

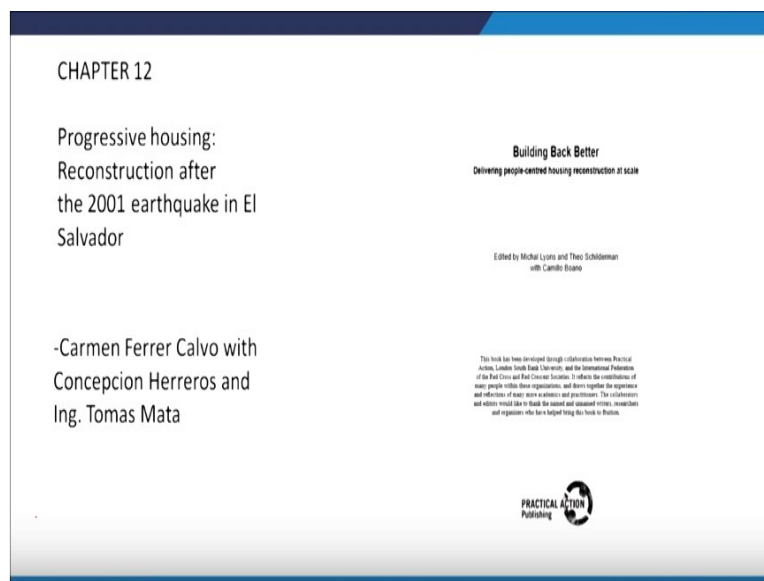
Disaster Recovery and Build Back Better
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Lecture – 25
Progressive Housing in EL Salvador

Welcome to the course, disaster recovery and build back better. My name is Ram Sateesh, an assistant professor in Department of Architecture and Planning, IIT Roorkee. Today, we are going to discuss about the build back better practices especially, in the case of progressive housing in El Salvador. This is also one of the important chapter which has been compiled in the build back better which has been edited by Michal Lyons and Theo Schilderman and Camillo Boano.

And, it is from the practice side of it how they brought all the lessons from practice and this is where its been edited by Carmen Ferrer Calvo with Concepcion Herreros and Tomas Mata.

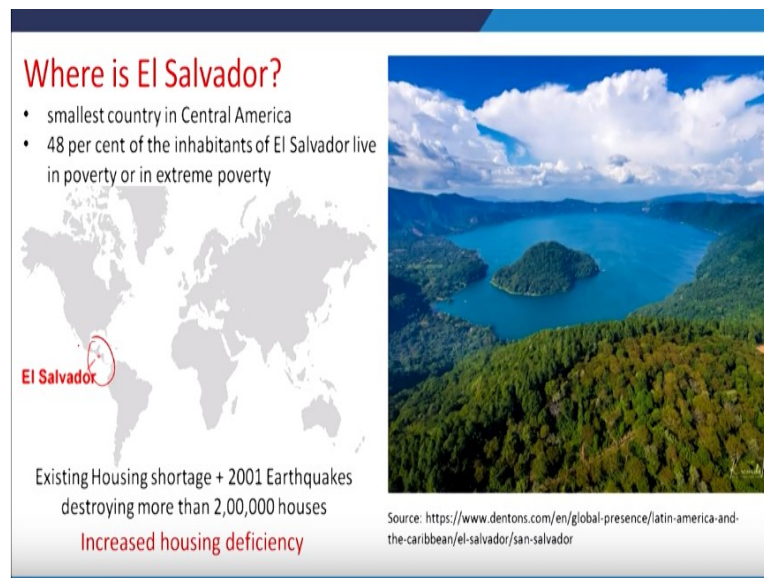
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So, this is a chapter, I am going to discuss on how after 2001 earthquake in El Salvador, how the reconstruction activities have started and what are the processes that they have implemented and what are the learnings we are taking back for that how it has informed the other practices also and in that region and it is also giving us some kind of guidance what to do and what not to do and how community participation is also very relevant.

And what are the stages of the participation and what are the roles of each organizations and there is a participation, partnership and also the coordination and the supervision of it. So, all these things collectively put into the kind of management of the project. So many of you at least from the Asian geographies, many of you may not have heard of El Salvador.

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Which is the smallest country in the Central America so, it is about the 48% of inhabitants of El Salvador live in the poverty or in extreme poverty. So, its almost if you look from the North America and so, this is where El Salvador comes and many of you have to understand that the America, the North America and the South America was very diverse even within North America there was very great diversity exist and great challenges exist.


Within the North American region and in South American though they have the richest mining sector and the richest natural beauty but they also have been unequally distributed with various challenges especially, with the earthquakes which is very common in South American caves. In other classes, we have also discussed in the case of Peru, how it has been dealt and today we are going to discuss about the El Salvador.

So this particular disaster 2001 and this has been destroying more than 200,000 houses and already there is also vulnerable component of existing housing shortage you know, plus the earthquake the disaster adds on to it.

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Disasters that hit El Salvador

1978-92	a cruel civil war killed more than 125,000 people and ravaged the economy and major infrastructures.
1986	a severe Earthquake hit San Salvador, more than 40 thousand houses destroyed.
1998	hurricane Mitch produced serious floods, killing 250 people and affecting the most successful experiences of the post conflict reintegration process.
2001	in 30 days two major earthquakes (7.9 & 6.6 Richter), affected 85% of the national territory



In the M=7.7 earthquake in 2001, thousands of landslides were triggered in El Salvador.

<http://temblor.net/earthquake-insights/offshore-el-salvador-earthquake-strikes-location-of-deadly-m7.7-event-6712/>

So, what are these existing shortages, existing vulnerabilities, from 78 to 92 there is a very cruel civil war which has killed more than 125,000 people and the moment you are talking about a civil war it have impact on the economy and the major infrastructures. In 1986, then again, a severe earthquake has hit the San Salvador, more than 40 thousand houses has been destroyed and prior to 2001 and 1998.

This hurricane Mitch has produced the serious floods killing 250 people and affecting the most successful experiences of the post-conflict reintegration process. So, in 2001 again, it has one is a major earthquake which has been affected within a span of 30 days it has affected 6.6 points Richter scale earthquake has been hitted and about 85% of the national territory has been under impact.

And now, you can see here, there is a multiple disaster being a hilly areas, a mountainous areas you can see the landslides along with it not only the earthquakes the ground is not just moving around there is hills landslides on the other side, you have the Hurricanes which is again. So, this

is a multiple hazard phenomenon which existed in El Salvador geography and one is after the earthquake obviously, with many NGOs come into the picture.

And they want to give their helping hand or the support or the technical expertise or a kind of financial supports so, that is how this is the time different red cross associations like one is a Spanish red cross along with the Salvadoran red cross.

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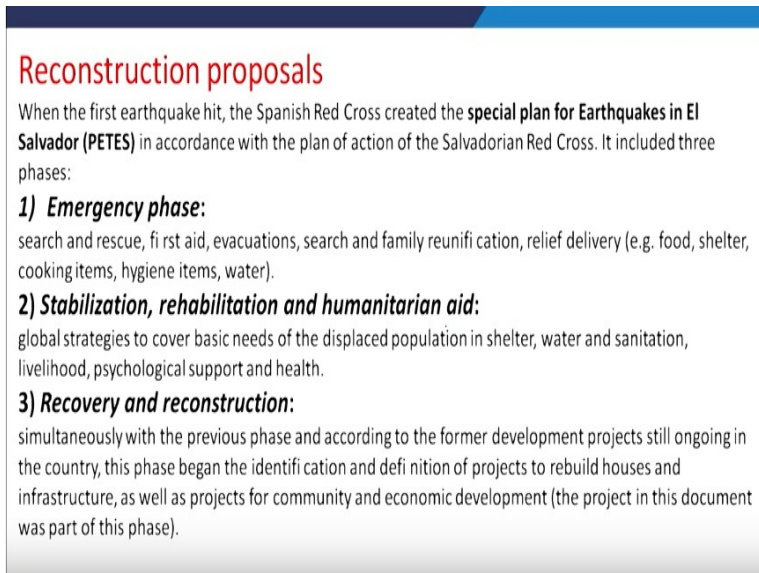
How they have also associated with in the red cross associations, how they have also associated with each other so, that they can learn from other, you know, practices which they have already learned from different parts of the globe. So that is how they have come together and they have come up with rather than a core housing concept they started with a progressive housing as a solution.

Because they have considered a different experiences what they have learned and that is where they have come up with a progressive solutions. So one is, what is progressive approach, these are the houses developed in different stages in incremental way, right and many people gets a core house approach versus with the progressive housing. In a core house approach, we give a core dwelling unit and then people add on to it.

So, they try to make in a kind of bigger like what you can see here, is you provide some basic things and then people add on to it you know like here the Alejandro's work which has been in Pritzker award and you can see his work in Chile. So, what it has been provided and what the people have made incrementally, how they are modified these places but here one has to understand it is like the incrementality is almost like 100 percent of increase.

But, this is something whether it is possible or not that one has to look into it but whereas, in progressive approach it is unlike the core dwelling is not making a house bigger but were making a house finished you know, to the complete manner, that is the most important aspect of the progressive approach.

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Reconstruction proposals

When the first earthquake hit, the Spanish Red Cross created the **special plan for Earthquakes in El Salvador (PETES)** in accordance with the plan of action of the Salvadorian Red Cross. It included three phases:

- 1) Emergency phase:**
search and rescue, first aid, evacuations, search and family reunification, relief delivery (e.g. food, shelter, cooking items, hygiene items, water).
- 2) Stabilization, rehabilitation and humanitarian aid:**
global strategies to cover basic needs of the displaced population in shelter, water and sanitation, livelihood, psychological support and health.
- 3) Recovery and reconstruction:**
simultaneously with the previous phase and according to the former development projects still ongoing in the country, this phase began the identification and definition of projects to rebuild houses and infrastructure, as well as projects for community and economic development (the project in this document was part of this phase).

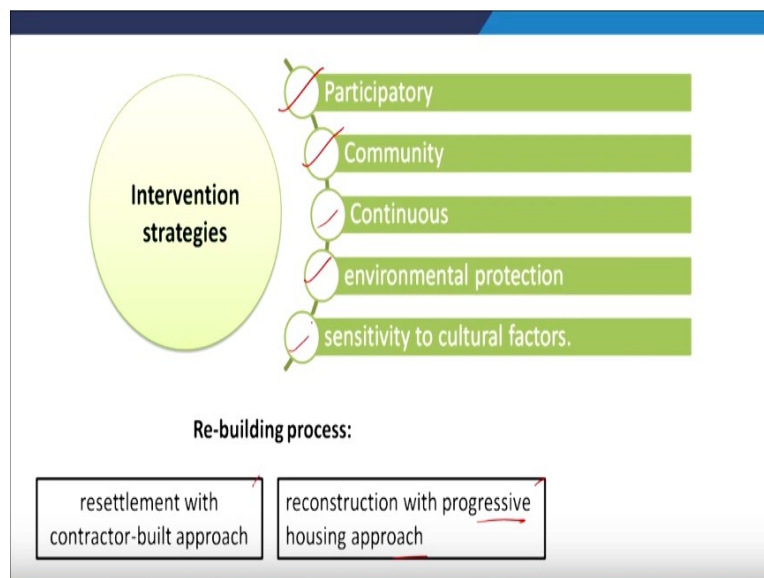
And, when the first earthquake hit in 2001, the Spanish Red Cross has created the special plan for earthquakes in El Salvador which has PETES in accordance with the plan of action of Salvadorian Red Cross and included three phases, one is the emergency phase, the stabilization and the rehabilitation and humanitarian aid and recovery and the reconstruction phase which is the final phase.

So, in the emergency phase it talks about because after earthquake and landslides removing the debris with search and rescue and the first aids providing health, evacuations, search, some family reunifications have been taken up a relief delivery like food, shelter, the basic needs, the

hygiene conditions, the epidemic and endemic disease controls in the relief camps. So this is the whole part contributes to emergency phase.

Once, people gradually stabilize and rehabilitation the humanitarian phase this is where the global strategies to cover basic needs of displaced population in shelter, water and sanitation, livelihood and also the psychological support for mental health. And in recovery and the reconstruction phase so, it is a follow up on to the previous phase and this phase is the identification and definition of projects to rebuild the houses of infrastructure and as well as, the projects for community and the economic development.

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So now, this is how they come up with one is, the various intervention strategies, how the partnership of this Red Cross associations have brought together and one is, they had 2 options of resettlement with the contractor-built approach and reconstruction with the progressive housing approach how they come together and how they make it in a progressive approach. One is, in the rebuilding process they have given one of the important aspect is the participatory aspect.

And, the community and it has to be a continuous process, it is not that the important lesson they learnt is you deliver and you move away so, it has to be a continuous effort, how one can raise

their capacities and take it in a continuous approach. Environmental protection and the sensitivity to cultural factors.

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The progressive housing approach

the concept of progressiveness did not end with the construction of the dwelling, as the original design was conceived so it could be extended and improved by the users in their own time depending on their resources and needs.

The general principles that guided the progressive housing approach were:

- The houses were built on the same land on which they had existed before the earthquakes, provided conditions permitted this and provided the site was not at risk of flooding or landslides. Thus, it was possible to avoid uprooting the population. The families held the ownership of the land.

So, it did not just only this progressive approach it did not ended only with construction of the dwelling but the original design was conceived so that it can be extended and improved by the users in their own time depending on their resources and needs. So, how they can expand with their own feasibilities on the resources. So, there are some general guiding principles of this progressing housing approach.

The houses were built on the same land on which they have existed before the earthquakes, one of the reason they have to think about this because first of all, they should make sure that this provided this is not at risk of flooding or landslides. So, they have to ensure that whatever the land the nearest possible vicinity so, they need to build on the same land or at least in the nearby vicinity.

And the families held the ownership of the land because in this aspect the main important aspect and the Gujarat recovery also we did discussed about the catholic relief services how they manage the housing in their own land because first of all, the sense of ownership is retained as it is okay. The most important part in earthquake resistance is you have to ensure that this is going to be an earthquake-resistant building.

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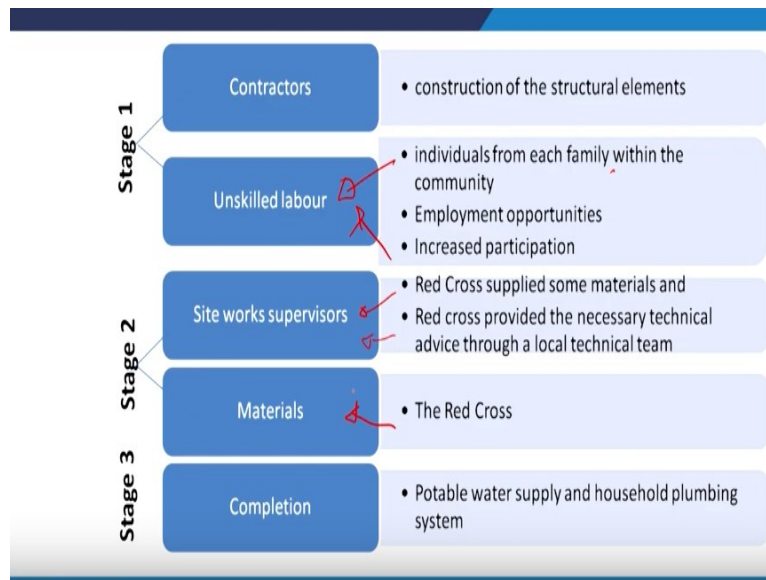
The structure of the buildings was designed to be earthquake resistant, capable of withstanding an earthquake similar to those that had occurred without collapsing. The aim, in this case, was to ensure no loss of human life and to ensure that the damage produced would be repaired by the users themselves.

- The constructed area per house would be 42 sqm, 36 of which would be roofed, divided into three rooms with a porch measuring 6 sqm outside. Participatory design methodology took place.
- Community involvement was essential during the whole process, from the design of the house to the handover.

And it could be capable of withstanding an earthquake similar to those that has occurred without collapsing. So, it has to ensure that there is no loss of human life and the damage that the damage produced would be repaired by the user themselves. So that it could be repaired by minimal interventions and the community themselves can repair it as quickly as possible and the constructed area per house was about 42 square meter and 36 of which would be roof.

Divided into 3 rooms with a porch measuring of 6 square meter outside. So this have been implemented the participatory approach where the communities were involved in the process so, anyways I will discuss with you with, the process how the community was involved and how it has related to the built form and the project management and community involvement was essential during the whole process from the design of the house to the completion of the house.

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So there are 3 stages, one is the first stage the basic construction of the structural elements we talk about any structural elements like the foundations, the columns, the structure, the basic structure of it and then these individuals from each family within the community have contributed the unskilled labour that has created some kind of employment opportunities and this has also enhanced the participation.

And now, in this the moment, the community is coming forward to provide some kind of unskilled labour to make their own houses, where they feel dignity about making their own house. In the stage two, there are associations the Red Cross supplied some materials, like for example in terms of hollow concrete blocks or any other which are not locally available and it also have provided the necessary technical advice through the electric local technical teams.

So, then the site supervisors and again the materials, how the Red Cross has provided the materials, which are not available locally and the stage three, which is talking about the completion which has the portable water supply and the household plumbing systems which onto the service mechanism part of it.

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