



The Abdus Salam
**International Centre
for Theoretical Physics**



2372-5

**Joint ICTP-IAEA Workshop on Sustainable Energy Development: Pathways
and Strategies after Rio+20**

1 - 5 October 2012

**Sustainable Energy Development: Dream or Reality
A Case Study of Pakistan**

Asif Ali Shah
*Sindh Agriculture University
Pakistan*



Sustainable Energy Development: Dream or Reality


A Case Study of Pakistan

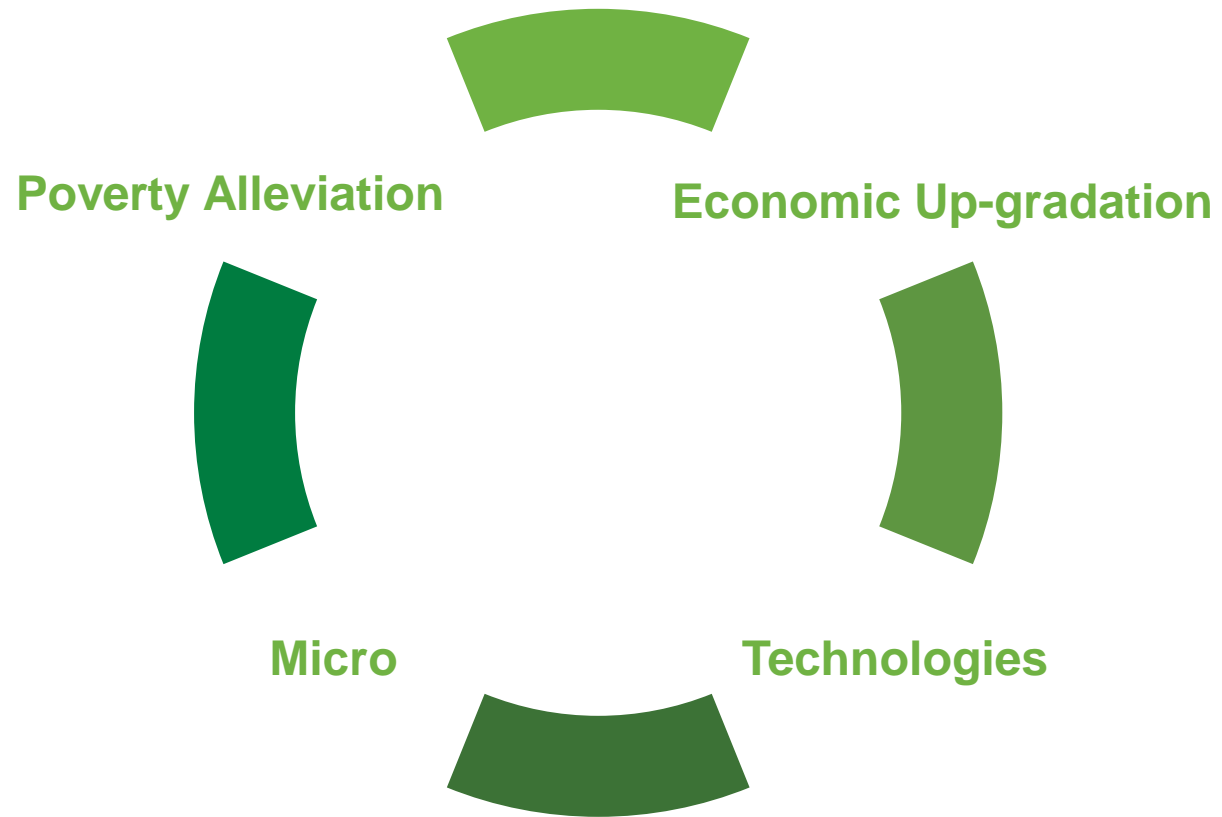
Asif Ali Shah

Mehran University Institute of Science & Technology Development

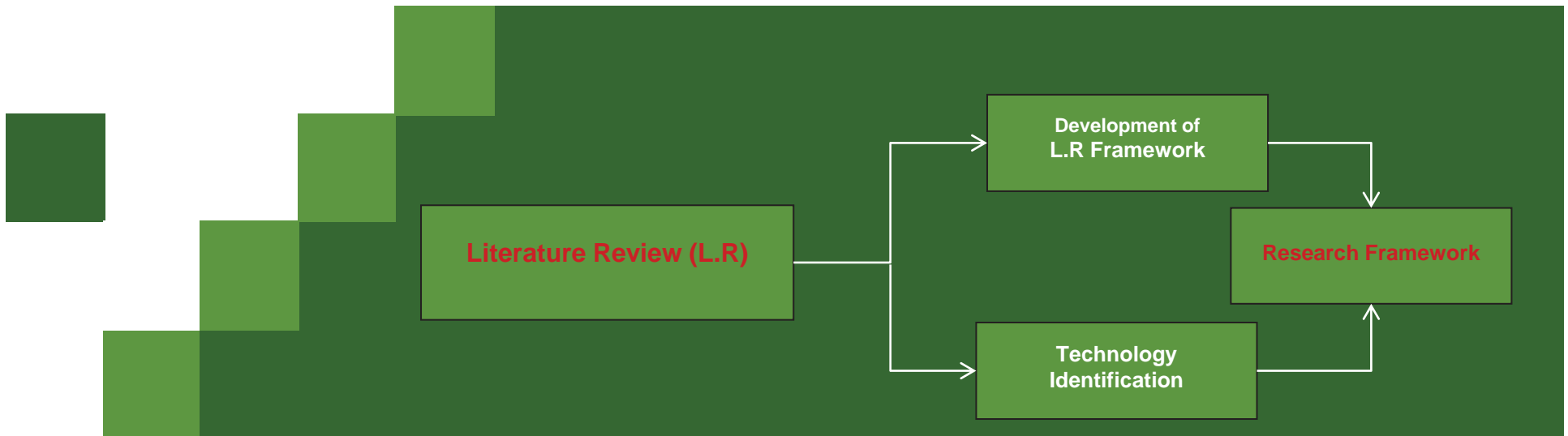
Sindh Agriculture University

Pakistan

- 
1. **Our Aim**
 2. **Challenges**
 3. **Real Scenario**
 4. **Influencing Factors**
 5. **Analysis**
 6. **Conclusion**

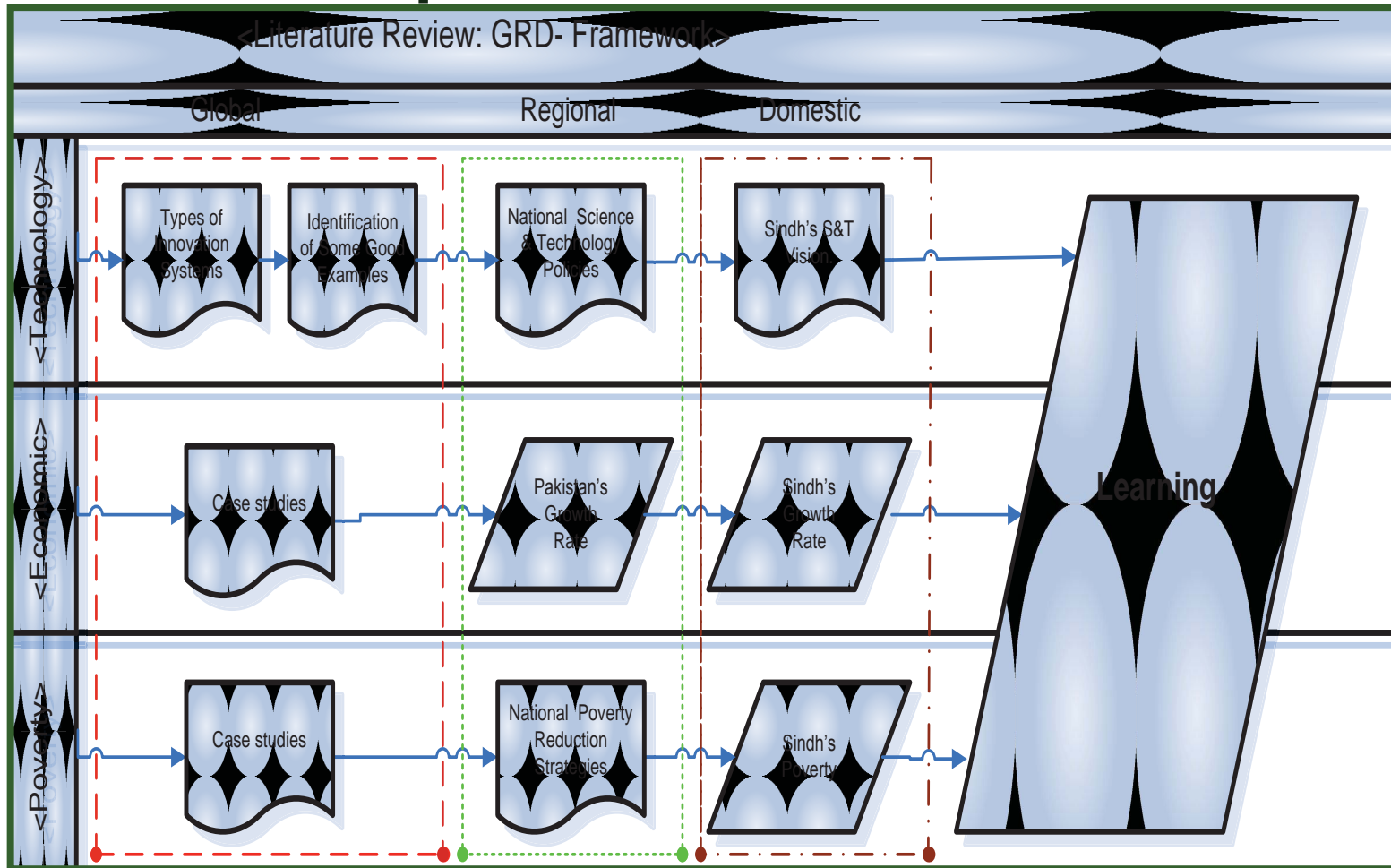


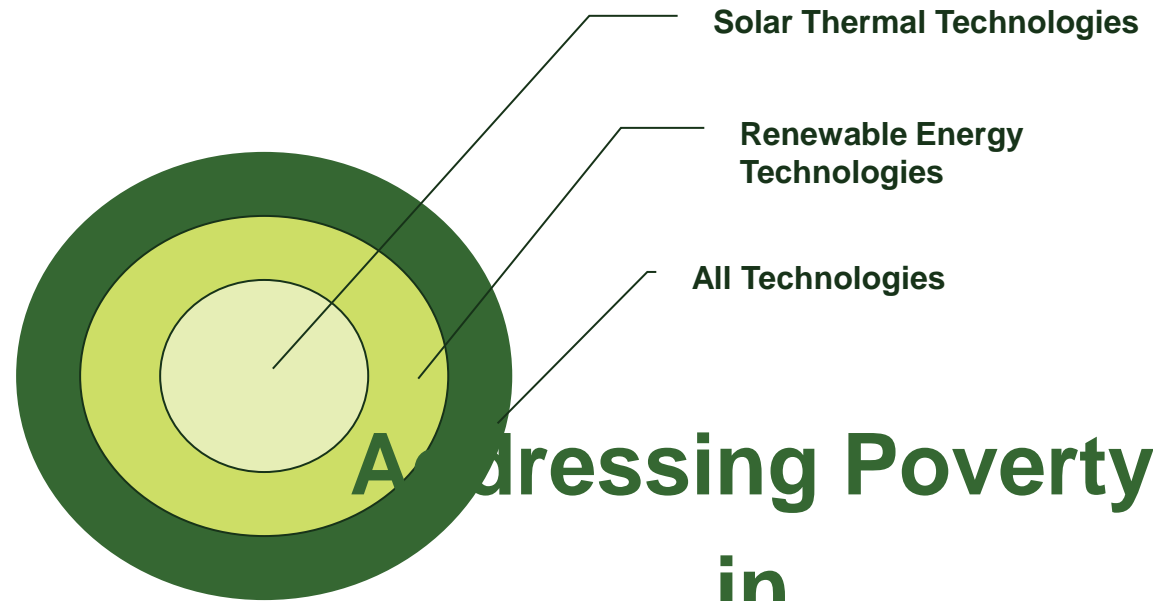
Our aim....



Challenges

Development of L.R Framework





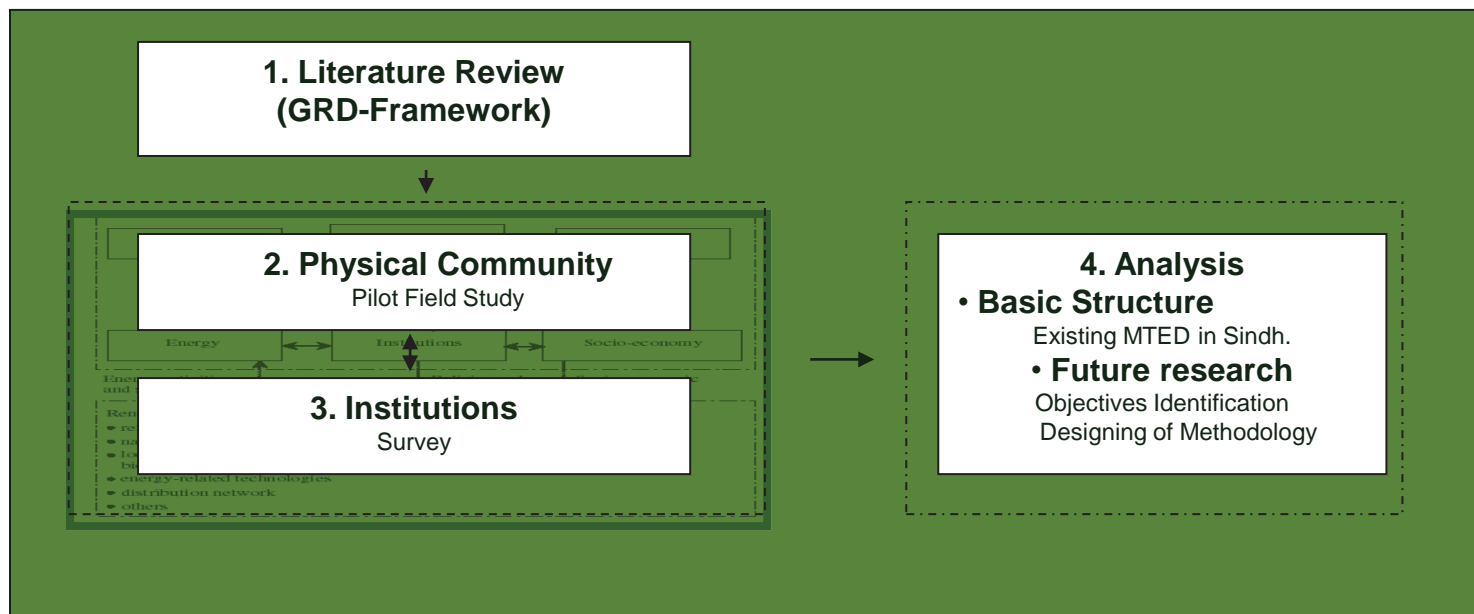
Addressing Poverty in Broader Context.....

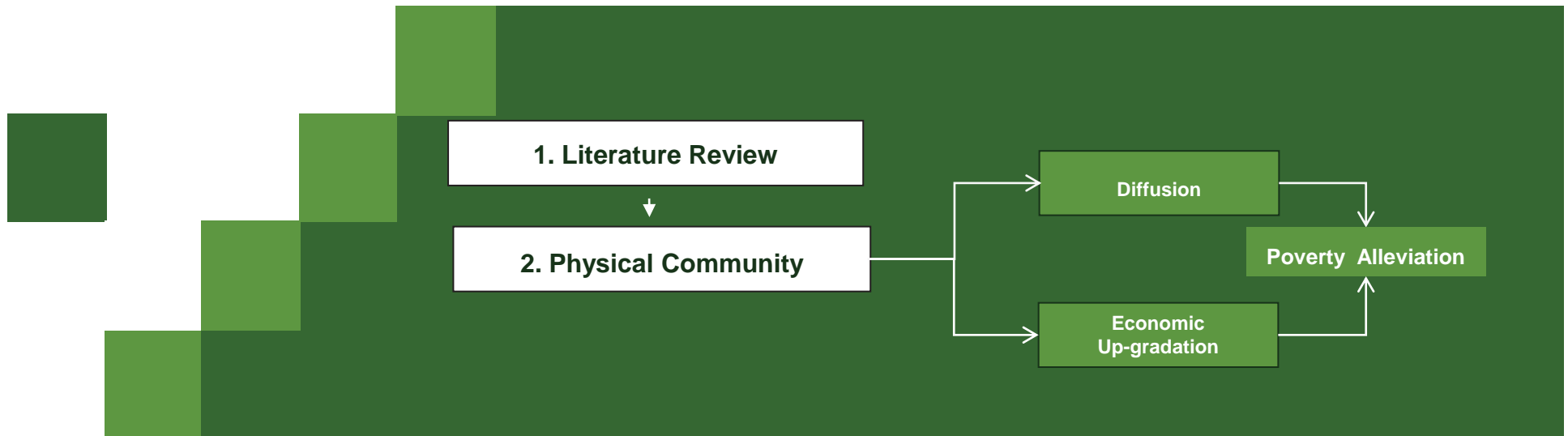
- **Reduce Burden on Grid System.**
- **Address Off-Grid Areas.**
- **Best utilizing natural resources.**
- **Easy to Operate & Maintain.**



(Source: Pandhiani,2008)

Research Methodology.





Pilot Field Study

Location:

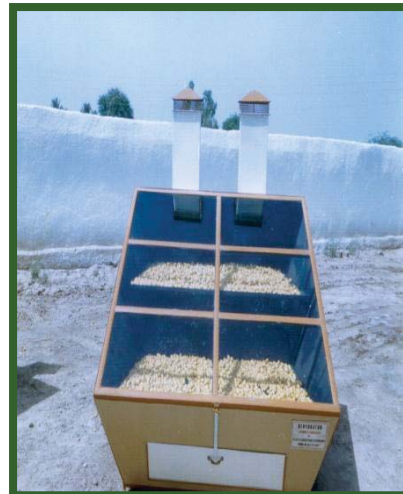
- ❑ Village Gul Mohammad Jamro, 7 Km away from Ranipur, District Khairpur.
- ❑ Famous for date palm cultivation.

Reason:

- ❑ Sindh- A Leading producer of dates.
- ❑ Traditional Drying Practices.
 - Time, Quality, Wastages.



Strategy:



Objective-I: Diffusion

Physical Community:

- Highly Appreciated.
- Wanted to adopt the technology.



Objective-II: Economic Up-Gradation

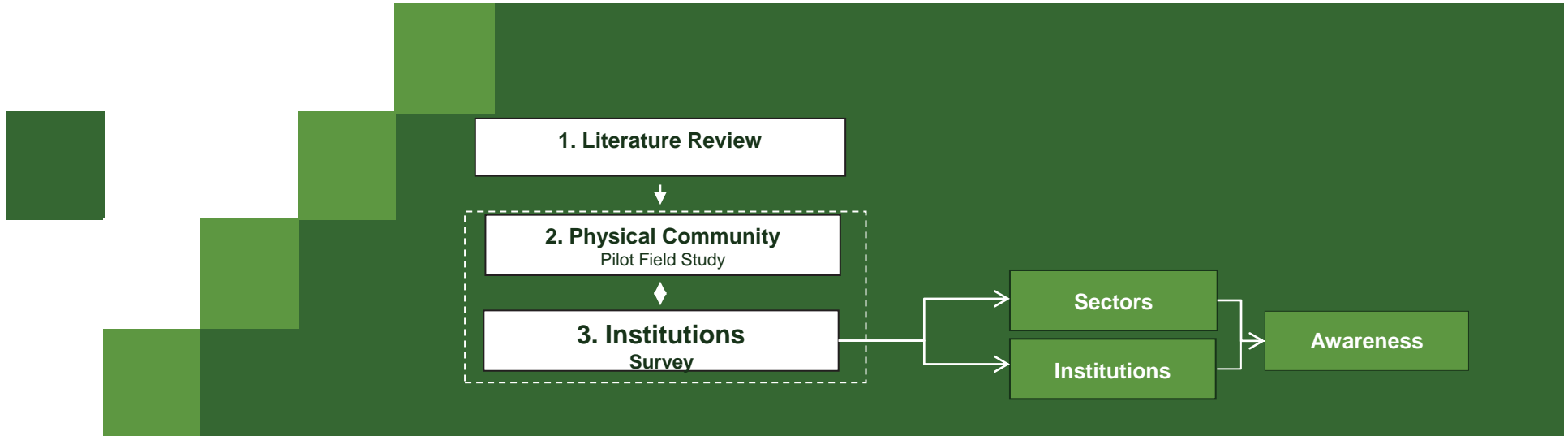
Properties	Traditional (Open Space Drying)	Solar Dehydrator
Time	05-06 days	02-03 days
Quality	Low	High
Wastages	High	Low
Test	Less Sweet	High Sweet
Color	Light Brown	Dark Goldish Brown



Real Benefit!

- Funding
- Linkages
- Priority

Pilot Field Study



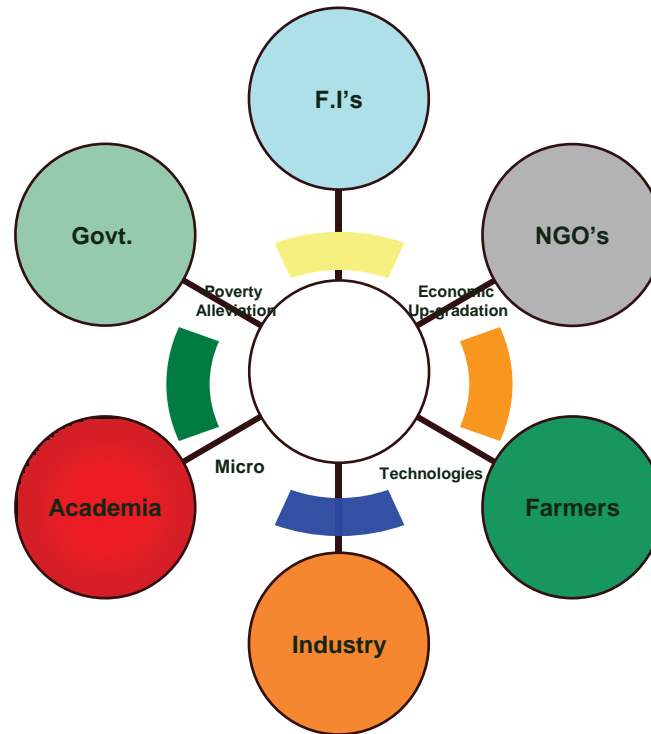
SURVEY



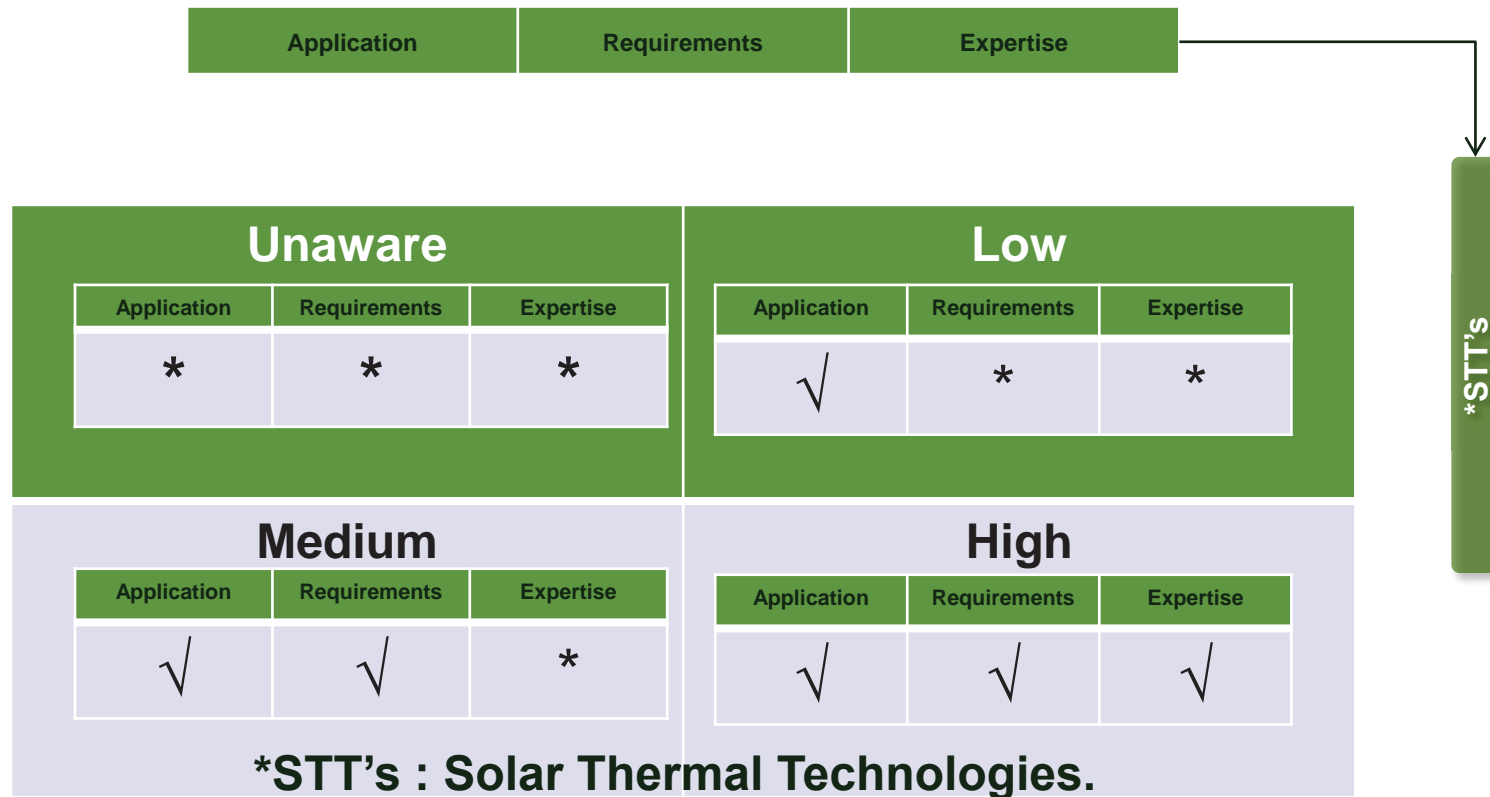
Survey Details:

- **Questionnaire** (Distributed: 300. Received: 250).
- **PCSIR Laboratories Hyderabad.**
- **Stakeholders visiting PCSIR).**

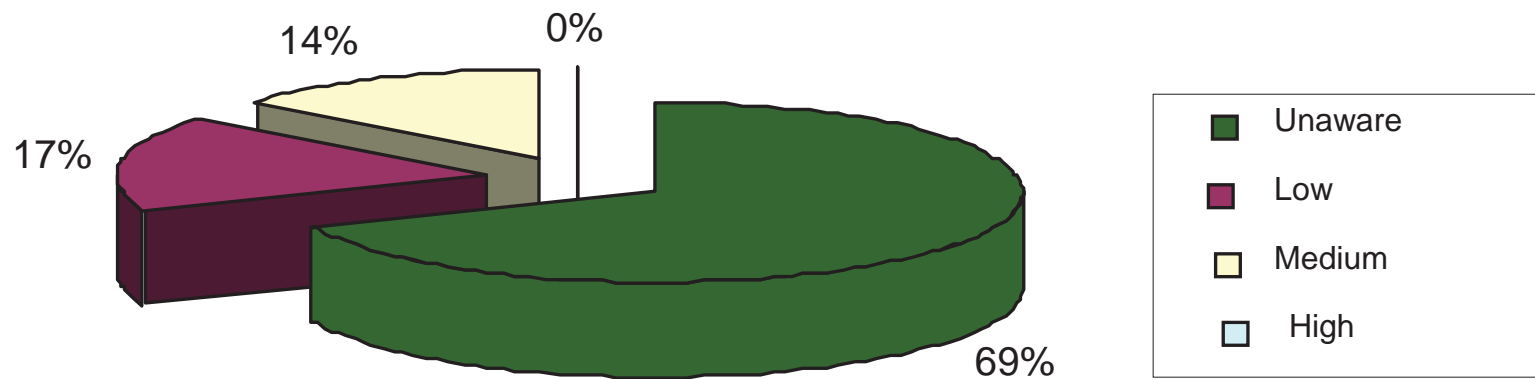
OBJECTIVE-II: Sectors Identification



OBJECTIVE-III: Awareness Level.

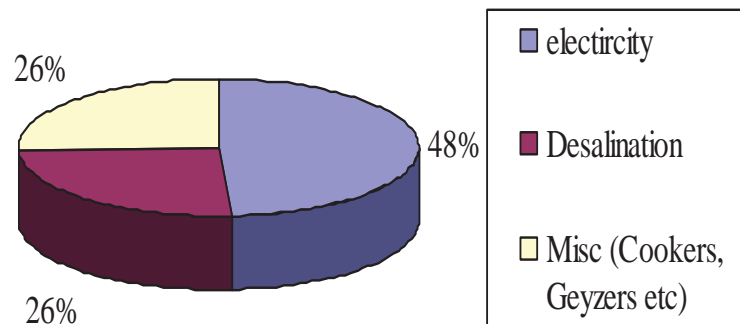


Awareness Sectoral Distribution

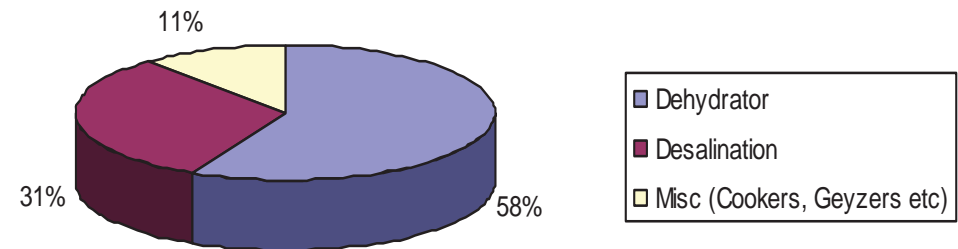


Awareness Trends Continue . . .

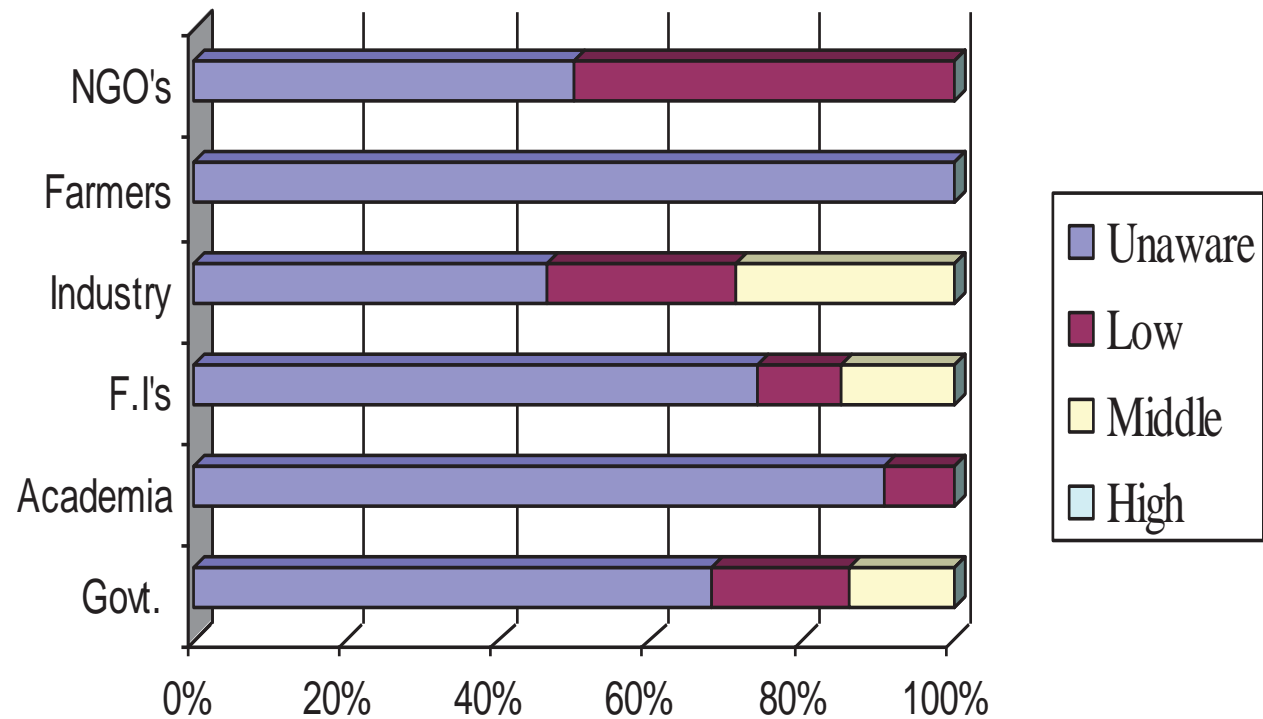
Demand



Supply



Awareness Trends Continue . . .





Influencing Factors



Pakistan's Science, Technology & Innovation System

INHERITED STI CAPACITY AT INDEPENDENCE- 1947

- Areas that constituted Pakistan were grossly underdeveloped. And it inherited very meager infrastructure of Science and Technology, which included
 - One Teaching University
 - Four R&D Organizations
 - 34 Industrial Units
 - Agriculture was mainstay of Economy
 - It required huge effort to develop scientific and technological structure from scratch.

Development of STI (1947-1999)

(Policies, Commissions, Committees, Groups, Reports, Etc.)

- **1947** – Statements by Founder of the Nation;
- **1960** – Report of Scientific Commission of Pakistan;
- **1965** – Recommendations of Senior Scientists at Saidu Sharif;
- **1972** – National Science Conference at Multan
- **1984** – National Science and Technology Policy;
- **1989** – Recommendations of First Meeting of National Commission of Science and Technology (NCST)
- **1992** -- Recommendations of Cabinet Committee for Review of R&D Organizations
- **1993** – National Technology Policy
- **1995** – Recommendations of High level Committee for Science and Technology
- **1997** – Recommendations of Young Scientists and Technologists Conference
- **1999** – Draft Recommendations of Planning Commission Reforms Group



Major Factors Affecting the STI Development and Sustenance –

- 1. The Political Will and Leadership; Stability/Type of Government**
- 2. The Role of Bureaucracy**
- 3. Manpower and Funds**
- 4. Globalization**
- 5. The Role of Society**
- 6. The STI System and Policy Framework**



The STI System and Policy Framework

- Supply rather than Demand oriented S&TI Policies.
- Absence of linkage between Technology Capability Building and Procurement.
- Lack of Emphasis on Institutional Development.
- Minimal Role of Policy Research Centers.

THE GOVERNANCE (1947 – 1999)

Period	Governance
1947-51	Democratic - stable Government, Enlightened Leadership
1951-58	Six Democratic - unstable Governments
1958-69	Military -stable Government , Enlightened Leadership
1969-71	Military- unstable Government, Political Turmoil
1971-77	Democratic – stable Government, Enlightened Leadership
1977-88	Military-cum-Democratic, stable Governments
1988-99	Four Democratic -unstable Governments, Enlightened Leadership 1988-90; 1990-93; 1993-96,1996-99



National STI Policy- 2010 Outline

- **Vision And Objectives**
- **S&T Planning and Management Structure**
- **Human Resources**
- **Indigenous Technology Development**
- **Technology Transfer and Creation of Absorptive Capacity**
- **International Cooperation**
- **Thrust Areas**



National STI Policy- 2010 Evaluation

- **The National STI Policy 2011 turns out to be rather a wish list without knowing how much funds are required, wherefrom these will come, what should be the priorities, etc. and puts in doubt the assurance and sustainability of the STI effort in future. Hence, the proposed well formulated policy with clear targets, strategies, action plan with priorities, etc. should provide constitutional/ statutory guarantees for funding.**
- **The whole STI Management System including MoST may be debated and reviewed and revolutionized to the extent possible, as the present working system in MoST too may not deliver.**

(Qureshi 2012)



Overview/Analysis

1. Literature Review

- Designing of Research Framework
- Fact identification: Pakistan is late in up – taking innovations studies.
- National and Provisional policy and vision flaws in community mobilization for poverty alleviations through technologies utilization.

2. Physical Community

- **Pilot Field Study.**
 - Absence of Linkages.
 - Policy Flaws.
 - Funding Limitations.
 - Identification of Diffusion, Economic Up-gradations and poverty alleviation Capabilities of solar thermal technologies.

3. Institutions

- **Survey**
 - Identification of Major Stakeholder, Institutes & sectors shaping techno-economic dynamics in Sindh.
 - Awareness identification regarding solar thermal technologies.
 - Identification of demand and supply trends for solar thermal technologies.

*MTED Basic Structure

4 (a) *MTED Basic Structure

Current Research Work
Functionality of Organization
Hurdles, Policy Reforms



Conclusion

- **Dream, can be made realistic.**
- **In order to achieve the breakthrough, the promotion of STI for socio-economic development must be pursued with the same political will and commitment as was done for the development of Nuclear capability.**
- **Especially involving common people to achieve sustainable Energy Development.**
- **Blessings in disguise (Green to Evergreen Economy).**



Acknowledgment

- **Dr. S.M. Qureshi**

**SECRETARY To the GOVERNMENT OF PAKISTAN
SCIENCE and TECHNOLOGY (1987 – 1996)**

VICE CHAIRMAN (Honorary)

U.N. Commission on Science and Technology for Development (1995 – 1997)

**CHAIRMAN, Pakistan Council for Science and Technology, and
SECRETARY, To National Commission of Science and Technology,
(1999-2000)**

FOUNDER DIRECTOR (HONORARY) / PROFESSOR EMERITUS

Mehran University Institute of Science and Technology Development (2000-todate)

CHAIRMAN, Charter Inspection and Evaluation Committee

Government of Sindh

(Honorary Advisor to Governor Sindh)

(August 2002 to date)

- **Dr. Arabella Bhutto**

Ph.D (Technology Management)

Assistant professor

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Thank You