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REBUILDING A CITY:
THE DOS AND DON'TS IN POST-DISASTER URBAN RECOVERY

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PARTICIPANTS:

Introduction and Moderator:

ELIZABETH FERRIS
Co-Director, Brookings-LSE Project on Internal Displacement

Featured Speakers:

ABHAS K. JHA
Lead Urban Specialist and Practice Leader for Disaster Risk Management
East Asia and Pacific Region
The World Bank

AMY LIU
Co-Director and Senior Fellow, Metropolitan Policy Program

JONATHAN RECKFORD
Chief Executive Officer
Habitat for Humanity International

CHARLES SETCHELL
Senior Shelter, Settlements and Hazard Mitigation Advisor
Office of U.S. Foreign Disaster Assistance, USAID

MAGGIE STEPHENSON
Senior Technical Advisor, UN-HABITAT

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P R O C E E D I N G S

MS. FERRIS: Okay, good morning, everyone. My name is Beth Ferris. I'm a Senior Fellow here at Brookings, and Co-Director of the Brookings-LSE Project on Internal Displacement.

We're delighted to welcome you to Brookings, and to this event that looks at the particular challenges of reconstruction and recovery after urban disasters.

Today, more than have of the world's population lives in urban areas. And projections are that the number of people living in cities and towns will grow by 67 million per year. I came back last night from Mexico City, a city of 22 million people, and the thought of triple that number being added to our urban population every year is a bit daunting.

As more people move into cities they increasingly occupy marginal land -- land susceptible to flooding, landslides, earthquakes and other disasters. UN Habitat reports that 43 percent of urban residents in developing countries, and 78 percent of those living in the least developed countries live in slums with lodgings of tenuous materials -- a factor which increases their vulnerability to disasters of all types.

And yet we've certainly seen this year that disasters are not the exclusive province of poor countries. This year, in January, we saw terrible floods in Australia, and in February a devastating earthquake in Christchurch. In March, the earthquake-tsunami-nuclear accident in Japan. And later in the spring, tornados, storms and flooding in the U.S.

The cost of reconstruction in urban areas in developed countries is very high. I read a report last week issued by the Red Cross that in the past decade the total amount of economic losses by natural disasters -- understanding that natural disasters are almost always exacerbated by human action -- but the total economic cost was equal to some 16 percent of global GDP over the last decade.

The challenges of responding, then, to disasters in urban areas in developed and developing countries is a serious one that the humanitarian community, at least, is beginning to address.

We hope that our conversation this morning, with this very distinguished panel of experts will add some light as to the ways of tackling the tremendous challenges of such reconstruction.

We'll begin with Jonathan Reckford, the Chief Executive Officer of Habitat for Humanity International, with whom we're co-organizing this event. Jonathan has a very diverse background, ranging from work in Asia with the Olympics, to private sector, to pastor of a church in Minnesota. Welcome, Jonathan.

MR. RECKFORD: Thank you, Beth.

MS. FERRIS: He'll be followed by Maggie Stephenson, who is a Senior Technical Advisor for UN-HABITAT, who flew in yesterday from Haiti to be with us. She's worked in Pakistan, in the Kashmiri earthquake response reconstruction, has worked on issues of housing development land for more than 20 years in various countries.

We'll then turn to the situation here in the U.S. with my colleague Senior Fellow Amy Liu, who's done a lot of work on reconstruction in the Gulf area, particularly New Orleans in the wake of Katrina. Before coming to Brookings, Amy was Special Assistant to Secretary Henry Cisneros at the U.S. Department of Housing and Urban Development.

We'll then turn to Chuck Setchell, who is the Senior Shelter, Settlements and Hazard Mitigation Advisor at USAID. He has 35 years of experience and has responded or been involved with almost all of the major international disasters that have occurred since, and certainly one of the most foremost authorities on this issue in the U.S. government.

And finally, in the hopes of bringing a little bit more optimistic tone to this discussion, we'll turn to Abhas Jha from the World Bank, who is the Lead Urban

Specialist and Regional Coordinator for Disaster Risk Management, particularly for East Asia and the Pacific Region. He, too, has vast experience, and has worked in many different situations on these issues. And hopefully he'll kind of leave us with the hope of things that can be done to make it less likely that the reconstruction needs after a disaster will be formidable.

And this production is being webcast, and we send greetings to all of our viewers out there.

Thanks. We'll begin with Jonathan.

MR. RECKFORD: Beth, thank you so much. Thank you all for coming out today. It's an honor to be with you, and to continue our recognition and celebration of World Habitat Day, and particularly to focus today on disaster recovery.

My first experience with the challenges of large-scale disasters came in 2005. I joined Habitat just as Hurricane Katrina hit the U.S. Gulf Coast, and just in the aftermath of the devastating 2004 Indian Ocean tsunami. So my 100-day plan went straight out the window, and we had to totally gather and think about how we could be relevant and respond meaningfully to the scale of those two disasters.

They were unparalleled in their scope -- and certainly for Habitat, we had never tried to do such an unprecedented response in terms of scale. We'd stepped up and responded to disasters beginning with Hurricane Mitch back in 1998, but these were really on a whole different level. They obliterated entire communities, and forced us to rethink our approach to shelter, and how to help families build back and recover. We really couldn't do business-as-usual.

Since 2006, more than 14 million people across the globe have lost their homes to disasters such as earthquakes, floods, hurricanes and tornados. A home is often a family's most important asset, so when homes are lost, people lose more than just a shelter. For those who earn an income out of home-based businesses, it also destroys their livelihoods. People often lose access to health care, government services

such as water and sanitation. They may also lose their places of worship and other community ties.

Decisions about providing shelter after a disaster are often made quickly, against a backdrop of other pressing issues: access to food, health care, and water. And those are absolutely crucial. But I think too often there's been a divide between the immediate temporary relief work, and the long-term redevelopment and reconstruction. Reconstruction always begins the day after a disaster.

During the recovery efforts in Haiti, for example, our goal at Habitat has been to help families right from the beginning establish a pathway to permanence. More than 24,000 people benefitted from our handing out emergency shelter kits that allowed families either to make repairs to put up an emergency shelter right away. We then began constructing transitional shelters, a more durable form of temporary housing that's designed to last longer, allowing a family to begin the repairs on their permanent homes. It's a step between that emergency shelter and permanent long-term housing.

And finally, now, we're building, with families, permanent core houses -- small, durable homes that are designed to be expanded over time as families increase their resources. These homes will be constructed to withstand disasters, and will be built in partnership with the families who have secure land tenure. Our desire -- and, I think, our shared goal -- is to help families get back to work, back to school, and have that foundation to rebuild their lives.

Urban areas, as Beth shared, such as Port-au-Prince and New Orleans, present unique challenges for recovery efforts because of the rapid growth, huge density of population, and the mix of homeowners, renters and squatters. Urban areas have huge infrastructure issues, intricate land and tenure issues, and often limited space within which to rebuild.

More than half the world's population are now in urban centers, and the vast majority of global growth over the next 20 years will be in our big cities in the

developing world. As Beth shared, the majority of large disasters have been hitting urban areas, and so relief and rebuilding techniques need to better address the unique requirements of denser, more economically diverse populations. Low-income families, who often live in highly vulnerable areas -- they're typically in the most vulnerable land, and in the lowest quality housing, so they always suffer the most when these disasters hit.

Rebuilding in urban areas is highly complex. So I want to touch on three specific aspects of recovery today: community engagement, secure land tenure, and rubble removal.

Listening to and working closely with the affected population is critical, and helps determine priorities for response. Whenever possible, Habitat looks to local households to determine what would be most helpful. Assistance can include cash grants to displaced families, technical assistance, training, materials, and tools. Solutions have to be designed to meet the diversity of neighborhoods, rather than one standard assistance plan across entire communities.

Such programs need a multi-pronged approach to reflect the diversity of needs in urban neighborhoods. An appropriate approach might include a mix of urban infill, repairs, transitional shelter, and technical assistance all in the same neighborhood. Two tools Habitat has used effectively are community mapping and Habitat Resource Centers.

In Simon-Pelé, a neighborhood in Port-au-Prince, Habitat for Humanity-Haiti has supported community-based enumeration, a survey process that is helping the community take stock of its own resources, prioritize its needs, and develop plans of action to address them. This allowed the community to take some ownership of the process, and to demonstrate its commitment to partner both with government and NGOs. Although we're still in an early stage, community teams have mapped and numbered 4,000 buildings, and surveyed 6,000 households in Simon-Pelé.

We've also experienced success with Habitat Resource Centers -- our model for providing housing support services, like training, tools, and technical assistance. HRCs were introduced to produce construction materials in the aftermath of the 2004 tsunami. But the models evolved, and they're now designed to fill gaps in local shelter systems.

Despite the huge challenges we -- and I think everyone else -- have faced in Haiti, we're pleased to have been able to train more than 4,000 people. And I think one of the victories we celebrate is that we've been able to put more than 700 people to work in rebuilding.

Equally important are the complex legal issues that face a city after a disaster. Land titles are often nebulous or unknown, and many developing countries have a high percentage of property that lacks clear documented ownership. In a village I visited in Aceh, the tsunami destroyed not only the few documents that did exist, but also destroyed the physical landmarks that had been used to delineate property lines.

Clearly, we didn't want to start rebuilding where tenure could later be challenged. So we worked with residents to create community maps. The process was that each family laid out what they believed to be their property lines. Then they had to obtain signatures of approval from all of their neighbors that that's where, in fact, those lines should be. Once we had the map, we were able to help them obtain approvals from various levels of government. And those became the official property lines. Therefore we were able to start rebuilding far, probably years, before the government would have been able to issue formal title or reestablish.

Land tenure issues are particularly difficult in Haiti, where the legal processes concerning land are unclear, at best. To help address this, Habitat recently formed a Haiti Property Law Working Group, which aims to clarify customary practices, identify step-by-step processes for the transfer of land, and support the government's administration of the cadaster.

Before any reconstruction can begin in many areas, rubble must be removed and land cleared. Disasters caused by natural hazards can leave a huge amount of debris in their wake. In Aceh, the tsunami washed away much of what was destroyed. In Japan, however, there are still mountains of rubble from houses, cars, stores, factories. The earthquake in Haiti produced about 33 million cubic meters of debris. That's enough to build the Hoover Dam seven times over.

Because urban settings are already densely populated and have scare land, long-term housing reconstruction can't begin until the rubble is removed. And debris removal is often overlooked or underfunded. It isn't counted among the 11 clusters of the Interagency Standing Committee's cluster system of NGOs, and few donors fund large-scale rubble removal.

We're grateful to Chuck Setchell and OFDA for their leadership in funding rubble-removal in Haiti. They've also suggested piling rubble on high-hazard land, where the government doesn't want families' building. Following disasters we have to explore the challenges and explore what is possible as solutions.

As we continue to work in Haiti and in other areas affected by and vulnerable to disasters around the world, Habitat for Humanity makes these following recommendations.

First, communities and disaster relief organizations must look beyond the immediate state of emergency and short-term relief efforts to focus also on permanent and long-term redevelopment that address the organic needs of each community. This includes rebuilding with future disasters in mind, and incorporatimg mitigation and risk-reduction into any reconstruction efforts. According to the World Bank, a dollar spent on preparedness saves seven dollars on response.

Second, communications between relief organizations is imperative -- particularly in urban settings -- and systems need to be further developed and refined to ensure coordination among the various groups providing aid.

Third, we must establish clear processes to deal with the lack of documentation, and unclear land tenure in developing countries to remove barriers to assistance that lower-income residents desperately need. Planning for community enumeration will drastically streamline the road to recovery in ravaged developing areas.

And, finally, policy-makers should focus on enabling families to return to those homes that are structurally sound, on developing programs to help families fix homes that can be repaired, and on planning for the reintegration of many families whose homes have been destroyed, but who inevitably want to return to be near family, community and work.

As we focus on all the people in need of shelter during our observance of World Habitat Day, we implore businesses, government, policy, civic and relief organization leaders to cooperatively institute practices that support adequate housing in all parts of the world.

Throughout the month of October, Habitat for Humanity will host local events across the U.S. and in 40 countries to rally support for adequate housing. As part of our World Habitat Day observance, we're releasing our fourth Annual Shelter Report, which elaborates on many of the points I've made here today.

Our hope, and vision, is to see policies established that ultimately ease the recovery burden on severely devastated areas worldwide. I hope never again to witness the kind of scenes I've seen during the past six years. Walking on the rubble and seeing desolation, between the Indian Ocean tsunami, the Gulf Coast, the Sichuan earthquake in China, and Haiti, have been some of the most difficult moments of my time at Habitat.

However, when we talk to the individual families who are rebuilding their lives, it brings hope. I spoke last year to a young mother who was telling me what a difference it made to be out of living in a traffic circle and into a transitional shelter to be able to give birth to her newborn. And it's just heartbreaking to see how many people are

still living in horrific conditions -- but the difference decent shelter can make to a family's chance to rebuild.

Scientists tell us we can expect an increasing number of disasters in the coming years. So we have to find ways to help, and to engage generous people all around the world who are eager to respond to the tragedies that befall their global neighbors.

Thank you.

MS. FERRIS: Thank you very much, Jonathan.

We'll turn now to Maggie.

And let me say, those of you standing in the back, there are seats up here in the front if you'd like to make your way forward.

Maggie.

MS. STEPHENSON: Thank you. And thank you for the opportunity to bring some of the field to Washington.

I apologize that this is a short visit, so I'm going to speak mostly through pictures, and not as fluently as Jonathan, I'm afraid.

I would like to mention that the enumeration program in Simon-Pelé is a joint program with UN-HABITAT, who devised the methodology and are implementing through a number of partners now. And I think that that's a remarkable step forward.

Let me just bring you to Haiti.

This is what most of the -- if you can see the screen -- this is what it looks like. This is part of Haiti not damaged. So this is what it looked like before, and what it's going to look like again -- unless we intervene and make it better. Or if we can even get as far as reconstructing it.

I wanted it -- the title is "Dos and Don'ts in Reconstruction," which implies a choice. So what I wanted to show you today is some of the choices we're facing. It's not about -- I don't want to be a self-appointed authority on what you must or must not do,

because it varies according the context, the resources available, et cetera. But what we need to do is make smarter choices, and make choices that are more consistent, and make choices based on errors we've learned from, and based on successes we've had.

Next.

And so we want to be investors rather than assisters. We want to see how to leverage more results from the limited resources we have -- the limited resources we have for assistance, the limited resources in the countries affected by disaster. And the limited capacities. Because reconstruction is an enormous toll, and the cities are growing faster than we can count them.

And so we have to make smart choices, which means betting on good information.

The first point is we need to know better what is that city. This is part of Haiti. And we need to understand land tenure, but also what's the livelihood? What's the economy here? How does water work? How do people decide where the rubbish goes? Who removes the rubbish?

We need to understand this system before we can intervene in supporting it, or intervene in reconstructing it.

This is Padang, Indonesia -- the old center city. And destroyed in 2009 by an earthquake. But this was already in decline. So the reconstruction challenge is who owned it? What were their plans? What resources do they have? This is not a matter for us to come in and reconstruct it. We need to know what's the agenda, what's the aspiration, what's the capacity already there. What's their plan?

And this lady is in front of a house marked with a pink slip, which means the house is scheduled as "destroyed," or unsafe to live in. Basically, they put pressure on the inspection team to categorize them in the highest category for financial assistance. Politics operates throughout reconstruction -- from family level, to neighborhood level, right up to Washington level.

And this is a house in Pakistan destroyed in a very small earthquake at the end of 2008. It probably didn't register on the radar of disasters. This is the next town, which has a million people in exactly the same buildings. This is extremely weak, vulnerable construction, and there's a million of them about to fall.

Where we target our investment in risk reduction and preparedness should be wiser. It should not be just chasing the ambulance and responding again and again to where something has gone wrong, but investing also in preparedness.

This is what HABITAT does. And understanding the cities, understanding systems, understanding the construction technique -- here, working with masons. Understanding the economy, the society, land tenure, and devising methodologies and information to support post-disaster needs assessment, reconstruction policies, and to devise tools such as those used in enumeration, for example, in Haiti.

Back to Haiti -- and 3 million people, roundabout, in the city, 10 million people in the country. And post-disaster, it was 1.5 million people in camps. That's reduced now to 500,000 people, and it's the number one priority for the government, for all agencies, how to empty the camps.

Well, what are the camps? This one was a football pitch.

This is the south of Port-au-Prince, hillsides which were informal settlements. But take a look in the middle. The infill was green before, and is now some shelters that became a camp. On the left, it shows an extension of the informal settlements.

January 2010, this is the same area. And then a year-and-a-half later.

This is not a camp that's going to be emptied. Take a look at the green areas on this slide. And then a year-and-a-half later, it's filled in.

This is -- it's not rocket science to know what this process is. But it does need understanding cities. This is not going to be a reversible process of emptying

camps. This is also going to be a process of developing settlements, or making strategic and early decisions of which areas need to be stopped and relocated now.

But all of this requires technical knowledge of understanding cities, and working together with policy-makers and with the combined agencies.

Next.

And this is what it's going to become -- extension of informal settlements.

But even within this process, it's something to understand. One hillside -- say, the left of this room -- where the land is owned by a bank, and this is invasion. People are only investing enough to build with tin sheets.

On the other side, literally 50 meters away, the hillside is being divided up by an owner and sold as permanent plots. This is an entirely different situation 40 meters apart.

Now, we have choices about how we're going to invest. Are we going to support the provision of services in this area? Are we going to support land tenure in this area? But first of all, you need to understand -- we need to invest in the understanding, in research, analysis, and informed decision-making. I don't mean an academic exercise, I mean literally real-time, and understanding done by and with people who live here.

And this is another 100 meters down the roads, the part that was divided up during the end of last year. It's already built. It's already built, but it's not acknowledged as existing. So it's being built without much technical support.

These are all officially still "camps."

So I just wanted to table this, because the question is going to come back, or the story line will be here again in Haiti, about "closing all the camps." This is what the camps also are. They're the beginnings of new settlement.

And this is Canaan, and the displacement of people from overcrowded camps to an area north of the city. And this is what it looked like before. The part on the

right was formally established as a settlement. The part -- all the rest, 100,000 extra people -- are those that moved in.

So while you hear that reconstruction, or new development in Haiti is slow, what's mostly being reported is the formal inputs, the work of agencies.

What isn't being reported is what are people doing themselves. This was their own initiative. This is what it looks like. People have moved in, have purchased land themselves, have started to build, themselves. Are we going to choose to retrofit services and support this process? This is a question for us to also think about. Is this the most wise use of our resources? To follow where people are already going, and make the outcome better?

Investing strategically and long term.

Okay -- we've already seen the foothills in the north of the city, but this is the planned part of the city, downtown. And this is what it looks like. It's practically empty of accommodation. It's not empty of work, because everything that comes into the country or through the country comes through here. So it's very busy.

And this is a huge opportunity to invest in the redevelopment of already serviced land and accessible land. But this is complicated. This needs urban expertise. This needs political will. This is partly the solution to the expansion of the city. The solution is not just to retrofit services up the ever-growing mountains. It's also to regenerate the center of the city.

This needs substantial investors and coherent planning -- which, unfortunately, we have quite little of. And for any of you who have visited Haiti, all of you have been stuck in traffic. (Laughter.) It's notorious traffic. Okay. So the amount of money that was spent in the last one year in Haiti -- and the question is about durable investments. Key issue is can we widen one or two of the major roads? Can we open some of the badly needed crossroads? Or are we just going to burn up this opportunity in emergency money?

And, again, this needs planning, which is under way, and supported by international consultants. But it also needs the donors to invest in longer-term results, and not quick visibility only.

And this is part of what we've been investing in, which is shelter, and temporary shelter. And I'm sorry, I have to partly disagree with the process described by Jonathan, of emergency shelter first, then temporary shelter, then permanent shelter, or permanent housing. Because it doesn't look like there's money enough.

The money is not available for permanent housing. So we really need to take care about commitments and promises, and the amount of money spent on temporary construction.

But not only an issue of resources, it's also an issue of land. Can we afford to use up urban land with temporary shelters? How are you supposed to build a permanent house if used it up with these.

We've been here before. This is Pakistan. And this pushed people out to the edges of the city, because we turned the city into a single-story city. And five years later, 30,000 people had no start on their permanent housing.

This is after the flood last year in Pakistan, when people chose to -- with cash assistance, instead -- to purchase permanent materials. Even though they're using them for temporary shelter because their land was flooded, at least they invested for the longer term. And this is the kind of choice that people make themselves when they have the choice.

And we've kind of all been there. It's a bit like a Christmas present or a wedding present. People need to have it on time, and it needs to be visible. And everyone says, "Thank you very much," and acts grateful. But maybe given the choice, we'd all prefer the cash -- or at least we'd prefer the choice.

And I think temporary shelter is an important choice, but it needs to be offered as a choice.

And one last point on what we invest in this, is flood-damaged housing in Pakistan. And this is equally flood-damaged, but even lesser quality building. There's no point to invest in flood-resistant housing. You can't make a brick building like this flood resistant if it's in standing water of six feet. You have to invest in the infrastructure. You don't invest, therefore -- what everyone asked for was not investment in temporary shelter, it was investment in protection from the floods so they don't wash away their next house.

So, invest in quality. That's the kind of choices we face, and what may be some of what we should or shouldn't invest in. And I have to support Jonathan's point about investing in training. But I'm a bit horrified, to be honest, and not very proud, collectively, of the progress in Haiti.

We trained 200,000 masons in Pakistan. I don't understand why we've trained, collectively, less than 20,000 in Haiti. One year they're sitting in camps. There is a golden opportunity. We need to train every single existing mason, and every mango seller that's going to become a mason. This needs a concerted, large-scale effort. And we need to thing of scale. It's not as expensive as building hospitals, to train masons. It's the biggest contribution you could make to improving the quality.

The second contribution is improve what are they building with.

This is Indonesia. These are the blocks. You saw the beginning, the slide at the start -- Haiti is going to be blocks. They're currently 10 to 15 percent of the strength they should be -- because people don't know how to do the mix. They cure them and sell them the next day -- sorry, don't cure them, and sell them the next day. This is something we know. This is not difficult. This is not as intractable as land tenure. This is something that can make an enormous difference to the safety and the end result.

And second thing, it's not always an issue of money. This is a normal, common problem we see everywhere in reconstruction in earthquake areas. It's about

know-how, it's about skill. Someone has invested in steel, they might as well have left it behind. That's not going to tie the building together.

So the investment -- I support Jonathan's point about the importance of promoting information and training. But, really, it's a plea to scale up that part. While people will bring their own resources to housing, we really need to invest in technical assistance -- and in information.

Haiti learned valuable expertise from the cholera campaign. It was urgent and it was large scale, and it reached everywhere. But they need to do the same now for reconstruction, to change the outcome.

It's not changing the outcome for the current reconstruction, it's investing for the next 30 years of buildings that we need to be concerned about.

And we shouldn't, at the end of three years of reconstruction, or 10 years of reconstruction, have basic flaws in engineering like this.

And we need to use the opportunity of massive technical assistance to bring other agendas, like energy efficiency, water management -- maybe not all at the same time, but at least follow through in stages over the course of reconstruction. It's an unprecedented availability of assistance.

And the assistance in urban areas needs technical assistance such as planning, as he mentioned.

Have we got the skills to do that? Have NGOs built up their teams with skills to do that? Or are we still heavily in logistics and assistance? We need to be enablers, we needed to be added-value. We need to be smart. We need to be value-for-money.

And probably there's more skills in development, and to have an enabling approach, than in some of the emergency teams and agencies.

And I should mention I come from a government background, and maybe that's why I have a particular sympathy for their role, but we see governments

everywhere, the effective governments being the ones with the least resources and the least capacity, and losing their staff to the response.

It's extremely important that all agencies work as support and partners, and not displace them or compete with them. Because they're going to be there afterwards -- not to mention it's a question of legitimacy. And in the case of Haiti, they need a strong government even more than they need reconstruction.

Reconstruction needs to be a channel for us to see how do we build stronger communities, stronger government, and a stronger relation between the two. Because without that, then we're going to see a backslide in any progress made.

The last point -- the role of enablers -- or as you describe, technical assistance, information -- is a small role. It's not a large amount of money, because it's a small team, usually. It's not big logistics by NGOs and agencies. But it's a role that donors are not necessarily happy to fund. And this puts all the money at risk. If you haven't invested in quality, or you haven't invested in monitoring and control, then what have you got for your money?

So my point is, invest in the decision-making, and invest in the information for better decisions.

I'd like to thank OFDA, GFDRR, in particular, for that investment in lesson-learning and knowledge management over -- leading this issue. And Chuck, in particular, for OFDA's effort now to learn lessons from Haiti.

I think GFDRR has moved all of us forward, but I'm sorry to say we're repeating some of the same discussions again. And we haven't learned as much as we might.

MS. FERRIS: Thank you very much, Maggie.

We'll move now from Haiti to the United States, and look at reconstruction in the context of the Gulf and New Orleans.

Amy -- welcome.

MS. LIU: Good morning. And, Maggie, that was a phenomenal reminder of the daunting task of rebuilding after a large-scale disaster. It makes this New Orleans story seem a lot more doable.

I'm going to talk about the lessons from New Orleans, what New Orleans has taught us about how to rebuild in the face of catastrophe -- the "dos" if you will -- rather than focus on the negatives of the "don'ts"

In doing that, I first want to thank Elizabeth and Jonathan for bringing this important topic as part of World Habitat Day. Because this really is a global concern.

I want to remind folks that I'm not an expert at all on post-disaster recovery, or post-disaster emergency response. But I do bring three interesting perspectives to this conversation, and I think that's what you're going to see in this presentation.

First of all, I know about the health of cities and regional economies. And I'm actually spending more of my time today trying to help cities and states think about jobs programs in the face of this recession.

The fact -- and because Katrina hit a major urban center, I have spent the last five years documenting, numerically, the progress of recovery in the Gulf region, particularly in the New Orleans metropolitan area, and identifying what the policy implications are from their experience.

And then, lastly, I spent several years on a research team funded by the MacArthur Foundation on how you define "regional resilience," and how that is important to regional success.

So those things are going to show up today.

So I think a lot of people ask me why should we care about New Orleans and the experience in New Orleans. Well, first of all, is what we've talked about this morning on this panel, which is that we're going to see a frequency of natural disasters around the world, and those natural disasters are increasingly going to hit urban areas --

because of the fact that the world is urbanizing. And all these stories you're going to hear from today are from major urban centers.

Second, this was a catastrophic incident. And while there will be a frequency of natural disasters over time, catastrophes bring a very different set of discussions, because it literally wipes out an entire community.

And so, as just a reminder of the situation in New Orleans and the Gulf coast, Hurricane Katrina was the third most costly disaster in the world -- third to the two in Japan, Kobe and the most recent tsunami and earthquake -- costing $150 billion in repairs and economic impact. More than a million people have been displaced in this region. And, in fact, 600,000 folks remained displaced six months after the impact of the storm.

In New Orleans itself there were 134,000 units of housing that were damaged by the storm. That was 70 percent of its occupied housing.

And 80 percent of the city was completely flooded. And what folks always, in New Orleans, remind me is that this was not just a natural disaster, but a man-made disaster because of the failure of the levees. So this is 80 percent of the city was either flooded by one to 10 feet of water -- which is very different from -- and standing water that stayed there for weeks, which created lasting damage in a way that a storm that passes through doesn't.

So I think what a catastrophe does is, when it wipes out a community like that, or hits whole communities like we are seeing in Japan and Haiti, is that it poses the stark choices that Maggie talked about. Which is do we rebuild back the way it was before, or do you use this opportunity to rebuild better than before? Because what the catastrophe did is expose all the preexisting problems that existed prior to the storm.

And obviously, in the case of New Orleans, high poverty, strong racial and economic disparities, a struggling economy that had been trying to get a foothold

over the last couple decades, population loss, and obviously an unsustainable development patterns and a weak coastal restoration -- all of that exposed in the storm.

So the challenge was, as we put all these resources into this region, are we going to rebuild better? And I think that's what, again, set the catastrophe apart.

And then, lastly, why is it important to learn about this? Because I do think this is an important lesson for any urban area that will ultimately be impacted by a shock. It doesn't have to be a natural disaster. It could be the shock and loss of the auto sector, for instance, in places like Detroit. When you have experience of shock, there are lessons about the extent to which you can bounce back from that disaster.

So let's talk about what it means, then, to rebuild after a catastrophe.

The phrase "resilience" gets tossed around a lot. And "resilience" can refer to -- there's an enormous literature around the phrase "resilience." An individual can be resilient, institutions can be resilient, a community can be resilient.

There are two ways to define "resilience." And I think this is really the outcome. This is what is the challenge or the goal after you've been hit by a catastrophe. Because I think in the very immediate sense, a lot of times people focus on the physical rebuilding -- how are the repairs doing? How's the well-being of the people? But as you start to put all these investments in the infrastructure, the question is, "For what?" "To what end?" "To what long-term goal?"

What this map shows you -- so one of the definitions of "resilience" describes the actual performance of a community after a shock.

This graphic shows you the employment numbers in New Orleans over the last 20 years. And as you can see, this has been -- it was generally a stagnant economy over the last 20 years, the region as a whole. Katrina hit, enormous job loss. And then there's always a little bit of an up-tick in growth as a result of recovery efforts. Usually about five years.

And then about that five-year mark, it starts -- the path, trajectory, begins to show. You either can be resilient -- and in the case of the literature, "resilient" is bouncing back to your prior state. Now, if you were Seattle, bouncing back to your prior state is probably a good thing. But in a place like New Orleans, bouncing back to a prior state means bouncing back to a lot of outcomes that were not very prosperous for individuals and the economy as a whole.

So that's why what we've been talking about, in measurable numbers, is can this community bounce back to a transformative state, producing better outcomes -- social, economic, environmental -- than prior to the storm?

That's the challenge. And that's how we should measure the story coming out of New Orleans.

The second definition of "resilience" is the one that we all know. It is about the capacity for a region to adapt effectively to shock. And the literature talks about these five characteristics that often embody a resilient region.

First is you have to have a strong and diverse regional economy. Because if one part of your sector gets hit, like the oil and gas industry in the Gulf Coast, you have other industries that you can fall back on.

The second is you need to have large shares of skilled and educated workers. Because if your individuals are skilled, they have the ability to adapt to the changing needs in a community.

Third, you have to have strong social capital. This is social cohesion, the ability for organizations to come together to solve problems.

Fourth -- community competence. "Community competence" means that when you come together and work together, you actually get things done, in the form of reforms. You get laws changed. You create new institutions. There are results from that social capital.

And then, ultimately, wealth. Do you have the ability to invest in the recovery itself -- both from outside resources, or even from your own internal resources? And this is both the wealth of the individual to invest in your own house, to the ability for the community or philanthropic outside resources to invest in the reforms and the recovery that's needed.

And I think what's interesting about New Orleans five years later is they have demonstrated the first -- the bottom three, the community characteristics. But less so the economic characteristics.

So let's go to the second finding, which is what have we learned in New Orleans six years after, about achieving these goals of regional resilience?

First of all, what I like to remind people is that even though we're talking about Katrina, this is a region that experienced three shocks in five years. It experienced the worst natural man-made disaster in U.S. history.

It experienced the worst recession since the Great Depression -- and that recession, particularly the collapse of the financial services sector, really undercut the pace of recovery in New Orleans. All of a sudden the resources to rebuild homes, the housing values, and other things, did slow down what could have been a better outcome during this recovery phase.

But third is it experienced the worst oil spill in U.S. history. And so, three worst in five years.

And so this is a real test about -- again, resilience is about the ability to adapt to many different kinds of shocks as it comes to hit you.

So, what did we learn? Three things, I think, that we can walk away with.

One is a hopeful message, that systemic reforms are possible in the wake of tragedy. And I know this is the crossroads that many communities are at. I think, you know, in Japan the conversation about the role, the future of nuclear energy

and energy policy. In Haiti, I think you've just really raised a lot of those questions. And no doubt a lot of those questions were also raised in New Orleans.

And so I think that they have really overcome the strong forces of status quo, and made some real risks. And I'm going to tell you about some of those.

Second, there was an engaged group of citizenry and new coalitions that effectively called for the end of the status quo. To be frank, government and other entrenched interests will not change these systems. It actually took citizens -- it took a citizen revolt. I think this is why you're seeing hundreds of people protesting in Japan about nuclear policy. I think you're seeing in New Orleans a resurgence of citizens' coming forward and saying, "This -- we can't go back." And I'm going to talk a little bit more about that.

And third was that the national-local partnerships -- national partnerships were really critical to make a lot of those reforms possible. So let me walk through each one of those real quickly.

So, in terms of systemic changes, what changes happened?

Well, first of all, this is a city and region that overhauled the public school system. It converted one of the worst performing public school districts in the country to, now, one of the boldest school-reform efforts in the country. In fact, it has the largest charter school participation right now in the U.S. There's greater school choice, better school facilities, better school construction. And the measure of that is that today a higher number of fourth and eight-grade students are now proficient in math and reading.

Second, they overhauled their health care delivery system. This was a city, prior to Katrina -- the state had one of the most bifurcated health care delivery systems in the country, delivering some of the worst health outcomes.

Today what they did is they moved away from a hospital-care facility system -- because, partly, because the hospital was destroyed. But instead, put in place 93 community health clinics, located in four suburbs across the metro area, that are now

delivering better, more accessible preventive care to predominantly low-income and minority patients. And the measures for that is they've seen less emergency room visits because of the increase in preventive care.

Sweeping changes in criminal justice reform. There is no doubt this is still, unfortunately, the murder capital of the U.S. Violent crime still permeates the city. This is still topic number one in New Orleans.

But there have been -- many coalitions have been built to completely change and bring safety back in New Orleans. So they have really made strides to shift from a corrupt, unjust, inefficient, ineffective criminal justice system, to one that now has an independent policy monitor to root out corruption, and a better system for integrating policing, prosecution, and public defense that's now bringing more timely and a little bit better outcomes for some of the defendants.

Housing and community. This is something everyone talks about there. No doubt, enormous challenges remain, with a lot of vacant homes that still exist in the city. But, as we know, prior to Katrina, this is a community that had the second highest concentration of poverty in the U.S., and known for government mismanagement of affordable housing.

Now we are seeing neighborhoods like Lower Ninth Ward and Gentilly have -- they have, the citizens themselves, have come and adopted more comprehensive approaches to neighborhood redevelopment. Residents are now returning to neighborhoods of opportunity. There's retail now. The homes are more energy efficient. And the residents themselves have created neighborhood groups. So there's sustainability to their efforts.

And at the government level, the feds took over the public housing authority, and I think folks are really pleased with the response at the Federal level.

And, lastly -- and particularly exposed by the oil spill -- is that they have made some progress on planning and coastal restoration, despite some major fits and

starts in the planning process -- for those of you who followed it. They do finally have a master plan that incorporates living with water, versus walling it off, integrating water as part of their future.

They also, at the statewide level, the state has adopted stronger building codes to put in place, to ensure a greater resilience and preparation for future disasters. And the state's also finally done a lot of, I think, integration between coastal management and coastal restoration, to an integrated agency. So I think important progress there.

In terms of the role of engaged citizens, I think this is a place -- if you walk around and talk to folks in New Orleans, because government was so corrupt, and other things, people just didn't engage in civic activity. They sort of gave up. And yet, when your home is hit, your neighborhoods are hit, and everything in your community has been destroyed, there has been an outpouring of engagement. In fact, everyone talks about the fact that they now have become citizen leaders in their community.

So we put out a study that showed the documentation of a higher number of people now engaging in public meetings, that talk about public issues. This is now a very informed citizenry. They know GIS mapping, they know the data in their neighborhoods. They know government policies inside out. They know FEMA rules. And they are actively pushing on a lot of these policies.

And there is greater capacity for doing so. Before, there were hardly any non-profit housing developers, no CDCs in this community. And now there's been a whole number of non-profit housing development organizations that have been created, and neighborhood organizations. And, obviously, a lot more coalitions and cooperations built.

So the community has come together and really pushed this reform in the absence, frankly, of local government leadership.

And the last thing that they had as a lesson was the importance of these partnerships. As the city started to be clear about the reforms they wanted, the tasks and

their priorities, I think Federal and other national corporate philanthropic partners stepped in in a really important way. And I know you, Maggie, talked about the importance of investment. And there's no doubt, investments and partnerships and technical assistance is key.

And what this slide shows is that on the Federal government side, between the initial funds for disaster recovery, and then later the infusion of stimulus dollars to further the infrastructure reforms there, this region has -- I think this is actually just Louisiana -- $42 billion? Yeah -- in this region. And then, also, HUD, DoJ, HHS have all been active participants in the reforms that I just described.

On the corporate and philanthropic side, this is the best number that -- I think that philanthropy has pulled together a billion dollars in grants and PRIs to the Gulf Coast region, from big foundations like Rockefeller, Ford, and Gates Foundation was behind the school reforms, and others.

But in recent years -- because, I think, the confidence in this region -- Goldman Sachs has now partnered with the city to create, help boost entrepreneurship. There's 10,000 Small Businesses Initiative. Bloomberg Philanthropies has now invested in New Orleans, and given the city more capacity to be a good partner in these reforms.

But I just want to reinforce that, you know, New Orleans is still at the beginning in its long-term transformation, and there are enormous challenges that still remain. And I think many of you are probably familiar with them.

But the first one is the one that is the toughest to change -- is that the oil spill, I think, exposed the weakness of this economy. And the three -- in fact, the four largest sectors driving economic growth in New Orleans has basically been trending downward steadily since 1980 -- tourism, oil and gas, and shipping -- you can see the numbers here.

At the end of the day, as much as all these social reforms are really -- public service reforms, social and community reforms are really important, you have to

have an economy. The reason why a city and region exist is because of its economic function. And it was located there because of its shipping and access to the Gulf. And obviously, the oil and gas industry is a reflection of some of the natural resource assets they think they have, and the tourism.

But all those assets are now working against this region. So they really need to reinvent the future trajectory of this economy.

And, again, all this talk about making sure residents come back to New Orleans, I think is a real -- it's really hard to ask residents to come back if there are no jobs for them to come back to.

Second is while lots of poor people have remained displaced from the city, poverty remains really high, at 24 percent in the city itself -- which is much higher than the national average. And on top of that, income disparities obviously still exist.

And then, lastly, we still have not seen a comprehensive approach to coastal wetlands restoration. This is the most important investment in infrastructure investment I think you can make in this region. Because you need to have the natural protection to this -- this is the strongest barrier to future hurricanes for this region, is the vibrancy of this coastal wetland. Plus, because of the fisheries, there's a lot of economic activity tied into the health of the wetlands. And yet no strong progress made on this front, and yet we're about to open up oil leases off-shore again in the Gulf Coast.

So these are just some ideas of what else needs to be done in the Gulf Coast. But I think what I want to just wrap up with is, overall, I think New Orleans has been, actually, sort of a test model of how you can overcome status quo, make some transformative changes, and really set a region potentially on the path to really better outcomes.

And then, lastly, if you think the story is really interesting -- I certainly don't do as good a job as the people who are from this region, and we just, a couple months ago, put out a book called *Resilience and Opportunity* -- 17 chapters, nearly all

written by local residents on all these different aspects of reform that we talked about -- to codify the reforms and the lessons and those needed issues in this region. And actually, just as a pitch, you can actually buy this book today at the library -- at the bookstore, at a one-day discount, if you want to stop there after the forum. (Laughter.)

But -- thank you so much.

MS. FERRIS: Thank you very much, Amy

We'll turn now to Chuck Setchell, from the U.S. Agency for International Development.

MR. SETCHELL: Thanks. I have no books to discount -- (laughter) -- so I'll just speak.

On behalf of the USAID Office of U.S. Foreign Disaster Assistance, known as OFDA, I'd like to thank Brookings for organizing this very important event, and for extending an invitation to participate.

I'd also like to extend a special thank-you to Bryce Campbell for facilitating my participation. I appreciate it.

I'd like to focus your attention initially -- and very briefly -- on the work of OFDA, followed by some thoughts on urbanization, that will hopefully provide some big-picture context to a discussion of selected dos and don'ts. And I have taken your guidance to heart -- dos and don'ts.

Some background. Since 1964, OFDA's been the lead U.S. government agency for the coordination of natural disaster responses overseas. Our mandate is explicitly humanitarian -- saving lives, reducing suffering, and reducing the social and economic impacts of disasters.

In fiscal year 2010, we responded to 73 declared disaster -- more than one a week -- worked in 56 countries, with a budget of $1.3 billion, about 5.8 percent of the entire USAID budget, with 250 employees spread out over about 25 offices worldwide. Some of those offices were one-person shops.

Floods were the most frequent disaster type that year, as they are many years. And we spent more money on logistics and basic relief supplies than any other sectoral activity -- health, nutrition, et cetera.

About 50 percent of our funding went to a non-governmental organization. You might have heard of someone like Habitat for Humanity, for example. Those types of organizations are what we call “implementing partners.”

Sixteen percent went to U.N. agencies, 15 percent went to other U.S. government agencies to support our activities. About 7 percent went to international organizations like the Red Cross, International Federation of the Red Cross. And about 13 percent went to other USAID offices in support of our work, or our own administrative costs.

Regarding disaster risk-reduction, which runs the gamut from urban search and rescue, to hurricane forecasting, to plant research, et cetera, we spent about 10 percent of our budget on DRR -- disaster risk-reduction -- activities, and another 30 to 40 percent of our response projects incorporated DRR components or elements.

So we’re small. We’re busy. We’re in many places at once. And focusing increasingly on DRR and trying to -- break down this challenge of urbanization a bit if I may. The numbers are pretty frightening. Urban areas account for perhaps 1 percent of the world's land area, but they're home now to 3-1/2 billion people, more than half of humanity. These areas contribute to and are affected by climate change, environmental change, political change and economic and social change far beyond their borders. Because of their scale, complexity and high concentrations of impoverished people living in hazard-prone slums, I think the pictures in Port-au-Prince are apt, responding to crises and natural disasters in urban areas pose significant challenges to the humanitarian community most of which have their institutional genesis, memories, practices and expertise rooted in the refugee crises of rural areas. Working in urban areas will become even more challenging in the future, for an estimated 98 percent of

total global population growth during the next 20 years will be in the cities of developing regions. In regions where resources and institutional capacities are limited, the equivalent of Bangalore, a city of nearly 6 million people, will emerge every month of every year for the next 20 years.

By contrast, and it's a huge one, the relatively resource rich and institutionally robust developed regions of the world will have to contend with the equivalent emergence of a Bakersfield, California, 380,000 people for every month of every year for the next 20 years. While that's quite a challenge and I would submit that it is, it does not compare to dealing with a Bangalore every month for the next 20 years.

Can I get a show of hands for those who have seen the film "Slumdog Millionaire"? Pretty much everybody. Think for a second that 1 in 6 human beings currently lives in conditions depicted in the film and current trends suggest that 1 in 4 conditions will live in such conditions by 2030. Vulnerability comes to mind immediately when I think of those numbers. Cities in developing regions then will become the dominant form of global human settlement in the coming decades, basically the remainder of our careers, and slums will be the dominant form of global housing design during that time. You probably won't see this slum housing in magazines like "Better Homes and Gardens" or "Architectural Digest," but such housing will be a pervasive feature of the global built environment. The location, scale, and potential impacts associated with the great rise of cities constitute nothing less than a call to action for the humanitarian community and others to place greater emphasis on new and innovative forms of responding to urban-based disasters and developing effective DRR programming so that harm's way, that much used term, harm's way, can be identified and managed more effectively over time.

Again dos and don'ts. I took it to heart. Do think context, context, context, the humanitarian community's equivalent to the real estate industry's mantra of location, location, location. Local resources, institutions, expertise and wisdom exists

even in severely damaged human settlements and should help from the basis for understanding the capacities, resources, opportunities and disaster impacts that will guide response and recovery efforts.

On the flipside, don't get caught up in embracing the deployment approach, contrast to context, by adopting the all-too-easy assumption fueled in part by media reports, rampant media reports, that everything in the disaster-affected area has been destroyed. We therefore must provide everything no matter how expensive at the earliest possible time. The deployment approach has the effect of pushing often highly inappropriate resources into disaster areas instead of responding to poll requests for resources based on on-the-ground assessment of needs. A very good example– since Katrina there have been numerous offers to sell and ship trailers and other prefabricated structures of all kinds from the U.S. to major disaster sites in other countries. I've spent a lot of my time on this so I want to share it with you. Generally the trailers and other prefabs are too costly, too cost-ineffective, too inappropriate, too inequitable, have poor optics, have significant transport and logistics costs and were not identified as a need based on on-the-ground assessments, i.e., there was no poll, only push. Turning off these inquiries particularly when they are backed by influential actors has been a time-consuming endeavor at precisely the time when time itself is scarce. With regard to shelter, do think of it as more than four walls and a roof. We view shelter as shelter and its context, settlements, and focus on the settlement side of the sector when responding to shelter needs. This is particularly the case in urban areas where disasters compel a change in the unit of analysis that we work with, the unit of analysis from household to neighborhood, i.e., from a sole focus on people to a more encompassing focus on the areas where they live.

For example, OFDA, UN-HABITAT, the World Bank, Habitat for Humanity and others have embraced this neighborhood approach in Haiti as an operational means of working through an out of the rubble pile, and initial results are

quite promising. Don't think in phases as in relief transition, reconstruction, et cetera. This is the thinking of us bureaucrats and not disaster survivors. Instead, do think process for phrases merge and are often on parallel tracks. As a result, do play catch-up, for disaster survivors are already responding and rebuilding themselves. Before you ever show up on the scene and want to establish the relief phase, people are already moving ahead. You have to play catch-up.

Try to think ahead to next steps as part of catching up and realize that the most vulnerable may be way behind others. Do have a strategic plan. In humanitarian assistance circles it's called a cluster strategy. Don't forget however the complement to that which is often forgotten and that's a strategic communications plan. One is needed and needs to be implemented aggressively, for it can help get core messages out and very, very importantly, manage expectations. This is particularly the case in urban areas where media outlets and rumor mills abound and competition for audience is fierce.

Do use all forms of social media to convey messages, assess conditions and even monitor progress, i.e., social media can be both a marketing and programming tool with ecash via cell phones a good example of the latter. Don't ask me what that means. My 11-year-old knows far better than I what that means. He's tapping my account as I speak I suspect. Don't overlook rubble piles. It's been mentioned. Recovered land and clearing land is a precursor activity to housing and larger economic recovery. In Haiti, entire communities effectively contracted in size after the earthquake because so much rubble was covering land, reducing options and opportunities to shelter people. Clearing and disposing or rubble is a hot, nasty, dirty, dangerous, thankless and expensive job. The minimum estimate that I've seen is 300 million for Haiti, with the cost of moving rubble I suspect is much, much higher. And although the rubble pile is smaller than last year, rubble removal remains a challenge in part due to the lack of a debris management plan that could guide operations and serve as a basis for donor support.

Such a plan might emphasize reuse and recycling such as a rubble-to-roads initiative to improve roads and fill potholes throughout the country. Lord knows there are a lot of potholes in Haiti and there's a lot of rubble. Let's add it together, 2 and 2, let's fill those holes and make the infrastructure a vital resource rather than a constraint.

Haiti is not alone in not having a debris management plan. Most at-risk areas around the world lack such plans. Los Angeles in the mid-1990s after the big earthquake didn't have a debris management plan, where to put the earthquake rubble, it didn't know. It took forever. Do expand the range of DRR activities to include a focus on emergency master planning, the humanitarian community's version of urban planning, as part of disaster response and recovery efforts. Focusing on land management is the mother lode of DRR precisely because it is a direct means of creating markets for land, housing and other needed uses within a DRR-based framework that can reduce vulnerability to risks associated with hazards.

Don't get too focused on land tenure issues, I know that's heresy for some, even though they are important and need to be clarified at some point. This is particularly true in cities like Port-au-Prince or Kabul where 70 to 80 percent of the population is landless. They're squatters, they're renters. They're something. They don't own land. If we waited for clarity and resolution of these issues we would not be able to provide assistance. Pure and simple. A second-best or Plan B approach would seek to support the process of social validation of occupancy rather than the legal validation of ownership. In relying on this social validation process in Haiti for example the humanitarian community has been able to provide nearly 100,000 transitional shelters to date, so something must be working.

Don't think that big money for housing reconstruction is coming soon. Sorry to deflate you all I suspect. Haiti is the first disaster in my nearly 14 years at OFDA where our work in shelter and settlements in the humanitarian arena is being followed by funding for housing reconstruction. The first time. As a consequence and with specific

regard to shelter, do think about transitional shelter, a form of humanitarian shelter intended to jumpstart the recovery of affected populations by reengaging or reimmersing them in the longer-term incremental housing development process that exists in nearly all of the countries that OFDA would likely work in after a disaster. If you look at it as a snapshot, it doesn't look very pretty. If you look at it as a movie, you will see expansion, improvement, and transformation to permanence- can are even be participated in by donors.

Although it's hard to see, do look for what we call stealth shelter, the shelter provided to disaster survivors by family and friends. This socially defined, self-selected, and culturally appropriate sheltering of people is often dismissed as inappropriate or not real shelter. It's not four walls. It's just not real. But it is often occurring before humanitarian actors arrive and importantly long after they leave. What is needed is basic support of various kinds to ensure that hosting doesn't strain relations and pocketbooks. We've seen it work in many countries although I don't know that it would work here. We have the 3-day rule in this culture. Aunt Martha leaves on Monday morning at the airport and a long weekend is too long. That doesn't operate in most countries we work in. Haiti is a good example. Although final project reports are only now coming in, it appears that OFDA supported roughly 20,000 hosting arrangements almost exclusively in communities undamaged by the earthquake. Not only has this form of assistance resulted in the provision of humanitarian shelter for thousands of earthquake-affected families, it also appears that 50 to 60 percent of the hosting arrangements have evolved into permanent housing solutions for these families. Stealth shelter then is also addressing longer-term housing needs at a cost far below housing reconstruction efforts.

Don't think that the urban planning cavalry is coming over the hill to lend a hand. It does not exist. Most development agencies downsized their urban divisions years ago and what's left is struggling mightily to survive just at the time that the world

population, the human species, is expanding almost exclusively in cities. There is need to rebuilding planning institutions and planning schools at all levels at both developed and developing economies because simply not enough urban professionals are being produced to address the rising need for urban management.

In closing, the great rise of cities almost exclusively in developing regions will entail billions of development decisions of all kinds at a level and pace we've never seen. Knowing this, those of us in the humanitarian community would do well to not only increase engagement in DRR in the coming years and some of the activities that I outlined, but also to be an active, repeat active, partner in their face with the development assistance community and identify and managing harm's way so that human settlements of all sizes can be configured and reconfigured to reduce the risks associated with urban development.

Finally, I stated some time ago that greater exposure need not increase vulnerability if cities are managed well. This will take a lot of work, of course. Missing it seems in a lot of current discussions is the need to promote risk reduction through concerted efforts at managing development processes and promoting recovery after disasters. That is neither build back or build back perfectly or build better, it's build back safely. Let's try build back safely. This effort will entail significant focus and resource allocation in support of governance programs that foster institution and community capacity building and strategic communications programs to increase understanding of and demand for DRR as a centerpiece of development and humanitarian activities.

I think discussions like this one provide us with opportunities to focus attention on these concerns, so please know that Brookings is performing a great public service in this regard. For that we should all be grateful. Thank you for your time and patience, and I look forward to your questions.

MS. FERRIS: Thank you very much. We'll turn now to Abhas from the World Bank to perhaps talk a little bit more about DRR, disaster risk reduction, in the

urban context. And in just a few minutes, then you will have the chance for questions and comments. Please.

MR. JHA: Thanks, Beth. I'd like to thank you and Daniel for the very kind invitation. It's a privilege to speak here at Brookings and to be part of this distinguished panel. Before I begin I'd like to acknowledge and congratulate Jonathan that Habitat for Humanity I'm sure many of you are aware crossed a significant milestone on Monday, that they built their five-hundred-thousandth house and I'd like to acknowledge the great work that Habitat for Humanity is doing.

Maybe I can begin with a few words about the World Bank where I work. As many of you know, the World Bank was set up as the international bank for reconstruction and development in 1945, but it was reconstruction after the Second World War and not after a disaster. A very large part of our lending and our technical assistance is devoted to reconstruction after disasters and also a lot of technical assistance and lending for ex ante disaster prevention. We do things like rebuilding schools and hospitals in China in Sichuan and Ganzhou after the earthquake in 2008, strengthening hydro-services, early warning systems in Vietnam and India and strengthening insurance schemes in Southeast Europe, the whole gamut of activities that you can imagine. When I look back on the DRM work that the Bank does, there are two significant inflection points I would say. Certainly the tsunami in Aceh in 2004 was a big, big wakeup call to all of us and I think the Bank ramped up its resources for lending and for also the people working on DRM after Aceh. The other significant turning point was GFDRR which Maggie mentioned. The Global Facility for Disaster Reduction and Recovery is a trust fund managed by the World Bank set up in 2006 and that provides a lot of the human and financial resources for the work we do in DRM.

In line with the mandate given to me by Beth about injection some optimism here, I'm going to try and focus on what cities need to do to prepare for disasters in a way that can both reduce the impact of disasters, but also lay the path for

sustainable recovery after disasters have hit. Last year we prepared a "Handbook on Housing Reconstruction." Incidentally, three of our panelists, Habitat for Humanity was a partner on the handbook and Maggie and Chuck were very generous contributors. We found that the best outcomes in housing reconstruction programs, we looked at about five decades of housing reconstruction, the best outcomes are when cities and governments invest before the disaster happens.

March 11 changed everything in terms of a new paradigm. That was the date of the Japan earthquake and tsunami. How did it change? Japan is the best-prepared country in the world in terms of seismic preparedness and tsunami early warning. They have had decades of systematic and careful investments. Yet we've seen 25,000 people died. So I think the lesson that at least I am taking out of that is that you can't build your way to safety. There is a fantastic paper which I would refer everyone to read by Raymond Burby in 2006 after Katrina where he talks about the safe-harbor paradox and this is essentially what I'm saying, you can't build your way to safety. After Japan there were heart-breaking stories about people rushing toward the tsunami seawall thinking that their lives would be saved if they somehow managed to reach that and they were just washed away. I'm going to talk a little bit later more about this, but I think the message here is that we need to design systems that fail gracefully. Whenever we design infrastructure we need to think what happens if I'm wrong? What if I'm making the wrong assumptions? What happens if the tsunami is 30 meters high instead of 20 meters? We need to question ourselves constantly.

Turning to this year, Munich released a report last month saying that 2011 is already the costliest year in terms of disasters. As a general trend if you look at say the last three decades, deaths are going down from disasters, but damages and economic losses are going up and I think that's a trend that's here to stay. As Chuck mentioned, floods are the most common of disasters. My colleagues and I came out with a working paper a couple of months ago on urban flooding and we found that the trend is

that small and medium events are becoming more and more frequent. What I mean by that is the kind you don't see on CNN which don't necessarily create a great tsunami of people contributing. Yet they are devastating to the country where it happens. If you look at just this year at Queensland which Beth mentioned, Rio de Janeiro, Mississippi flooding of course here -- Punjab in Pakistan, the Philippines, Lao, Cambodia, and if you look at 2010, China had the worst flooding probably in its history, Mongolia, Ulan Bator and Pakistan of course so that it's pretty grim. What is causing this? There are a number of factors and I can't go into all of them, but I'd like to highlight two. Urbanization. We are perhaps fortunate to live in the biggest wave of urbanization in human history. Let me give you some statistics. In East Asia where I work, 2 million people from rural to urban areas every month. In 2025, China is going to have 221 cities with a population greater than a million. The whole of Europe today has only 35 cities with more than a million. If China and India reach the level of urbanization that Mexico and Brazil have today, a billion people more will live in urban areas. By 2050 we will need a billion new housing units. And turning to disasters, by the year 2100, 600 million people will move to areas below sea level. If you talk about today, 40 percent of Jakarta's population lives below sea level, so it's going to get worse.

It's empirically established that the urban poor live in the most vulnerable parts of the city and that's why the poor are disproportionately impacted by disasters. I think Maggie's photos from Port-au-Prince showed evocatively how people are precariously pushed on the sides of hills. In Rio de Janeiro the flooding and the mudslides that killed about 800 people in January was largely as a result of people living in very, very environmentally vulnerable areas of the city. I'm going to talk about climate change as my next point, but climate change is something that may or may not happen in the future. We've talking about a development deficit today. So we need to address that deficit as part of the development process.

The second trend that I'd like to highlight is climate change. It's a tricky sort of link between extreme weather events and climate change. I don't think scientifically it's well established. There were two very significant papers that came out in "Nature" earlier this year, one which talked about extreme rainfall events in the late 20th century and one which talked about flooding in the U.K. where they did establish this link. The other serious study that I've seen comes out of NOAA by Tom Knutson where he says that he finds that as a result of climate change, the overall number of Atlantic hurricanes will go down but the percentage of category 4 and 5 hurricanes will go up so there will be fewer hurricanes over all but more devastating ones.

I think when we talk about climate change at the city level it's very, very tricky. I frankly am a skeptic about downscaled models. I've seen cities spend a million dollars doing these downscaled and I'm very dubious about the practical utilities of doing downscaling. When you talk about temperature perhaps you can establish something with scientific rigor, but when you talk about precipitation it becomes very tricky. But what we do know is that nonstationarity is here to stay, and nonstationarity is just a fancy way of saying that the past is a poor predictor of the future.

What does that mean from a practical standpoint? If I'm say the mayor of Ho Chi Minh City and I'm designing a drainage system for the next 30 years or 50 years and I don't know what my precipitation is going to be, how do I do it, and these are the kinds of questions we get in our work so that infrastructure planning especially for large-scale infrastructure which has large lock-in periods is very, very tricky. What it calls for is an iterative flexible kind of decision making which is robust across a large number of climate scenarios. The trick here is to get the balance right. When we talk especially in the countries we work in, often policymakers think about concrete in the ground, they want sea dykes, they want dams, and they don't think about the nonstructural solutions which are often as effective and much more cost-effective. Amy mentioned coastal wetlands and Katrina. Let me give you some statistics. Every 2.7 square miles of

wetlands lost means the storm surge is going to be a foot higher so that if Katrina had happened in 1945, the storm surge would have been 5 to 10 feet lower. It's just the destruction of the coastal wetlands that caused a much higher storm surge.

Given all this, what should a city policymaker do? I'd like to enunciate six principles and they are by no means exhaustive. This comes out of a paper that we did earlier this year about building resilience in cities, my colleague Henrike Brecht and I. First, cities need to invest in risk data and disseminating it widely in a way that the public can understand easily. When I talk about risk data, I mean this broadly. I don't just mean GIS or geospatial data. I also mean the kinds of things that Maggie mentioned about technical assistance and capacity building. Let me give you an example from Bogota. Bogota is a city which has perhaps over the past two decades carefully invested in collecting this data and disseminating it widely. As a result of that, we have done a study which shows that housing prices in Bogota very carefully reflect the risk so that if you're closer to an earthquake fault line, your house is cheaper. This is something that we have seen across many cities and across many countries.

Let me give you some examples of the kind of work we are doing in making risk data available. In the city of Jakarta, we are investing in a tool called Risk in a Box which is a simple flash-drive-based tool which you can plug into a laptop and it will give you a first cut of the risk in any place so that if you're building a school of a hospital it will give you a rough approximation of the risk. In the Pacific we have invested in mapping out every single square inch of 15 islands and it's all digitized and up. We're going to put it up in what we call a geonode which is a sort of data warehouse for geospatial data which anybody can use and anybody can download. Maggie mentioned the potential of mobile technology. I think that's really something that is going to take off. After the Haiti earthquake, the Bank in partnership with Google invested in mapping of the damages. That was 2.3 terabytes of data. There is no way that it could be analyzed quickly enough to make any impact. What we did was we partnered with an institution

called GEO-CAN which was kind of crowdsourced. Scientists were given 500-meter-by-500-meter squares which they could analyze and upload their assessment of the damage. I think this kind of crowdsourcing has a very bright future in the area of disaster risk management.

When we talk about risk data, I think it's also important to underline that it needs to be communicated in a way that makes sense to the public. Let me give you an example of a lousy communication device, the 1-in-a-100-year flood. It's used everywhere including in this country. I think it's nonsense because what the public understands is that if it happened in 2011, it will happen next in 2111. People don't understand probabilities and risk so it needs to be communicated in a way that is accurate but yet understandable. I was in Brisbane after the flooding working with the Queensland Reconstruction Authority. I was struck that Queensland had major floods in 1974, the last one, and 2011 was the last one. People forget. In 2008 and 2009 we saw government installing very expensive generators in the basements of the buildings sort of thinking it won't happen again. Well, It did. In this context I think there is some really great research done by Roger Bilham at the University of Colorado where he talks about the half-life memory of major disasters. He has found that it's a generation-and-a-half, so that's about 35 years or 40 years. People tend to forget. It's important that we invest in keeping the memory alive. It could be as simply as the high-watermark in prominent parts of the city, but it's important to have that memory kept alive so that we don't make the same mistakes.

Talking about the Tohoku earthquake and tsunami, I was struck the data that in 1896 there was a 33-meter-high tsunami just 200 kilometers north of that area, in 1933 there was a 23-three-meter-high tsunami and in 1993 there was a 30-meter-high tsunami. So it's not that this was unexpected, it's just that people tend to forget.

The second principle is urban planning as a tool for risk reduction. Here I'd like to reconcile that Jonathan said and what Chuck said about tenure. I think tenure

is very important, but I agree with Chuck that often that reconstruction can't be held hostage to the tenure-entitled process which is very complicated and often a mess in the countries that we work in. What we have found is that some intermediate form of tenure security which falls short of titles but which gives people the confidence that they won't be disturbed for the next 10 years or 20 years is good enough so that a quick and dirty version of tenure works.

Let land and housing markets work. It's as simple as that. If you look at Mumbai, I come from India, rain control in Mumbai has meant that buildings are not maintained properly and a simple rain can cause several buildings to collapse so that I think governments need to free up land and housing markets. The last point is on enforcement. Remember Haiti and remember Chile. I think people have forgotten about it. In Haiti, 300,000 people were killed and Chile was less than a thousand I think. The Chile earthquake was 500-times more powerful than the Haiti earthquake. Why is that? I think enforcement is a key part. I'd like to cite Roger Bilham's research again about corruption and earthquake deaths and he's found that 83 percent of earthquake deaths in human history occurred in countries which have a low rating on the Transparency International's corruption rating.

The third point is early warning systems. We have found in our research that early warning systems are perhaps the most cost-effective investment that a government can make. In Russia we found that one dollar invested in an early warning system saves $4 to $8 later on and this is broadly consistent with findings in other parts of the world. Let me give you another example. Cyclone Bhola in 1970 in Bangladesh, there are varying approximations of how many people were killed. I've seen some that go as high as a million and some that are as low as 200,000, but it's safe to say that a lot of people were killed in 1970. After that, Bangladesh initiated a program of again systemically investing in early warnings and when Sidr hit in 2008, just about 5,000 people were killed, so that's a big, steep drop. Ironically enough, when Sidr hit

Bangladesh, a similar cyclone just a few weeks afterwards, Nargis hit Myanmar and 100,000 people were killed so that it is a very stark contrast of countries that do invest in early warning systems and those that don't. However, early warning systems do not just mean fancy Doppler radar. It's the last mile of connectivity into the community that really matters, and in Bangladesh often it's as simple as a high school student on a cycle with a megaphone. What matters is that the warnings have to be credible and they have to be timely.

The fourth points goes back to what I think all the speakers talked about, that communities need to be at the center of DRM policy. I was in Padang a few weeks after the earthquake in 2009 and I was struck that people were rebuilding in the same way in the same dangerous location in the same dangerous way with soft-story housing without any government intervention. Reconstruction starts on day one. People don't wait for governments and bilateral or multilateral agencies to come in so that it is important that the communities be engaged in a meaningful manner through the disaster cycle. In this connection I'd like to emphasize that resettlement really works. We've looked at a lot of projects and resettling people has a very poor track record. But if you do have to resettle where people are living in a place where they shouldn't be, again engaging the community in a very transparent manner leads to better outcomes.

The fifth point is cities and countries need to design comprehensive risk financing strategies. What do I mean by that? When we talk about risk financing most people assume we're talking about insurance, but that's really a small part of the puzzle. Often we are talking about on-budget expenditures that governments make themselves. Think about disaster relief funds. In many countries that we work in, disaster relief funds are managed in a very poor way. They don't have the proper incentives to reduce disaster risk. Let me give you an example. In the Philippines, the disaster relief funds lapse every year in June or whenever their fiscal year ends. That means if you're a city and you have unspent funds at the end of the year, you end up buying furniture or you

know something similar. These are poor incentives and disaster relief funds can be designed in a much better way. We've found and we've had rigorous impact evaluations that post-disaster safety nets like cash grants have a remarkably high impact on good outcomes and on poverty reduction, shielding poor households from the shocks of disasters. We've done it in Ethiopia, we've done in Malawi, we've done it in Pakistan and we've done it in Sri Lanka. Well-designed post-disaster safety nets matter a lot in shielding the poor.

The final point which goes back to my earlier point about the Tokohu earthquake, prevention pays but be prepared for the unexpected. We need to constantly question our assumptions and see what happens if we are wrong. Related to this point is the issue of cascading failures. Cities are complex systems. It's impossible to pick apart the parts and see each agent in the system is doing. We need to consider the system as a whole. In Katrina after the earthquakes, the backup generators of the groundwater pumping stations were behind the levees. When the levees fell, the generators were flooded and the groundwater pumping stations failed with one failure leading to another and having a cascading impact.

I'd like to close with not an optimistic but a pessimistic note, and I'd like to tell you what keeps me awake at night. What keeps me awake at night is the prospect of a Tokohu-like event, a direct hit of a big earthquake on a big Asian city like Jakarta, Manila or Ulan Bator. If you look at human history, 85 percent of deaths from earthquakes have happened along the southern margin of the Eurasian Plate. If you talk to any seismologist and they'll say it's ripe for one. We expect the next big one to happen in Pardhan, God forbid. What should be done? I would like to see a phased, time-bound seismic retrofitting program for critical infrastructure like schools, hospitals and bridges, but also for housing. We have a great program in Istanbul and I would encourage everyone to go and see that, of retrofitting of public infrastructure. It's remarkably cost-effective. You can retrofit and renovate five schools for the cost of new one so that it is

really a great program. Unfortunately, we haven't cracked the code on housing yet. Government's don't want to subsidize the retrofitting of housing and people often don't have the money or don't want to do it so that that is the one thing we need to figure out how to do. To conclude I'd say that a time-bound seismic retrofitting program in high-risk countries is really, really our top priority. Thank you very much.

MS. FERRIS: Thank you. Thank you, Abhas, and thank you to all of our participants here. We have time now for some questions or comments. There are some microphones here. If it's okay with the panelists we'll take several at a time. If you could introduce yourselves and please be brief.

MR. KOVASH: First I'd like to thank the panelists for speaking. My name is Tim Kovash. I'm a master's student in global environmental policy, I'm at American, and coming from an environmental background I was wondering on incorporating sustainability into disaster response. Obviously Ms. Stephenson spoke and showed some of the pictures in Haiti of the people moving down into previously forested green spaces and as a result of that obviously one of the biggest challenges that Haiti is facing environmentally is deforestation, creating landslides, degradation and things of that nature. How can the first responders take sustainability in that long-term land-management, water-management concept into mind to discourage those types of settlements and responses that can actually exacerbate the problem in the long term and instead try to create things that consider those long-term impacts?

MS. FERRIS: Thank you.

MS. BAILEY: Thank you for the presentations. My name is Sarah Bailey. I'm a researcher at the Humanitarian Policy Group Overseas Development Institute, London. It's another Haiti question. I'm afraid this is one that shows the glaring challenges that the panel is discussing today. I'd love to be optimistic but I really can't be. If you look at some of the lessons that have come up here, we knew them before, particularly around context -- listed a few more that you mentioned involving affecting

neighborhoods, offering a menu of solutions in assisting neighborhoods. In Haiti, the neighborhood strategy that we can now talk about more proudly didn't come out for over a year, and when I was there in January it was on draft thirteen because nobody could agree. It's a messy system of so many different actors. And for many solutions they weren't there. We focused on camps, camps, camps. There was no enumeration done outside of the camps and there was no repair, limited enumeration done outside the camps compared to say -- enumeration in the camps, but limited repair of houses and there is a reason for that. There is a reason why we didn't give the cash which was because we didn't want those types of settlements to be ones that we were supporting. We didn't want those repairs to be ones that we couldn't say we're going to not withstand an earthquake and it shows the sharp contrast between our desire to build back better and the fact that Haitians are coming up with their own strategies in the meantime.

My question is I don't think it's about learning. I think these lessons were already here. What needs to change in the system is the way we collectively respond so that we're not there in 5 years' time talking about the next disaster where we see 600,000 people living in camps years afterwards. Thanks.

MS. FERRIS: Michelle?

MS. ROBERTS: Thank you everyone and thank you for your presentations. My name is Michelle Roberts. I'm with Advocates for Environmental Human Rights. We're based on New Orleans, Louisiana. In observation I'm listening to all of your presentations and realizing what has been going on over years of time. All of your stories and sharings go back to the very reasons why we really need to institute the U.N. Guiding Principles on Internal Displacement, something that groups across the Gulf States, not just New Orleans, have been advocating for. Speaking to the gentleman's question with respect to environmental sustainability, this will indeed help communities that are in harm's way like the Gulf region that are along the oil and gas corridor who have been constantly asking for sustainable changes and that will bring those sustainable

changes. Piggybacking over to Haiti, the same thing, and also drilling even deeper, looking at the disparities. We know the disparities come from a long history of racial intolerance policies that allow for disparities. So that said, there was no equity to begin with and then after a disaster you have a greater dearth if you will. Therefore we need a human rights framework approach that is consistent and we have beautiful language called the U.N. Guiding Principles on Internal Displacement and I think that it's high time that we really institute those principles especially in these particular regions and that will help us turn these issues around. Thank you.

MS. FERRIS: Thank you. Are there other questions? May we have another one or two? We'll have one and two and then we'll give the panelists a chance to respond.

MR. CRIMGILD: I'm Fred Crimgild from Virginia Tech. In several of the presentations which I think were excellent altogether, there was mention of chronic conditions as the background for these acute disasters and lack of capability, relevant capability in urban planning and management in various rather generic areas. How would you suggest that we might invest effectively in advance of disasters in creating these capabilities and therefore reducing the likelihood of such disasters?

MS. FERRIS: Thank you. That's an easy question. I'll give you a chance to think about it as we go to the final question.

MS. Kline: Ms.Kline with Family Voices of D.C. I'd like to take this step one further with regard to sustainability. We're looking at what's going on on the Hill and the economic downturn. I think the reality is that it's fewer dollars. In your given positions what do you see as the future with regard to leveraging resources, community enhancement, not much the direct communities in and of themselves, but the partnerships? And thirdly, the use of academia being involved especially when we're talking about changes in housing and infrastructure? We have to really look to technology.

MS. FERRIS: Thank you very much. Why don't we start, Amy, if you'd like to begin with any response and just go down?

MS. LIU: I'll be brief because I know there are a lot of folks to answering some of these questions. On the sustainability thing, the question I felt often and folks from New Orleans probably get this often too is why did you rebuild back in that location, the ultimate sustainability question that folks outside of New Orleans think about. I think a lot of these challenges come with big tradeoffs and I think the folks who are in the sustainability movement can really talk about the challenges of trying to uphold sustainability with all the other competing at the time. I think you can do both, but I do think in a crisis situation those tradeoffs are really tough sometimes.

I'll answer the question about capacity. I think this is the struggle right now in New Orleans and the issue about resources. I don't know if we can turn to government for doing this anymore whether it's the national government or the state government. This goes back to how do you grow and find other partnerships to provide the capacity to undertake whatever the objections are particularly if it's around capacity building. I think the real challenge right now in New Orleans is all these coalitions and nonprofits have been formed and citizen groups have been formed to push these reforms, to participate, to guide, to inform them and they've been all doing it mostly on sweat equity with very few resources. What got them to this place, and the reforms are not complete and there are obviously much more outcomes to come, is how do you sustain that? This is where the hard work of -- I think the philanthropies are really struggling about how they can provide that capacity locally. I think there are now a lot more corporate folks internally who are trying to figure this out. But I do think this is really the key part for resilience, responding to future disasters, keeping that expertise locally and sustaining a lot of the long-term work that's required.

MS. FERRIS: Thank you. Maggie?

MS. STEPHENSON: I'll try and join some of the questions together. The question of environment. I think Haiti doesn't need small projects addressing one or two hillsides at a time. It needs an overall environmental rethinking and this is a huge opportunity that's being missed partly because we don't have enough coherent and bigger vision happening. That's not necessarily about bigger budgets, but it's about bigger ambition and longer-term results. The environment was a problem in Pakistan. There was no support or there were environmental objections to use of timber-framed construction. The amount of timber it took to make a timber-framed house was less than what an average household burned every year as fuel, so we need to look at it holistically as natural resource management and housing settlement and natural economic management together and charcoal in Haiti is part of the solution.

To answer the pessimism about how to make progress is also the question of the environment. The way to address these hillsides is not to ignore them or not to say they're too difficult. We have to acknowledge that it's happening and we have to see how to be smart about engaging with it. The enlargement cartier housing in neighborhoods and working group started in April 2010 as a counterbalance to all the attention on camps and work started but very slowly I agree and there wasn't enough attention and there weren't the capacities of skills available in country to be honest to look at the longer-term issues and programs and policy development which is still slow and that's still the case. But it has turned the corner and we need greater cohesion so that at this stage we're strengthening enlargement cartier housing in neighborhoods and we're trying to say move from the logic of emergency, move forward and acknowledge that there isn't enough money. We have to bet on longer results. We have to stop short-term thinking.

I really appreciate the point from Michelle the question of equity and in response to Abhas's point earlier that the best results are from the countries best prepared, Pakistan in 2005 had no disaster management authority, it had no earthquake

engineers and yet they managed 610,000 houses reconstructed within 3 years at 95-percent compliant with standards. This was due much improved coordination by the international community, by the donors and by the assistance agencies learning from the lessons of poor coordination from the tsunami but now we seem to have gone back to step back to weak coordination. I think Pakistan was a remarkable step forward. But the basis of the Pakistan program was two things, efficiency and equity and those two things need to be the guiding principles. I think again in the situation where there are not enough resources and not enough capacity. We can't have model blue-chip projects and next door a community got zero. This is also even more the case in cities. The political consequences of redistribution of assistance funding is really critical.

As the last point, leveraging. When I said investment, I didn't mean investment as in donation of funding. I meant investment as in how do you leverage. It's to move from the logic of assistance to the logic of investment, the small amount you can put there makes a greater result and this is our problem with the growing settlements that are not receiving any attention, that we're not changing the result. People are committing their own money. If we commit a small amount with conditions we might change the whole outcome.

MS. FERRIS: Thank you. I'm conscious of the time. Jonathan?

MR. RECKFORD: I think I'll reinforce. I think -- as well, if you don't deal with the rubble then inevitably people will move to wherever open land is so you can't tell people who have no place to be that they can't move to somewhere especially with the aftershocks, there was the full belief that things were going to fall on them. At the macro level, cities have got to get much further ahead in allocating land and clearly there was no zoning, there was no management, there was no provision or planning forward for the space in some of these places and obviously then that creates great vulnerability when the disasters do come. But if we can recognize most of the construction is going to be families building back so I do think it's how do we help them, give them the training tools

and ensure better quality materials so that as they build back they're building a resilient shelter in those repairs and how do we move the faster to the repair and rebuilding, then I think we'd get much more value out of the investments that are being made.

MS. FERRIS: Thank you. Chuck?

MR. SETCHELL: A couple of things. I think this proliferation on the hillsides that you were talking about and the movement in Caraibes the pictures are really remarkable. I was out there before. Any ground was turned and to see those pictures now it's really fairly remarkable. It's an indication and I think a consequence of very limited state capacity to manage space or to manage land. There are no options. The options are self-selected in the absence of any kind of programmatic response. I think the focus on rubble removal was an appropriate one. I think people wanted to stay in their neighborhoods, they always do, or close by if they can. The lack of investment and the lack of a systematic management plan to remove and dispose of debris was a major, major shortfall.

I mentioned earlier the issue of the humanitarian community's limited experience in cities. I still maintain that's the case. Their history is rooted in rural. The lessons are still being learned and applied. There are very, very few people in the humanitarian community who have a focus and an interest and a passion for working in urban areas. The Sphere Project guidelines that are the bible if you will of humanitarian assistance are rooted in refugee camps in Goma in the in the early 1990s. That's where their specifications come from. We haven't moved very far from there. I went into houses that were 4 square meters in size. How am I supposed to as an international donor provide that family with 18 square meters of assistance of living space? Not possible. One option that we support and have supported is to go up two stories. We do two-story shelters now. That's a revelation. People thought I was nuts when I mentioned it in the media and perhaps I was, but we're now at two stories and we're thinking about this.

We also take risks. I think humanitarian agencies take risks when they deal with risks. We don't know what the outcomes are going to be. In being risk takers when we do things well and sometimes we do, we improve markets for risk management and that leverages funds. We've seen that with the house repair program where we invested money, a couple of other donors invested money and that money has been leveraged several times over. The World Bank just came in with $15 million on house repair. What we're seeing is informal education, an urban extension service essentially in house repairs where if you're an engineer and you're driving around town and you see a building site with practices that are not doing well, you stop and you provide some messaging. You provide some technical assistance on the spot with on-the-spot training. There is not enough people, there are not enough engineers to provide the scale required so it has to be not just formal but also informal and it also has to be communicated very clearly.

MS. FERRIS: Thank you. Abhas, last word.

MR. JHA: Very quickly. These were great questions. I wish I had brilliant answers to all of them. As for development, your question really has no good answers but let me take a stab by suggesting two things. I'm a great fan of investing in data and putting that data out in a way again that the public can understand. Let me give you an example from Indonesia after the tsunami at Aceh. They designed a very simple system where you could track the money flowing down to communities right at the community level. This proved to be a remarkably effect tool and self-correcting. So if community X had X amount in damages to schools, we made sure that the resources were commensurate with the damages. These kinds of simple things often make a difference as does capacity building. I think masonry training is a great example of a good investment.

On the question of sustainability, the work we do often involves tradeoffs and tradeoffs which are very cruel in nature so that again there is no easy answer. In

Cambodia two years ago they had devastating floods and when they started rebuilding they asked can we put in a water system in a village where there was no water system before the floods? The answer was no because there wasn't enough resources to do that. It's just a question of choices and I think influencing policymakers to make good choices by as I said investing in good data.

MS. FERRIS: Thank you, and thanks to all the panelists for your illuminating presentations although I note that we still lack answers in a number of areas and maybe we've done a better job at illustrating the problems than coming up with solutions, but at least that's a first step in the right direction. Thanks to all of you.

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