

Turning Threats into Opportunities through Participation

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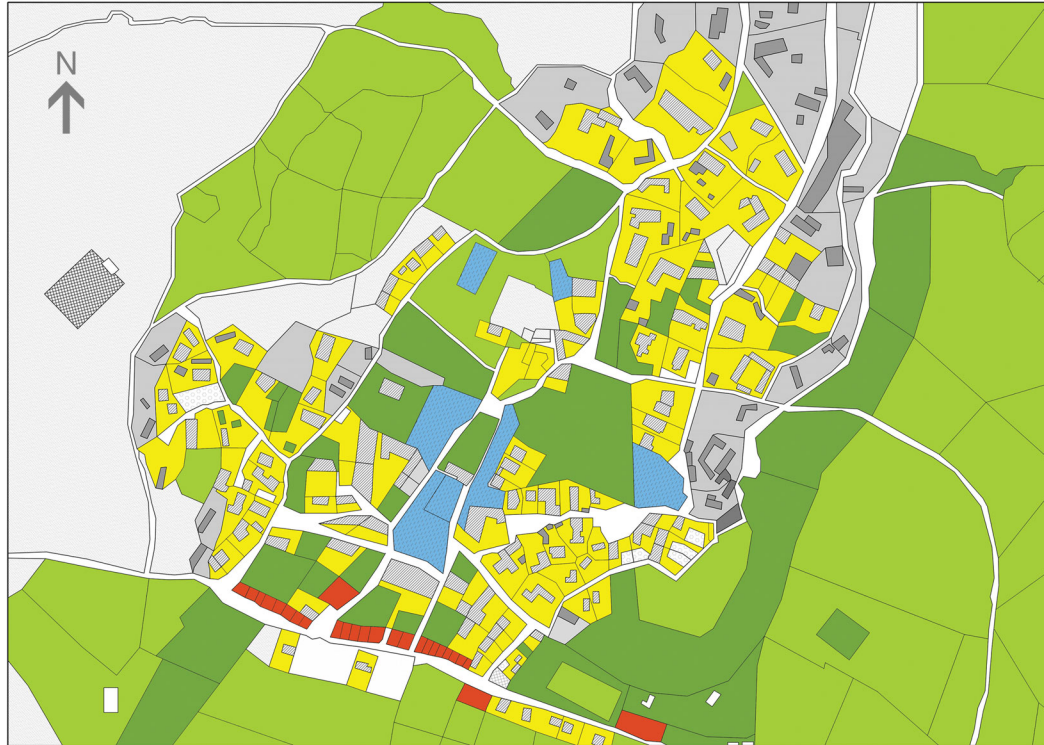


8th I-Rec Conference

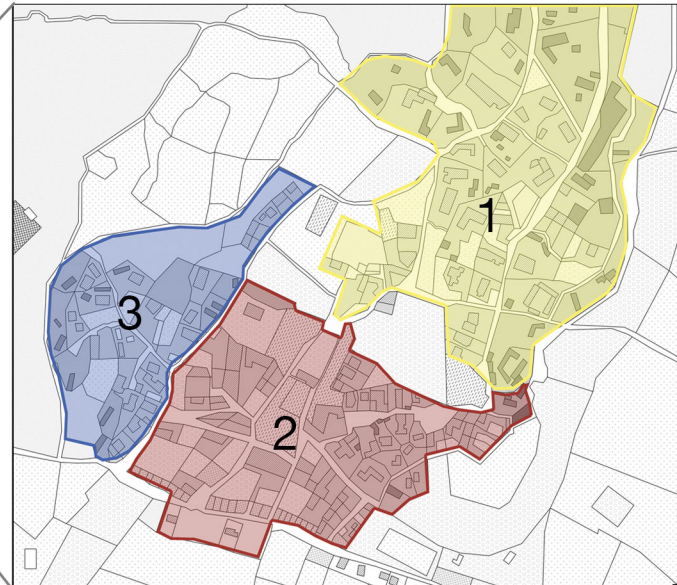
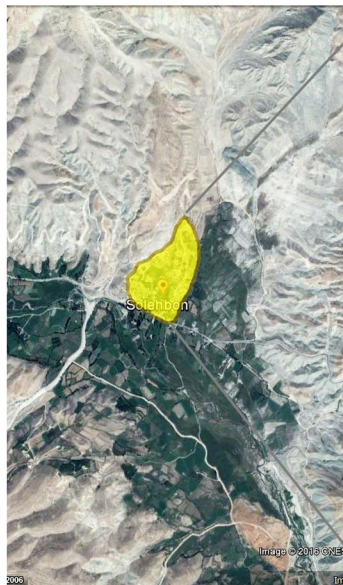
Solebon with the population of 381, is a village in Arjmand district, Firuzkuh county, Tehran province, Iran. Being located at a mountainous region, this village experience cold winters and heavy rain. Moreover, like most of the villages in Iran, water was the main factor for formation of the village. In 2005, the construction process of Namrud dam adjacent the village began. As a result, part of the village will go down into the dam basin so relocation is unavoidable.



- Farming Lands
- Gardens
- Services
- Residential
- Barn lots
- Barns
- Commercial



Differences between rural and urban lifestyles lead to disparate spatial requirements and layout of the houses. So rural house and physical environment are complicated phenomenon that should be intervened deliberately. In Solebon like the other villages of Iran, the village is not only limited to the houses but instead gardens, farms and other related livelihood spaces are the indispensable parts of the village.



Housing



Function

- Animal and storage spaces
- Flexible architecture
- Low and small openings
- The building is constructed on a platform above ground level.
- Southern terrace

Structure

- Stone foundation
- Thick load-bearing mud walls
- wooden structure for columns and gable roof

Climate



- Cold weather
- Heavy rain

Livelihood



- Agriculture
- Animal husbandry
- Gardening

Culture



- Islam religion
- Persian language

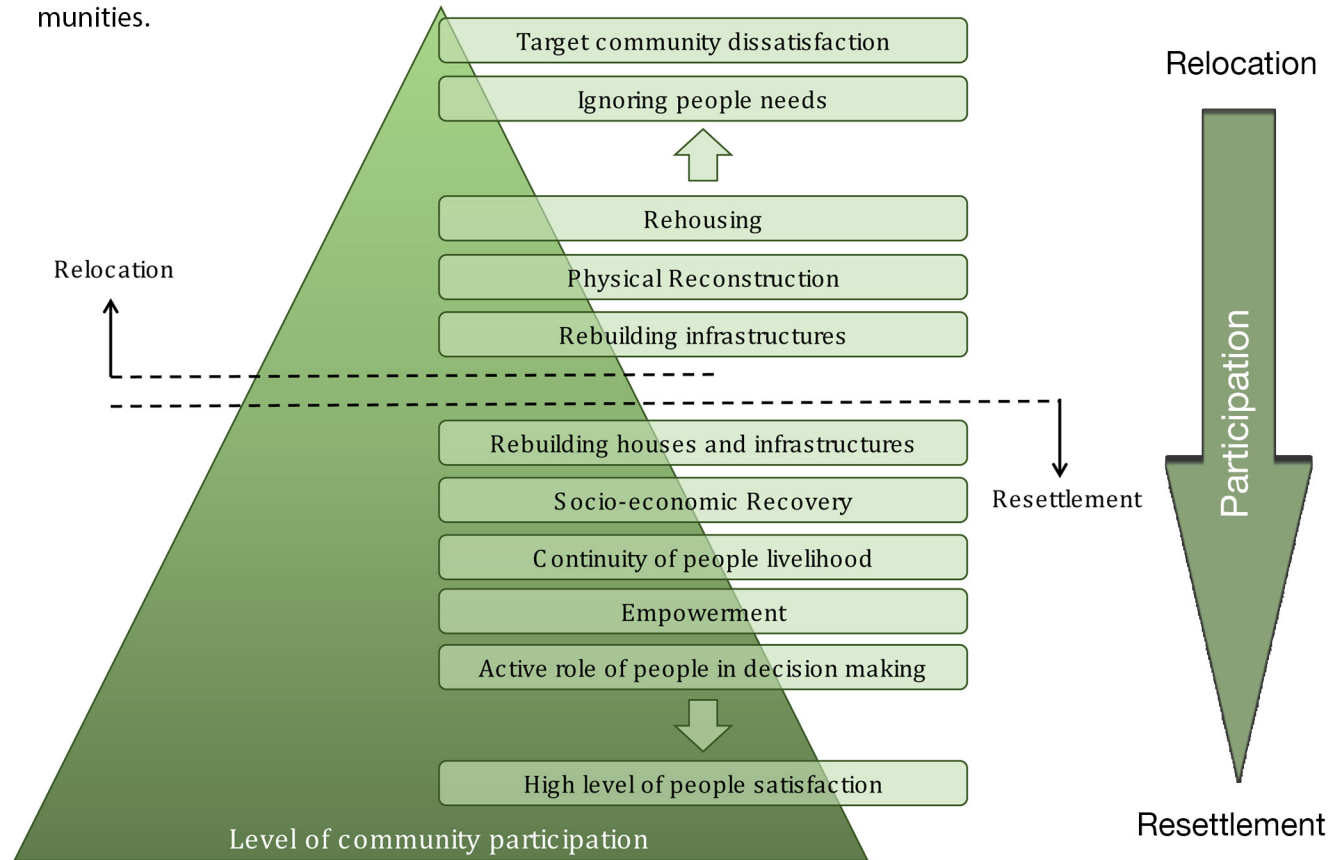
Physical structure



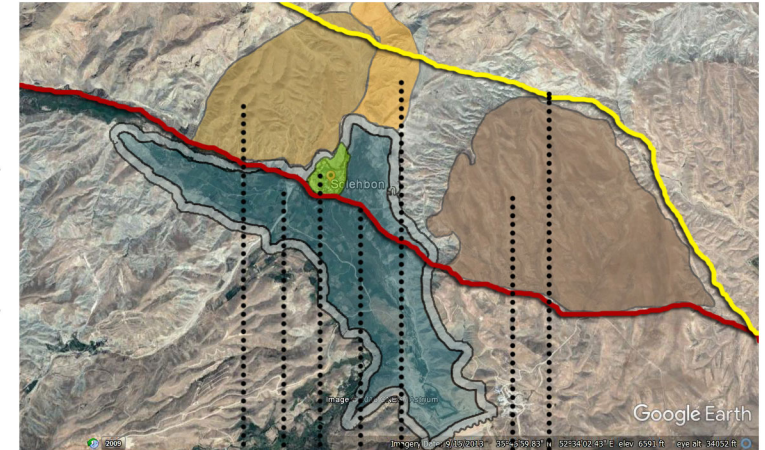
- Organic morphology
- Green landscape
- The slope of the land: 5-25 percent
- 3 neighborhoods locally called 1: "Bala", 2: "Paeen" and 3: "Khalil"
- Located at the northern side of the main road
- In recent years several villa resorts have been the northern side of village.

Criteria for successful relocation

- People effective participation in the all phases of relocation. Sustaining livelihoods especially in rural Areas.
- Conformation of new settlements to People lifestyle and culture.
- Considering the diverse types of houses in terms of location, size because justice is different from equalization.
- Continuous monitoring and solving probable problems.
- Access to the old site.
- Resettling people in the new site based on their previous settlement patterns and the their belonging communities.



The above diagram reveal that there is difference between relocation and resettlement concept. In relocation , only physical structures of the old site rebuild in a new location. While, in resettlement, in addition to the physical structures, people livelihood, their culture and social matters are considered. In this project, instead of relocating people in a new site, by considering people needs and desires, we are trying to resettle them.



New Site Selection

According to a research conducted by Iranian Natural Disasters Institute, there are three alternatives for the new site. In the present research, site selection is conducted though SWOT technique in which environmental, social, economic and physical criteria were considered. Finally, after analysis, alternative 2 was the best option in terms of people satisfaction, livelihood continuity, opportunity for creating new businesses, access to water and facilities and short distance to gardens, farming lands and the old village. In addition, based on a survey performed by the village council, alternative 2 was the best place in the people points of view. Moreover, in terms of livelihood revival and development opportunities, the new village will be designed at the southern side of the new road.

Community Opinion Survey



- High tendency to have the same neighborhood pattern in the new village.
- Public concern about their livelihood after relocation.
- People expect their new buildings to be similar to their previous ones in terms of area, form, spaces and distance to the road and public services.
- Public interest for participation in economic benefits generated by tourism industry after the construction of dam.
- Waiting for compensation.

Building Plot Area

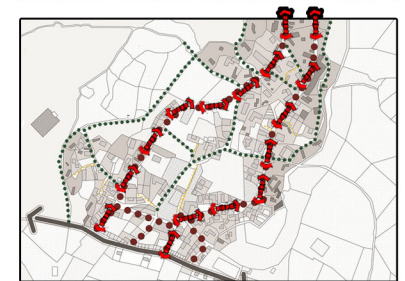
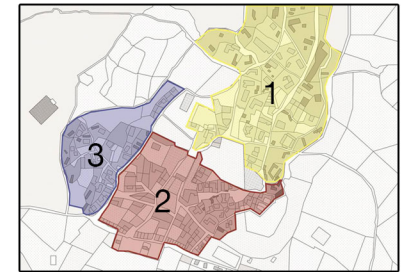
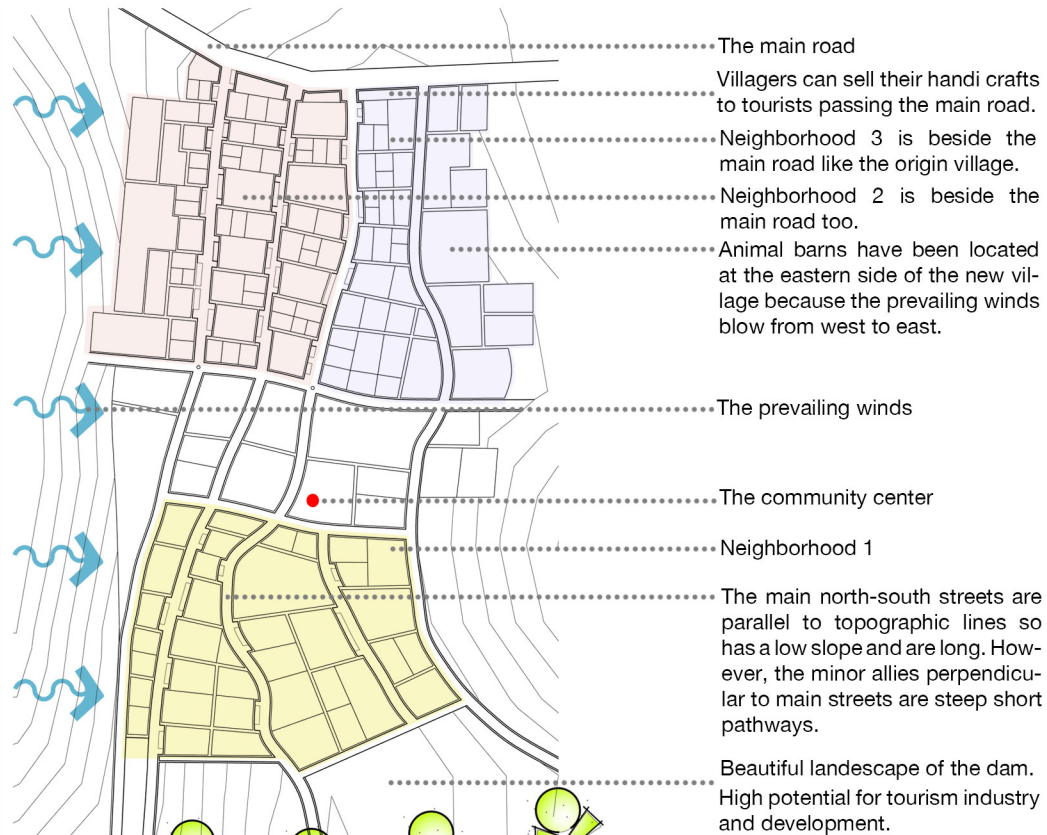
In current village, there are 6 types of building lots in terms of area:

- Type 1: under 300 m²
- Type 2: 300-500 m²
- Type 3: 500-700 m²
- Type 4: 700-1000 m²
- Type 5: 1000-1500 m²
- Type 6: more than 1500 m²

categorizing the current village buildings into 6 types, helps us to design new plots based on this information.

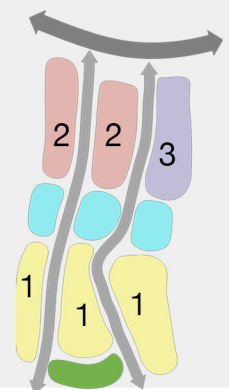


The area of new building plots is nearly similar to the old one



Main concept

- Two main north-south corridors
- Keeping original neighborhood patterns
- Designing based on topographic lines



Building technology and common materials



- Barn walls
- Foundations

- Roofs
- Columns
- Railings
- Windows

- Walls
- Wall Finishing

- Walls

- Walls

- Roofs
- Steel skeleton in new resorts.

Stone

Wood

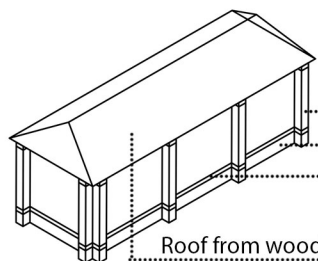
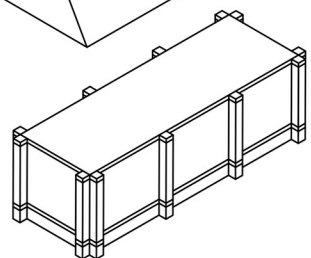
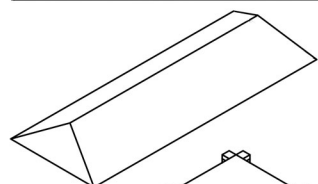
Mud

Brick

Cement Block

Steel

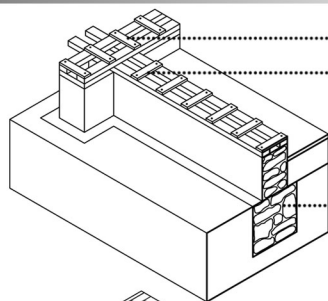
Suggested system



Current buildings of the village are extremely vulnerable against earthquake. By using vernacular materials, we have proposed an earthquake-resistant building technology in which seismic timber bands are provided at plinth and roof level. In addition for stabilizing long walls and intersections, buttresses are used and finally the walls are covered by a wire mesh integrating the whole.

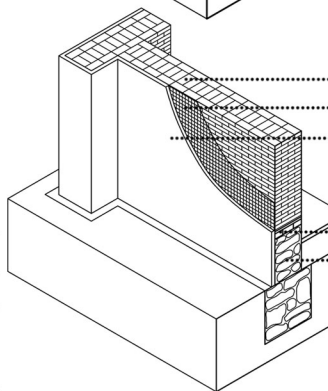
Buttress
Stone Foundation
Timber Band

Roof from wooden trusses covered by galvanized sheet



Timber Band
Timber Band

Stone Foundation



Brick wall
Wire mesh
Mud plaster

Timber Band
Stone Foundation

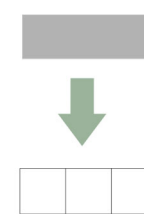
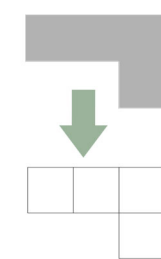
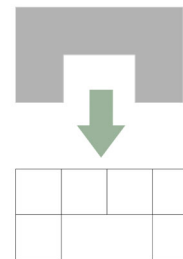
Participatory Housing Design

In terms of plan shape, there are three plan types for houses in Sole-bon village:

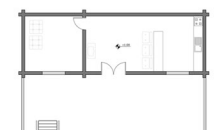
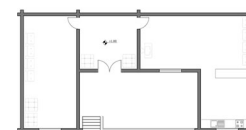
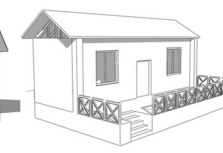
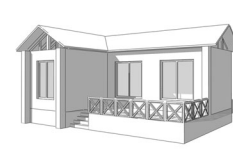
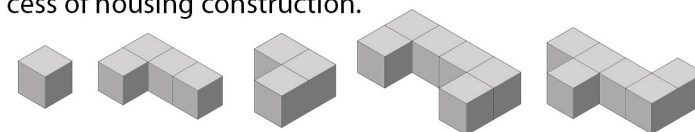
U shaped plans

L shaped plans

Linear plans



We understood that these plans have been consisted from smaller units which by gathering together in different ways, form different plan shapes. These modules are the main concept for designing new houses. In this way, to each household, according to the area and form of their current house, a number of these 3.5cm*3.5cm*3.5cm modules are given to put them together and suggest the form of their future home. After this process, it is said to people to write space functions on each cubic module. Finally, by using people participation, there are not only diverse schematic maquettes of the houses but also modular design can speed the process of housing construction.



Housing foundation of Islamic revolution of Iran.

Cultural Heritage, Handicrafts and Tourism Organization of Iran.

Community center

The host community

University

Housing foundation of Islamic revolution of Iran.

Cultural Heritage, Handicrafts and Tourism Organization of Iran.

Agriculture ministry of Iran.

The host community

Housing foundation of Islamic revolution of Iran.

Department of Rural Development of Iran government.

