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So this, welcome everybody for this session. This is about sharing experience in building seismic resilience. The experience of Indonesia, the Philippines and Japan. Actually, who from the audience, who has experienced an earthquake personally?

The majority, that's right, okay. So we all had some experience. I remember my first experience in earthquake in California was a little bit shocking. So this session is dedicated to exploring how countries, especially developing countries like Indonesia, Philippines, what they are doing in strengthening the capacity to withstand and recover from seismic events.

As we know, seismic events quite often cause very big damages and a lot of fatalities. And that's very challenging to deal with. Because of the organization, there's increasing exposure to seismic hazards in these countries.

So there's a critical need to take initiatives. So for this session, we aim to showcase innovative seismic risk mitigation strategies, promote collaborative efforts and knowledge exchange, discuss policy, institutional framework, and draw lessons from Japan's successful experience in implementing a nationwide seismic retrofitting program.

Additionally, we'll use these insights to develop recommendations to enhance our collective ability to manage seismic risks. So for this session, we will first listen to a short technical presentation, highlight some key findings from a seismic resilience study in Indonesia that followed by conversation with our panelists who are joining us today from Indonesia, the Philippines, and Japan.

So with that, let me first introduce our first speaker who's gonna do a technical presentation. Mr. Halleck, who will do the disaster risk management specialist from World Bank, will make this presentation.

Thank you.

Thank you, Amin. Thank you, everyone, for coming. So for those of you who are not familiar with Indonesia, this is a little bit background. So Indonesia is in island countries, archipelagic countries with fourth most populous countries in the world with over 250 million population.

So this is the seismicity map of Indonesia in 2020. It's recorded by the Indonesian Agency for Meteorology, Climatology, and Geophysics, BMKG. In 2020 alone, there were over 8 ,000 earthquakes recorded in Indonesia, with over 700 events were more than five magnitude.

Each dot represents an earthquake, which can result in something like this in real life. This is from Chianjur, which killed over 400 people. This is from Mamuju. This event killed, I believe, over 100 people.

And the last one, one of the largest in the last decade, from Central Sulawesi, this killed over 4 ,000 people. I can go on, but the question that we need to ask is, why this is happening and what the government can do about it?

So we conducted a study with the governments of Indonesia. We are looking at the building regulatory framework in Indonesia, as well as the seismic risk profile in the country, which hopefully can be used to inform what the government can do about this.

So we consulted with the Ministry of Public Works and Housing, Ministry of National Development Planning, National Disaster Management Authority, BMPB, BMKG, as well as local governments. For the building regulatory frameworks, we have identified some key areas.

So Indonesia actually has quite a comprehensive set of policies, regulations, and laws. However, there is an opportunity to be more specific and explicit to promote the seismic strengthening of existing buildings.

The building codes for new constructions are quite well -developed, adapting from the US code. However, it can be improved to be tailored to common construction types in Indonesia. And since Indonesia has over 500 local governments, obviously, there will be a disparity in terms of the capacity of the local governments.

Some city will have very good capacity, but some local governments might have very low capacity. So there will be a significant need to improve the capacity of local governments through capacity building activities.

And there is a building management system developed by the Ministry of Public Works and Housing. It's called by ISIMBG. It is a very valuable tool that can be used to improve the building administration and building permitting process in Indonesia.

There is some area that can be improved, especially to provide interlinkages with other systems in Indonesia, as well as how the data information from this building management system can be used to inform policy decisions.

In addition to that, we are also looking at the seismic risk profile in three cities in Indonesia. We are looking at the seismic risk profile in Bonkulu, Chelegon, and Gorontalo. This is just an aerial view of Chelegon, Bonkulu, and Gorontalo, mostly secondary cities with around 200 ,000 to 400 ,000 population.

So we are looking at the seismic hazard in each of the area. So the seismic hazard in the three cities is ranged from high to very high. And we are also looking at the building exposure, also as the exposed population.

We sent a team of engineers to come to visit each of the cities and surveyed almost 600 buildings in total and collected various informations like floor area, number of story, irregularity, and other aspects that might contribute to the vulnerability of the building.

The total building value for all of the buildings, around 100 million, 170, 300 million, and 99 million for Gorontalo. And the total building occupants in all of the buildings that we surveyed in total is around 250 ,000 people.

So one of the findings from our survey that most of the buildings in the three cities that we surveyed are non -engineered, low -rise, with unreinforced masonry infill walls. This is one of the buildings that we surveyed in one of the cities.

So the results of our assessment that in the event of a 2 ,500 year -written period, Gorontalo could potentially face 521 fatalities, Chelegon 501 fatalities, and Gorontalo over 300 fatalities. And in terms of the probable loss ratio for the 2 ,500 year -written period, the loss can reach up to 85%.

And even total complete loss for some of the cities, meaning that all of the building value will be lost. So we came up with three options in terms of the options and recommendation for the government's foundation.

Because the option one is to retrofit the entire building. So for example, we surveyed schools, hospitals, clinics, government buildings. So the first option to the government is to retrofit the entire building stocks.

Option two is to only retrofit all critical public buildings. And option three is to retrofit only select critical public buildings to serve as resilient hubs, especially in the event of emergency. This is sort of like a brief overview of the costing.

So for the option one, to retrofit the whole building stock, the total cost, the average cost will be $50 million in each city. And if we only want to retrofit the critical public buildings, the average amount of the retrofit cost would be $32 million.

But for the third option, to only retrofit select priority critical public buildings, the average cost will be $5 million. Then if we then scale that up for the national government, say, with a $400 million to kick off a national program that can be used to do retrofitting in

over 1 ,000 buildings for option one in each city, or if the government choose to invest or intervene in only critical public buildings with $400 million,

the government can do intervention in 12 cities and do interventions in 1 ,421 buildings. And for resilient hubs, that can be done in 80 cities. So there is a combination of option and recommendation that the government can choose.

So obviously, the government choose to only invest, to first invest in the resilient hub, the government can do the intervention in 80 cities, which is a lot larger than the other two options. So what's the benefit of the interventions?

First is the reduction of fatalities. So first, in the previous slide, it's mentioned that in the event of earthquake, one of the cities can face over 500 fatalities. With the investment, the probable fatalities can be reduced by 20% to 50%.

And for the probable loss ratio, the investment can reduce from 25% to 50% in terms of the probable loss ratio. It also drawing direct benefits such improved condition and quality of public buildings, enhanced resilience of communities, strength and safety, and also continuity of emergency response, especially during emergencies to serve as shelter.

This is the recommendation for the government to a. establish a national program because Indonesia is a huge country with a lot of local governments with varying capacity. So the first recommendation would be to develop and adopt a national scale seismic risk reduction plan which we believe was also the case for the governments of Japan when they first started the seismic risk monitoring program,

develop the hazard maps, design standards and guideline documents, strengthen the efficiency of implementation of building regulations including the enforcement of the building, to harmonize the professional or practitioners that will be involved in the program and then provide targeted building control requirements and incentives for seismic resilience.

So yeah, I think that's the brief of you, thank you.

Very good. Thanks a lot. Let's give a little bit of flavor for the challenges we're facing in Indonesia and how these things, these risks can be tackled. Next, let me introduce our panel and maybe we can, the panel members can join me in the front.

First is Dr. Malidya Inda Junita, is the Senior Advisor to the Minister on Development Integration at the Indonesia Ministry of Public Works and Housing, Republic of Indonesia. Iwinda, thank you. Please take a seat, thank you.

Yes. And then next, we have attorney, Ravsi Escobedo, Undersecretary for Operations from the Department of Education, which is the Ministry of Education in most other countries, Republic of Philippines.

And third, we have Mr. Takashi Imamura, Director of Building Guidance Division at the Ministry of Land Infrastructure, Transport and Tourism in Japan. Thank you. So, I will ask our panelists each one or two questions, they may use a little bit of slides to respond to the questions, then I hope at the end we will have some time for questions from the audience.

So, first there's a question to Ibu Inda from Indonesia following the presentation, as we see there are a lot of seismic hazard risk is very significant. So, can you discuss the recent development of laws, regulations and technical standards for buildings in the context of preparedness and the risk reduction programs in Indonesia?

Thanks Ibu Inda.

Okay, thank you very much moderator. Good afternoon everybody and ladies and gentlemen. To answer your question, I would like to divide it into two themes. The first is regulatory framework and the second, the building standard.

If Mr. Haile already summarized, I would like to focus on some topics. Maybe it can be complete for your informations. Okay, next. This slide show the building management authority based on Indonesian law, which is law number 23 of 2014.

And this is concerning regional government. And you can see this is some sectors, specially for the building. This is divided into three level of the role. The first is central government with some issues and regional governments, professions also for the some issues.

This is depending on the strategic interest for its government level. And the third, regional government city and municipal. The focus for the regional government city and municipal is the including granting building construction permits or we call it in Indonesian language is IMB.

And the certificates of proper functions for the building or SLF. And for the next, okay, the next slide. It show the recent development of building regulation, especially building construction permits and certificate of proper functions.

So this is building slows 2002 and describe it the building of proper system are conducted by the regional government. So this is very interesting because every regional government will have their own approval system at that time.

And we goes to the omnibus law is issued on 2020, which then followed by updating building regulation in 2021 that introduced the unified building approval system conducted by central government, which called SMBG is already introduced by Mr.

Halleck before. And in order to get the building permits, building owner or planner must upload several required documents, including structural drawing and calculation report document that describes seismic load and design for two -story building and above.

I think this is the innovation for the Indonesian governments. And the next slide is about the building standard and codes. Okay, the construction of building in Indonesia based

on applicable regulations and standard that made by relative ministries or institutions and almost all the standard is conducted by the Ministry of Public Works and Housing.

And in building implementation, according to the law, the refits of the regulations called government regulation of the Republic of Indonesia, number 16 of the year 2021. And there is some regulation is more technical or more operation produced by the president regulations and regulation of Ministry of Public Works.

For example, concerning technical requirement of the guideline for the building, construction of state house building, building function and the other, how about the regulation from the local government regulation?

It is allowed as long as it's considered local geographical, economic, social cultural consideration and they do not conflict with the rules is already mentioned above. And the next is about the building reliability.

We can see this government regulation number 16 of 2021 and also this is contents for the safety. So for the hazard, for the seismic, we go to that safety and we concerns about the load. Okay, I think we can go to the next slide.

This is some regulation or some standards and almost adopted by US standard. This is about the material, concrete, reinforcement, wood, cut -row steel, cut -row steel. And we also have the specification for loads and the specification for simple structure building.

In Indonesia regulation, actually every five years, we have to review the standard or we have to develop the standard. So we can go to the next slide. OK, this is already mentioned also by Mr. Hari that we're still under updating the Indonesian national standard related to earthquake resilience and building.

For example, this is about the map. Before or until now, we still have the earthquake source and project map of 2017. And because we have a lot of the earthquakes in the five years, we have to develop the new one.

And there is a commitment to publish in 2024 or this year. And the map is updating by the Central of the earthquake institutions and Ministry of Public Works. And we have also updating the technical recommendation of seismic evaluation and rehabilitation for existing concrete building, especially for retrofitting.

I think this is for the first. Thank you.

Thanks a lot, Ibuinda. So just like these are a lot of regulations, laws. This is like a for new buildings. What are you doing for some of the buildings were already there and before these laws, regulations are promulgated.

Okay, so I would like to try to answer your question with some slides, I think, yeah? Okay, yes, this is the, maybe it goes to some next slides. Again, yeah, okay, I think we can talk about the central privacy first.

This is the situations when we have when the earthquakes damage the center of Sulawesi. And right -hand side, after assessment of the building, we decided that the building should be demolished and build the new one.

But in that building, we implemented the base isolator system for the construction of the new hospital, this is the hospital, and using, still using the 2017 seismic map. But the map is still under review now and published for this year in 2024.

And also, we encourage to use the updated seismic load codes. It means we develop from SNI 1726, 2019. And goes to the next. This is also still the central Sulawesi and the situation is the same. We demolished the building and we build the new one.

And also, we add the additional floor and using the spatial reinforced concrete moment frames and still using the 2017 seismic map and updating seismic load codes. And the next, this is the Deserations earthquake in Tianjin, West Java, in the late of 2022.

And you can see this is the house, the common house. And mostly, it's an engineer house. And we build the new house with the technology conducted by Ministry of Public Works named RISA and RUSPIN. And this is the RISA.

This is some effect pages of the RISA. It's very simple. And the main thing is it has the earthquake loading split testing in the laboratory. And for the RUSPIN, RUSPIN have two panels. But RISA have three panels and also lightweight.

And the other thing is it has the earthquake load testing in the laboratory. The one thing also that it can be built by the ordinary people, but trained for free by the Ministry of Public Works and Housing.

This is the most important thing. And I think.

Okay, thank you. I know you have a lot of slides. You can see the slides later maybe. Yes, maybe you can share the slides. Thank you. Thank you very much. So, next I want to ask my guest from Philippines, Mr.

Escobarbo. So, Philippines also faces a lot of seismic resilience issues, challenges. So, what's the Philippines government doing on that? What are the initiatives that you can share? You have a presentation.

Let's look at your slides. I'm sure all the questions I have, you have slides to answer.

Good afternoon. I'm Rev. Sisko Bedo from the Department of Education Philippines. I'm here to share with you the Philippines experience on building seismic resilience. So geographically, the Philippines is situated in the Philippine Ring of Fire and where we experience thousands of seismic events annually.

And among the looming concerns is the potential occurrence of the big one, a powerful earthquake that could have devastating impact and consequence in the national capital

region. While we cannot predict when it will happen, the Philippine government is preparing to mitigate its impact.

Metro Manila being one of the largest economic hubs in Southeast Asia and is the main economic powerhouse of the Philippines. It is also home to 28 million people or equivalent of the 25% of the current population of the Philippines and contributes to about 32% to the national gross domestic product.

However, there is a potential threat of a major earthquake along the West Valley fault line which ran directly underneath the Greater Metro Manila area. And in one of the study conducted by the fee box, a risk assessment estimated that a magnitude, if an earthquake occurs, if an 7 .2 earthquake occurs on the West Valley fault line, the estimated casualty will reach to about 50 ,000 and an economic loss of about 54 billion dollars.

And a large number of public infrastructure will be severely damaged from school buildings, hospitals, roads, bridges, government, facilities, and among others. And according to fee box, the movement of the West Valley fault line has estimated to have a return rate of 400 to 600 years.

And the last movement of this West Valley fault line was in 1600s. So it can happen anytime in our generation. It might not happen in our generation, but it may happen in the next generation. And considering the length of the West Valley fault line that traverses to three regions, a bigger challenge is how to strengthen the capacity of all the stakeholders to respond to this disaster.

And along this line, there is an urgent need for collective action, having a sense of unified command, one direction, for response, rehabilitation, and recovery. So those are the challenges. And we come now to the success of seismic resilience initiatives in the Philippines.

First, the Philippines has embarked on a series of studies to seismic resilience, and among the studies conducted by the Philippine government, this is in partnership with a private and international organization.

The series of studies has resulted in some findings and recommendations. And these studies warn us that if a 7 .2 earthquake will occur, 10 to 13% of public low -rise buildings are surely to collapse.

50 ,000 casualties and 500 people will suffer from injuries. And if the magnitude, if we have a 6 .5 earthquake, it will have 20 ,000 casualties. It's still a huge number of fatalities. And according to the And according to FeeBox, the estimated return rate is 400 to 600 years, and it can happen any time.

And based from that studies, action plans are formulated, and this action plan is based on scientific studies, and these are essentials. In 2004 study, the Myers maps out risk assessment for both human loss and damage to residential buildings, and it outlines the action plans as well.

And in the Philippines, in preparation for this earthquake, we instituted a national earthquake drill in all schools in Metro Manila, including all government agencies. And we also have the Metro Manila earthquake contingency plan in order to enhance the seismic resilience of public buildings in greater Metro Manila and ensure emergency preparedness to respond.

And another one is the formulation of a national harmonized contingency plan for the big one. And from action plan, we have a national policy framework to enable stakeholders to work together. And the most notable of this is the presidential issue once issued by the last administration to address the tremendous threat of a potentially catastrophic earthquake.

And the executive order by the president mandated all government agencies and instrumentalists to take proactive steps to guarantee the resilience and disaster preparedness in the greater Metro Manila area.

And another executive issue once that created a program management office for earthquake resiliency in the greater Metro Manila, aiming to strengthen the region's

ability to withstand the potential catastrophic earthquakes and bridge bureaucratic gaps in current resiliency plans, programs, and projects.

And from that success, we learned some lessons. First is about the effective risk communication. Effective risk communication is critical to disaster preparedness and response because the risk communicator should convince policymakers, decision makers, the stakeholders, and the people to respond.

And there's a need for credible champions to communicate and advance seismic resilience effort because we need to build the consciousness of stakeholders, government, private sector and communities and household on the possible impacts of hazards.

And from there, invest in seismic resilience. The Philippine government has worked with World Bank and the World Bank supported Philippine seismic risk reduction and resilience project and we have this $300 million coming from the World Bank.

This project aims to enhance the safety and seismic resilience of public buildings in Metro Manila. And the Department of Education is a beneficiary of this project by retrofitting 389 school buildings and of course the Department of Health on the other hand retrofitting 36 health facilities.

And another objective of this program is to conduct vulnerability assessment of public buildings in the greater Metro Manila using risk information developed by our Department of Science and Technology.

And of course the adoption, a systematic approach in the prioritization and selection of the rehabilitation and reconstruction of public buildings. And the last, scaling up of seismic resilience efforts.

It should be a continuous effort to prepare for a disaster. So in support of this Philippine seismic risk reduction and resilience project, the government has also embarked on a new project with the World Bank.

It is called the Infrastructure for Safer and Resilience Schools or the ISI RS project. It is a collaboration with World Bank, Dev Ed and DPWH. And this project aims to support the resilience and recovery of our 1 ,282 public schools.

And this will create additional 13 ,101 classrooms where 741 ,000 students will be benefited in 16 regions of the country. And this IRS project covers wide range of interventions from repair, rehabilitation, retrofitting and reconstruction of schools.

So that's all and I hope I have shared some valuable insight based from the experience of the Philippines. Thank you very much.

Thank you. Thanks a lot, Mr. Osco -Cobedo. Thank you. It's great that you have started a big seismic retrofitting program, seismic school retrofitting program. That's really, really important, thanks.

And great that the World Bank can be a part of this. So now let me turn to Director Takashi Imamura, who Japan has a lot of successful experience, especially about buildings, school buildings. Maybe we can share some of the policy framework and the approaches.

Thank you very much. I don't have a slide, so I can't be short. As you said, we may be successful in trying to attack this retrofitting program. But as I was hearing from two countries, Indonesia and the Philippines, I think you are doing great.

I mean, what you were doing in your country is exactly similar or the same in what we are doing. We have been doing in the past 10, 20 years. So what is the difference? Maybe, I don't know. After the earthquake we had near here, Kobe, which was 1995, more than 20 years ago?

More than 20 years ago. Almost 30 years ago. Yeah, right. So our current seismic standards was introduced in 1981. So if the building here is 44 years old or more, maybe seismic strength is not enough.

So we have to evaluate all those old buildings, older than 43 years old. And after we introduced the current seismic standards, the first biggest earthquake we experienced was the earthquake in Kobe, which was 1995, after 14 years after we introduced the current seismic code.

So what we did, many old buildings crashed at Kobe earthquake. And in the same year, we have introduced the act to promote the retrofitting of the old building. And in this new act or law, we stipulated the new, not new, but seismic evaluation method and everything and how to promote.

And after that, well, at that time, we didn't have any subsidies or financial incentives to retrofit the housing or old buildings. But since then, we are gradually increasing our incentives like subsidies and tax cut and low interest rate loan and everything.

Everything we can do. And also from the regulation point of view, we have introduced mandatory seismic evaluation system more than 10 years ago. And also about 10 years ago, we had we established a national resilience program, which covers all kinds of resilience things, like we had the target on schools and hospitals, even housing, everything.

So we are trying to improve the seismic retrofitting rate. And we are putting so much money on this retrofitting program. So I think it's now our building's seismic safety rate is like more than 90%.

But still, we have the rest of the building, about 10% of the building, not the seismic. So we have to continue our efforts from now on. So anyway, what I wanted to say is what you're doing seems to me like it's exactly the same.

And I would like to stress that our school, thanks to the Ministry of Education, I think 100% school has been already retrofitted. So children are all safe right now. So anyway, we still have to do with the hospitals and other many buildings.

So anyway, we'd like to continue this effort. Thank you very much.

Well, thanks a lot. There are a lot of commonality, sometimes in different phase, different stages. I think there's a lot that we can learn from the programs. I want to open the floor. Anybody would like to raise questions, comments?

Yes, please. Maybe if I can collect a few questions and then come back to the mic. I know.

Yes, hi. Catherine Kotsai actually was part of the initial study for Indonesia. I'm very interested in how to motivate investment in, let's say, retrofitting or improvements because there's so many competing needs and especially with climate change and also the inclusive agenda.

Have you had experience in combining retrofitting with also other building improvements, let's say, for green buildings? Thank you.

Okay, very good, thank you. Please.

Thank you very much for the presentations, informative presentations. My name is Levan Gerdan, consultant to the World Bank. My question will go to the Indonesian works. So after the post -earthquake analysis, so you switch from retrofitting to reconstruction.

So could you please elaborate on the threshold or the criteria, how you switch from the retrofitting to reconstruction? Thank you.

Okay, any other questions?

Hi, thank you so much for your presentation. My name is Keiko Sakura from the World Bank. And I'm working on the GRPA program to help countries to improve the building code and the implementation. So it was very, very interesting to me.

And I would like to ask your maybe plan a little bit more about investing in people to best utilize the improved building codes and you develop based on the scientific approach. Maybe you're doing some capacity building activity, training activity for the people who graduate from schools and who have been in the industry for long to better comply with the latest building codes.

So I'll be very curious. Thank you so much.

Very good. Thank you. Okay, maybe I can, there's one more question at the back.

Hello, my name is Kit Miyamoto with Miyamoto International. My question is that, like if you look at the Turkish earthquake and others, that, for example, in Turkey, there is like 50 ,000 people died and about 35 ,000 building collapsed, and 200 ,000 buildings really damaged.

But there is essentially the commercial, private -only owned buildings. Public buildings perform really well, hospitals, operational after this major earthquake last year, and all that, right? So it's close to.

Now, it's a lot to do with inspection, because there was no inspection for the private sector buildings. So inspection by the engineers is one of the critical factors. How you guys actually implement into that practice of these engineers, independent engineers, to be able to inspect how it's going to get built.

Okay so inspection of private buildings and actually this link to my question also maybe particularly to Mr. Imamura, the private buildings, what kind of things you do to give the

incentive for them to retrofit it because we can have the public buildings, it's in the government, if you can convince the finance minister to put money that's okay, but the private buildings, what are the measures you take.

So maybe I can go to, if we end up first we can respond to the questions.

Okay, I'm trying to answer the question, and maybe the answer is not fit for your question, but I'm trying. I think I first go to your questions about the criteria for the proficient or the constructions.

At the time we have the criteria for the assessment, the result of the assessment, three level of the words, it means the building will be demolished and we do for the reconstructions. And the other thing, the criteria is about considerations about the cost for the proficient or the construction.

And the other thing, mostly in Indonesia, especially for the house, there is no special document that is recorded by the people. It means it's not easy to assess, for example, especially for the underground structure.

It means most of our houses, it goes to the reconstruction. This is the consideration. And at that time we have the system, like we call it the S -I -M -B -G, this is the information system for the building.

So we started to collect all the information. Hopefully for some years later we have the data or bank of data about all the public's buildings and we can go for the retrofitting if the whole situation is happened.

I think this is the criteria at that time. And I think for your questions about what we have done for the people. So there is some slide also. Maybe there is socialization, there is also promotion from the government.

It goes to the public sector and also to the ordinary people. And we ask also for the, I mean, the first graduates in the school to have the knowledge about our standard. This is important. And if they go to the works scheme or works period, they can also directly adopt our standard.

And the other thing is about, okay, this is the seminar. This is about the workshop conducting by our ministry. And this is also like the training to build RISA and Ruspin. And this is all the cost for free.

I think this is, I don't remember what your question, ladies, please. that is an instruction to the building and the non -structural influence. So have group countries that experience an coordinating celebration.

Maybe in Indonesia, Madam, we will start soon because first, we don't really have the data for all the buildings, means our program is not focused on retrofitting at the time but still in the reconstruction and the mitigations, it's coming from the standard, from the regulations but retrofitting, I hope we can do soon after we have the standard and we commit the standard will be published on this year on 2024,

I think.

Thank you, Mr. Escobedo.

In the Philippines, we have a regulatory framework for government facilities, public infrastructures. There is, we have the Department of Public Works and Highways who conduct, which conducts the assessment, inventory of our physical facilities, the public infrastructures.

But we have a regulatory framework for the local government units. They are responsible for the inventory assessment of both public and private buildings and physical facilities in their locality. So in terms of giving incentives to those private institutions, the local government unit is the one responsible for those efforts.

Well, I'm not sure if I can say correctly, but well, the first question regarding the combined effort, not only retrofitting for earthquake, but energy or something, yes, what we are exactly supporting, not only the seismic enforcement, but also barrier -free and energy efficiency.

Those three are the key. Our subsidy, national subsidy system, as well as tax cut system and even the low interest loan system, promote those three issues at the same time. Seismic and barrier -free and energy efficiency.

And what else? People? Okay, regarding the criteria, I don't know. It is our... I heard from Indonesian presentation, you have the non -engineered housing for the small building. But here in Japan, all the building, including the small housing, are engineered.

So there's no non -engineered building here in Japan. So after the Kobe earthquake in 1995, we have introduced this diagnostic system or seismic aberration system for all the building, for all kinds of construction methods, including reinforced concrete, steel, and wood, and everything.

So this system covers all kinds of construction. So the criteria is very clear. So we are trying to promote, if you are not have done the seismic aberration, we give them the money to 100% support to do that aberration for the housing and everybody.

Anyway, for the people, I will say that we have this, as you... The same like your countries, we have the qualified architects in building engineering, which I think they are very good. And also, we do have the good control and enforcement system at the local government.

But I would like to point out that 20 years ago, yeah, or when the earthquake, Kobe earthquake, occurred at that time, only 30% of the buildings received the final inspection. You know why? Because of the lack of the capacity of manpower of the local governments.

So what we did, we have revised the building code so that the private sector, private company, can also become the certifier, not only the building official, but the private certifier exists here in Japan.

And amazingly, more than 90% of current buildings are being certified by the private sector, not by the building officials anymore. Yeah. So we have enough manpower right now and those private certifiers can inspect for the new buildings, but also for the old building as well.

So they can support retrofitting efforts as well. So I think that is something maybe different from your countries.

Mr. Moderator, can I add something first?

Excuse me. We're almost, sort of, running out of time. Yes. So please. Yes. Thank you very much.

yeah ladies and gentlemen this is most of my description is about the buildings but this is a little bit when we talk about the bridges or the roads and the dam because usually for the retrofitting we done for the bridges and because we have also like bridge management system and this situation because of the building mostly owned by the private or owned by the province government or municipal or city government but for the bridges road and the dam is mostly belong to the central government it's mean if we have the air quicks the spatial inspection done and retrofitting will be conducted as needed I hate it.

Thank you. Thank you. So we're running out of time. I found it's a very rich discussion. I hope we should have more time to discuss, but maybe after the meeting, we can have a side chat. Just a few takeaways from my side.

I think this regulation is very important. You continue to improve as the situation changes, lessons learned, you incorporate into new codes, regulations, laws. This is very, very important. But then also the enforcement of the regulation, the building codes.

This is enforcers, this is very important and I'm very glad to hear actually the experience. Like a local government doesn't have a capacity, maybe try to outsource to the private sector with the certified private sector and can do much more sort of enforcement.

Enforcement is in a way is really important to make the codes work. But also there are so many buildings which are built earlier. So the retrofitting program is really important that I think Philippines has started, Indonesia hopefully is also starting.

So that big retrofitting program is really important. Prioritize public buildings, especially schools, really important, but also the private buildings, how to provide the incentives for the private sector buildings because there's a big, much biggest stock of private buildings which also don't meet the standards.

So I think this is also really important. And then I think the issue of sort of getting people involved to participate aware, I think this is really, really important. So I learned quite a lot from this session and I hope you do too.

Let's give applause to our panelists. All the best and I hope you enjoy the rest of the sessions. Thank you.