

PRESS RELEASE

Sustainable Alternative Futures for India (SAFARI): A model for policymakers to balance India's developmental and climate goals

India is attempting to attain a delicate balance: achieving the Sustainable Development Goals (SDGs) that can raise the quality of life of its citizens while also fulfilling commitments made during the Paris Agreement to address the climate crisis. For decision-makers at the helm of planning India's policies, this can prove to be an extremely challenging task.

Long-term forecasting models can help in this challenge by providing useful insights into various scenarios. Many modelling studies use GDP as the primary metric of development, and as an exogenous socioeconomic driver for sectoral demand alongside population and energy intensity. The Sustainable Alternative Futures for India (SAFARI) model, developed at CSTEP, is different in that it does not use GDP as the primary metric of development and welfare. In SAFARI, demands arising from achieving various developmental goals—food, housing, healthcare, education, power, water, and transport—are the main drivers of growth. SAFARI estimates both the embodied energy and operational energy required to meet these goals (i.e., lifecycle energy).

SAFARI further analyses the impact of achieving the SDGs on key resources, energy, and emissions. With the understanding that developmental and climate strategies work better when planned in tandem (helping enhance synergies and reducing trade-offs), and therefore considering inter-relationships and interdependences of various sectors, the principles of systems thinking were incorporated into the model.

On September 15, CSTEP and Agence Française de Développement (AFD) signed a virtual contract to further develop this model and integrate it into a decision support system for policymakers. The signing was marked by an online webinar titled "Climate and Development: Navigating a Delicate Balance" with Shri Suresh Prabhu, India's Sherpa to the G20 and Member of Parliament, as the chief guest. The event was attended by Mr Bruno Bosle, India Director, AFD; Mr Arun Maira, Former Member of the Planning Commission; Ms Sanyukta Samaddar (IAS), Advisor – SDGs and Rural Development, Niti Ayog; Mr Thomas Spencer, Fellow, The Energy Resources Institute (TERI); and Mr Siddharth Pathak, from the 2050 Pathways Platform, European Climate Foundation (ECF).

- Mr Suresh Prabhu



India's Sherpa to G20 & G7 and Member of Parliament

Speaking at the event, Shri Suresh Prabhu highlighted that India is at a crossroads with regards to development and climate. While India contributes significantly to the global economy, it might also be contributing to rising global emissions.

“Climate change cannot be discussed as an independent issue. Climate change is a manifestation of the impact of our policies, be it transport, urbanisation, energy or mining policies. We pursue these policies we make in the name of development and if they are not done prudently, it will affect climate change. The result is that the very people we are trying to protect through our development policies are negatively impacted due to climate change. This is the paradox we are facing.”

“Development cannot be done in a manner that results in the destruction of people's lives,” he said, further adding that science needs to be at the forefront of any solution that allows us to pursue development in a way that does not worsen the climate crisis.

“We must address climate change and development in a way that we can improve the quality of life of citizens. Science has to be at the forefront of finding these solutions,” he concluded.

CSTEP has participated in various modelling exercises, starting with the Low-Carbon Inclusive Growth Committee. CSTEP's researchers have worked with the Planning Commission and Niti Aayog on modelling energy systems. For the MoEFCC, they have conducted an analysis to explore scenarios for India's low-carbon transition in its energy requirements while also meeting its developmental aspirations.



“CSTEP has always relied on computational models to give us insights into problems we are likely to face decades from now. This is where computational tools are helpful – not to predict the future, but to give insights into what can happen, and giving the policymakers the options to decide what should happen.”

- Dr Jai Asundi

Executive Director, CSTEP



“CSTEP's SAFARI model will add value for long-term decarbonisation pathways for India. Its unique approach studies interlinkages between development and climate change and can provide interesting insights for low-carbon and resilient pathways for development.”

- Mr Bruno Bosle

India Director, AFD

“Conventional thinking is that India needs to focus on income growth to meet its development needs, but sustainability and climate goals are potentially in conflict with GDP growth.”

“A system-wide approach that considers the interlinkages between various development, climate and sustainability goals is suited to address these problems. Our aim is to develop models and tools to assist policymakers in looking at the interconnected goals of development and climate and help arrive at comprehensive policy solutions.”



- Mr Priyavrat Bhati

Sector Head, Climate, Environment and Sustainability, CSTEP

“Considering that India is yet to meet the SDGs, its long-term strategy should consider development aspirations in tandem with sustainable resource use, and thus can put us on a pathway for low-carbon growth. This is the motivation for developing the SAFARI model.”

“SAFARI looks at all the goals together – as a complete system – so we can maximise on any synergies and limit the trade-offs between the goals. Looking at the complete system helps to identify leverage points to bring out a change in a beneficial manner.”



- Ms Ramya Natarajan

Senior Research Engineer, CSTEP

The SAFARI model will help policymakers visualise various scenarios and understand how changes to policies in one sector can result in ripple effects in other areas. To ensure its usefulness, the process of developing the model into a decision support system will be consultative. CSTEP will hold discussions with various sectoral experts and policymakers to simulate scenarios for India’s long-term strategy (2050) in a participative manner.

SAFARI can help policymakers answer questions such as

- Will groundwater overexploitation and competition for water pose a threat to food security?
- To what extent could behavioural changes help reduce emissions in hard-to-abate sectors such as agriculture, space cooling, and industries?
- How would our cities look in 2050? Should they develop vertically or continue to sprawl? What are the benefits and trade-offs between these choices?
- What would be the coal demand in India up to 2050 to meet our development energy needs?

With SAFARI, policymakers can virtually test policy scenarios to assess their impact and effects on other goals/policies. Moreover, it will help them to strategically plan development pathways that are compatible with climate targets and goals mentioned in the Paris Agreement, and even beyond.

To learn more about the model, reach out to us at cpe@cstep.in

About CSTEP

The Center for Study of Science, Technology and Policy (CSTEP) is one of India's leading think tanks. Our work is in the areas of climate, environment & sustainability, energy & power, AI for social impact, materials & strategic studies, and computational tools for policymaking. Our research leverages innovative technology-based ideas to solve developmental challenges. We provide policy advice to Central and State Governments and are a part of various Government Committees. We collaborate with national and international research institutions to build a coherent narrative on policy challenges and solutions for India's sustainable development. CSTEP currently has over 140 employees working out of three offices in India. Our vision is to be the foremost institution for policy analysis in India.

About AFD

The Agence Française de Développement (AFD) Group funds, supports and accelerates the transition to a fairer and more sustainable world. Focusing on climate, biodiversity, peace, education, urban development, health and governance, our teams carry out more than 4,000 projects in France's overseas departments and territories and another 115 countries. In this way, we contribute to the commitment of France and French people to support the Sustainable Development Goals (SDGs).



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