



## TECHNOLOGY AND INNOVATION CONCLAVE 1.0

24-26 SEPTEMBER 2024

New Delhi, India

*Jointly organized by:*

Department of Scientific and Industrial Research (DSIR), Government of India, and  
Asian and Pacific Centre for Transfer of Technology (APCTT) of the  
United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

### Conclave Report

#### A. Summary of discussions

1. Reducing greenhouse gas (GHG) emissions through deep decarbonization is critical to achieving the goals under the Paris Agreement and the Sustainable Development Goals (SDGs). Enhancing the development and transfer of new and emerging technologies is a key pillar for low carbon transition. Increasing their dissemination and adoption at a wide scale is also equally important. Also, Startups play a vital role in accelerating the adoption of renewable energy sources including energy storage, green hydrogen technologies, solar, and geothermal power. Startups and the entire innovation ecosystem are the engines of growth for any country.
2. Countries around the world are making exciting progress in hydrogen technology and energy storage. For instance, India is focusing on innovative solutions like vanadium redox flow batteries and hydrogen engines, all backed by initiatives such as the National Green Hydrogen Mission and collaborations with major companies. Meanwhile, Iran is working on producing green hydrogen using solar-powered methods and capturing carbon emissions, taking advantage of its natural resources. The Philippines is investing in research centre's dedicated to fuel cells and advanced battery technologies. Russia is aiming to boost its role in the hydrogen market with multiple projects underway. In Thailand, tax incentives are encouraging clean energy innovations, and Malaysia has a roadmap to become a leader in the hydrogen economy by 2050. Vietnam is promoting innovation through government programs

to advance its hydrogen initiatives.

3. With the objective of enhancing the knowledge and awareness of policymakers and stakeholders, the **Technology and Innovation Conclave 1.0** was jointly organized by the Department of Scientific and Industrial Research (DSIR) and the Asian and Pacific Centre for Transfer of Technology (APCTT) of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). This event facilitated the exchange of learnings and good lessons on the developments, challenges, and opportunities for innovations and start-ups in energy storage and green hydrogen technologies in the participating countries (Bangladesh, China, India, Islamic Republic of Iran, Malaysia, Nepal, Philippines, Republic of Korea, Russian Federation, Thailand and VietNam).
4. The Technology and Innovation Conclave 1.0 provided a platform for member states to explore the role of innovations in energy storage and green hydrogen technologies in achieving various Sustainable Development Goals (SDGs) in the Asia-Pacific region. The sessions deliberated on the following topics: Technology Innovation, Entrepreneurship, and Startups: Opportunities and Challenges in the Asia-Pacific; Energy Storage: Overview, Issues, and Challenges in the Asia-Pacific; Green Hydrogen: Overview, Issues, and Challenges in the Asia-Pacific; and Innovation and Startups Opportunities in Energy Storage and Green Hydrogen. The international participants participated in the Foundation Day event on Day 3 of the Conclave.
5. The Technology and Innovation Conclave 1.0 was a three-day event that commenced with a high-level inaugural session, followed by a plenary session and Technical Session 1, which focused on technology innovation, entrepreneurship, startups, and energy storage. On the second day, Technical Session 2 centered on green hydrogen, while Technical Session 3 explored innovation and startup opportunities in energy storage and green hydrogen. The day concluded with a valedictory session. On the final day, participants attended the CSIR leadership event. Two study visits were organized for the international participants to premiere research and development institutions of the Council of Scientific and Industrial Research (CSIR), Government of India namely the Institute of Genomics and Integrative Biology (IGIB) and the National Physical Laboratory (NPL).
6. The Conclave brought together about 90 participants which included 22 participants from APCTT's Governing Council member states and associate members of ESCAP. The participants included

policymakers and government officials, science and technology professionals, innovators, and representatives from research and development institutions, academia, and other key stakeholders engaged in the development and deployment of innovative technologies.

7. The exhibition featured young innovators from various organizations across 11 member states. Participants included representatives from the Bangladesh Council of Scientific and Industrial Research (BCSIR), the Iranian Research Organization for Science and Technology (IROST), the Technology Application and Promotion Institute of the Department of Science and Technology (Philippines), CHRG EV Technologies, Inc., Huject Company, the Russian House of International Scientific and Technical Cooperation Association (RH ISTC), the V.I. Il'ichev Pacific Oceanological Institute, and the Battery and New Energy Science and Technology Factory (UVOLT).
8. The Conclave focused on innovations in energy storage and green hydrogen, aligning with SDG 9: Industry, Innovation, and Infrastructure. to support SDG 7: Affordable and Clean Energy. Discussions highlighted the role of startups in advancing green energy technologies and the need for e-fuels and clean hydrogen as alternatives to fossil fuels. SDG 13: Climate Action and SDG 17: Partnerships for the Goals were achieved by promoting regional cooperation.
9. During the conclave, several key challenges related to green hydrogen and energy storage technologies were highlighted. These included the technological innovations, current state of these technologies in the region, technological feasibility, as advancements are necessary for efficiency and reliability barriers for scaling-up, etc. Additionally, regulatory barriers, policy related interventions, etc were also touched upon.

## **B. Recommendations**

1. Green hydrogen and energy storage have become vital components of the global shift toward renewable energy and are crucial for a sustainable energy future, as it enables decarbonization, electricity generation, and cleaner transportation, while also ensuring energy security and creating jobs.
2. It was noted that innovation and startups play a pivotal role in advancing green energy and energy storage technologies. Entrepreneurship and startups are essential for expanding

hydrogen production and utilization, fostering a vibrant ecosystem that drives innovation and economic growth with a focus on clean technologies and sustainable development.

3. Governments and industries need to significantly boost research and development investments in emerging green technologies, particularly in energy storage, green hydrogen, and alternative fuels.
4. Stronger partnerships between academic institutions and industries are essential. Facilities that allow startups and researchers to test and validate technologies at an industrial scale should be established.
5. Governments should continue providing financial support, tax incentives, and regulatory frameworks that encourage entrepreneurship in clean energy sectors.
6. The high cost of materials, production, and deployment of clean energy technologies must be addressed to make solutions more accessible.
7. Continuous capacity building through training programs, international cooperation, and knowledge sharing is crucial for equipping countries with the skills and expertise necessary.
8. A policy roadmap and action plan are necessary for promoting green hydrogen and energy storage.
9. Innovations are key to address global challenges and Multistakeholder partnership between government, private sector, R&D institutions necessary to find successful and innovative solutions
- 10.** APCTT efforts in this regard are very encouraging and the Centre can continue to foster regional cooperation, technology transfer, capacity building.