

Innovative Approaches for accelerating and up-scaling Climate Technology Transfer, adoption and diffusion

Dr. Ramanuj Banerjee, FNAVS, FIAAVR
DSIR, Ministry of Science & Technology, Govt. of India
ramanuj.b@nic.in , drramanujb@gmail.com

Contents

1. Innovative approaches to accelerate Technology Transfer, adoption and diffusion of climate technologies, not on technology innovations (Technology selection by countries, stakeholder's views in climate technology development & planning)
2. Market System for enabling technology uptake
3. Funding attraction to support climate technology
4. Balanced approach between government (push) and private sector (pull) actions to ease the technology scaling up process & enhancement of private sector engagement
5. Policy to bridge knowledge, funding, capacity-building & multi-stakeholder partnerships

Innovation, implementation, enabling environment, capacity-building, collaboration, stakeholder engagement, and support

Provider

Technology Transfer (Structural & Functional) Framework

Taker

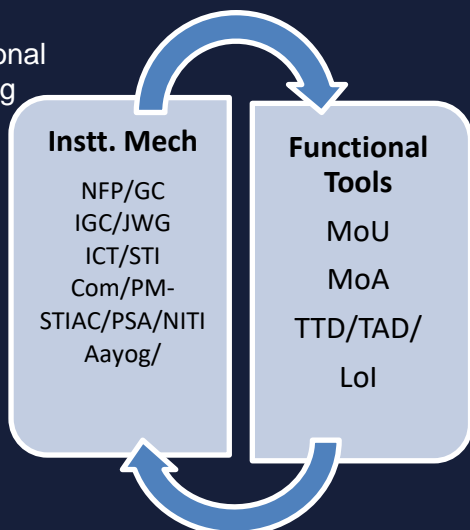
The screenshot shows the APCTT website with the following elements:

- Logos for United Nations ESCAP and Decade of Action.
- Navigation menu: ABOUT, OUR WORK, PUBLICATIONS, TECHNOLOGY DATABASES, EVENTS.
- Header: System Level Know how
- Dropdown menu items: Overview, Technology4SME, Renewable Energy Technology Bank, Global Technology Databases, National Technology Databases.
- Hero image: Clean energy technologies – Harnessing for climate change mitigation.
- Text: Stakeholders' Policy, Foreign Policy, STI Policy, Tech Need Assessment.
- Section: The Asian and Pacific Centre for Transfer of Technology
- Text: The Asian and Pacific Centre for Transfer of Technology (APCTT) is a regional institution of the United Nations Economic and Social Commission for Asia and the Pacific servicing the Asia-Pacific region.
- Text: The Centre works towards strengthening the national capacity of member States to nurture and promote national innovation systems and to create an enabling environment for the development and transfer of technology. The Centre was established in 1977 in Bangalore, India and moved to New Delhi in 1993.
- Section: Our Focus
- Section: More about Our Focus
- List of focus areas: Science, Technology and Innovation; Technology Transfer; Regional Cooperation; Technology Intelligence.
- Section: Services we provide

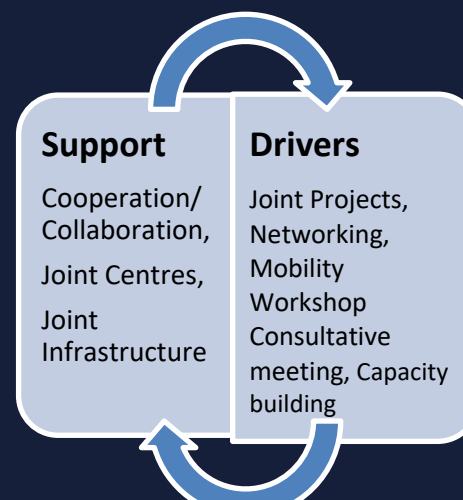
System/
Strategic level
Know how

Ref: <https://apctt.org/>

Operation/
Institutional
level understanding



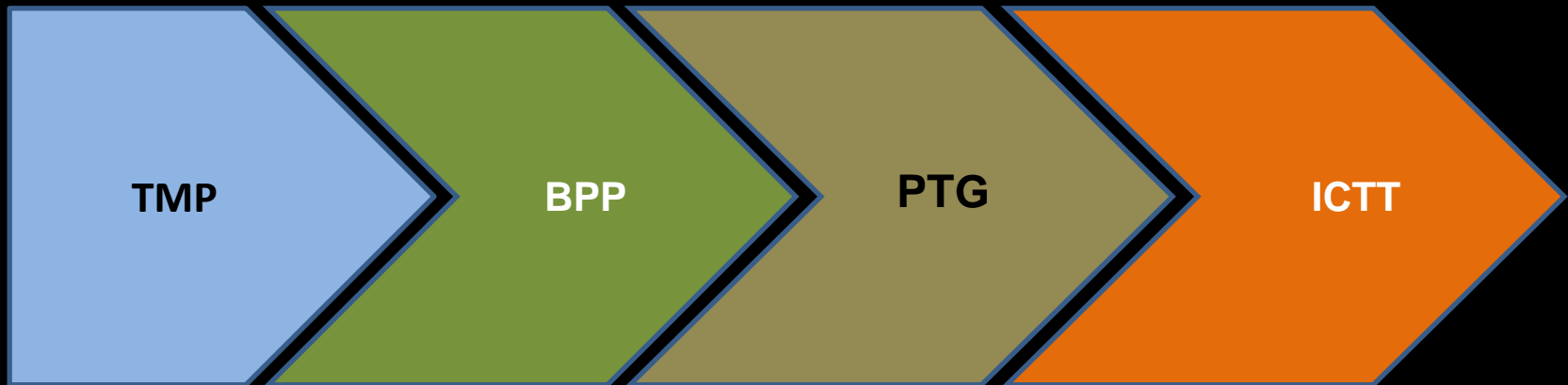
Implementation
level action



Innovative Approaches : Key Issues

To identify key technologies, assessing their maturity level and potential as climate Technology

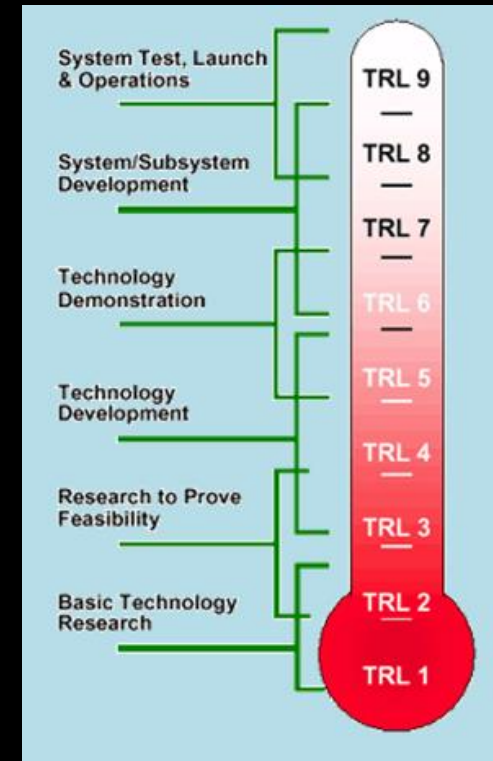
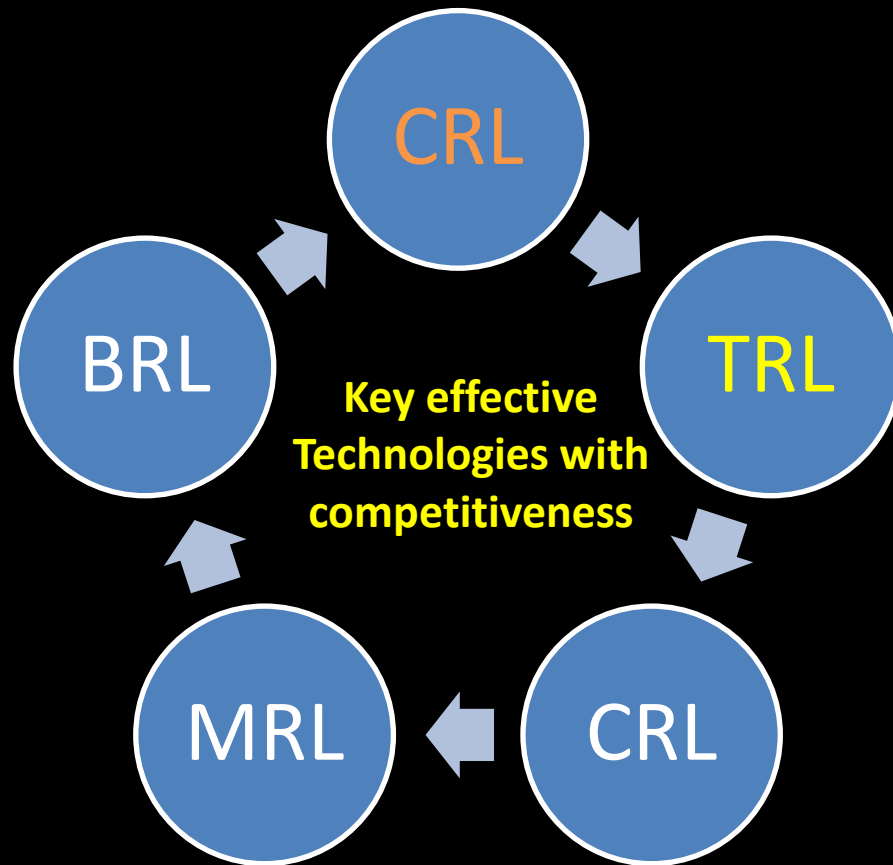
To Consider how technological changes occur understanding behavior, by-doing processes, and that of policymakers towards accelerating and upscaling



To capture policy tools, governments & Private bridging, funding to accelerate adoption and diffusion

To contemplate the role of international co-operation for technology transfers

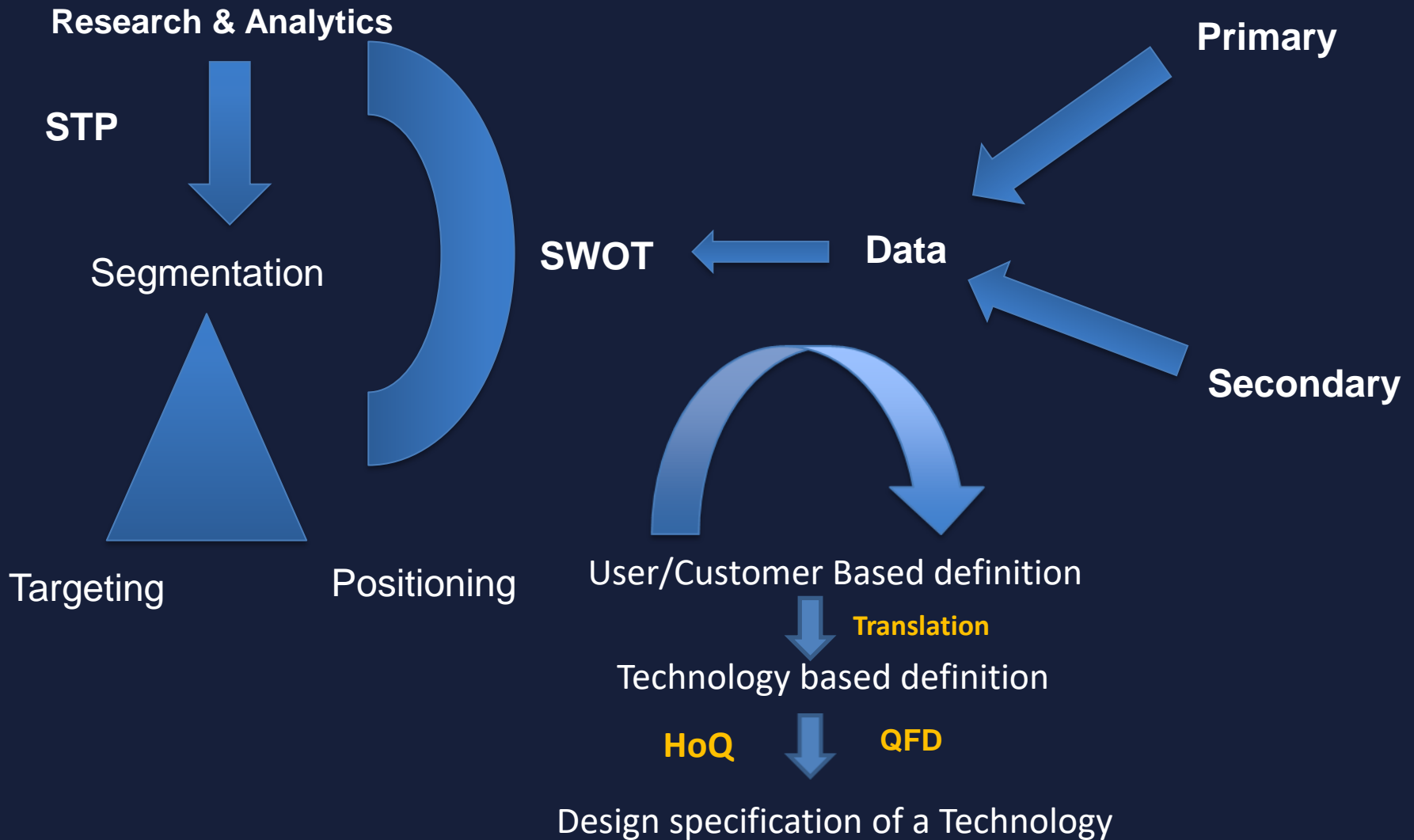
Key technologies, assessing their maturity level and potentiality as climate Technology (Tech Prioritization & Planning)



Source: https://en.wikipedia.org/wiki/Technology_readiness_level

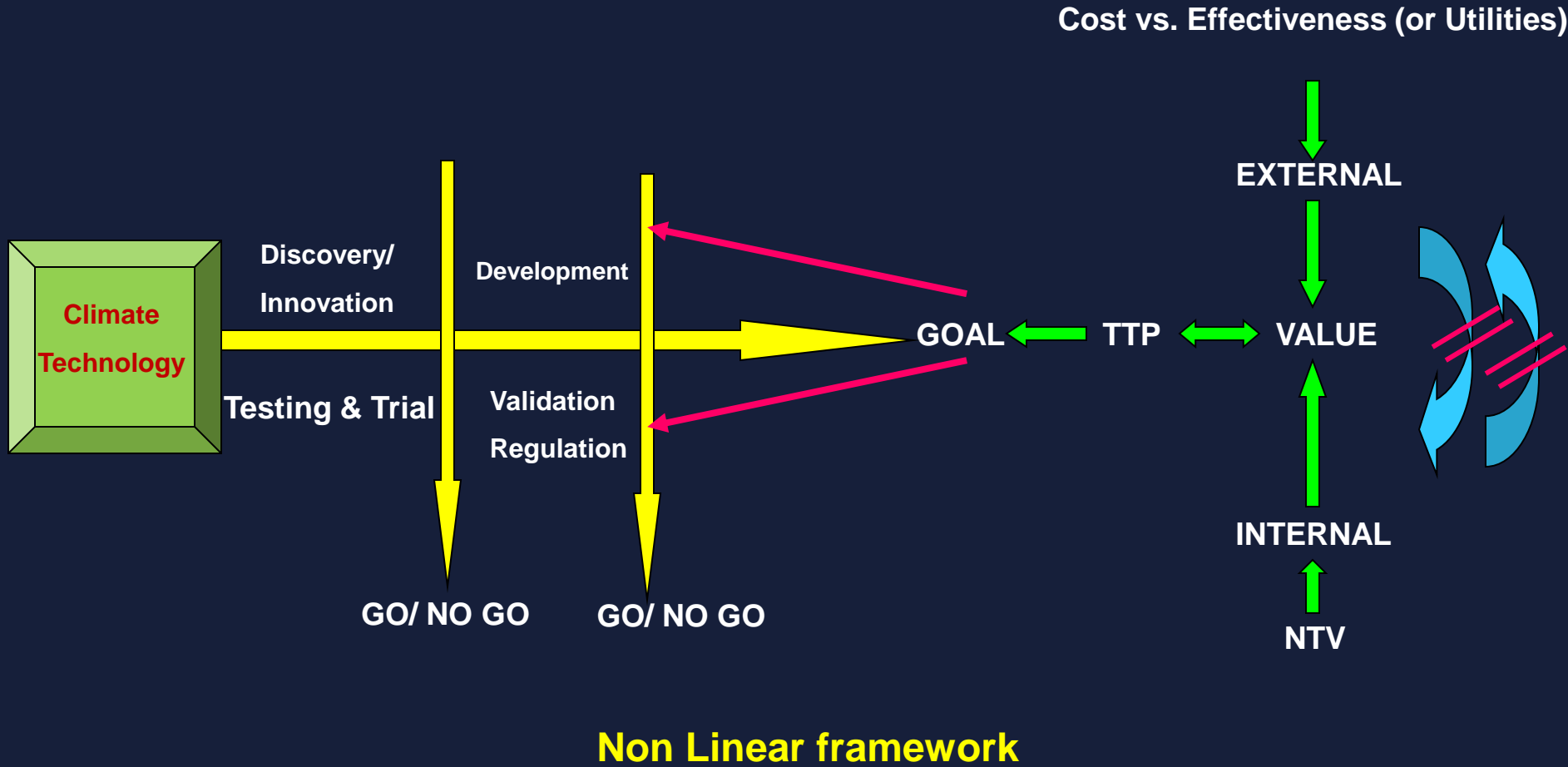
(Strategy: Self and Others)

Innovative approaches from CRL -TRL

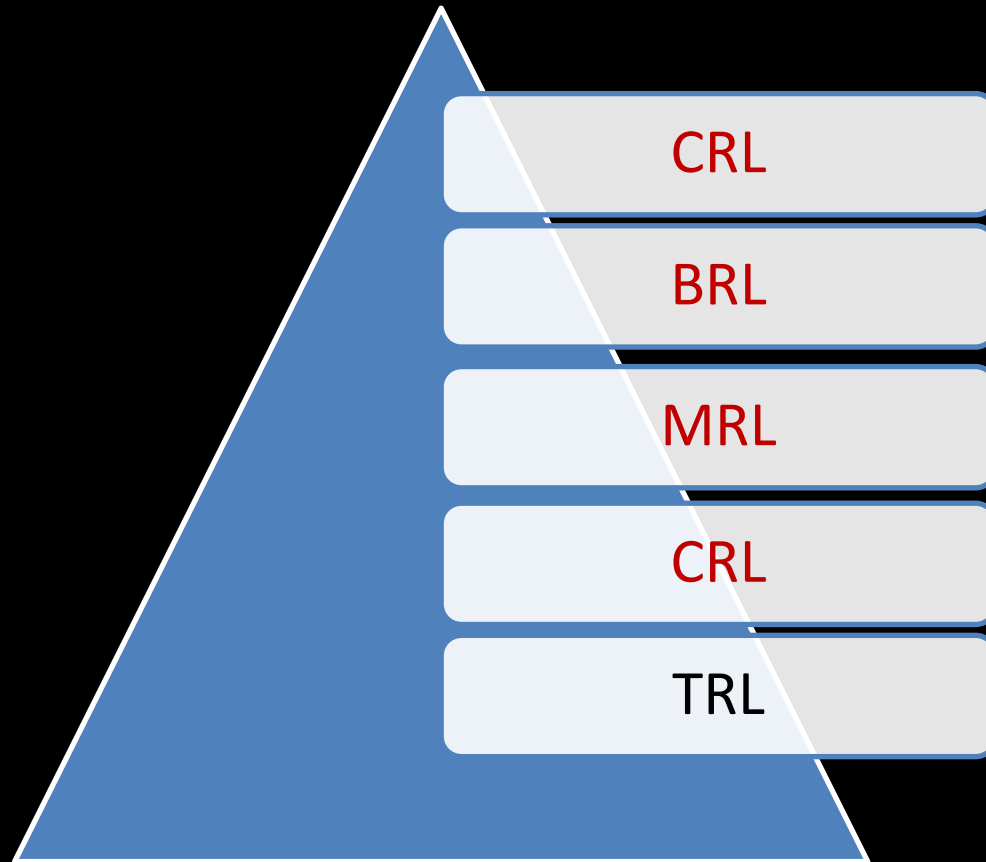


Changed Paradigm: NET

Linking TECHNOLOGY with Value



Accelerating Adoption & Diffusion



APCTT Intervention
To Explore the possibility
of a complete map of
climate technologies of
Member Countries

With Inclusiveness and sustainability

Technological changes through behavior, by-doing processes, and that of policymakers towards accelerating and upscaling diffusion & adoption

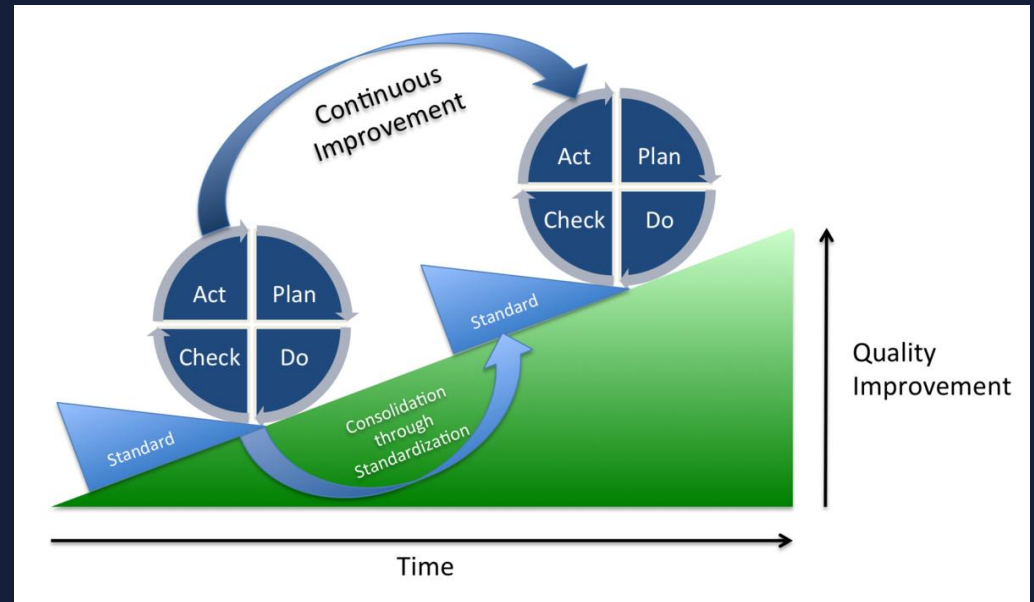
Two sides of a coin connected by risk management



APCTT Intervention: PDCA

KECF project on “Enhanced capabilities to adopt innovative technologies for city air pollution control in select countries (India, Bangladesh & Indonesia) of the Asia-Pacific”.

Need more such project in other areas of Environment Technology



Source: https://en.wikipedia.org/wiki/File:PDCA_Process.png

(Strategy: PDCA)

Policy tools and Governments-Private Bridging strategy to accelerate adoption & diffusion



1. **Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles (FAME)** (subsidy)
2. **Phased Manufacturing Programme (PMP)** (Tax exemption)
3. **National Mission on Transformative Mobility and Storage (NMTMS)** (Promotion and support to start ups & MSMEs)
4. **Mobilizing a broad range of public, private, international and domestic financial resources** (tapping public finance & capital markets, blending capital, Reducing risk through private partners, green bonds for financing both climate tech mitigation and adaptation).
5. **Policy** based on “**comprehensive**” instrument such as taxes or cap-and-trade systems or increased “**technology cooperation**”, and one “**mixed**” that would incorporate both elements



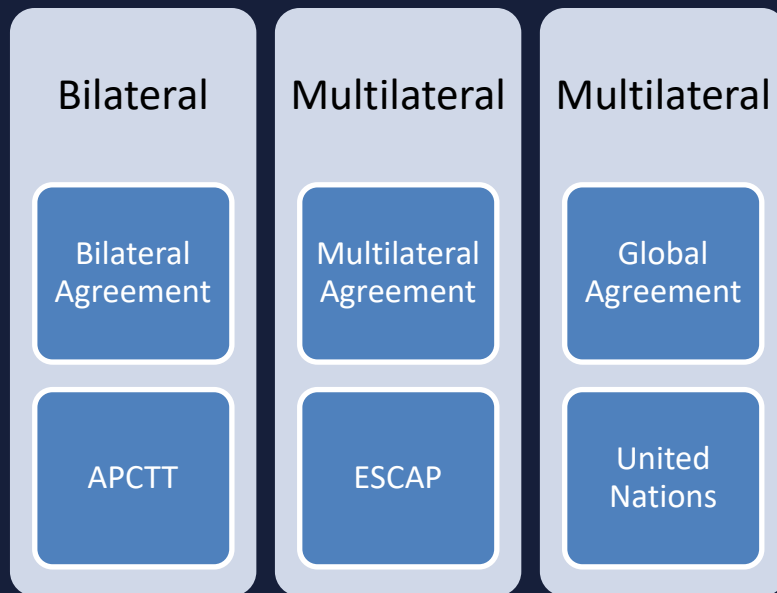
(Strategy: Relevant Policy framework and knowledge repository)

APCTT Intervention

***To encourage Homogeneous national policy framework
and comprehensive capacity building programme***

The role of international Co-operation and technology transfers

1. The question of cooperation amongst countries (international Tech transfer policy).
2. The question of international outcome from the action undertaken by countries.
3. Finally, the current and possible future policy efforts in this cooperation



Case Studies :

Ethiopia: Coping with Drought and Climate Change (UNDP)

Colombia: Integrated National Adaptation Plan (INAP) (World Bank)

Peru: Adaptation to the impact of Rapid Glacier Retreat in the tropical Andes Project (PRAA) (World Bank)

(Strategy: TNA Analysis & international cooperation for mutual benefit)

APCTT Intervention

To develop need and resource map, gap analysis, to encourage homogenous Tech Transfer policy, facilitate agreement, capacity building and technology transfer

International Co-operation and technology transfers: An example from India

India witnessed best partnership with several countries like US, Germany, Japan, etc. on clean energy. As an example

Indo-U.S. Science and Technology Forum (IUSSTF):

The **U.S.-India Science and Technology Endowment Fund**, announces a Call for Ignition Grants titled "Technology-based Energy Solutions: Innovations for Net Zero", which focuses on Next generation Clean and Renewable Energy, Energy Storage, Carbon Sequestration.

Indo-U.S. Joint Clean Energy Research & Development Centre (JCERDC) to promote clean energy innovation by teams of scientists and engineers from India and the United States. "Smart Grids and Energy Storage" area where from India side "Indian Institute of Technology Kanpur" and US side "Washington State University, Pullman" Lead institutions.

One more initiative of "**Research Initiative for Real-time River Water and Air Quality Monitoring (WAQM)**", which aims to develop key technologies for sensing, communication and analysis of large-scale data collected from autonomous networks of perpetual/long-lived sensor nodes, followed by integration and deployment for water and air quality monitoring in real-time.

Source: www.iusstf.org

Conclusion

- Effective Technology,
- Market Building,
- Fund attraction,
- Stakeholders' Involvement,
- Private sector Participation,
- Government Actions,
- International Cooperation

I strongly believe that when women are leaders and active in policy advocacy they can address the maximization of climate technology adoption through influencing effective, gender-responsive legislation in local , regional and global governments.

Thanks you