Benazir Housing Technology
A Poor Person’s House in the Age of Climate Change.
The Project: Key Features

• Construction of 500 Energy Efficient Housing Units in the disaster hit areas of 3 districts
• Built through local NGO’s
• Completion with in 9 months
• Ownership by the women
• Training of 1000 Local Masons in energy efficient technologies
• Introduction of solar energy technologies
Benazir—an unparalleled approach to house building

- Per unit cost: $3900
- Solar energy facility
- Resistant to water salinity, earthquake and cyclones.
Project Cooperation agreement signing in 2008 between UNDP and Govt of Sindh
Location Map Showing Villages of “Energy Efficient Free Housing for Disaster Affected Areas Project” of Badin, Thatta and Karachi Districts
The houses which were replaced
The houses which were replaced
CC Adaptation & Mitigation: 
A New Housing Paradigm

• Make your own house by yourself
• NGOs / CBOs as builders
• A House which is
  – Low cost
  – Energy efficient
  – Exotic looking despite low cost
  – Environment friendly
  – Disaster resistant
  – Easy to make (7 days)
New Housing Paradigm

• Replacing bricks and thus GHGs
• Minimum or no use of wood
• Sustainable structure – CC adaption and mitigation
• Less usage of water in construction
Cycle of Research

First Model

2nd Model

The Final Product
UNDP GEF SGP

10 years of research on Energy Efficient earthquake resistant low cost housing
Benazir Model: Unique Features

• **Arched Foundation** to address the problem of seepage, dampness, salinity and cost effectiveness

• **Pyramidal Roof** which is thermal efficient, damp and leakage proof, lightweight and economical wooden roofing design as compared to conventional roofing
Energy Efficient House: Unique Features Cont..

• **Compressed Earth Block** is consisted of ordinary soil with less content of clay; generally stone dust is used with 5% to 6% lime or cement at optimum moisture content

• **Wire Reinforced Hollow Block Masonry** to ensure quality, cut down masons cost, speed up the work progress, make the construction simple and provide the provision of wire reinforcement to make the structure safe against earthquake and high wind and lateral pressure
• UNDP SGP is providing the beneficiary villages and households energy efficient stoves, solar lantern, solar street lighting
Innovations as Solutions

“GEF Voice” CEB Machine

“SGP Spirit” Hollow block manufacturing machine
Arched foundation
Masons’ Training and use of Hollow Block
Masons’ Training
Few Snaps of the Project
Few Snaps of the Project
Snaps of the Project
Benazir model: Poor Person’s house in the age of Climate Change
New Giza sans Pharoahs
Global Replication

• Calling for global replication under climate change adaptation and mitigation
• An answer to quick provision of shelter in the events of disasters
Govt. of Pakistan
The Housing Priority
Pakistan’s housing situation

- Pakistan has a backlog of more than 7 million decent housing units
- The backlog is growing by 270,000 units per year
• Approximately 23 million housing units in the country
  - Of which 68% are in rural areas
  - There is an average of 3.3 persons per room
  - One-half the units are more than 50 years old and dilapidated
Housing construction ranks among Pakistan’s highest priorities.

- National Housing Policy
- Poverty Reduction Strategy Paper (PRSP)

Provision of houses in rural areas can prevent large scale migration from rural to urban areas.

Provision of houses empowers women when title deed is in their names.
• Govt. of Pakistan offers:
  – Support and collaboration in globalizing this technology
  – Collaboration in initiating project under CC Adaptation in housing sector
  – Further exploring possibilities