Pakistan

PHC
People's Housing Cell

gef

UNDP

Benazir Housing Technology

A Poor Person's House in the Age of Climate Change

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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

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Benazir-an unparalleled approach to house building

- Per unit cost: $3900
- Solar energy facility
- Resistant to water salinity, earthquake and cyclones.

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Project Cooperation agreement signing in 2008 between UNDP and Govt of Sindh

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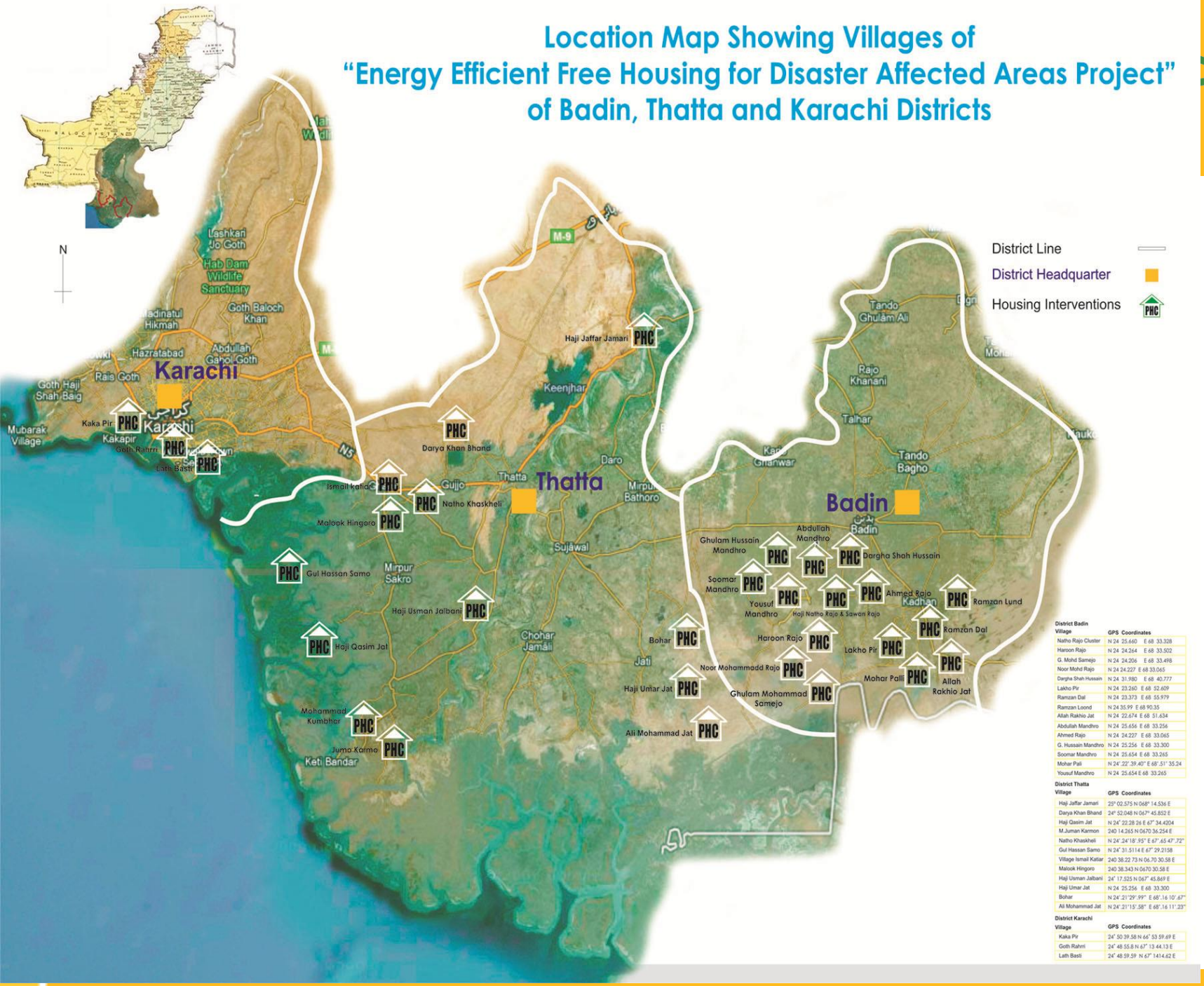
Location Map Showing Villages of "Energy Efficient Free Housing for Disaster Affected Areas Project" of Badin, Thatta and Karachi Districts



District Badin

Village	GPS Coordinates
Natho Rajo Cluster	N 24 25.660 E 68 33.328
Haroon Rajo	N 24 24.264 E 68 33.502
G. Mohd Samejo	N 24 24.206 E 68 33.498
Noor Mohd Rajo	N 24 24.227 E 68 33.065
Dargha Shah Hussain	N 24 31.980 E 68 40.777
Lakho Pir	N 24 23.260 E 68 52.609
Ramzan Dal	N 24 23.373 E 68 55.979
Ramzan Loond	N 24 35.99 E 68 90.35
Allah Rakhio Jat	N 24 22.674 E 68 51.634
Abdullah Mandhro	N 24 25.656 E 68 33.256
Ahmed Rajo	N 24 24.227 E 68 33.065
G. Hussain Mandhro	N 24 25.256 E 68 33.300
Soomar Mandhro	N 24 25.654 E 68 33.265
Mohar Pali	N 24°.22'.39.40" E 68°.51' 35.24
Yousuf Mandhro	N 24 25.654 E 68 33.265

District Thatta

Village	GPS Coordinates
Haji Jaffar Jamari	25° 02.575 N 068° 14.536 E
Darya Khan Bhand	24° 52.048 N 067° 45.852 E
Haji Qasim Jat	N 24°.22.28.26 E 67° 34.4204
M.Juman Karmon	240 14.265 N 0670 36.254 E
Natho Khaskheli	N 24°.24'18".95" E 67°.65 47".72"
Gul Hassan Samo	N 24° 31.5114 E 67° 29.2158
Village Ismail Katiar	240 38.22 73 N 06.70 30.58 E
Malook Hingoro	240 38.343 N 0670 30.58 E
Haji Usman Jalbani	24° 17.525 N 067° 45.869 E
Haji Umar Jat	N 24 25.256 E 68 33.300
Bohar	N 24°.21'29".99" E 68°.16 10'.67"
Ali Mohammad Jat	N 24°.21'15".58" E 68°.16 11'.23"

District Karachi

Village	GPS Coordinates
Kaka Pir	24° 50 39.58 N 66° 53 59.69 E
Goth Rahmi	24° 48 55.8 N 67° 13 44.13 E
Lath Basti	24° 48 59.59 N 67° 1414.62 E

The houses which were replaced

The houses which were replaced

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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)

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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

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Cycle of Research

First Model

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, light weight and economical wooden roofing design as compared to conventional roofing

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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

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Alternate Energy

- UNDP SGP is providing the beneficiary villages and households energy efficient stoves, solar lantern, solar street lighting

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Innovations as Solutions

"GEF Voice" CEB Machine

"SGP Spirit" Hollow block manufacturing machine

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Arched foundation

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Masons' Training and use of Hollow Block

Masons' Training

Small Grants Programme

Few Snaps of the Project

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Few Snaps of the Project

Snaps of the Project

Benazir model: Poor Person's house in the age of Climate Change

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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

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Govt. of Pakistan
The Housing Priority

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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

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- 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

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- Housing construction ranks among Pakistan's highest priorities.
  - National Housing Policy
  - Poverty Reduction Strategy Paper(PRSP)
  - Pakistan Government's Medium-Term Development Framework (MTDF),2005 - 2010.
- 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.

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Lets Join Hands

- Govt. of Pakistan offers:
  - Support and collaboration in globalizing this technology
  - Collaboration in initiating project under CC Adaptation in housing sector
  - Further exploring possibilities

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