CHOWHAN**  
Disaster Risk Reduction  
Centre



**CHERRY EDWARDS**  
IIASA Events Officer



**MARIE FRANQUIN**  
IIASA External  
Relations Officer



**DIVAKAR SINGH**  
Senior Project  
Associate TIFAC

# SCIENTIFIC CUM PROGRAM COMMITTEE



**P.G. DIWAKAR**

Former Scientific Secretary, Indian  
Space Research Organisation (ISRO)



**SUBIMAL GHOSH**

Indian Institute Of Technology  
(IIT) – Mumbai



**UPASNA SHARMA**

Indian Institute Of  
Technology (IIT) – Delhi



**ABHA MISHRA**

United Nations  
Development Program  
(UNDP)



**SARBJIT SAHOTA**

United Nations International  
Children's Emergency Fund  
(UNICEF)



**S. BANDYOPADHYAY**

Indian Space Research  
Organisation (ISRO)



**MADHU VERMA**

World Resources  
Institute, India



**KIRTIMAN AWASTHI**

Deutsche Gesellschaft für  
Internationale Zusammenarbeit  
(GIZ) GmbH India



**SHONALI PACHAURI**

IIASA Energy, Climate, and  
Environment Program



**MIKHAIL SMILOVIC**

AffiliaIIASA Biodiversity and  
Natural Resources Programtion



**AMNA JRRAR**

Royal Scientific Society  
of Jordan



**MOHSEN  
ASHTIANI**

IIIES, Iran National  
Science Foundation



**XIUBIN LI**

IGSNRR, Chinese  
Academy of Sciences



**KAZUHIKO  
TAKEMOTO**

University of Tokyo