

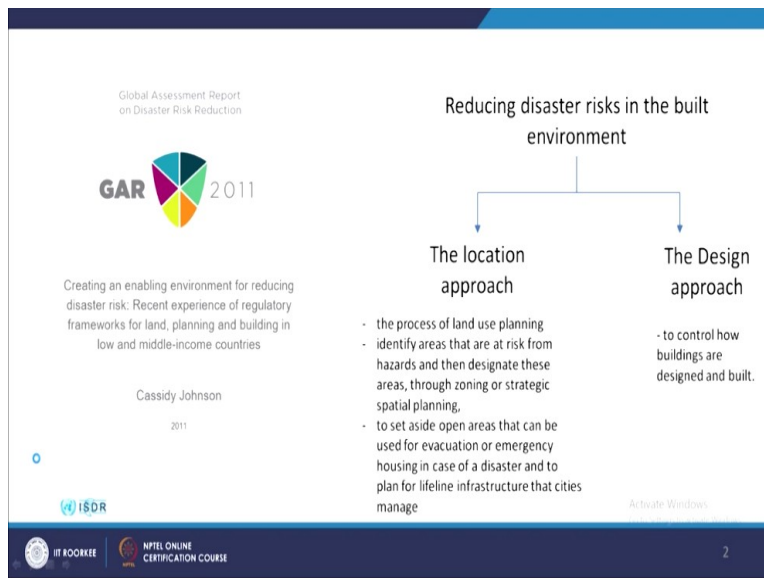
Disaster Recovery and Build Back Better
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Lecture - 34
Assessments

Welcome to the course disaster recovery and build back better. My name is Ram Sateesh; I am an assistant professor in Department of Architecture and Planning, IIT Roorkee. Today, I am going to discuss about assessments, in the disaster recovery and build back better, how different assessments have been conducted, what are the methodologies therefore followed and what kind of focus they have laid and what are the good things about the assessments and what are the lacuna in the assessment process and how to take it further.

So, I will just give you a little of critical review of 2 to 3 different assessments and especially, one is a global level and one, two are at a specific level aspect. I will start the discussion from a global perspective.

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I will briefly introduce you to the Global Assessment Report on disaster risk reduction. This has been prepared by the Cassidy Johnson and her team. In 2011, this has been developed by ISDR. It is a creating and enabling environment for reducing disasters risk. Recent experience of regulatory frameworks for land, planning and building in low and middle-income countries.

So, the focus has been laid, on the low and middle-income countries because the DRR aspect, the challenges in the DRR is very much pertinent to these low and middle-income groups and because there were various reasons, why we are unable to aptly introduce certain technical interventions as well as somehow, we are unable to address the bottom of cultures, the bottom level realities and with that building codes, the structural measures and as well as the land planning issues, land management issues, planning and land management.

So, that is all been covered in this particular assessment report. So, I will briefly explain, how this has been tackled. When we talk about the reducing disaster risks in the built environment, there are 2 approaches to it; one is the location approach, the second one is the design approach. In the first one, the location approach, it deals with the process of land use planning.

When we say land-use planning means obviously, there are different processes, that goes hand in hand to each other and it goes in a particular sequence. Like for instance, we also identify the areas that are risk from hazards, when we know that these are the potential areas, whether it is a regional level understanding, whether it is a particular area development understanding, so we will understand, which are the potential areas that will be subjected to what type of risk.

Whether it is a landslide, whether it is a flood-prone area, whether it is a multiple hazard-prone, so that is first task. The second one is we do with the zoning aspect; also we designated these areas through zoning or strategic spatial planning. The moment you zone them which is the high risk, which is the low risk, which is a moderate risk, which are prone for this, what are the possibilities, what are the opportunities, what are the threats within it.

So, this is where we also develop a strategic spatial planning process. Here, we need to incorporate to set out some open areas that could be used for the evacuation or emergency housing, in case of disaster and to plan for lifeline infrastructure that cities manage. A few examples I can give you. When Hudhud cyclone has hit, there has been a real pressurized situation, much of the infrastructure has been cut down from you know, the main service plans.

So, hardly the roads have been damaged, the flood water came onto the main road, so railways have been damaged. So, in that way, the access has been cutted out in many areas and this is where, once we know that these are inundation levels here, this might go up to this level, so we can even plan that whether we should, what kind of alternate infrastructure connectivity we should have in terms of disaster, how we can evacuate this people through an alternative approach you know, and where can we put them.

In the immediate relief and rehabilitation process, where can we actually put these people, what kind of open area because if you keep planning house for house, house for house and then if you make it as the congested environment, so what happens during a disaster? We need a place, for keeping them this evacuated, so all this whole process together frames into a strategic spatial planning.

That is the DRR has to be addressed in that level but the question is whether we are able to address that in that way or we are only taking in a piecemeal approach you know. this parcel of land we are dealing with this and that's it so but how about in a collectively, how a city is working, how we have to plan with it. So, these are some major challenges. When the design approach, this is to do with to control mechanisms how buildings are designed and built.

So, whether it is by following certain codes, certain regulatory frameworks and how they are abide with this national-level regulatory frameworks or a local level frameworks bylaws. So, this is how this looks at the design aspect of it. The important challenge in both the approaches is, first of all, we do have the regulatory frameworks but in the developing countries under low and middle-income countries to what extend they are adopted in a full-scale or strictly they have been adopted.

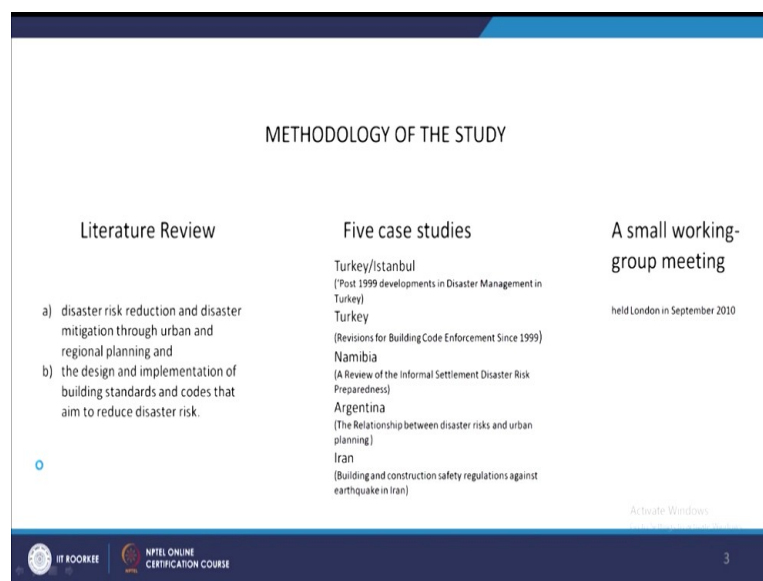
So, there have been many challenges, poverty being one of the challenge, education being another challenge, so like that, there are many aspects which and the cultural compliance you know, how the local cultures also able to comply with these authoritative frameworks. So, there has been so I will go through a few examples and as there are some important points and how this assessment has been conducted.

When we talk about this lecture on the assessment, I am going to describe about the methodology it has been framed. This study has composed of 3 components; one is the

literature review. So, the experts have collected a variety of literature, which is pertinent to disaster risk reduction and disaster mitigation through urban and regional planning and the design and implementation of building standards and codes that aim to reduce disaster risk.

So, which is one level is talking about the urban and regional planning of it the DRR and the second level is talking about the implementation aspects of building standards and codes. Then, the second aspect is they have taken 5 case studies, each from different country.

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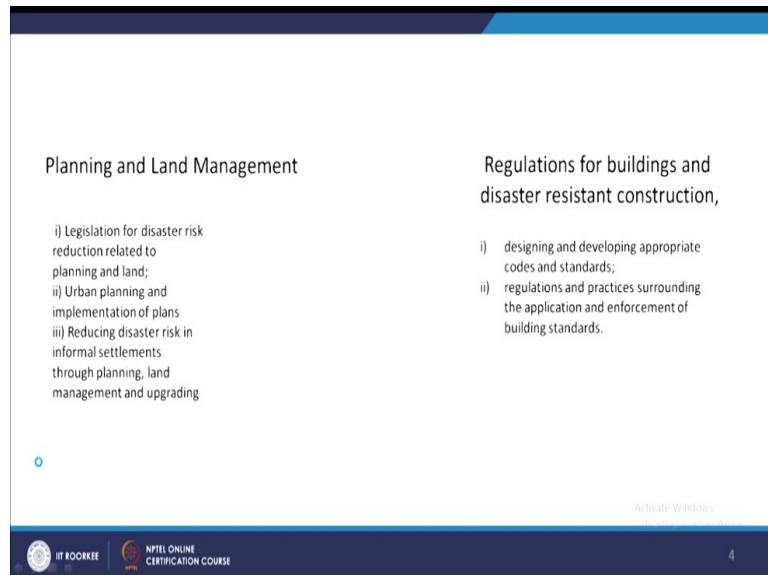


Two of them are from Turkey, one is pertinent to the Istanbul following upon the post 99 the Ankara earthquake, the Marmara earthquakes and the post 99 earthquakes in Turkey and what kind of developments happened in the disaster management in Turkey and the second one focus also in Turkey, it talks about the what kind of revisions and enforcements in the building code have been taken since 1999.

So, it is very focused on the building code aspect. Whereas in Namibia it talks on the review of informal settlement of disaster risk preparedness and in Argentina they talk about the relationship between disaster risk and urban planning and in Iran they talk about the building and construction safety regulations against earthquake because Bam has been affected by recent earthquake at that time and that side talked about the earthquake safety in very particular.

Then, following these case studies and relating to the literature review, they also ended up, they concluded with the kind of small working group meeting which has been held in London in September 2010. So, that has framed the whole report process.

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And how, this was presented for the leadership, there are 2 parts; one is the planning and land management, the second part which is on the regulations for the buildings and disaster-resistant construction and here this has been again further divided into 3 components; one is the legislation for disaster risk reduction related to planning and land, the second one is the urban planning and implementation of plans, third one is reducing disaster risk and informal settlements through planning, land management and upgrading.

So, the focus has been very much focus on the informal settlements. Whereas, in the second part regulations for buildings and disaster-resistant construction. The first one has been focused on the designing and developing appropriate codes and standards, the regulations and practices surrounding the application and enforcement of the building standard. So, what are the various challenges that is faced in the implementation process?

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| Planning and Land Management | Regulations for buildings and disaster resistant construction, |
|---|--|
| <ul style="list-style-type: none"> i) Legislation for disaster risk reduction related to planning and land; ii) Urban planning and implementation of plans iii) Reducing disaster risk in informal settlements through planning, land management and upgrading | <ul style="list-style-type: none"> i) designing and developing appropriate codes and standards; ii) regulations and practices surrounding the application and enforcement of building standards. |

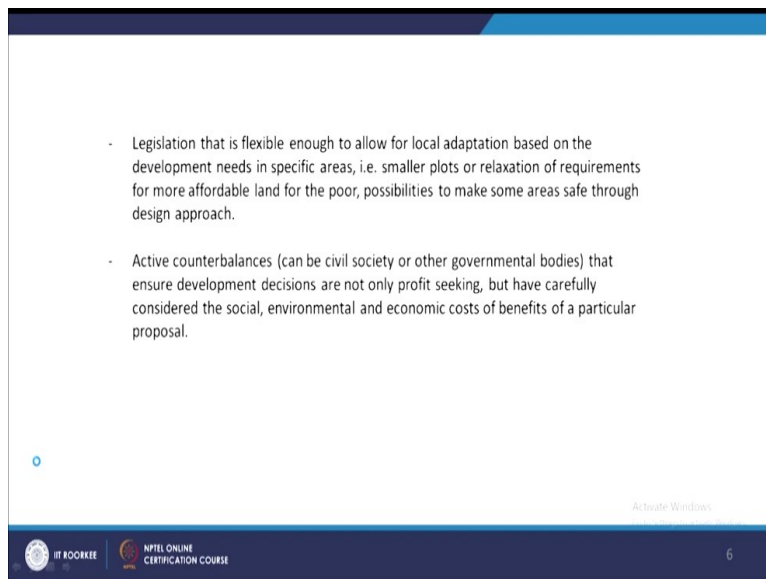
So, they have discussed about a variety of issues, for example, in Turkey there are some evidences which talk about the gas pipelines, how and gas stations which has been provided in the residential areas near the residential areas which may be hazardous but none of the regulatory frameworks have talked about these gas service stations. So, which means it is completely not been looked into the regulatory perspective.

So, this is some of the lacuna in what how the land use planning also have to consider the DRR in giving an appropriate functionality of different plan uses, you know. So, imagine if you are keeping this because it is also the industrial segments, how it is interacting with the residential land use.

There are also other things like for example, in the water contamination you know, the arsenic water contamination in Bangladesh, how it has been, people are very much prone in Bangladesh that they have been living with it. So, like that there are various aspects one has to look at and in this particular land use planning, this not only has to do the national level legislative framework as because in India we talk about the URDPFI guidelines and various other national level setup.

They have to take into the multiple risks, account of the multiple risk and mandate planning in the local level and strategic and forward-looking legislation rather than reactionary legislation in response to disaster events. So, one has to not only look at the if the event happens and then we respond to it, it should not be like that, one has to look at a strategic way, how even if the event is not had occurred how we can plan for it.

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A screenshot of a presentation slide from an NPTEL Online Certification Course. The slide has a dark blue header and footer. The main content area is white with two bullet points. The footer contains the IIT Bombay logo, the text 'NPTEL ONLINE CERTIFICATION COURSE', and the number '6'.

- Legislation that is flexible enough to allow for local adaptation based on the development needs in specific areas, i.e. smaller plots or relaxation of requirements for more affordable land for the poor, possibilities to make some areas safe through design approach.
- Active counterbalances (can be civil society or other governmental bodies) that ensure development decisions are not only profit seeking, but have carefully considered the social, environmental and economic costs of benefits of a particular proposal.

So, the legislation which could be flexible enough to allow for local adaptation based on the development needs in specific areas, smaller plots for relaxation of requirements for more affordable land for the poor and possible to make some more areas safe through design approach. So, it is not only just by identifying the land and this is the safe land but even a design can contribute to the understanding the safety of it.

And it can actually not only at the safe positioning the buildings in the safe land but their orientations, the way the whole approach has been taken so that we can at least achieve the safety for the people. Active counterbalances, between the civil society and other governmental bodies like in Scandinavian example, I have been working on the snow maintenance aspect when I was working in Sweden.

So, there we have interviewed many agencies, how the snow management program has been conducted by the council. In the same building, two departments exist because they have 3 categories of the snow maintenance; one looks at the highways, one looks at the state highways and the main highways, the second one looks the district routes, the third level looks the neighbourhood level.

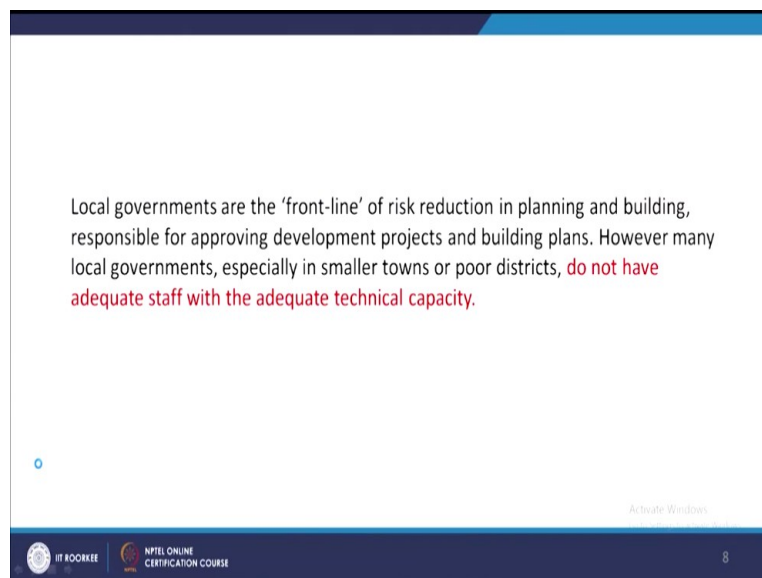
So, these 3 are situated in the same building but they never interact, so they have different policies and procedures for each of them but they have some gaps in that 6 o'clock one highway will clean, highway people, will clean and at 9 o'clock someone else will come but it will cause the barrier for the neighbourhoods to come into the bus stop. So, that is where

there should be some coordination what about the middle areas which are in between, the sandwiched areas between the local clearance people and the highway clearance people.

So, that is a kind of coordination which was needed. So, that is where, I am saying about there should be also some kind of balance between the government bodies and they should ensure, this kind of balance can ensure that the development decisions are not only profit-seeking because many of the development authorities look for the economic security of that particular neighbourhood or a city or a particular state.

They also have to consider what kind of social, environmental and economic cost of the benefits of a particular proposal. If someone is coming with 140-acre development proposal review, so you need to look at the all aspects, how it may have an impact on the water security issues, how it will have an impact on the soil degradation issues you know, that is all the aspects has to be looked in. So, I am also summarizing a few implementation challenges.

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Now, when we talk about any plan implementation, first of all, it will be submitted to the local development authority. These local governments they have the first step when you propose something a large area development if you want to submit to the local council and that is where they are in the front line of the risk reduction in planning and building responsible for approving the development projects.

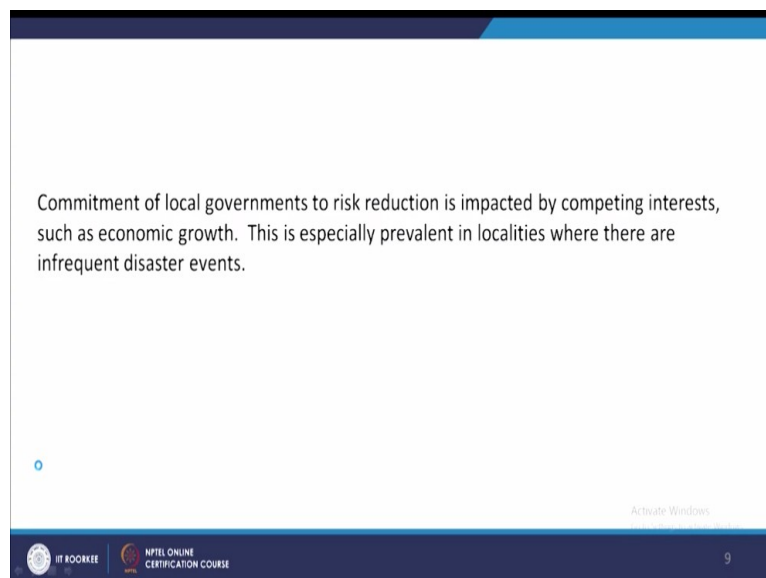
If someone is coming with huge housing development project, then the first place it is going to the local council and the problem in developing countries was he might be a big architect

who is let's say Norman Foster or any other or even some very well-known architects like B.V. Doshi or anyone who is designing the big housing projects but at the end of the day who is receiving that in the evaluation, in the council.

He might be the many cases in small towns; you might find even very less qualified persons who have not understand who may not be able to understand the kind of terminology of the disaster risk reduction aspects, the environmental concerns. So, they are trained in a different process of their daily pressurized situation of approving and but then how these locals, because they are heavily burden with lot of development proposals and the process the bureaucratic process.

If you ever happened to go a planning office and if you look at the atmosphere, the working atmosphere, it's really they have a very less adequate staff and also not having an adequate technical capacity especially, this is very true in the smaller towns.

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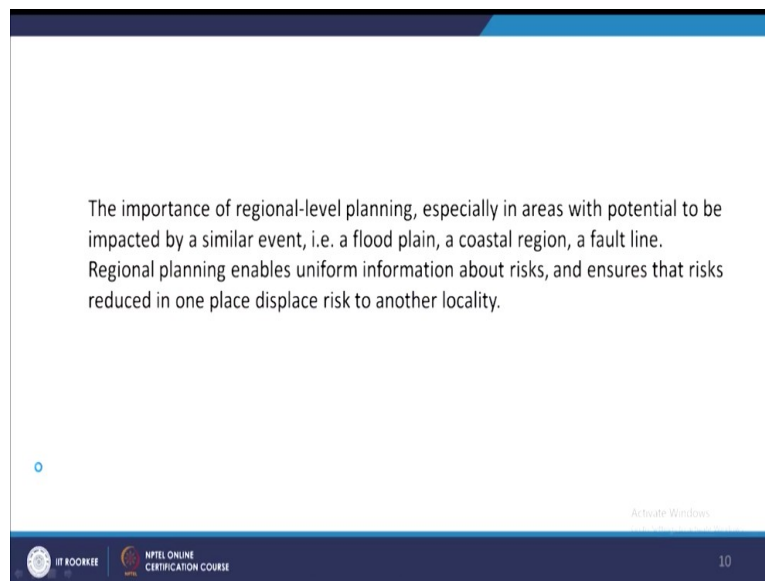
And commitment of the local governments to risk reduction is impacted by competing interests such as economic growth. I was in Mahabaleshwar in Pune and on one side the tourism segment is been a promotive aspect to raise economic growth but one has to understand it is also part of the eco-sensitive zone. So, the local governments have to give that kind of priority that you know, one has to be sensitive enough in the development.

And in this kind of focus of the local government, the politicians are very much actively engaged in, they want to promote their areas with much more rich economic, sensitive

economic generation models you know, they want to develop tourism, they want to develop some of the industries to get the job opportunities but how it will have an impact, how it will can reduce the disaster risk reduction.

And these kinds of things are very especially, prevalent in the localities where there are infrequent disaster events.

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The importance of regional level planning, I just said to you now, the Mahabaleshwar case, being a part of the eco-sensitive zone, the approach has to not go only that a city level or a town level or urban level. It has to relate with the larger ecosystem that's where the regional level understanding has to come. Similarly, in Uttarkashi to Gangotri, where the eco-sensitive zone has been declared.

So, all the planning has to address that aspect, so where you are planning and where the regional level, the fault line is going and how to plan those areas you know, that is where the regional planning will enable you the uniform information about risks and ensures that risk reduced in one place, displace risk to another locality. So, the moment you construct something here and it may affect something else in the followed precincts.

So, that is where a regional planning approach should be implemented. Also, the despite legislation enabling multiple stakeholders, inputs into planning of DRR, nations and cities do not easily achieve a true multi-stakeholder perspective. So, these challenges somehow, they seem to lie in the capacity planning offices to overcome the purely technical approaches to

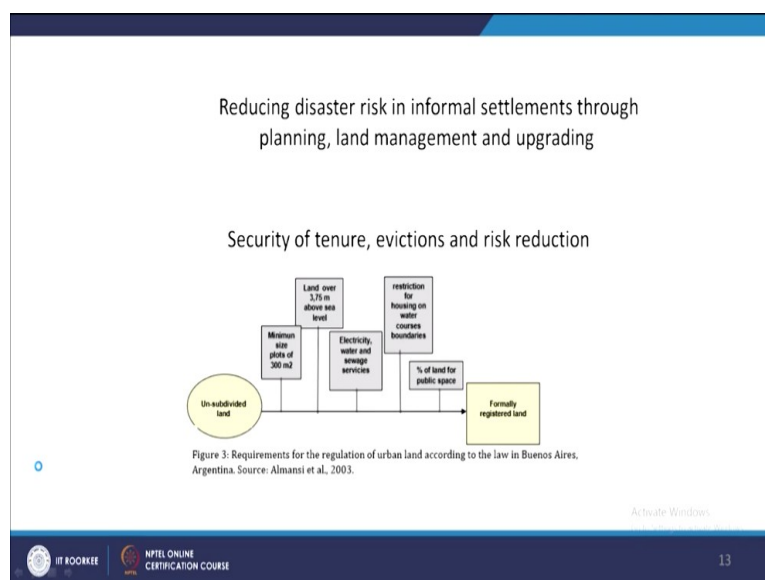
the disaster management and planning instead of engaging a very multiple different stakeholders.

So, as I said to you planning officials somehow in many at cases they are dominant with the technical approaches rather than a consultative process of different stakeholders. Sometimes, these meetings do held in many councils but then to what extent this has been considered and how depth these are, the bottom-up approaches and this is where the technical approaches dominates with the social approaches as well the perspective of different stakeholders.

Traditional separation of the departments of disaster management in urban planning is still prevalent in most jurisdictions. So, disaster management is mostly seen as a contingency planning for disaster response whether in a larger perspective on urban resilience. As I said to you, we are still in 1980s in many of the cases, that disaster planning is not well integrated into the planning process.

Because they always see that how well at the event of a disaster or risk how well we can plan for rescue but how to avoid this okay, how a planning process itself can engage that thought process in it. So, this is the two different separation of these departments are still existing in many of the jurisdictions. Reducing disaster risk in informal settlements through planning, land management and upgrading.

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So, as you have seen that many of the impacts are seen in the informal settlements, they are targeting the poor living on the edge. Whether, they are living on the edge for various

economic reasons or there are certain pressurized situations that are challenging them, probing them to live in these conditions. So, this is where, this particular report also touched upon a variety of example starting from Namibia, starting from Turkey, Argentina.

And they have emphasized about few important aspects how to be taken care of. One is the security of tenure, evictions and risk reduction. Like, this is in case of Almansi's work where the Argentina aspect how to upgrade the informal settlements because if you ever go to slums or quarter settlements always an up-gradation plans keep ongoing. So, a tenure slum, non-tenure slum gradually becomes a tenure slum with the provision of infrastructure and services and up-gradation of the quality of the housing.

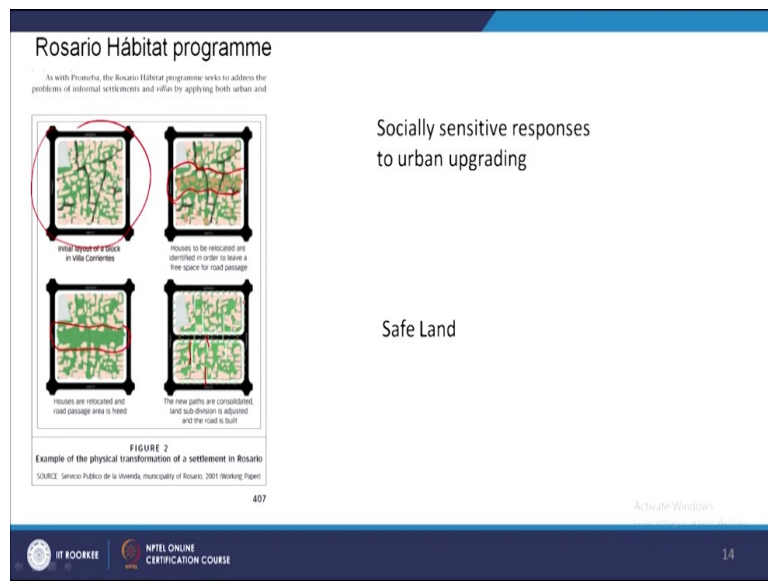
So, similarly, an unsubdivided land, so earlier, it was true in similar cases of Namibia as well. So, when people have been asked to get some you know, options of going there going into the land and vacate these places and stay in a safer lands but there are some other important aspects, what about the livelihoods. So, they are staying for various reasons as I said to you, they are staying for the economic reasons, okay.

And earlier, when there was an informal settlement okay, there is no regulatory framework has been enforced on that. So, people have developed on their own whenever the need has occurred. So, it has been grown very organically but then when the DRR practice has enforced them for up-gradation aspect with various mechanisms whether related to funding mechanism or any legal support mechanisms.

So, that is why they have to undergo various requirements. For instance, the minimum size plots of 300 square meters, the land over 375 meters above sea level and electricity and water civil services, the infrastructure service provisions and restriction for housing on watercourses boundaries, so that is where the zonal regulations also plays an important role and the percentage of land for a public place okay.

Whether you are giving a 10% or 15% of land for the public place and then only it could be formally registered land, then only, you can make the subdivisions right. So, one has to create that kind of, so provisions in order to make it a tenured plan.

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And there are also various schemes and programmes like Promeba is one of the program and they have also conducted this as implementation level in various informal settlements. I will show you some examples of Rosario Habitat Programme and here, what they do is initially, if you look at it, this is the initial layout of the Villa Corrientes and there has been almost 13% of the land in that particular region is all completely the informal settlements.

And when if you want to make it formal, you have to make it a socially sensitive responses and you have to communicate it to the people you know, how it can benefit. First, what they did was they identified that could be relocated in order to plan for infrastructure and services because you look at or identified so that is where and these are, these houses have been relocated and they have some passage for roads and services has been freed up.

And that is where then they started making new paths and the land subdivision has been adjusted and the road is built. So, in that way, within the existence without disturbing much of the habitat, so a few households have been recognized so that roads and basic services could be laid out in order to meet for the planned process and the requirements.

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Regulations, policies or projects that aim to reduce risk to hazards can also have detrimental impacts on poor or those living without secure tenure.

One of the most important things that municipal governments can do to provide an enabling environment for drr, in terms of land and planning, is to enable people to have access to safe land on which to build

Strong CBOs, in partnership with local government, can help to influence better policies for land management and upgrading.

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And many of these regulations, policies or projects that aim to reduce risk to hazards can also have detrimental impacts on poor or those living without secured tenure. Now, when it comes to the informal settlements, there are both tenure done without tenure, so in many of the development regulatory process, they don't, without tenure has not been recognized in a proper way and that is the reason they end up living there and those unsafe conditions and they end up being a target groups.

There is also other cases when in cases of Namibia, when certain up-gradation program have been developed or the relocation program have done, they identified the land which was not part of the you know, in the local jurisdiction but then, the time it came into it has been included in the urban level, by the time people because there is no urban enforcement when they have been allocated a land.

So, people started already building up with whatever the facilities they have, so now, when it has been included then the urban regulatory frameworks have been incorporated, so that becomes a challenge because communities have already developed in their own ways of patterns of the normally developed. So, these are some of the examples of the time-lapse when it is included and when it is not included.

And there is also strong community-based organizations in partnership with local government which can influence the better policies for land management and upgrading and this is where the municipal governments can do to provide an enabling environment for DRR in terms of land and planning, is to enable people to have access to safe land on which to build.

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The slide is titled "BUILDINGS AND CONSTRUCTION" and contains the following text:

i) Designing and developing appropriate codes and standards

Practical Action offers some principles to guide code revision efforts:

- o Relevance: revisions should be relevant to environmental and economic circumstances and deeply rooted in local cultures and living habits
- o Cost reduction: changes must result in cost reductions so that adequate and affordable shelter is attainable for all
- o Focus: focus on improving conditions for poor in informal settlements
- o Participation of all sectors of housing delivery process
- o Flexible to allow for interpretations, variety of materials and technical solutions, innovations
- o Access: legislation should be easily accessible and widely disseminated
- o Incremental improvement of dwelling and surroundings can happen
- o Procedures: plan approval fast, free from corruption and inexpensive for builder.

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When it comes to the buildings and construction the part 2 of the report, it talks about the designing and developing appropriate codes and standards and many at times, it's very much true that many of the building codes which will not reflect to the local situations, that is where practical action group offer some principles to guide how codes could be revised. Now, even in India, we have the NBC 2016, earlier it was from 2005.

So, things have been taken into account and committees have try to reflect that and let it has to keep revising. Some of the aspects says the revision should be relevant to environmental and economic circumstances and deeply rooted in local cultures and living habits. Whereas, the cost reduction changes must result in cost reduction so that adequate and affordable shelter is attaining for all.

Focus; the focus is also should be laid on improving conditions of the poor informal sectors, participation of all sectors of housing delivery process, flexible to allow for interpretations, variety of materials and technical solutions. Now, today are there any particular housing standards, which is allowing a stone construction which is locally available which is allowing an indigenous methods.


Access legislation should be easily accessible and widely disseminated and so incremental improvement, the code dwelling concepts and surroundings can happen. Procedures, the plan approval should be fast, free from corruption and inexpensive for builder. The approval stage is one of the biggest challenges in developing countries. One has to understand that this

process will go about 9 to 11 agencies to get a formal approval whether it is a water supply, whether it is electricity, whether it is airport authority.

So, all these agencies has to approve, fire and safety right. So, the municipal corporation, everything has to be approved but then one has to look at a single-window check you know, the person has to roam around to different agencies and get and that is wherein many of the developing countries, the corruption do exist and that time, many at times it violates laws and regulation.

Like for example, how does it does not meet with there is a big difference between the codes and the reality.

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As per the codes
BNBC states
75 units/hectare with average 5 persons/dwelling. The minimum plot size varies between 30 sq. m to 25 sq. m in dense metropolitan areas. Minimum width of walkways is to be 3 m

Reality
families averaging six to eight people in size are living in a 9 sq. m one-room dwellings cantilevered over the water (thus there is actually even no plot of land). The walkways are 1.5 metres and there is no outside space.

Figure 4: Informal settlement in Mohammadpur, Dhaka does not conform to Bangladesh National Building Code (source: Huraera Jabeen)

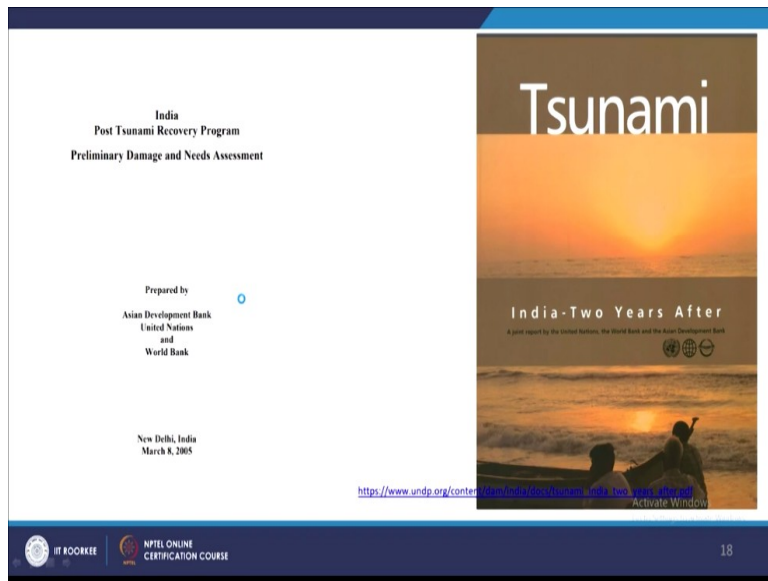
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In Bangladesh in Mahammadpur, it does not confirm to the Bangladesh National Building Code like you have the Bangladesh National Building Code refers 75 units per hectare with average of 5% per dwelling and the minimum plot size varies between 30 square meters to 25 square meters in dense metropolitan areas and the walkways should be width of 3 meters but the reality is the families averaging 6 to 8 people in size are living in 9 square meter dwellings which are cantilevered over the water.

So, even projected over the water so there is hardly is no plot of land where no reinforcement has come. The walkways are 1.5 meters and there is no outside space, so these are some of the reality which the developing countries face.

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So, that is briefly about the Global Assessment Reports and also talk about the post Tsunami assessment. There are two sets of assessment reports, I am going to discuss here. One is the needs assessment. In 2005, when the ADB and United Nations and World Bank have made an assessment report, a preliminary damage and needs assessment.

And then following up on the Tsunami after 2 years, how the reconstruction have taken up, what are the various segments, what is the progress of it, so there is a second way of assessment has been done after 2 years.

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Table 1. Preliminary Summary of Damage and Losses (\$ million)

| | Damage and losses | | | Effects on Livelihoods |
|--|-------------------|--------------|----------------|------------------------|
| | Damage | Losses | Total | |
| Andhra Pradesh | 29.7 | 15.0 | 44.7 | 21.2 |
| Kerala | 61.7 | 39.1 | 100.8 | 36.3 |
| Tamil Nadu | 437.8 | 377.2 | 815.0 | 358.3 |
| Pondicherry | 45.3 | 6.5 | 51.8 | 5.9 |
| TOTAL (by sectors) | 574.5 | 448.3 | 1,022.8 | 421.7 |
| Housing | 193.1 | 35.4 | 228.5 | |
| Health and education | 10.7 | 12.9 | 23.6 | |
| Agriculture and livestock | 15.1 | 22.4 | 37.5 | 26.0 |
| Fisheries | 229.6 | 338.2 | 567.8 | 338.2 |
| Livelihoods (Microenterprises and other) | 0.0 | 37.5 | 57.5 | 57.5 |
| Rural and municipal infrastructure | 28.0 | 1.6 | 29.6 | |
| Transportation | 35.2 | 0.3 | 35.5 | |
| Coastal protection | 42.8 | 0 | 42.8 | |
| Relief a/ | | 200.7 | 200.7 | |

a/ Relief provided by the local, state and national governments (not included in Total (by sectors)).

Source: JAM estimates on the basis of information made available by the governments and direct observation.

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Now, the way after the Tsunami, what kind of damage has been occurred, this is how you see the preliminary summary in Andhra Pradesh by state wise by sector-wise, by housing sector, health and education, the agriculture and livestock, fisheries, livelihoods, rural and municipal

infrastructure, coastal protection and this is where the damage and as well as the losses and what kind of effects on the livelihoods.

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Table 2. Preliminary Post Tsunami Reconstruction Needs (\$ million)

| | Reconstruction needs | | |
|--|---------------------------|----------------------------|----------------|
| | Short term reconstruction | Medium term reconstruction | Total |
| Andhra Pradesh | 26.0 | 46.6 | 72.6 |
| Kerala | 83.8 | 73.9 | 157.7 |
| Tamil Nadu | 248.6 | 619.7 | 868.3 |
| Pondicherry | 41.6 | 72.8 | 114.4 |
| TOTAL (by sectors) | 400.0 | 813.0 | 1,213.0 |
| Housing | 160.0 | 329.0 | 489.0 |
| Health and education | 11.9 | 5.5 | 17.4 |
| Agriculture and livestock | 10.4 | 11.3 | 21.7 |
| Fisheries | 54.5 | 229.6 | 284.1 |
| Livelihoods (Microenterprises and other) | 70.6 | 108.1 | 178.7 |
| Rural and municipal infrastructure | 23.5 | 74.0 | 97.5 |
| Transportation | 41.5 | 27.7 | 69.2 |
| Coastal protection | 19.5 | 18.6 | 38.1 |
| Hazard risk management | 8.1 | 9.2 | 17.3 |

Source: JAM estimates on the basis of states' statements and memoranda.

And also, what are the needs assessment, what kind of budget you need right and one has to look at the short and medium-term process. So, immediately in the relief stage, in rehabilitation what does you need but in a medium-term for next 1, 2 years what kind of budget you might need, so that is where an each sector how much it take, this is the kind of assessment it makes.

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**Table 3. Impact of Tsunami related Expenditures on Finances
Tamil Nadu and Kerala (% GDP)**

| | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 |
|--|---------|---------|------------|------------|------------|
| | R.E. | B.E. | Projection | Projection | Projection |
| TAMIL NADU | | | | | |
| Status Quo Scenario | | | | | |
| Fiscal deficit | 3.7 | 3.8 | 3.3 | 2.8 | 2.5 |
| Interest | 2.8 | 2.9 | 3.0 | 3.0 | 3.0 |
| Debt stock | 28.5 | 30.1 | 31.0 | 31.2 | 31.0 |
| New Scenario: Additional expenditures: Relief Rs. 350.0 crore (\$80.46 million) and Reconstruction Rs. 3,772.0 crore (\$867.13 million) | | | | | |
| Fiscal deficit | 3.7 | 4.0 | 3.9 | 3.5 | 3.2 |
| Interest | 2.8 | 2.9 | 3.0 | 3.1 | 3.2 |
| Debt stock | 28.5 | 30.3 | 31.8 | 32.7 | 33.1 |
| KERALA | | | | | |
| Status Quo Scenario | | | | | |
| Fiscal deficit | 6.1 | 5.3 | 4.6 | 3.8 | 2.4 |
| Interest | 3.7 | 3.6 | 3.5 | 3.4 | 3.3 |
| Debt stock | 41.5 | 42.6 | 42.6 | 41.9 | 39.6 |
| New Scenario: Additional expenditures of Rs. 666.0 crore (\$153.1 million) | | | | | |
| Fiscal deficit | 6.1 | 5.3 | 4.9 | 3.9 | 2.6 |
| Interest | 3.7 | 3.6 | 3.5 | 3.5 | 3.4 |
| Debt stock | 41.5 | 42.6 | 43.0 | 42.3 | 40.2 |
| Memo: Impact of Tsunami | | | | | |
| Fiscal deficit (Tamil Nadu) | | 0.2 | 0.6 | 0.7 | 0.7 |
| Fiscal deficit (Kerala) | | | 0.3 | 0.1 | 0.2 |

R.E. - Revised Estimates/B.E. - Budget Estimates

And similarly, on the impact of Tsunami related expenditures and finances, it also goes from the 2000 year wise and when we talk about 2005, that is 2006 to 2008 there is a projection

that each state has status quo scenario and as well as the new scenario and that is how the budget estimates are prepared by the economist.

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Key Achievements
Reconstruction of New Homes

Twenty-four months into reconstruction, significant progress has been made by NGOs in the housing sector. In the two years since the disaster, 22,845 houses (18 percent) of the total 96,477 required across India have been completed. In Tamil Nadu, where approximately 67 percent of the destruction occurred, over a third of the homes slated for construction have been completed and 20,128 have been handed over. The World Bank is financing the reconstruction of rural and urban houses in Tamil Nadu and Pondicherry wherever private funds are not available (current estimate is 20 to 30 percent of total reconstruction needs). In addition, the provision of infrastructural services is being financed by the World Bank in the new relocation sites.

| AFFECTED STATES | HOUSES DAMAGED/ DESTROYED | | NO. OF HOUSES TO BE REPAIRED/RECONSTRUCTED | | NO. OF HOUSES COMPLETED | | BALANCE |
|-----------------|---------------------------|------------|--|--------------|-------------------------|---------------------------------|---------|
| | NUMBER | % OF TOTAL | NGOs | STATE AGENCY | NUMBER | AS % OF TOTAL REQUIRED IN STATE | |
| Andhra Pradesh | 9,714 | 9.9% | 709 | 8,005 | 0 | 27.8% | 9,714 |
| Andhra Pradesh | 1,130 | 1.1% | 0 | 1,130 | 38 | 3.1% | 1,092 |
| Kerala | 13,645 | 13.7% | 3,787 | 9,858 | 3,787 | 27.8% | 6,071 |
| Pondicherry | 6,082 | 6.1% | 4,589 | 1,493 | 375 | 7.4% | 5,707 |
| Tamil Nadu | 56,487 | 58.5% | 10,678 | 45,809 | 23,410 | 24.2% | 32,399 |
| Total | 89,458 | 92.6% | 19,673 | 69,785 | 27,800 | 28.3% | 61,985 |

*This figure represents the percentage of completed houses, of the total number of houses that needed to be repaired or reconstructed in India
 29 Source: Planning Commission, Government of India (December 2009)

Agencies involved: WB, ADB, UNDP, UNICEF, WHO

Shelter, Water and Sanitation

"Approximately 100,000 homes were damaged or destroyed"

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But then when the budget estimate has been presented to the state government and how they allocate it, how the external funding is also collaborated with it, so after 2 years the second report, which I showed you, how what we have achieved. Now, when we talk about the shelter and water and sanitation, so different segments they look at it.

Many of that, they looked at different states, what are the number, which has been damaged and the percentage have been reconstructed, which have been completed and what is the balance okay and why they are delayed. So, this is how the review is always presented.

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Key Achievements

Restoration of linkages to facilitate rescue and relief operations in many areas. This included clearing of debris from roads, restoration of damaged road surface and drainage channels, as well as providing temporary coverings where cross drainage works were needed early. Restoration of public buildings did not form a major part of the operation as hardly any public building was damaged to the extent that urgent rehabilitation or restoration was required. However, in the current rebuilding phase, many public buildings like community halls, public distribution shops, fishing-related activity centres, and others, are constructed below is a table of the detailed state-wise account of physical achievements and targets.

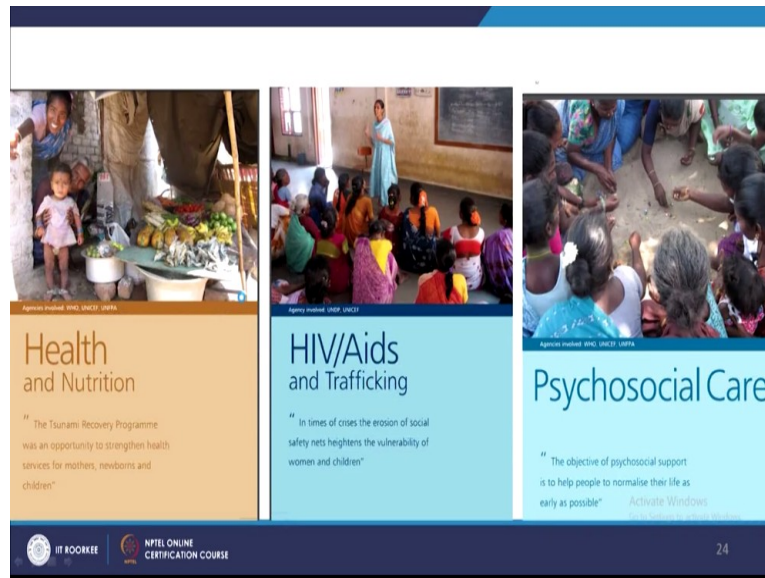
| AGENCY | ROADS | | BRIDGES | | PUBLIC BUILDINGS | |
|--|---------|--------------|---------|--------------|------------------|--------------|
| | Km | Million US\$ | No | Million US\$ | No | Million US\$ |
| TAMIL NADU - COMPLETED WORKS | | | | | | |
| Rural Development Department | 220.36 | 1.37 | 0 | 0.0 | 106 | 0.88 |
| Director of Town & Country | 40.08 | 1.14 | 10 | 0.0 | 22 | 0.11 |
| Tamil Nadu Highway Department | 437.52 | 15.84 | 2 | 0.4 | 0 | 0.00 |
| Total | 700.00 | 18.35 | 12 | 0.4 | 128 | 0.99 |
| TAMIL NADU - PROPOSED WORKS | | | | | | |
| Rural Development Department | 1714.73 | 17.87 | 0 | 0.0 | 806 | 0.75 |
| Director of Town & Country | 280.00 | 0.40 | 10 | 0.0 | 30 | 0.14 |
| Tamil Nadu Highway Department | 250.47 | 10.90 | 20 | 0.8 | 0 | 0.00 |
| Tamil Nadu Total | 2245.20 | 29.17 | 30 | 0.8 | 836 | 0.89 |
| KERALA - COMPLETED WORKS | | | | | | |
| Public Works Department | 63.46 | 1.45 | 2 | 0.2 | 0 | 0.00 |
| Public Engineering Department | 47.08 | 1.01 | 0 | 0.0 | 0 | 0.00 |
| Total | 110.54 | 2.46 | 2 | 0.2 | 0 | 0.00 |
| KERALA - PROPOSED WORKS | | | | | | |
| Public Works Department | 75.00 | 20.74 | 1 | 0.1 | 0 | 0.00 |
| Kerala Total | 75.00 | 20.74 | 1 | 0.1 | 0 | 0.00 |
| TOTAL - TAMIL NADU & KERALA | 3137.00 | 59.44 | 52 | 1.3 | 964 | 0.99 |

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And that is what ministers look at, how many number of houses were planned, how many have been executed, how many have been laid out and how many are pending. So, this is the infrastructure, what are the roads, what kind of highways, what kind of Panchayat offices, what kind of community facilities, so this is all the infrastructures and again the bridges, public buildings, roads, how many of them are planned, how many of them are completed, what are the budgetary requirements.

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From the health similarly, the health segment, HIV AIDS, trafficking as well as psychosocial care you know, so because many of the children who lost their mothers, fathers in the event of disaster, how they could be taken care of, how the woman who lost their husbands could be given some encouragement of an alternative livelihood systems and how health and nutrition could be provided for children you know.

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And as I said to you, the child protection, how the child labour and the orphan children could be protected, how their psychological conditions could be improved by providing a better education systems and again the livelihood aspect. In the Tsunami case, many of the fishermen lost their boats so immediately, the fibre boats have been provided and provided some financial expenditure you know, support to buy some nets and fish gear.

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Also, what kind of environmental impacts and how it has been improved, what kind of plantations has been taken care of, so all these things will be accounted. Similarly, how the communities are trained with the disaster risk management in the event of the upcoming disasters, how they have to face and the information, communication technology and coordination.

In Tamil Nadu, before that there was not proper early warning systems but now what they did was, they have identified the core villages which will have set up of the communication systems from the central level to the state level and then it goes to the village nodes and where they disseminate this aspect and the train the villagers to how to operate the computers, how to operate and understand this information and how to send this information.

So, these all activities have been taken up by different NGOs but the reality is the assessments does not focus on how far they are successful in terms of a better lives. The ministries only talk about the numbers, how many of them are occupied and how many are there adequately you know, addressed the cultural needs or their livelihood needs and how a person have adapted and modified it these places.

And in other lectures also we have discussed how these shelters have been modified for that because of their individual and collective needs. So, I think if this kind of qualitative assessment also is there, then these are lacking in the ministerial setup or in a bureaucratic setup. So, one also has to look at this angle. I hope you understand about this assessment reports. Thank you very much.