RECORDS OF WORKING GROUP SESSIONS

Date: 1 July 2016
Venue: Tokyo National Museum (Tokyo)

Lecturer: Hiromu Shimizu (Professor, Kyoto University)

NATURAL HAZARDS AS THE BIRTH PANGS: THE EMERGENCE OF THE NEW PERSONHOOD AND INDIGENOUS COMMUNITY AFTER THE 1991 MT PINATUBO ERUPTION IN THE PHILIPPINES

Dr Hiromu Shimizu, based on his long-term commitment to the Aeta people in the western Luzon, talked about the transformation of the Aeta self-consciousness and their communities in the past 25 years since the massive eruption of Mt Pinatubo in 1991. Looking into the processes of the breakdown and re-construction of Aeta communities, he demonstrated that a disaster could encourage the emergence of new personhoods and new communities.

The Aeta people used to live in the mountainside of Pinatubo as sifting-cultivators with hunting and gathering as sidelines, and sedentary agriculture has been introduced by an NGO since 1976. Their livelihood, however, was changed drastically by the 1991 eruption of Mt Pinatubo. The catastrophic eruption forced the Aeta people to leave the mountain to live in the resettlement areas, which were built along the foothills and were much closer to

The Aeta people as shifting-cultivators (©Hiromu Shimizu, June 1978)

Overlooking Mt Pinatubo and its foothills that are entirely covered with ash, from Baquilan resettlement area (©Hiromu Shimizu, December 1991)

Prof. Shimizu interviewing his long-term Aeta friend, Mr Victor Villa, about the situations before and after the eruption, and their day-to-day life at the evacuation centre (©Hiromu Shimizu, November 1991)

the towns. Just after the eruption in June, many Aeta people died of diseases such as severe dehydration, flu or measles, due to the poor living conditions in evacuation camps during the rainy season in July and August. While some people eventually returned to their homelands, most of them (80–90% of the affected Aeta population) continued living in resettlement areas. As exemplified in this case, a catastrophe strikes the most vulnerable part of the society, not only once but twice: firstly as a natural disaster that was unavoidable, and secondly in the evacuation camps during the post-disaster process, which was a human-induced disaster and could have been manageable.

As a couple of decades passed after the event, it gradually became possible for us to perceive some major changes in the Aeta societies. The Aeta people used to live self-sufficient lifestyles and rarely went down to towns, where they were disrespected, and were deceived or exploited by lowlanders. Now they actively visit towns by tricycles to sell their agricultural products and negotiate with customers on equal terms. Some of them participate in fiestas in nearby city and town to parade in loincloths, which represent their identity as the indigenous people in the Philippines, even though they usually are dressed in jeans. Among young people who were born in the resettlement areas and received school education, there were a few who went to work even abroad to earn considerable cash income. Some started to get married with non-Aeta individuals beyond ethnic boundaries. As exemplified in these cases, the 1991 eruption significantly transformed the Aeta society. Through this disastrous experience, the Aeta eventually re-established their new personhood with expanded perception of time and space, and their identity as the

Contemporary Aeta youths on motorbike. Two on the left, who are soon to leave for Saudi Arabia as overseas Filipino workers, are on the way to see their parents who have returned to the mountainside. (©Hiromu Shimizu, January 2013)

indigenous people of the Philippines. In a much larger sociopolitical context, the eruption event also led to withdrawal of all the US military bases in the Philippines, which led to the subsequent development in the Philippines of the new national identity as freed and independent Filipinos.

Since Industrial Revolution, societies all over the world experienced various changes from agricultural to industrial societies, from farmers to factory workers, which also transformed the people's perception and the worldviews. However, the Aeta people experienced such changes only within a decade or so, triggered by the eruption of Mt Pinatubo. The cases of post-disaster social transformation are also found outside the Philippines. For example, Tokyo was devastated by the Great Kanto Earthquake in 1923 and subsequently by the Great Tokyo Air Raid in 1945; nonetheless, these tragic events brought about opportunities to create a new 'modern' city of Tokyo and to resume a new lifestyle. In the case of Aceh in Indonesia, the liberation movement had been suppressed and the human rights had been violated by Indonesian National Armed Forces for more than twenty years. However, the peace was restored after the 2004 Indian Ocean Earthquake that caused more than 200,000 death due to tsunami, as international NGOs and disaster relief agencies who entered Aceh exposed such inhumane security enforcement by the National Force.

Viewing culture as a continuous entity corresponding to a certain group of people, particular language, and places is not relevant in the contemporary world. An alternative and more dynamic view is that culture is discontinuous: it could be interrupted, forgotten, or forcefully abandoned. However, a culture is subsequently revived after a period of breakdown, with a creativity incorporating certain new elements.

The disaster strikes people over and over again, and we cannot entirely escape from it. Rather than arguing about the disaster reduction and mitigation, he emphasised the importance of evaluating the recovery process, more specifically the creative recovery and rehabilitation embracing the emergence of new societies. We should recognise the disaster as the birth pangs, through which a new personhood and society could be created, and navigate to consider the process of reconstruction in the longer timeframes such as five- and ten-year terms.

(Summary and captions by IRCI)

Lecturer: Hiromu Shimizu (Professor, Kyoto University)

THE SUCCESSORS OF UNESCO WORLD HERITAGE: LIVELIHOODS AGAINST/FOR GLOBALISATION IN THE RICE TERRACES OF IFUGAO IN THE NORTHERN HIGHLAND OF LUZON, PHILIPPINES

Dr Shimizu also talked about the rice terraces of Ifugao in the northern highland of Luzon in the Philippines, which is designated as a UNESCO World Heritage Site in 1995, and the basic livelihood of the Ifugao people. Ifugao is indigenous people in the northern highland of Luzon whose population is approximately 200,000. Ifugao also means the name of state, ethnic group and language. Ifugao also possesses Hudhud chanting, which was proclaimed in 2001 UNESCO's Masterpieces of the Oral and Intangible Heritage of Humanity, and then incorporated in the Representative List of the Intangible Cultural Heritage of Humanity in 2008.

Rice terraces in the Philippines are constructed on extremely steep slopes. In the past twenty or thirty years, some structures were destroyed by landslides, and water shortage caused by the decline of forests has made the irrigation of rice terraces difficult. Threats and concerns identified when the heritage element was placed in the List of World Heritage in Danger in 2001 are now being conscientiously and systematically addressed through efforts extended by the Provincial Government, as well as the concerned national agencies and NGOs.

Local people have also actively engaged themselves in the protection of rice terraces and reforestation programmes, one of which was the case of Hapao village in Hungduan Municipality. Dr Shimizu reported his research on the local community-led reforestation projects in this village, which started in 1997. While maintaining their rice terraces, almost 10% of the villagers (1,850 people in 380 households, three fourth of the village population is women) work abroad. Remittance by workers overseas enabled the community people to hold splendid funerals, and to redeem their rice terraces that were once sold. At the same time, they are also capable of buying the DVDs of Hollywood movies and TVs. The Ifugao people are enjoying the latest technologies of the world, and yet living a traditional lifestyle at the same time.

The Ifugao livelihood and culture as individual/ethnic identity are deeply rooted in the subsistence agriculture and the landscape centred on rice terraces, which are recognised as being inseparable from natural environment. Globalisation, in this context, has been reinforcing the awareness of their roots and identity. Traditional culture is rediscovered, reconfirmed and reinforced, as a tree stretches its branches while extending and strengthening its roots.

(Summary by IRCI)

Date: 11 November 2016
Venue: Tokyo National Research Institute for Cultural Properties (Tokyo)

Lecturer: Isao Hayashi (Associate Professor, National Museum of Ethnology)

DISASTER CULTURE AND THE TRANSMISSION OF INTANGIBLE CULTURAL HERITAGE

Instead of discussing ICH as a subject matter to be safeguarded/protected from disasters, Dr Isao Hayashi introduced an alternative viewpoint to understand culture and ICH in the context of natural disasters, using 'indigenous knowledge' and 'disaster culture' as key concepts.

There has been three major transitions in the field of disaster risk management in the past twenty years. The first is the change in the hazard protection measures: from the hardware-centred disaster management such as the construction of embankments and earthquake-resistant buildings, to the software-oriented management to reduce vulnerability in consideration of differential social factors such as geographical settings, genders, ages, and educations. Along with this change, a concept of 'resilience', a capacity to restore pre-disaster conditions while accepting the impact, has drawn an international attention. The second is the change in the focus from the post-disaster reaction to the pre-disaster risk reduction. The third is the increased emphasis on the community-based disaster risk management, rather than the government- or specialist-led approach.

Indigenous knowledge was once popular in the field of ecological anthropology in the mid-1970s onwards, although there was not much development after that. Since the beginning of 2000s, however, it regained an attention in the field of disaster risk management, in association with international trends related to the sustainable development emphasising environmental issues. There is no clear, basic definition of indigenous knowledge, but it generally refers to the knowledge which a person or a group of people has acquired empirically. It would be more important to understand how indigenous knowledge has been focused or how it has been evaluated, especially in relation to disaster risk management, rather than discussing the definition itself. However, it should be noted that indigenous knowledge is not in dichotomy with scientific knowledge, and that it is always changing.

A good example of indigenous knowledge that raised the attention in the field of disaster management is the case of *Nandong* in Simeulue island, Aceh province, Indonesia. At the time of the Indian Ocean Tsunami in 2004, almost 70,000 people who were living along the coastal area of the island survived while only seven people lost their lives. People of Simeulue island were able to evacuate safely, because they had inherited the traditional epic of *Nandong* recounting the episode of the massive tsunami that devastated the island in 1907, and the knowledge was properly transmitted as part of their daily lives.

'Disaster culture' signifies the culture (both tangible and intangible) associated with the

Active volcano, Mt. Tavurvur, near the town of Rabaul, in New Britain, Papua New Guinea. National Musk Festivals are held annually in Rabaul or Kokopo by the government of PNG, to support the local economy through tourism. (©Isao Hayashi, 2005)

acquisition, accumulation, transmittion and utilisation of the knowledge concerning the disaster. Disaster culture covers a wide range of elements: technical elements such as earthquake-resistant and/or fire-proof building structures and dams to control floodings, disaster-related traditions and associated perceptions of disaster, disaster awareness, disaster management communities and activities, evacuation behaviors and so on. Especially in the field of disaster management studies, disaster culture is perceived as a concept much wider than indigenous knowledge, including scientific knowledge and the knowledge learned through formal systems like school educations, in addition to indigenous knowledge. Disaster researchers may prefer to call it 'disaster management culture', as it is considered practical and useful for the disaster risk reduction and management. In contrast, cultural studies of disaster in general focus on recording the traditions and experiences of the past disasters and how disasters are percieved.

Indigenous knowledge and the disaster culture both caught the attention of disaster researchers from a viewpoint that the culture could save people's lives and livelihoods from the disaster. For example, in Tsuwano, Shimane prefecture, Japan, a canal system drawing water from Tsuwano River has been placed for the purpose of securing water against fire. In the case of Nohbi Plain covering the southern part of Gihu prefecture and the western part of Aichi prefecture in Japan, *waju* (traditional embankments surrounding the village) has been developed to protect the village from floods. Further efforts are also found in these regions, such as constructing residential houses on top of the raised stone foundation, and placing a *mizuya* on the foundation that is built much higher than the residential house to store valuables and foodstuffs, as well as to evacuate when flooded

Women of Kanbara village (Gunma Prefecture) producing rice dumplings known as *migo-dango* to be distributed to the community people. This is a local tradition commemorating a historic eruption of Mt. Asama volcano in 1783, when villagers received *dango* as disaster relief.
(©Isao Hayashi, 2009)

Kuromori-kagura ritual performance held in 2012, to pray for the deceased (Taro, Miyako-City, Iwate Prefecture). Behind the performers is the coastal levee destroyed by tsunami.
(©Takeshi Abe, 2012)

water comes inside the village.

However, it is important to note that there are other significant aspects and functions in indigenous knowledge and the disaster culture. One is to transmit the experiences of the disaster to the future generations, and the other is to heal people's mind. An example of the transmission is a story of a paddle in Papua New Guinea: a person escaped from a tsunami to the mountain with a paddle on his hand about 14 generations ago, and the story has been inherited among the people until today with the paddle itself. In Ofunato, Iwate prefecture, Japan, a theatrical play based on the memories of deceased parents has been created. Such storytelling activities are common in many places in Japan.

An aspect of culture to heal people's mind is associated with those who lost their lives by a disaster and those who were left behind. While government-led memorial services and ceremonies are carried out, it is hard to accept the death of the closest people. Traditional folk performing arts play an important role in this respect. After the Great East Japan Earthquake, for example, *shishi-odori* ritual dances were performed among the scattered rubbles, and the *Kuromori-kagura* were performed and *kagura-nenbutsu* were chanted to mourn for the dead. These examples suggest that culture has an ability to encourage the recovery of the communities and their livelihoods, while culture itself is also the subject to be revivied after a disaster.

Indigenous knowledge and disaster culture are often narrowly focused in the context of pre-disaster preparedness and post-disaster emergency responses. Howerver, when we look at the relationship between the disaster and culture, we can recognise that culture plays important roles in various places in the process of recovery. Culture's link to the disaster may not be recognised in daily life. However, it is significant to recognise the active roles of culture when a disaster strikes, and during the immediate response and the recovery, and promote the transmission of such culture to the future generations.

(Summary and captions by IRCI)

Date: 30 January 2017
Venue: Tokyo National Museum (Tokyo)

Lecturer: Dr Rajib Shaw (Executive Director, IRDR)

SCIENCE TECHNOLOGY AND DISASTER RISK REDUCTION: THE MISSING LINK

Part 1. Science and Technology Gaps

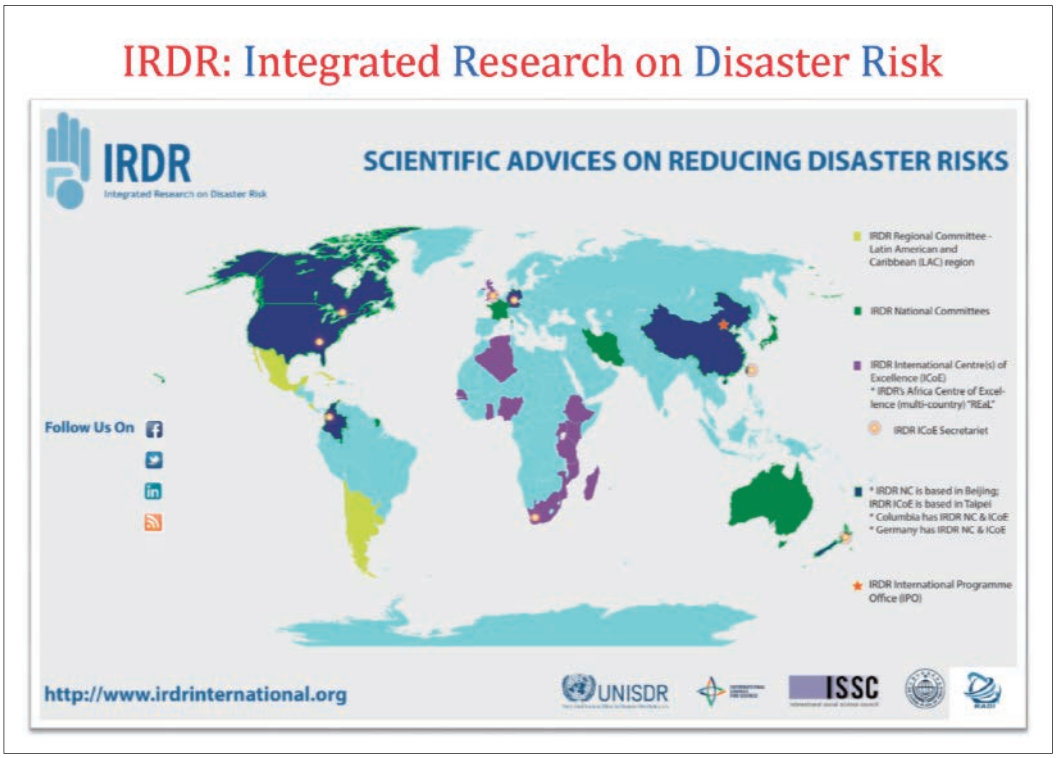
A very good morning to all of you, and my sincere thanks goes to the IRCI for inviting me here. I hope the weather will still be good by the time I end my presentation, so let's see how well behaved we are.

I had a little bit of mixed interest in disaster risk reduction. I started my career as a private consultant at a consulting firm in Tokyo. And then, I worked for the UN for five years before spending 12 years at Kyoto University. Therefore, I have experienced risk reduction from the perspective of the private sector, the United Nations Office, and then the University and then currently, I am leading a research programme, IRDR (Integrated Research on Disaster Risk). I will explain this work a bit later. However, what we usually do is very simple in the field of disaster risk reduction: we don't develop new technologies, but we rather try to see the application of technology through working with people and communities in different countries. We don't try to teach them anything on technology, but instead we seek to learn from them, because there is a huge resource there. We often underestimate the community resources, and that's where, possibly, my main presentation links to the theme of this research programme, which is the intangible cultural heritage. Personally, I am not an expert on cultural heritage. Therefore, my stake in this is more oriented toward disaster risk reduction and my role lies in linking community practices and local knowledge—or what we call 'indigenous knowledge', which is the missing link that I cover in my presentation.

There are two parts to this presentation. The first part concerns the gaps in science, technology and their applications; then, I would like to talk a little bit more on the topic of indigenous knowledge, which has been an area of major interest for me and my research area. Some of my Ph.D. students have conducted research in this particular area for several years, as I will discuss further in the second part of this presentation.

The IRDR Programme has three major components, namely the UNISDR, which is the main body for disaster risk reduction, the International Council of Science (ICSU), and the International Social Science Council (ISSC). These three organisations are essentially the sponsors of this programme, and many of you possibly know that from next year (2018) onward, the International Council of Science and the International Social Science Council will come together and form one unit, which is so important because all too often, disaster risk has been looked at from the natural science perspective.

The ICSU has a very strong natural science component. However, this is possibly the first programme on disaster risk in which natural sciences and the social sciences have come together, which is critically important because no one discipline will be able to solve this problem alone,



and we need this multi-disciplinary linkage. We are hosted by the Chinese Academy of Science, and that's why our office is based in Beijing. However, we actually also have several committees based in other nations. For example, we have a very active national committee in Japan, called *Gakujutsu kaigi*, or the Science Council of Japan, which is directly under the jurisdiction of the Cabinet Office, and the IRDR National Committee is under the Science Council of Japan. Similarly, we have national committees in Australia, Iran, US, Canada and so on. We also have several Centres of Excellence.

The oldest of the thematic Centres of Excellence was established in Taipei. Today, in total, we have around 12 Centres of Excellence, which focus on different types of research on disaster risk reduction. Again, however, one of our key overarching goals is not to develop new research, but rather to provide more science advocacy or science advice for disaster risk reduction. Since I took on this charge last year, we have begun some programmes engaged in developing the National Science Plan in 12 countries. We are working in Bangladesh, in the Philippines, and in Fiji with the University of the South Pacific, and we are working with SOPAC to develop the Regional Science Plan for Disaster Risk Reduction for the Pacific Islands. Today, if possible, I would also like to learn how you look at the element of intangible cultural heritage based on your own experiences.

Many of you are of course aware that 2015 was a very important year that saw the emergence of three major global frameworks: the Sustainable Development Goals (SDG), the Sendai Framework for Disaster Risk Reduction (this was a global framework for disaster that was held in Sendai), and the World Conference for Disaster Reduction. All of these have time frames extending for 15 years from 2015 to 2030. And then of course, we have the Paris Agreement. So, last year, we did some analysis to define the synergy or linkages between these global frameworks.

We wrote a separate paper on that, which is a policy note, the details of which I can share with you if you are interested. It involved simply counting different words, such as 'sustainable development', 'disaster risk' and 'climate change' in these documents. It is interesting that the

Inter-relationship of Global Framework

	SDG (UN 2015b)	SFDRR (UN 2015a)	Paris Agreement (UN 2015c)
Sustainable development		20	16
Disaster risk	12		1
Climate change	20	15	

	SDG	**SFDRR**	**Paris Agreement**
Use of term "LOCAL"	10	48	9
Number of Pages	35	25	32
Context	Authorities, communities, culture, materials and planning (Goal 6, 8, 11 and 13)	Government, community, knowledge, priority, DRR strategy	Communities and knowledge (in terms of Adaptation)

SDG was a 35-page document, the SFDRR was a 25-page document, and the Paris Agreement was a 32-page document, and those terms are mentioned in all these documents. Therefore, there appear to be strong linkages between the SDG and the Sendai Framework, and it is quite clear the issue of disaster risk reduction is very much linked to the development issues. However, while the Paris Agreement concerning climate change was very strongly connected to the issue of sustainable developmentit, it was not that much connected with the disaster risk, which is actually very strange, because in our view, there are also very strong connections between the themes of climate change adaptation and disaster risk reduction. Yet, this linkage is not reflected very much in the Paris Agreement. Another interesting thing is how commonly the word 'local' is used in these documents; you can actually find quite a few mentions of this word, and that's actually very important.

The importance of local action was also clearly recognised in the document that preceded the SDG, which was the Millennium Development Goals and in the earlier document dealing with disaster, which was the Hyogo Framework for Action. However, this term was not used very much in the official documents. What it says is that even at the global level, in these negotiations concerning disaster or sustainable development or climate change, we recognise the importance of local action, and the importance of the local community, culture, material, local knowledge, then local DRR strategy, and local adaptations.

Without focusing on the local issues, it's very difficult to achieve any global target. At least I look at this particular three documents in that way. We have the global targets, and the global framework, but ultimately, the actions happen at the local level, and that's possibly the key reason why we are doing this particular research work to look at the disaster impacts and the relationship between disaster risk reduction and intangible cultural heritage. Therefore, it's really, really a critically important subject that will possibly have numerous connotations in development and disaster risk reduction, as well as in climate change adaptation.

Let me now say a little bit about the evolution of science technology. If we see the evolution of disaster risk reduction, science technology has always been there. Actually, many of you may not be aware that back in 1984, there was a World Conference on Earthquake Engineering; and, at that time, Frank Press, then the US National Science Academy's President, proposed an International Decade of Hazard Reduction, which was brought to the UN General Assembly in 1988 and 1989. It was approved and that's how, in 1990, the first 10-year decade long disaster programme, the International Decade for Natural Disaster Reduction (IDNDR) began in the UN. So, the root was very much located in science technology.

Frank Press mentioned about hazard reduction in his keynote speech at the 8th World Conference on Earthquake Engineering in San Francisco. It is very interesting that back in the 1970s and 1980s, we used to think a great deal about ways to reduce hazards. This, however, has become less relevant now. At that time, the scientists and the technologists used to focus on reducing hazards. However, hazard is something that is natural and very difficult to reduce. Now, we talk about reducing risk. My point is the evolution of the disaster concept has changed from hazard reduction to risk reduction.

Now, we talk more about vulnerability reduction, the root causes in the society. We also talk more on the positive side, in terms of resilience building and how we can enhance resilience. Disaster has been always negative, but there are positive side. Let's look at community strengths, which is where this whole concept of resilience comes from. Over time, in the last 30 years, this concept has evolved quite a bit. However, science and technology's role has been there always.

Very recently, just two years back, after the Sendai Framework in 2015, the UNISDR established the Asia Science Technology and Academia Advisory Group (ASTAG), which began as a small 10-member group. Now we have added two more members to form a 12-member group. I am co-chairing this group with one professor from Beijing in China, and one from Bangladesh, a very famous professor called JRC, Jamilur Reza Choudhury. Everybody in Bangladesh knows of JRC; he is like the godfather of earthquake risk reduction there. I have known him since 1997, which is nearly 20 years now. At the time we met, there was not much awareness about earthquakes in Bangladesh, and he was possibly the only person that was trying to advocate for earthquake risk reduction there. From the Philippines, we have Toni Loyzaga, who was the Executive Director of the Manila Observatory, one of the oldest observatories in the Philippines; now she is the chairperson of the International Board for the Manila Observatory. We have a somewhat diverse group, and our role is again to somehow provide science advocacy at different levels: we advocate for using science in disaster risk reduction at the regional level, at the national level and at the local level also.

After a series of consultations, we have come out with three very specific aspects. One is strengthening science technology in the academic community and making our research more meaningful. Instead of just doing research within the laboratory within the university, how we can try to identify problems in the field and develop customised solutions? Instead of being only interest-driven, how can we develop demand-driven research? The second focus is to support governments in their decision making. We have had a few exercises for that, which is the regional and national mapping of science technology status. I will come back to that later. Lastly, science is not effective unless we collaborate with other stakeholders. It's not just scientists' responsibility, or rather, let me put it in this way; scientists cannot reach the goal unless they collaborate with civil society, the private sector, members of the media and different levels of government. Therefore, how can we create networks linking these different stakeholders? These are the three very specific areas where we are currently working for advancing science and technology in disaster risk reduction.

I listed some bullet points. I won't go into the details of these, but over years of experience and

seeing the various types of the successes and failures of science, I think we have learnt many different issues. We have learnt that we can provide very good technology, but it's of little use if it is not affordable for the local community. I will return to this issue a little bit later. The point is how we can turn a particular technology into an affordable technique that the local community can afford.

Multi-transdisciplinary: No single discipline can solve the problem. I mentioned the need for science to change from being interest-based to demand-based. Yet, there are pros and cons for this idea. People will argue if you always have demand-based research, that's possibly not right because research should be more interest-driven, and that's how you get innovation. However, my argument is we need to have a balanced approach of both: the interest-based research, which brings innovation, but also the demand-based research, which brings application. Both innovation and application are important.

Product and Process: We often talk about different types of technology. While the technology itself is important, the process of developing a particular technology is also very important. And then, finally, research training and action linkage are also quite important.

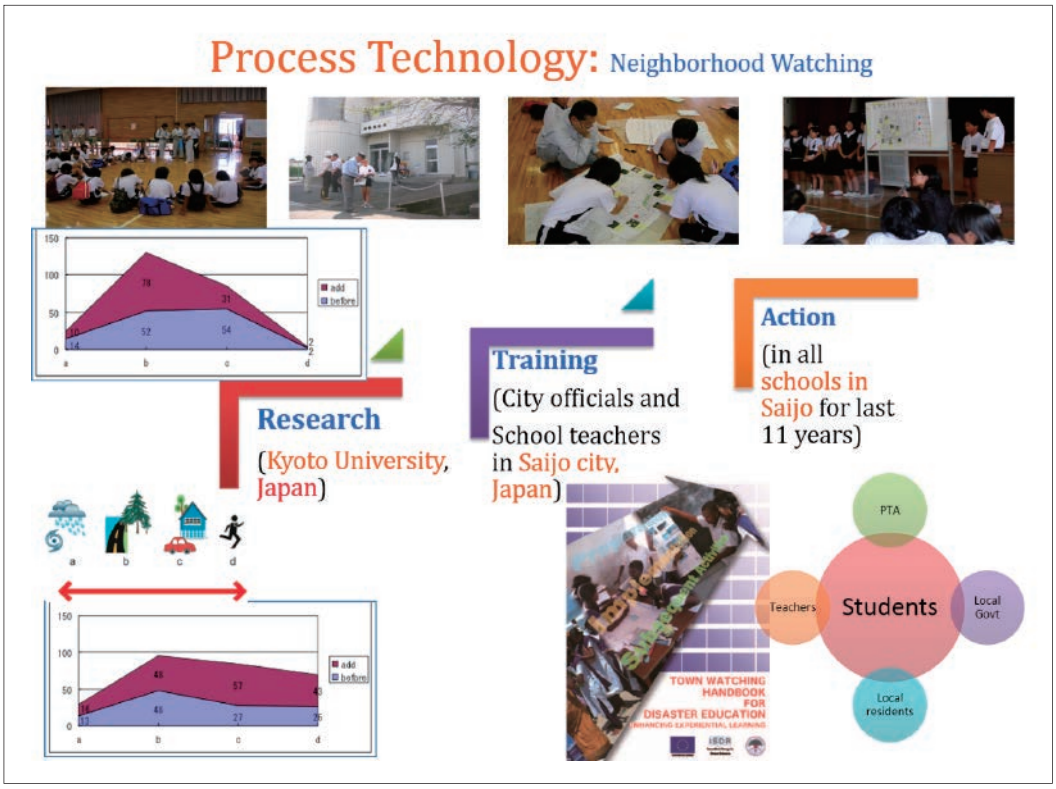
Let me tell you about three different types or categories of technologies that we investigated in a programme at an institute called Earthquake and Disaster Mitigation Research Centre (EDM), to which I was attached through Kyoto University. This was funded by the Ministry of Education in Japan as a 5-year programme under a special coordination fund (*shinkou-chouseihi* in Japanese). In this case, we tried to understand different types of disaster technologies, one of which is called implementation-oriented technology.

For example, we know mangroves play a very important part in reducing the effects of storm surges, cyclones or typhoons, tsunamis and so on along coastal areas. However, the root system of the mangrove differs depending on the species. That's why it is not only the height of the mangrove that matters, but also the width of the mangrove belt, whether it is 50 m, 100 m or 500 m has very strong connotations on how much storm surge it can withstand.

A Japanese institute based in Tsukuba called ICHARM did some pure hydraulic modelling of the relationship between waves and mangrove height and width. In Indonesia, the Coastal Dynamic Research Center tried to customise this model based on the root systems of the mangrove species available in that country. They then provided training on this model to local managers all over Indonesia as a part of the JICA Training Programme. In one city called Padang in Western Sumatra, which had experienced several earthquakes, including a recent one in 2008 or 2009, the inhabitants took up that particular training and started a Community-Based Mangrove Plantation Programme based on the particular width that was prescribed. This is a very classic example of an implementation technology or implementation science, whereby we develop something in the laboratory that is customised based on the local context, and then that result is actually applied in the field in participation with local communities.

I am sure there are plenty of these types of examples in every country. Yet, we often ignore those examples, or possibly do not focus on them or learn from them. Therefore, I am very interested in the second part of what we are doing here today, when I would like to listen to your presentations and try to learn from your own experiences in your respective countries.

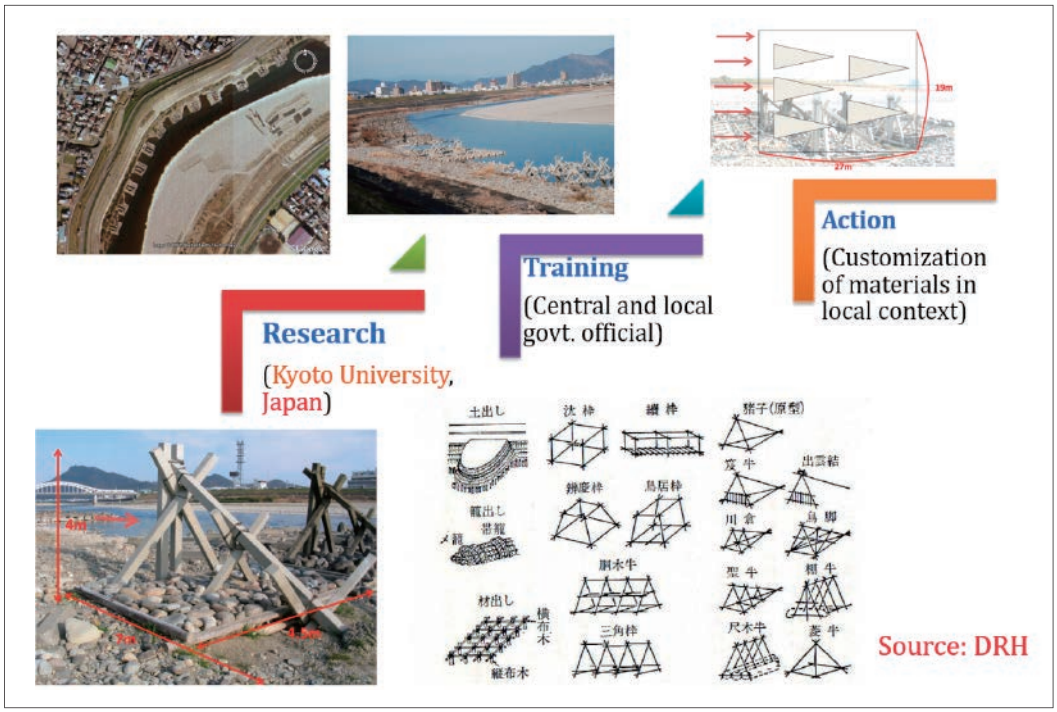
Let me provide another example, which is 'town watching' or 'neighbourhood watching' involving the local community. People think 'oh, that's not the scientists' job; it's a job for the NGO'. This is not academic work, but one thing I did at Kyoto University. With my students, we developed a research methodology to understand the impact of the town watching or neighbourhood watching on the students.



I won't go into all of the details of this project, but we identified four different sets of indicators: one on the hazard; one on the infrastructural impact; one on the impact on the asset; and one on the impact on people. The chart shows the two comparisons that were made: the blue area shows the level of student awareness before the town watching; while the maroon part shows the level after the town watching. You can see after town watching, the students' awareness became very high.

To measure the impact on people is a task for which you actually need to interact with people, and in Japan, we interacted with a group called the *jichikai*, which is the Resident Association and Resident Welfare Association, a local community group much like the *Barangay* or *Barangay* Captain in the Philippines, or the *Upazila* in Bangladesh, which likewise comprises village or local community leaders. In the urban areas, there are many different associations, such as the resident welfare association, so each particular school's 'before and after' was quite different. We developed a methodology, which we applied in training with the city officials and the school teachers in a city called Saijo in Ehime Prefecture, a small city that had been hit by a major typhoon. Now, all of the schools in Saijo have been practising town watching over the last several years. Again, we see an interesting linkage between research, training and action.

The final example concerns indigenous knowledge. I will come back to this issue of transferable indigenous knowledge a little bit later, but for now, many of you know in places where a river that is meandering or bending, it is very prone to erosion. Because there are very strong waves, small blocks are positioned to prevent river bank erosion. There are many different types of structures to protect river bank erosion, which have been evolved over time. In Ibigawa in Central Japan, between Nagoya and Kyoto, these structures were previously mainly made of wood. The wood, however, was very difficult to maintain, so they now utilise concrete structures. Certain measurements were made by hydraulic engineers to see how much force the structures can actually withstand based on width, height and length parameters. This is not a very difficult



technology, but rather something that has been used in many countries, even by villagers.

Similar technologies have been used in Bangladesh, where river bank erosion is a major problem with the famous Bandar River. We had a 3-year project there with JICA, and we saw unbelievable levels of river bank erosion. Here in Japan, the rivers are somewhat shorter and narrower than the Bandar. So, the context is different, but the methodology or the technology is the same. JICA provides this type of training, and we actually personally took several of the participants from among both the central and local government officials to the field area and tried to customise the structures based on the available materials. This customisation is what we call the 'transferrable issue'. I will come back to this issue a little bit later, but the point is these types of technologies.

These are the three examples to make research more meaningful: making research, linking it to training, and then to a very specific action through that training.

A second part of our current activities is national and regional mapping. We have conducted this mapping exercise in 11 countries, but I will describe the example of the work we did in Japan.

After some discussion, we tried to come out with a range of different indicators for three major categories, one of which is science, technology and decision making. Other categories are investment in science and technology, and the link of science technology to people. In total, there are 21 indicators based on a very simple qualitative to semi-quantitative evaluation of the status of that particular country on a scale ranging from 1 (lowest) to 5 (highest). In Japan, we worked with the Science Council of Japan, and a committee on disaster risk reduction approved our rating. We also did this exercise in the Philippines and in Bangladesh, along with several other countries. The table shows the normalised science and technology attribution scores from all 11 countries where we made the analyses.

I need to emphasise this is not a beauty contest I am talking about. But you can see that while China does very well in the areas of decision making and investment in science and technology,

	Attributes of Science and Technology to DRR	Bangladesh	China	India	Indonesia	Iran	Japan	Malaysia	Myanmar	Pakistan	Philippines	Vietnam
1	**Science and Technology in decision making (normalized score out of 100)**	**45**	**90**	**70**	**68**	**63**	**85**	**70**	**48**	**50**	**53**	**53**
1.1	Presence of Science and Technology advisory group to Disaster Risk Reduction (DRR) nodal ministry and/or related ministries	2	5	4	3	2	4	4	2	2	3	2
1.2	Presence of Science and Technology group in DRR national platform	2	5	3	4	3	4	4	2	3	3	1
1.3	Existence of inter-ministerial discussion/dialogue on science related issues	1	4	2	3	2	3	4	3	2	2	2
1.4	Implementation of risk, needs and damage assessment with involvement of Science and Technology group	2	4	4	3	3	5	2	1	2	3	2
1.5	Existence of Early Warning system and mechanism with Science and Technology knowledge and tools	3	5	5	4	4	4	4	4	3	4	3
1.6	Availability of disaster data/statistics on damage and impacts and its data collection mechanism	3	4	3	3	2	4	2	2	3	2	4
1.7	Involvement of Science and Technology group in infrastructure design	3	5	3	3	4	5	4	3	2	1	3
1.8	Scientific revision/ updating of regulations, policies and guideline for DRR including building code, disaster response and preparedness plan etc.	2	4	4	4	5	5	4	2	3	3	4
2	**Investment in Science and Technology (normalized score out of 100)**	**33**	**87**	**53**	**77**	**60**	**73**	**70**	**40**	**47**	**40**	**60**
2.1	Existence of grant support by the national government to researchers in disaster related topics that focus on Science and Technology	1	5	3	5	2	4	4	1	3	3	3
2.2	Establishment of disaster related courses in higher-education	3	5	3	4	5	3	4	2	2	2	2
2.3	Presence of national research institute and organization for disasters	3	5	3	4	4	4	3	2	2	1	4
2.4	Investment/support by the national government in national/international conferences and events on disasters for knowledge sharing	1	5	3	3	3	4	4	3	2	3	4
2.5	Support to collaboration with academia and the private sector for developing innovative technical solutions	1	3	2	3	2	4	3	1	2	1	2
2.6	Support to collaboration with academia and civil society for developing innovative social solutions	1	3	2	4	2	3	3	3	3	2	3
3	**Link of Science and Technology to people (normalized score out of 100)**	**34**	**57**	**57**	**69**	**51**	**69**	**51**	**40**	**40**	**43**	**37**
3.1	Availability of a hazard map to people, developed based on scientific knowledge	1	3	3	2	1	4	2	1	2	3	2
3.2	Scientific validation of indigenous knowledge	1	2	1	2	1	2	1	1	1	1	2
3.3	Involvement of Science and Technology group in developing program for evacuation drills	2	3	2	4	4	4	2	2	2	3	1
3.4	Availability and participation of Science and Technology group in community discussion as facilitator or advisor/commentator	2	1	3	4	3	3	3	2	2	2	3
3.5	Dissemination of science based early warning and forecast to people	3	3	5	5	3	4	3	3	3	3	2
3.6	Involvement of Science and Technology group in developing disaster related education curriculum	2	4	4	4	4	3	4	2	2	2	1
3.7	Existence of facilities such as museum and events such as expo to disseminate disaster knowledge and deepen understanding on disasters among citizens	1	4	2	3	2	4	3	3	2	1	2
Normalized Science Technology Atribution Score (out of 100)		**38**	**78**	**60**	**71**	**58**	**76**	**64**	**43**	**46**	**45**	**50**

when you look at the linking of science and technology to people, the score goes down to 57. Similarly, in many of the other countries, while you will see that decision making and investment are at very high levels, the actual link to the people is very, very low.

Indonesia received the highest normalised score for linking science and technology to people, and there is a reason that. After the Indian Ocean tsunami of 2004, the Disaster Management Act or Disaster Management Law was passed in Indonesia in 2006 or 2007, and it requires that for every local government, even the lowest level of local government has to have one person in charge of disaster risk reduction, and that person must be closely linked to the local community's activity. His/her role in the local community is not just to oversee disaster risk reduction, but also to link with local cultural festivals and other community activities. We need to do a more detailed survey; however, that is my understanding of why Indonesia scored relatively well in the science technology to people part.

Therefore, my main point here is that in this part, there are many different indicators such as hazard maps, the validation of indigenous knowledge, and the dissemination of science-based early warnings and forecasts to the people, among others. There are many important indicators, which needs lots of not just a scientist involvement, but science-people linkage or linkage between science and local community leaders, and that part is still lacking in most of the countries. We need more work on that, and that again highlights the importance of this particular research programme: why we need to focus on intangible cultural heritage, why we need to see the positive sides of the community, the strengths of the community, and how we can properly utilise that. It won't be changed overnight; it takes a great deal of money, investment and infrastructure. This top part will need more time, but through more interactions to identify community strengths, we can possibly work more closely on that.

1st ASTCDRR: Bangkok 2016

Priority 1 Understanding risk	Priority 2 Risk governance	Priority 3 Investment	Priority 4 Preparedness to respond
Action 1 Enhance disaster loss and damage accounting, national and local disaster risk assessment and communication of disaster risk	Action 4 Strengthen science-policy-practice nexus at all levels	Action 7 Make DRR an area of focus within education including networking between universities	Action 10 Promote the role of inter-disciplinary science and technology in effective pre-disaster planning, preparedness, response, rehabilitation, recovery and reconstruction to build back better
Action 2 Use space and disaster risk mapping technologies and strengthen the capacity	Action 5 Develop inter-disciplinary national science and technology plans to support implementation of the Sendai Framework	Action 8 Ensure risk-sensitive investments	Action 11 Develop an efficient and effective cooperation among the science community and business sector by utilizing the advancements of the fast developing information and communication technology (ICT) including big data
Action 3 Strengthen regional exchange on disaster risk information and science	Action 6 Enhance collaboration between local governments, academia and other partners to promote local communities knowledge and traditions and to sustain and replicate many good practices that exist locally for science-based decision making	Action 9 Develop young professionals in the field of multi-disciplinary disaster risk reduction	Action 12 Research into innovative solutions to promote the whole-of-society engagement

In August 2016, we had the first Asia Science Technology Conference in Bangkok, which was organised by the Government of Thailand. The theme of the conference was to determine the key actions for the enhancement of science to address the four priority areas of the Sendai Framework. We discussed 12 very specific actions that needed to be done in Asia for the advancement of science and technology, and one of the very important actions is very much related to this particular research, which is the enhanced collaboration between local governments, academics, and other partners to promote local community knowledge and traditions to sustain and replicate many good local practices for science-based decision making. It's very interesting that these goals supplement my earlier slide very strongly, whereby we saw there is a huge gap in most of the countries, in science's links to the people.

We held a Regional Disaster Forum also at the Asia Ministerial Meeting, which was hosted by the Government of India and held in Delhi in November. The discussions from the science group actually went into the ministerial meeting, and these 12 actions are now officially part of the Ministerial Declaration Annex for the science and technology stakeholders group.

My point of telling this is that we have a strong regional advocacy platform for science and technology, how we can bring science and technology into decision making. And then, the national mapping, which demonstrated the current status that exists for all these 11 countries plus the Pacific. For these countries, we are trying to promote the development of the National Science Technology Plan for the implementation of the Sendai Framework, and for the Pacific, it is the Regional Science Technology Plan. So, this is the current work that we are doing, and my point of telling you all these things is to show the linkage that what the current project is trying to achieve fits very well with the regional priorities in Asia and the Pacific, and the gaps we saw in some of the very specific countries, especially the science-people linkage.

This was Part 1, and let me continue a little bit for Part 2, and then at the end, we will have an interaction session.

Part 2. Local and Indigenous Knowledge and Disaster Risk Reduction

Part 2 deals with the topic of local and indigenous knowledge in more detail. This is the work that we have been doing from about 2007 onwards. We published a book on this issue called *Indigenous Knowledge and Disaster Risk Reduction*, as well as a policy document with UNISDR called *Indigenous Knowledge for Disaster Risk Reduction,* which is a compilation of best practices, and this one is a policy note (*Indigenous Knowledge: Disaster Risk Reduction Policy Note*).

We have conferred on this very interesting concept of indigenous knowledge, asking what is indigenous knowledge, and how do we approach it? We had several gatherings and workshops, and we came up with this idea of 'nutrition guide versus cookbook or recipe'. Nutrition guide is something that tells you at which age you need a certain type of nutrition and how much nutrition you need, especially when you talk about the child's growth. However, from which ingredients the nutrition comes, how you take that nutrition through which food; whether it is a Filipino dish or a Pacific or Fijian dish or a Bangladeshi fish curry or a steak in Australia? It all depends on the local context, and this is an underlying principle of transferable indigenous knowledge.

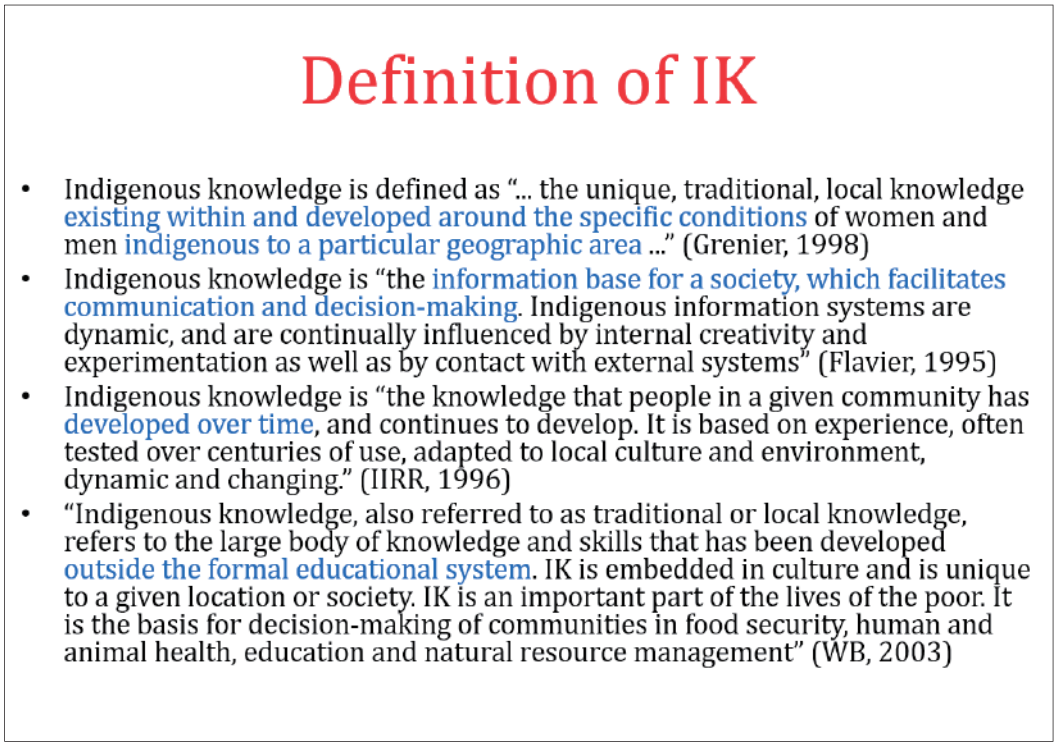
Therefore, what we are talking about here is something on the level of a nutritional guide that defines the basic principles behind different types of local knowledge. However, in determining how the knowledge is practised in different contexts, even in one country, there are many different connotations based on the locational issueand the local hazards. In the Philippines, what applies in the north versus what applies in Mindanao — will be totally different based on the local climatic conditions. These are possibly the cookbooks or recipes that already exist at the local level. So our possible target is to look at those recipes, try to analyse them and try to find some commonalities. They are very case-specific, but there are some commonalities possibly, the basic principles that can be shared widely with other regions or countries.

Time-space sharing is very important, especially with the next generation, and we need to understand that our lifestyle is changing. We are entering into a different age: the information age. Information technology — which did not even exist 50 or 100 years back — has become very relevant these days. Now, even in the most remote parts of most countries, everybody has a mobile phone. Therefore, nobody looks for the normal landline anymore. There are many different new technologies emerging. How, therefore, can we link traditional, local knowledge with the advancements of technology, and bring it to the next generation? I think that's a very important issue. Therefore, we need to look at the cookbook to understand the local recipes and try to filter up certain basic principles to bring them into the nutritional guide. This is my understanding of the indigenous knowledge. I might be totally wrong. However, for the last 50-plus years, if you see, these have been very relevant for the disaster risk reduction, in that there has been a very strong emphasis on the modern technology in disaster risk reduction.

We have been focusing on issues such as early warning systems and risk assessments, in many countries. We have been focusing on strengthening the buildings and the earthquake technologies, and so on. There has been a great deal of emphasis on modern technology, which is very good. However, then, we found that modern technology has applied only 0.1%, or depending on the country, possibly 0.01% of the building stock available. Therefore, there remains 99+% of building stock that needs different types of input.

In the case of an earthquake, there are many ways of retrofitting mud buildings or retrofitting stone constructions, and the principles will be different for a concrete building. Our basic principle of retrofitting is the building should not collapse because it is a big investment. There can be cracks but the building should not collapse. You know, however, you cannot really protect a mud building or a stone building because it will collapse anyway. You can't use a steel band to reinforce the mud building. So, the building will collapse, but how we can have some time so that people can get out, so that there are no casualties when the building collapses? So the principles are totally different. When we retrofit the traditional mud or stone construction, we try to make different types of bands, joining these two walls together (the walls are sometimes very thick) to make a proper linkage between the outer wall and inner wall.

Again, affordability is a very important issue. You can make a very good design and some very good models based on your experiment at the university, but whether the people who are living there can afford it. With many different statistical data, we came to the conclusion that if the retrofitting cost is more than 7% of the construction cost, then it is not affordable for the lower middle income group or the lower income group. Therefore, the cost has to be below 7%. But of course, as you reduce the amount of the investment, the safety level is also reduced. It's a balance between cost and safety. What are the critical positions where we need the proper safety issues or safety elements? This is where refocusing on indigenous knowledge becomes very important, because we need to really understand the dynamics of each particular local material and the local building technology. That's what we have really tried to focus on from the 1980s onward. Some hard-core civil engineers or earthquake engineers, such as in Japan at my Kyoto University have thought that only earthquake engineering can solve the problem, but all their strength or pride was devastated by the 1995 Kobe earthquake, when we saw a major problem, in spite of all the different technologies. The major casualties were associated with old wooden houses and buildings, in which fire incidences were a major issue, and most of those who died were elderly people. This is more of a social issue, rather than only a matter of earthquake engineering. And that's how, again, the disciplinary linkage focusing on the indigenous knowledge becomes very important.



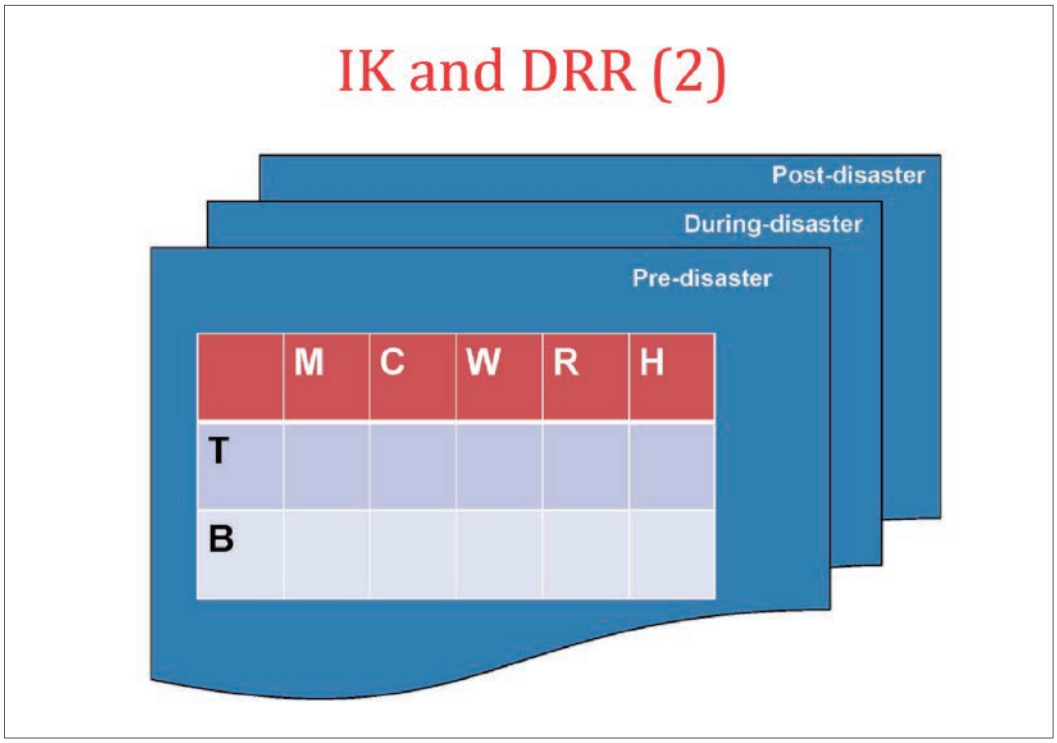
The science agenda of 1999 emphasises the cooperation between the holders of traditional knowledge and scientists to explore the relationship between different knowledge systems, which is very important. I do not underestimate the importance of modern technology, but the interaction of these two types of knowledge can be a very good collaboration.

There are many different definitions of indigenous knowledge. UNESCO has been the pioneer in bringing this indigenous knowledge issue to the global platform through different types of global agendas. And now, whether it is the World Bank, UNESCO or some other institution, they see indigenous knowledge in different aspects. I've just put a few definitions here, from the World Bank, the IIRR and a few others. I won't go into the details but I think that we can define a few thing. Of course it's indigenous to a specific area and community, which relates again to the idea of local recipes, and it's very, very local. It's very much within that particular community; it is very culture and context-specific. It is non-formal knowledge, and it is mostly orally transmitted over generations. There is a very strong time issue that indigenous knowledge was developed by the people there, and it has changed over time through the trial-error method. If it is related to disasters, different types of disaster issues bring new findings; something failed, so how we learn from the disaster, and then bringing back? There are many different ways of looking at these issues, survival and subsistence, and there are dynamic evolution.

In our book on the indigenous knowledge, we tried to categorize it. There are many different ways of categorising indigenous knowledge and disaster risk reduction (DRR). Especially for indigenous knowledge in DRR, we tried to look at indigenous knowledge in river basin system, mountain regions, plains regions and coastal regions. For example, as I have mentioned, the common building technology in the mountain regions is stone construction; stone masonry is very common in most of the areas because of the availability of the local material. Nowadays, building in stone has become much more costly. In the past, people would use larger stones, but now, bigger stones have become very difficult to obtain, which makes them more costly. There were very specialised masons who used to do that type of bigger stone construction. But they are not available now, so people use the rubble, or very small stones, and this transition from stone masonry to rubble masonry has made constructions very weak and vulnerable to earthquakes. There are many different stones here with a wall thickness of around 50 cm to 60 cm. Because of the weather conditions, most of the stone constructions in the mountain regions used to have very thick walls to protect people from both cold and hot weather. The technology that existed for the earlier larger stone masonry is no longer valid for this rubble masonry, but there are certain basic principles that remain valid, like how to stitch these two walls together.

In the river basins in Bangladesh, especially along the major rivers, there are *chars,* which are formed by the sediments carried and deposited by the rivers. When those islands have been stable for over four to five years, people start living there. So they are virtually living within a river. But there are benefits to this in that the soils are very fertile, so they can have very good agriculture, and they can have lots of fish. It is good for their livelihood, but every year for about two months, they have to face the flooding water, which rises very slowly and also recedes very slowly. So the upliftment of the buildings in the *char* area is very common. We have similar thing in Japan, which is well-known *mizuya* raised houses that are built on foundations that are about 80 cm or 1 m higher. In the old days, the whole neighbourhood used to come to have a shelter in this type of *mizuya*. Similarly, in Thailand, people living along the Chao Phraya River are using a type of stilt to make their buildings a little bit higher. So there are many different types of technologies in the floodplain areas. Concerning the coastal areas, I already talked about the role of the mangroves and so on.

We have classified indigenous knowledge like this (M for 'mountain', C for 'coastal', W for 'water', R for 'river', and H for 'housing'). There are many different ways of defining the technology, and we tried to see this as a hard-core technology. But also we need to understand that there is the



belief system, which may not be reflected physically, but possibly exists in the local community, and there are certain scientific validations. When we were working in the southern part of Viet Nam, local people told that if the dragonflies fly high, then there will be rain in the next day, but if they fly low, then there will be longer period of drought. I am sure that in Africa, there are also many different types of well-documented indigenous knowledge such as if a certain type of bird puts its nest on the higher part of a tree, then there will be rain, but if it is built closer to the ground, then there will likely be drought. So there are these belief systems, which possibly have some correlation with a certain level of technical and scientific validation.

However, there are also belief systems that are just linked to the local religion, cultural practices and so on, which may not be scientifically validated every time, but that's how people believe. How we try to understand that, and how we try to look at the positive side of it and utilising it in DRR will be very important, and this is very relevant to your current project about intangible cultural heritage.

We also tried to categorise this as pre-disaster, during disaster and post-disaster. For example, the Moken communities, sea gypsies in Southern Thailand, have been told that, if you look the water recedes, instantly move to higher ground as a big wave may come later. That's how it happened for the 2004 Indian Ocean tsunami, and how it is transmitted is through the folk songs in the local community in the local language. Nobody documented this one; the old people just sing it to the next generation, and that's how it is all transmitted. Some of the indigenous knowledge or belief systems have scientific validation and some of them do not. So we tried to somehow categorise them. When you talk about intangible cultural heritage, a certain level of categorisation will be very important. Try to see that there are many different ways of categorisation, and depending on your identification of the types of intangible cultural heritage, you can possibly have your own type of categorisation.

Transferable indigenous knowledge is a traditional art of disaster reduction that is indigenous to a specific region, have a time-tested reliability, but also has the potential to be applied to other

regions. Again, going back to the cookbook or the nutritional guide analogy: the knowledge has been tested in one place, but it can also be applied to other areas. To understand the transferability, we need to understand what to transfer, who transfer it to whom, and how to transfer. I will give you a few examples to see how we can understand such indigenous knowledge, and how we can look at the transferability issue.

This is an example from Gujarat in the western part of India. In 2001, there was a major earthquake in this particular area, and almost 14,000 people lost their lives. In this area, the highest temperature I have experienced in the field was 49 degrees, and it's so difficult to stand outside in the sun for 10 minutes. I remember I had a Japanese colleague who was taking a video while we were talking to the community, and the video became so hot as if it would melt. So it's a very high, very strong heat in the peak of summer. In the winter, the temperature can be as low as around 2 or 3 degrees at night. There is a variation of around 40-plus degrees from winter to summer, and to withstand that variation, the people use very thick walls and thick roofs. Both of them are equally dangerous in the earthquake, and major casualties have occurred when a whole building collapsed and the people could not get out. As I mentioned earlier, the basic principle of stone masonry or rubble masonry is how the buildings can withstand the shaking a little bit longer, so that people can evacuate.

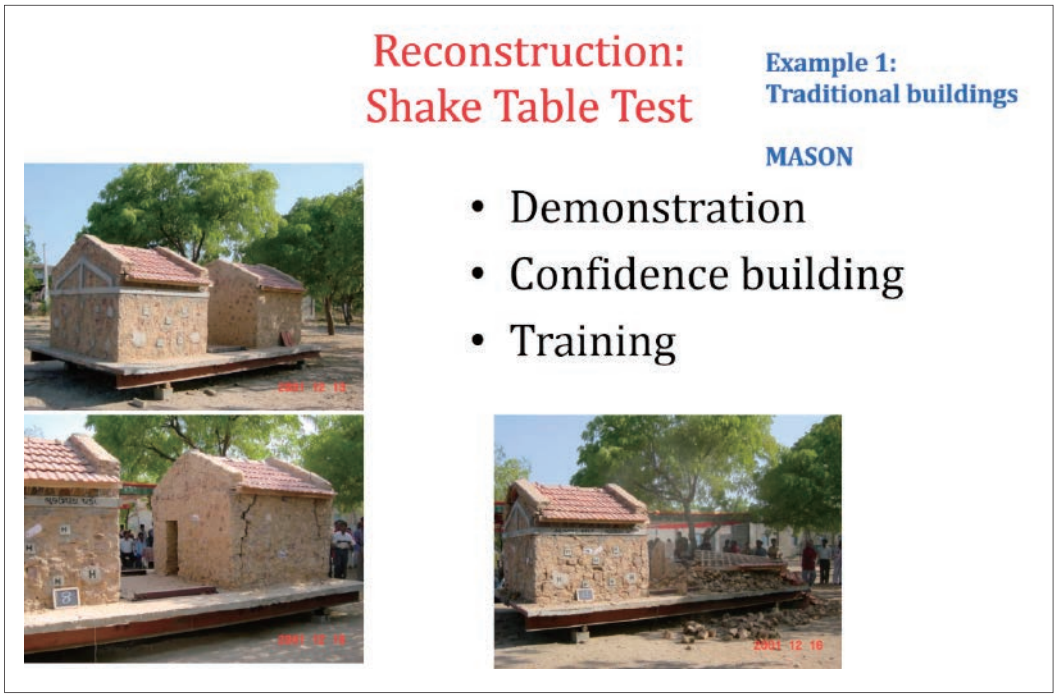
Because these are very simple structures, just one-storey buildings, and there is open ground in front of the inner courtyards of most of the houses, you are safe once you get out. But the building should not collapse instantly; it should shake a little bit before collapsing. That is a very basic principle. We had certain discussion initially with the local communities and the local masons who actually do this type of building. These local masons are all trained by their parents, so the whole technology is handed over from generation to generation. Then we found this type of belt to reinforce the wall. As I mentioned earlier, a single stone is now very expensive, so people put rubble in between only a few large stones. A few larger stones, or the 'true' stones, is very important, so these two points came out very strongly in our discussions with the local masons. They told us they knew the technology, but asked how they could use it in an affordable way.

So with our colleagues in India and Japan, we thought that we should have some acceptable demonstration to show the importance of this principle, because the common people would say, 'No, no, no, this building will collapse. If we had concrete buildings, it would have been better, so in the reconstruction, we need concrete buildings'. This is totally wrong because concrete buildings cannot withstand midsummer temperatures of 48 to 49 degrees Celsius.

So we made this half-sized model building with certain technological interventions, and then we had a seismograph brought there. We had a tractor actually hit the building to demonstrate how much of shock it absorbed. This was very easy to understand. We used to tell them, 'okay, this is about 70%; you have felt particular shaking; so think about that shaking is continuing longer time or less time', and something like this, to add a certain level of interpretation.

We had the top-level policy maker, then the researchers from Japan, the house owners and the local masons, and interactions with them were very important. My point is that the technology exists, which needs a little bit of refinement to have that particular principles that it should not kill people, it should give a little more time before collapsing. But to build confidence in the local community, we need to have different types of change agents. One of the best change agents were the local masons to whom we gave training, and through them disseminate this technology to the outside.

Another example is the town watching programme in the school in Saijo, Japan. In 2004, a major typhoon hit this small city of around 10,000 people. It has mountains, plains and coastal areas

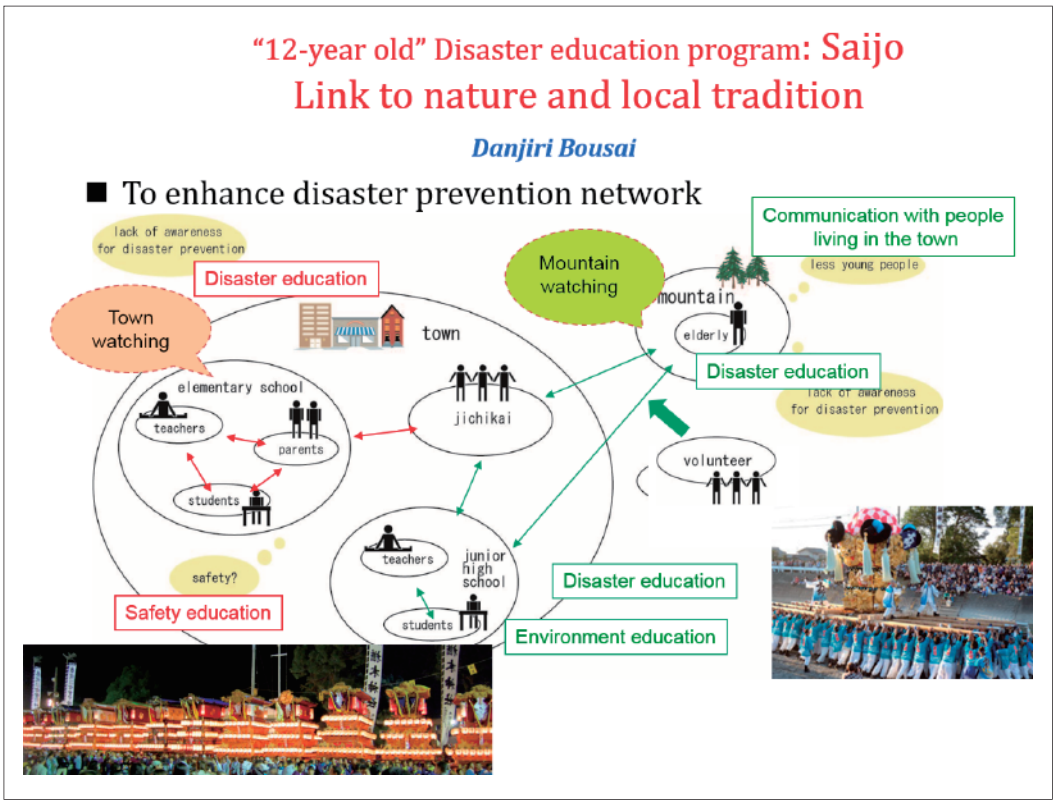


and there were two days of continuous rainfall that caused lots of landslides and inundations, so, there was quite a bit of damage. What we did there is, we tried to do this town watching and the mountain watching. Some of the students will look at the mountains, and try to identify the key issues there.

Deforestation is a major problem in Japan. In developing countries, we cut trees; in Japan, not cutting trees is a problem because ultimately, trees are living objects. All these trees were planted after World War II in a National Plantation Program, and the trees were planted very closely together, which was fine when the trees were small, but then they become very tall and heavy, so there is no percolation of sunlight inside the forest. Many of the community members told me that you actually need a torchlight to enter into the forest even in the daytime because it is so dark. This has a very strong impact on the soil conditions, because the trees will bend in strong winds, and the whole soil is washed when there is a heavy rain. This is a major issue, so these volunteers actually does lots of work on the forest-related activities.

The *jichikai*, which is the local resident association or community group, gave lots of advice to the teachers, parents and students, so it was a collective watching. We did this several times, and then we had *'danjiri-bousai'*, which is a very strange word in Japanese. A *danjiri* is a festival, using some sort of small chariot owned by each community. People really value it, and the Mayor of the city explained that people might be reluctant to give monthly fees of 500 yen for the *jichikaihi*, but for this *danjiri*, they will donate 50,000 yen or even 100,000 yen without a problem; it's a pride for them. Every year, for three days of October 15–17, they bring in all these *danjiri* from different communities to hold a festival. The whole city is closed, and you will see people at the festival drinking. People drink the whole night and enjoy themselves. I personally went there several times, and then I decided better stay away. It's a very lively festival, and the community bonding is extremely important.

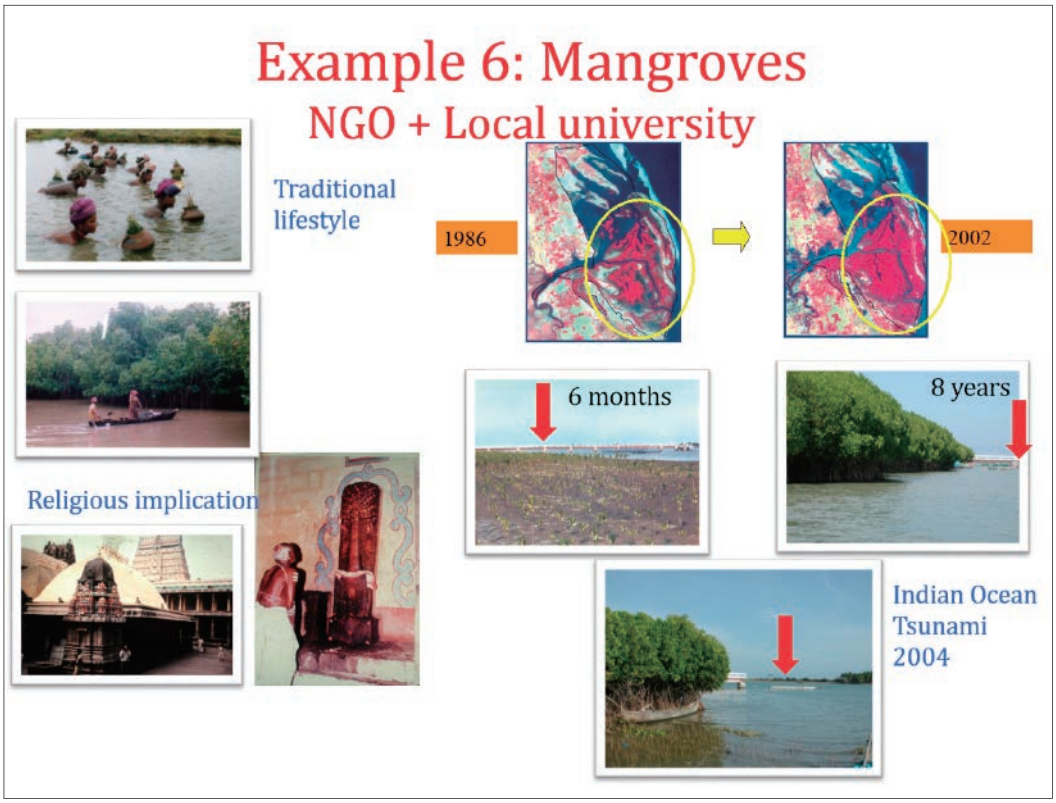
So, the mayor came up with the idea that we should have the DRR concept somehow injected in this type of festival, and so he started this *danjiri-bousai*. The children who did this town watching and mountain watching gave presentations in front of this *danjiri* of course, during the daytime, while people were still awake. In the evening, you can't make any presentation as half of the people are drunk. But in the daytime, when people are still fresh or maybe a little bit of



hangover, then they listen to the students and performance, drama and other activities. The point here is that this *danjiri* is a very local festival, which has been rooted in communities for centuries, and people really value this community festival. This is how we injected different types of risk reduction measures by utilizing this local festival.

2004 was the year of the disaster, and I went there for the three years of 2005, 2006 and 2007. The interesting thing is that now I don't do anything and I hardly go to the city anymore, but the disaster festival there has continued over the last 10 years. My point of presenting this example is that if we can really understand the local festival or local culture or local tradition as intangible cultural heritage, then that will be our real entry point for disaster risk reduction. Every city, every location, every community has its own way of doing things.

Here is another example of indigenous knowledge and information communication technology (ICT) that we implemented in the southern part of India to provide a warning system to the fishermen. These fishermen have been in the area for generations. They are very sensitive to the temperature of the sea. Before a typhoon, they understand that the top part of the sea wave becomes a little warmer, and that the warm wave or that particular layer, maybe 30 to 40 cm of that water, brings a very specific type of fish. They have been doing this for a long time, but the negative part is that to catch that fish, they actually enter further into the sea near the cyclone area. So the challenge was that we couldn't stop them from fishing there, because that was their livelihood and they need to do it. Then how can we link them to a proper warning system up to where they can go, and when they should return?



This was done through one company called BREW application, along with a few research institutes and universities. They measured the sea temperature and the cyclonic pressure and created a simulation. Now, even the fishermen have smartphones, and there is a smartphone application that actually helps them determine the optimal time to go back. I don't say that this solves each and every problem. You know people, we are all greedy, so we go, catching more fish and going further. There are still some casualties, but I think the casualties have been lowered quite a bit. This is another example of scientific knowledge and the local belief system. By trying to link it with the modern technology, at least we can change and save people's lives.

Another example from Japan is a very traditional water governance scheme in a well-known area called Gujo Hachiman, which is a UNESCO Heritage Site. This whole city was actually burnt down in a major fire 400 years back. The city was rebuilt with all wooden buildings, and there are many different types of water structures in the city. There is a small river there, and there are also some middle sized canals filled with water. In front of every house there is a water canal, and there is a wooden board. You can put that board to accumulate the water for you to use. There is also a point structure where you can use different types of water; these are step-wise water points, the top one is for the drinking water, this one is for washing the vegetables or other food, this is for washing the utensils and tableware, and this is for other uses.

What is very interesting about these water systems is nowhere is it written that this water is for this particular purpose. This is a very traditional water governance system that has existed in the local community over many years. We tried to document and sketch it, but nowhere in the city is it written in that way. Rather, it is rooted in the people's beliefs and their behaviour, and we got to understand it by observing it and interviewing some of the people. We did some research on the water governance and tried to see how the people and the water link have been in place over the years, how it has evolved over time, and how different types of governance systems actually affect the water usage. This is a very traditional way of looking at local communities'

behaviour; but it has a very strong governance structure.

I talked about mangroves in an earlier example. This is another example about mangroves in the southern part of India. This is a remote sensing image of the Pichavaram mangrove in the state of Tamil Nadu, which was hit by a tsunami in 2004. From 1986 to 2002, there were some plantation exercises. There are many villages where people do lots of traditional fishing; they do hand picking from the mud and spend about seven to eight hours of a day in this water. There are also different types of non-timber products from the mangrove, which has some religious implications. This is a very famous South Indian temple where the mangrove is depicted in a painting and people actually worship it. There is a very strong cultural and religious attachment to the mangrove, but it is also related to their lifestyle.

A local NGO and a local university started this mangrove plantation project. The slide shows the progress of the project after six months and eight years. The bridge there broke down during the 2004 tsunami. However, the people who were living on the other side of this mangrove forest were all protected. I remember a professor at this local university, whom I respect a great deal, told me that when he visited this particular village two to three days after the tsunami, many people came to him. In the Indian tradition, they touch people's feet, just to have blessings, so the people touched his feet and told him 'You saved our lives. At the beginning, we didn't understand, but we worked with you for the last eight years planting these mangroves, and that's how we were protected.' Then, the professor told me 'I got my Nobel Prize. I don't need any other Nobel Prize because my main target was to bring science or to give a benefit of science to people', and this is a classic example.

So there are local traditions and local cultures. But possibly, we need some sort of external trigger. In this case, the trigger was this local university and the local NGO, who worked with the local community to bring all these traditional values together. Again, it's a classic example of having a very strong local cultural asset that has been transferred to a biological asset and that actually saved people's lives. There are many, many other examples of this intangible heritage.

One important thing in intangible heritage is how we can make it tangible in different forms. Tangible doesn't necessarily mean we have to build something, but tangible in policy, tangible in practice, tangible in the belief system, or tangible in the education; there are so many different ways of making this intangible cultural heritage tangible. These are my reflections that ICH or the indigenous knowledge is rooted in local systems, governance, values, cultures, food habits, festivals, and so on. It's very important to recognise that ICH or indigenous knowledge plays an important role before, during, and after disasters to reduce the disaster impact, and there is plenty of evidence for this.

So, it would be good to look at this issue in a more systematic way how it has reduced different types of impact. Depending on the nature of the hazard — be it an earthquake, a volcano, a tsunami or some climate-related disaster like a typhoon, a cyclone, a flood or a drought, the approaches are different. It often goes unnoticed, and not reflected in local or national government priorities. That's why I would say that making intangible cultural heritage tangible is very important.

How we can notice it? How we can reflect it? How we can make it into the local and national governments? I think that's very important, and that's my expectation for Nojima-san and the team — that during these three years of experience on this particular project, you will at least make certain changes, at least to link ICH to the local government or certain level of national policy priorities, through policy advocacy, documenting, analysing and validating. It is very important, and this first year is possibly to try to understand these issues from different places and perspectives.

Specific change agents or advocates are also required. In the example I gave from Gujarat, it was a mason, and in Saijo in Japan, we had the school teachers, the local volunteers, the *jichikai* or the local resident association leader, and the *danjiri matsuri*, which is a festival where the role of these local leaders became very important. For the fishermen case in southern India, the local ICT company was very important. And for the last mangrove example, it was the NGO and the university who became the change agents. Different cities and contexts will involve different types of change agents. So we need to recognise that and try to work with them for the sake of advocacy.

I think that's all from me, and I am looking forward very much to listening to your questions, comments and suggestions. Thank you.

* *

Brief Discussion Concerning the Lecture

A few questions and comments followed the lecture, while some of the issues relating to indigenous knowledge were kept aside for the final discussion.

Confirming the importance of indigenous knowledge by sharing his own experience of Bangladesh, where the mangrove forests saved the people from storm surges during the Cyclone Sidr in 2007, Mr Mahmood (UNESCO Office in Dhaka) questioned how the younger generations, who are largely dependent on different types of technology, could adopt indigenous knowledge.

Dr Shaw responded that the issue of transferability beyond the timeframe and the generations becomes very important because each generation has a different orientation to their dependency on different types of technology. As an example, he introduced his work in Kyoto, which was to develop an information and communications technology (ICT) application that enables people to access a community hazard map that the local communities are working on and to write different types of comments. He noted that many young students from outside the community have made significant comments, which were subsequently brought to the notice of the local community. To solve issues related to the intergenerational transmission of indigenous knowledge, certain types of interfaces, mechanisms, or change agents should be included, which may vary depending on the location.

With reference to *danjiri-bousai* that was cited as a case of a pre-emptive DRM programme by Dr Shaw, Mr Ishimura (Tokyo National Institute for Cultural Properties) added the importance of community festivals for the community's cohesion and resilience during post-disaster situations, and introduced their research and documentation of coastal communities in the Tohoku region after the Great East Japan Earthquake and Tsunami.

Dr Shaw explained how he had also been involved in the recovery process in some cities in Tohoku through his NGO (SEEDS Asia), where the disaster was utilised to revitalise traditional songs and dances that had gradually declined since 30 or 40 years, and expressed his interest in learning more about the findings related to the role of ICH during the post-disaster recovery process.

Mr Iwamoto (IRCI) followed that festivals bring local people together as well as encourage people who had left the community to return for help. They also unite the older and younger generations, all these factors being crucial for the sustainable development of the community.

ICH SAFEGUARDING AND DISASTER RISK MANAGEMENT IN BANGLADESH

Rahmatullah Al Mahmud Selim[1]

Welcome everybody and greetings from Bangladesh. Bangladesh is a repository of intangible cultural heritage for centuries and at the same time, Bangladesh is one of the most disaster-prone countries of the world. From the ancient time, Bangladesh was individual villages isolated and self-sufficient. They had their own production system, own culture and own entertainment system. So, they developed different types of intangible cultural heritage and different types of ballads, different types of songs, different types of stories, etc. Due to that, as a whole Bangladesh has inherited a lot of varieties of intangible culture heritage. Of course, most of them have disappeared now.

Bangladesh every year faces natural disasters and some other disasters. There are two types of disasters in Bangladesh, one is natural disasters and another is human-created disasters. Natural disasters: you know one is a storm, cyclone or tidal bore; the second is the flood; third is the erosion of river banks; fourth the tornado; fifth the earthquake; then tsunami and drought.

Cyclone: Bangladesh every year faces cyclones. The biggest cyclone was on 12 November 1970 when Bangladesh was under the rule of Pakistan. The loss of life was 300,000 and the financial loss was not available because at that time it was pre-independence time and the government of Pakistan didn't look at us and they didn't do any calculation. On 29 April 1991, the loss of life was 138,882 and the financial loss was 60 billion BDT (Bangladeshi Taka). On 15 November 2007, it was named as Sidr, and the loss of life was lessened to 3,363 but financial loss was 134 billion BDT. When you see the four pictures after the devastation, the houses have been devastated and on the right side two dead bodies are being collected from the paddy fields. And then lower left, near Sundarbans many beasts, deers etc., died and on the right side, people are trying to recover their losses.

Flood: Flood also happens almost every year in Bangladesh. Bangladesh experiences floods to different degrees and the most disastrous floods are in 1987, and 38% of the land of Bangladesh was inundated. Death tolls 1657, crops lost 1.5 million tons, and financial loss was 35 billion BDT. And in 1988, 60% inundated, 2379 people died, 3.2 million tons of crops lost and BDT 40 billion was the financial loss. In 1998, 75% of Bangladesh was inundated but life loss was 1050, crops lost 4.5 million tons and financial loss was BDT 142 billion.

River bank erosion: I have not given any chart but according to World Disaster Report 2001, published by IFRCS (International Federation of Red Cross and Red Crescent Societies), about 1 million people are affected every year by river erosion and 9,000 ha of cultivable lands vanished in the river. Most of the affected people become homeless, for an uncertain period. This is the hazard for ICH properties because many people are *baul* singers, or folk singers. They lost their places and they have to work in the towns by pulling rickshaw and/or anything else.

Earthquake: Earthquake is a disaster, of course, and the first recorded earthquake in India is 1548. I think Dr Rajib Shaw would know any further previous record is there. No Richter Scale

1 Gaanbangla Television, Bangladesh

Major Natural Disasters & it's Effects: Cyclones

Date	Loss of Human life	Financial loss
12th November 1970	300,000	Not available
29th April 1991	138,882	BDT 60 Billion
15th November 2007 (Sidr)	3,363	BDT 134 Billion

available in 1548 and at that time earth opened in many places in Bangladesh and threw up water and marks of sulfurous smell, it was a big earthquake but it was not measured. In 1762, still no Richter Scale available, permanent submerges of 155 km^2 of land in the sea near Chittagong and 500 people lost their lives. In 1885 it was measured magnitude 7; 1895 magnitude 8.7; 2009 Bay of Bengal Earthquake, magnitude 7.5; and 2011 magnitude 6.8, epicenter 500 km north from Dhaka. If you see the map, the map is divided by colors, the darkest color is the highest risk region. From the northeast regions to the southwest, the risk is gradually lower for the earthquake in Bangladesh. But it is told that if any big earthquake happens in Bangladesh, most of the high-rise buildings of Dhaka will crack down and collapse because of its unplanned development and unplanned constructions.

Human-created disasters are famine, riot, war, political unrest and others.

Famine: The most devastated famine is the Great Bengal Famine from 1769 to 1773, 10 million people died. It was when the British rule started and due to their wrong policy 10 million people died. The next greatest famine is the Bengal Famine from 1943 to 1944, 3 million people died as British rulers hoarded foodstuff. Japan was attacking from the eastside, so they thought that Japan would be more powerful if they get the food, and due to that they hoarded all the food from the market and people died mercilessly.

Riot: In 1946 the Indian riot, actually told the Calcutta riot caused deaths of thousands of people and accelerated the division of India for which billions of people had to migrate leaving their place of birth. Many ICH properties have been disappeared from Bangladesh. It is to be cited that many ICH properties have disappeared from Bangladesh due to the migration of Sanatani population, Sanatani means Hindu people from Bangladesh. You know India was divided on the basis of religion, Muslim's land will be Pakistan and Hindu's land will be India. It was nasty politics called 'Divide and Rule', so it was divided and from East Pakistan, Hindu people had to migrate to India. Most cultural activities and cultural properties were held by Hindu people because they religiously do that. They religiously practice the culture but in Muslim people, for some reason, cultural activities are not accepted like that. It is a sort of monothetic ideas, so it was very bad for ICH properties of the then East Pakistan and now Bangladesh.

War: You all know about the independence war of Bangladesh in 1971. Genocide carried out by Pakistani army caused the death of 3 million people and a huge loss of properties. Pakistani people, with the help of Razakars, the collaborators of Pakistani army against Bangladeshi people, thought that cultural activities and intelligentsia activities are not good for their rule, so they should be killed first. So they planned and mercilessly killed many professors, many singers and many ICH stakeholders during the 1971 war.

Major Natural Disasters & it's Effects : Flood

Year	Inundation	Death	Crops loss	Financial loss
1987	38%	1657	1.5 million tons	BDT 35 billion
1988	60%	2379	3.2 million tons	BDT 40 billion
1998	75%	1050	4.5 million tons	BDT 142 billion

Major Natural Disasters & it's Effects

River Bank Erosion

According to "World Disaster Report-2001" published by IFRCS about 1,000,000 people are affected every year by river erosion and 9000 hectares of cultivable lands banished in the river. Most of the affected people become homeless for an uncertain period.

Political and others: Recently, a religious fundamentalist group burnt out a music school named Ustad Allauddin Khan Sangitalay in Brahmanbaria district of Bangladesh, along with all its musical instruments, memories, mementos and all ICH properties of Ustad Allauddin Khan, the great music maestro of India. Another group conducted a mass torture of some *baul* singers. *Baul* singers are the humanist singers and fundamentalists are always against the humanism. So, they tortured them to frighten them not to practice *baul* singing. From 1999, bombing on cultural activities and cultural places like festivals and *melas*, started by fundamentalist groups, and now it has been reduced for government step. This attitude is a disaster not only for Bangladesh I think but it is for the world also, as we have observed ISIS activities of destructing cultural artifacts, Taliban activities destructing statutes etc. So, I think it should be addressed.

I am going for disaster management in Bangladesh. Bangladesh government has taken steps for managing disasters, taking into consideration the Hyogo Framework of Action 2005–2015, and there are (A) National Policy and Coordination, (B) Local Level coordination, and (C) Disaster Management Action Matrix.

I am just showing you, the regulatory frameworks for National Policy and Coordination are: (a) Disaster Management Act, (b) National Disaster Management Policy, (c) National Plan for Disaster Management, (d) Standing Order on Disaster, and (e) Guidelines for Government at all levels.

National mechanisms for policy guidance and coordination are: (a) National Disaster Management Council, (b) Inter-Ministerial Disaster Management Coordination Committee, (c) National Disaster Management Advisory Committee, (d) Earthquake Preparedness and Awareness Committee, (e) National Platform for Disaster Risk Reduction, (f) National Disaster Response Coordination Group, (g) Cyclone Preparedness Programme (CPP), (h) CPP Implementation Board, (i) Committee for Speedy Dissemination and Determination Strategy of Special Weather Bulletin, (j) Committee for Focal Points Operational Coordination Group, (k) Coordination Committee for NGOs Relating to Disaster Management, and (l) Disaster Management Training and Public Awareness Task Force.

The local level coordination has the followings: (1) City Corporation Disaster Management Committee, (2) District Management Committee, (3) Upazila Management Committee, (4) Pourashava Management Committee, (5) Union Management Committee, (6) Local Disaster Response Coordination Group, and (7) Multi-level Multi-agency Disaster Incident Management System.

Finally, the Disaster Management Action Matrix has the following strategy goals:

- Professionalising the disaster Management System
- Mainstreaming disaster Risk Reduction and Climate Change Adaptation
- Strengthening Institutional Mechanisms
- Empowering at Risk Communities
- Expanding Risk Reduction Programming across hazards and sectors
- Strengthening Emergency Response System
- Developing and strengthening Regional and Global Networks

I have to say that the IRCI is doing a very good job to unite us against disaster and safeguarding ICH, it's the new field for us also. We didn't calculate the ICH property loss during the disaster but from now on we will try to do. Thank you very much.

DISASTER AND ICH: BANGLADESH CONTEXT

Md. Amanullah Bin Mahmood[1]

Good afternoon. My name is Amanullah Bin Mahmood. I am working with the UNESCO Dhaka Office as a Science Officer. Many thanks to IRCI authority to inviting me, and my office also is very happy to participate in this event. My responsibility is science and disaster environment. We have a dedicated culture officer in our office, and actually this is the inter-sectoral issues and we are working together here.

1 UNESCO Office in Dhaka

Bangladesh

- Area: 147,570 sq. Km
- Population: 152 million (2015)
- Projected Population: 167.37 m. (2019)
- Population density: 1063 per sq. km
- Life expectancy: 70.7 (2014)
- Per Capita Income: 1314 USD (2014-15)
- GDP Growth: 6.51% (2014-15)
- Administrative Unit:
  - Division: 7
  - District: 64
  - Sub-district: 544
  - Union: 4543

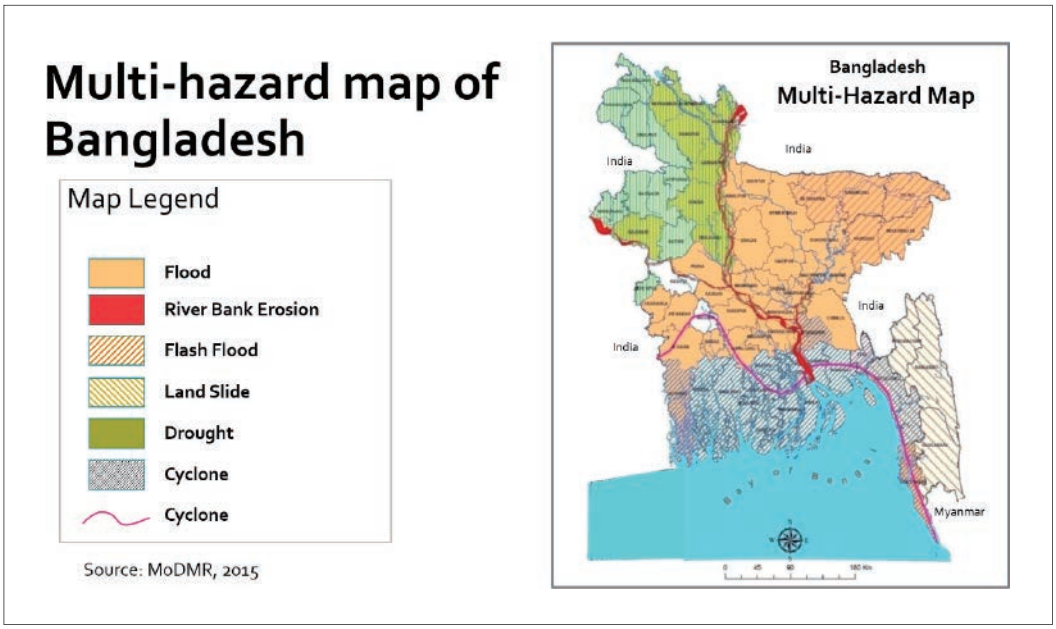
Here is my presentation content. I will discuss first about some basic things, then the vulnerability of Bangladesh, and main disasters: my colleague Selim has already described this, so I'll just a little bit discuss about that. Then the Bangladesh disaster management, he also already covered that. Then the policies, Bangladesh Seventh Five-Year Plan, intangible cultural heritage of Bangladesh, and then I'll try to link with the present situation of intangible cultural heritage and the disaster situation in Bangladesh. After that, our activity in intangible cultural heritage, and some way forward.

I know all of you are aware about Bangladesh. Bangladesh is a very small and populated country. Our total area is about 147,570 km^2 and very populated country. We have 152 million in 2015, the total population and we are expecting, in 2019, 176 million. And population density is 1,063 per km^2, life expectancy is 70 years in 2014 and our per capita income is 1,340 in 2014 to 2015 and GDP growth is 6.51. We administratively have seven divisions, 64 districts and 544 sub districts and we have small administrative units, called the union 4,543.

And as part of the study of the UNDP, our Climate Change Strategy and Action Plan adopted that. Bangladesh is the number one most vulnerable country due to the cyclone. Per 100,000 people, our death rate is 32. And we are sixth most vulnerable country due to the flood. And here are the few disasters of Bangladesh, already Mr Selim covered that. I'll just mention that our main disaster is flood.

We are habituated long time about the flood; we are a flood prone country and we are regularly habituated about the inundation. But inundation is sometimes going to be flood; it damages our crops and different types of properties. Then the cyclone – major cyclone with most casualty happened in 1970, when more than 500,000 people died.

In addition to that we have the tornadoes, river bank erosion, 5% of our land eroded every year. And other disaster, even that cold wave sometime and we are the most vulnerable country due to the earthquake, then other disaster is drought, landslide, excessive rainfall and water logging and another two man-made disasters here, the building collapse. Nowadays it's very frequently happening in Bangladesh, and the fire is another man-made disaster.



Here I mentioned a multi-hazard map of Bangladesh, you see the whole Bangladesh here, and the legend. Actually all over the country, except this region, is habituated to flood. We have three major rivers: this is the Brahmaputra, this is the Ganga, in Bangladesh, it's named as Padma, and this is the Meghna. These are the three large rivers that drained out in Bangladesh and fall in the Bay of Bengal, and this part is the piedmont area of the Meghalaya Hills, it's habituated to the flash floods. And this is the drought-prone area and this is the cyclone-prone area, and this is landslide-prone area and the red color is showing actually the river bank erosion prone area.

Our disaster management administration is our National Disaster Management Council, which is headed by our Prime Minister and after that all of these national committees and national activities here. This is our main Ministry of Food and Disaster. Now it's divided into two ministries, Food and Disasters Alert.

Here is our Policy Regulatory Framework, I just mentioned here the policy names, so already Mr Selim mentioned the National Plan for Disaster Management. It's created in the 2010, and Bangladesh Climate Change Policy and Action Plan 2009, National Adaptation Plan – NAPA, Bangladesh Disaster Management Act 2012, Guideline for Disaster Management, Standing Order for Disaster Management and now we are adopting the Seventh Five-Year Plan. And, we have adopted the Sendai Framework for Disaster Risk Reduction in our five-year plan and we have adopted four goals of the Sendai Framework in our five year plan.

And now it's time to talk about the intangible cultural heritage of Bangladesh. Actually three intangible cultural heritage is inscribed on the representative list of UNESCO. First one is the *baul*-song. This is the oral tradition. It's inscribed in 2008. It's a mystic song about Bangladesh. There are lots of *baul* who are living in Bangladesh. This is the *Jamdani*. *Jamdani* is the weaving technology. It's handicrafts. This is the *Mangal Shobhajatra*. It's a Procession of the Good Hope. Now I try to interlink with the location and the intangible cultural heritage.

At the river-bank prone area, lots of weavers are living over there. This is a drought-prone area, and lots of pottery-related people are living there. The indigenous people who are living there, they have lots of strong ICH, local technologies, local beliefs and festival over there. This is the Dhaka City. Old Dhaka City has lots of traditional things: their beliefs, their festivals and lots of

things. Old Dhaka City is one of the most vulnerable areas due to the earthquake. This is the cyclone prone area and here, our natural cultural heritage, the Sundarbans, one of the largest mangrove forests is located here. And there are many beliefs over there. Before going for extracting resource from the forest, they have few goddesses there, it's called *Bonbibi*.

In the definition of the Convention for the Safeguarding of Intangible Cultural Heritage 2003, Article 2, there are lots of things mentioned, and two things I highlighted here. The preservation and protection, and Article 11, role of state party. Here I just highlighted in view of the safeguarding – how to ensure the preservation and protection, it's when you are thinking about preservation and protection. It's obviously come to the safeguarding from the disasters and losses.

In National Plan for Disaster Management, in the Strategic Goal 4, 'Empowering the Communities at Risk', two things are mentioned: the key target to identify the community and the household level risk, and action is in the risk of diversified group including women, children, and elderly people. Intangible cultural heritage actually is linked with the community. There are lots of community, craftsman community, weaver community, the *baul* community, and so on.

Already we are adopting these types of safeguarding but our policy does not mention that the intangible cultural heritage protected here, but now the time for protecting here. Our current policy is adopted during 2010 to 2015, and now the government is thinking about new thing. So, this is the time we are trying to push something to adopt these.

And now I am talking about a few of our projects. In UNESCO Dhaka, they are currently conducting a workshop on ICH. Under our project 'Strengthening National Capacities for Safeguarding Intangible Cultural Heritage for Sustainable Development in Bangladesh', we are adopting two types of activities: the capacity building and the pilot activity. Under the capacity building, implementing the 2003 Convention, then the inventory of ICH in Bangladesh, and nomination of the ICH. Actually, there is no government adopted list of ICH in Bangladesh. So, we are trying to push this. In the pilot activity, we are trying to develop a methodology to identify ICH.

Now, I talk about the way forward, what we are expecting or what we are thinking. A complete

inventory of ICH in Bangladesh, it's very necessary to adopt the policy and listing ICH for preservation and conservation. The integrated safeguarding measures for ICH and policy level intervention. I already mentioned that we need to put this in our policy. And linking the safeguarding and disaster management for ICH and last one is cooperation and partnership in research and planning for disaster management policy in ICH. Thank you very much.

INTEGRATING LOCAL AND INDIGENOUS KNOWLEDGE IN DISASTER RISK MANAGEMENT: LEARNING FROM PHILIPPINE COMMUNITIES

Fatima G. J. Molina[1]

Okay, good afternoon. So, first of all, thank you for this opportunity to be able to share about the Philippines experience. I will share about the integration of local and indigenous knowledge in disaster risk management.

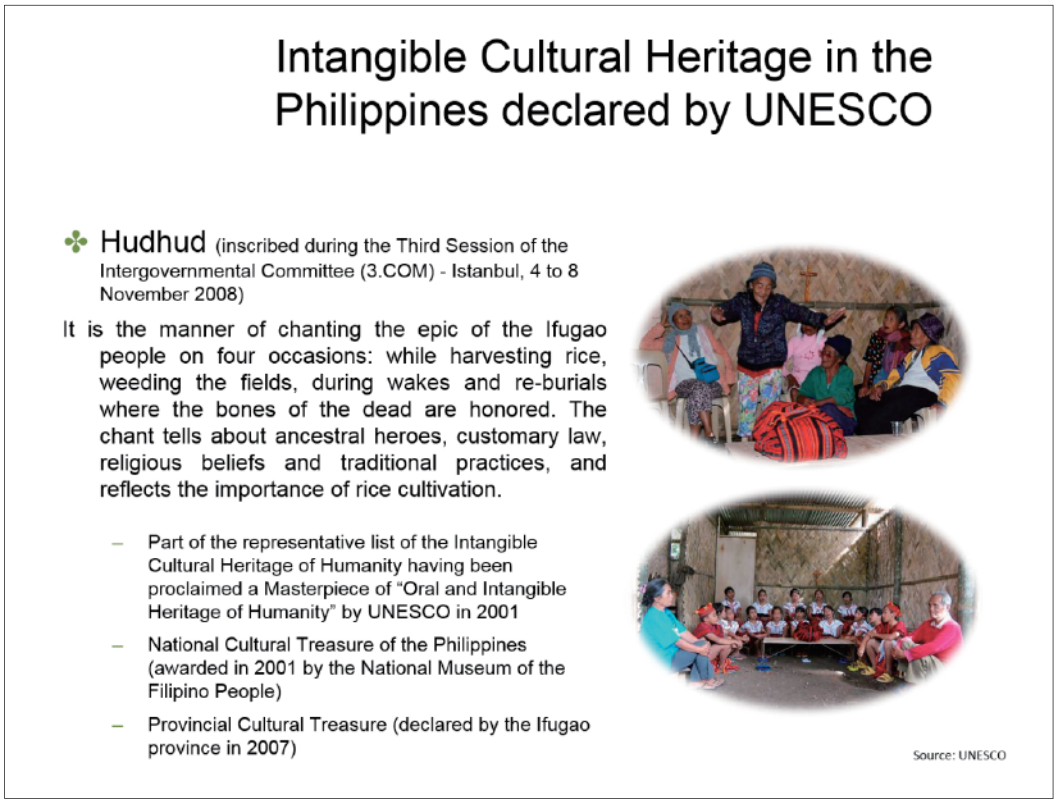
Firstly, I would like to share something about my organisation. I am from the Center for Disaster Preparedness, which was established in 1999; so it has been in the field of disaster risk reduction for the past 20 years. Before, we started as a very small organisation. I am one of the members who came in the second round and before we were only five. But right now, we are presently 54 people in the organisation. We have branched out from one office to three offices around the Philippines.

I don't know if I should be thankful to the disasters, but then, I think because of the changing types of hazards in the country, there is more need for people like us who are in the field of disaster risk reduction. So, we have operated and partnered with more than 15 countries and Dr Shaw has been with us in different projects with the UNESCO and other engagements internationally.

For the outline, I will present first the different examples of intangible cultural heritage in the Philippines, and also the Philippine disaster profile; followed by the examples of actual local and indigenous knowledge, which are useful for risk management, and also publications.

Our first example of ICH is called *Hudhud*. So, it was inscribed as one of the representatives for ICH in 2008 but it was recognised by UNESCO in 2001. It is actually an epic, but the one that was registered in the ICH Registry is the manner of chanting. *Hudhud* is sang in the northern part of the Philippines by the Ifugao indigenous peoples, which is a matrilineal society. It is usually sung by the women. So the chanters are women and women's brothers occupy a higher position in singing the chants versus the husband of the lead chanters. It is chanted on four occasions, like in the harvesting of rice to appease the gods, to have a bountiful harvest, and it's actually also part in weeding the fields so they sung it whenever they weed the fields- when they remove some of the weeds in order to have healthier produce; and, lastly, it is actually sang also during wakes and rituals for the soul to transfer to the other life and welcome the divine being in prosperously. It is actually also a part of honoring the dead. Therefore, the people of the Ifugao also practice ancestor worship. They chant about the ancestral heroes, the customary laws and religious

1 Center for Disaster Preparedness, Philippines



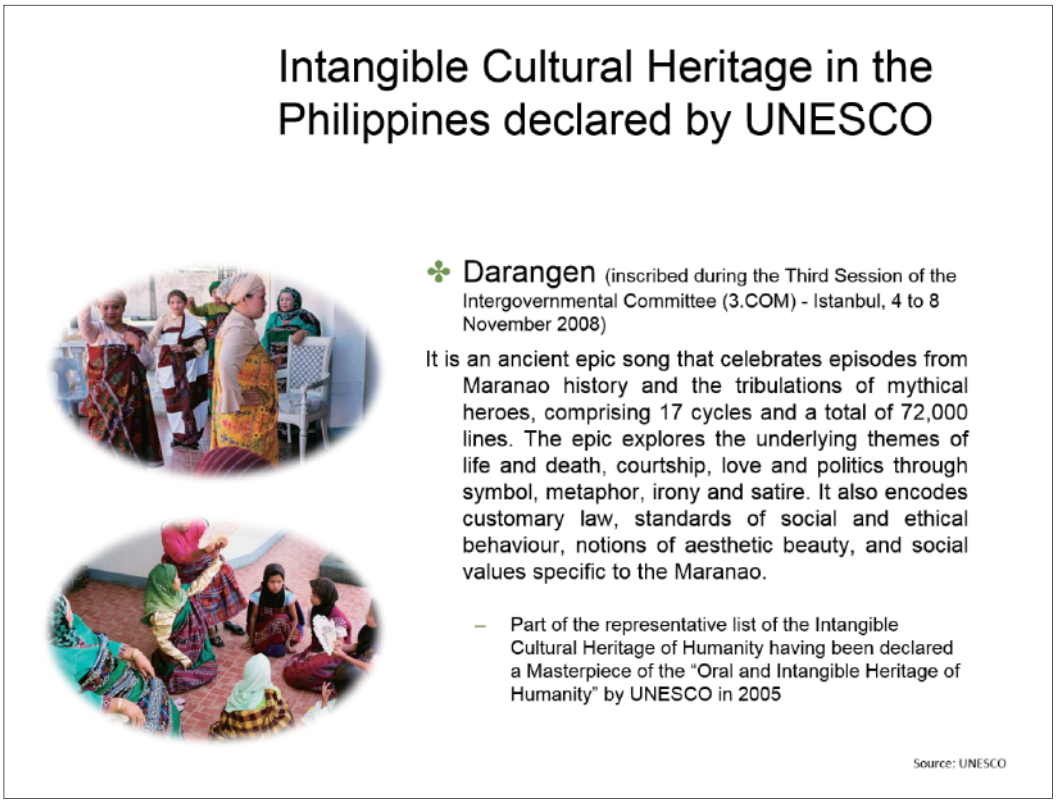
beliefs. So, this is a good opportunity to look at how it can be useful for risk management. If we include customary laws and integrate risk reduction, chanting can be a form of early warning system. In the photo, there are also performances, so the chant has different dance as well. So, it's a performance also.

The next ICH is *Darangen*, which literally means to narrate a song. This is sang in the southern part of the country, Mindanao Area by the Maranao people. So, it is believed to have existed even before Islam was organised in Mindanao. So it was believed to be founded in the 14th century and it's written through an ancient language that is based in the Sanskrit, but at present it's translated in Arabic, because most of the chanters are Muslims.

It is an ancient epic song that celebrates the episodes of the Maranao history that caters to the customary laws, mythical heroes and it is comprised of 17 cycles. So, it's a very long process. The chanting process is very long and it's performed both by men and women in the area and it's composed of 72,000 lines. So it's a very, very long chant. It explores underlying themes of life and death, the concept of after-life as well in Maranao and courtship, love and politics through the symbol of metaphors. It was inscribed also in 2008 in UNESCO but was recognised as early as 2005.

Right now, our indigenous people in the Philippines really face as well the adverse impacts of disasters. This is one of the statements of an Ibaloi person, like Ibaloi indigenous peoples' member. The Ibaloi are also from the northern part of the country, which are neighbors of the Ifugao. This is the statement translated in English: 'you must see the devastating events that are happening to our place, floods, storms, that is what is happening to our people. My farm products and those of my people and the places where we used to plant are all gone'.

So, you see, the people's lives are altered as well because they no longer have a healthy place to



plant their vegetables and especially the paddy rice because it's the main source of subsistence for the people. The people are actually affected mainly by flood and this also results to erosion. Why is the Philippines at high risk?

In the ranking of the United Nations International Strategy for Disaster Risk Reduction, the UNISDR, the Philippines falls next to Vanuatu as one of the high-risk countries in the world and this is due to its location. Here you can see that the Philippines is in close proximity to Pacific Ocean. It's part of the Pacific Typhoon Belt and it is also part of the Pacific Ring of Fire. You can see that its location becomes a favorite destination of hydro-meteorological and geological hazards.

And right now, the Philippines is able to define certain examples of local and indigenous knowledge. Based on the UNESCO research that we conducted together with UNESCO Jakarta and Paris, entitled, 'Strengthening resilience of coastal and small island communities', we were able to document the local knowledge of the people in the coastal and small islands.

So, maybe this project can explore documenting some ICH for the mountain areas, and also the everyday in the urban areas also what are other possibilities now. For us, we adopted the definition used by UNESCO where local and indigenous knowledge is seen as cumulative and complex bodies of knowledge, know-how practice. So you see, it's not just on the indigenous knowledge itself but the local practices. So it's more holistic because it sees as well, what are the everyday activities that people do, which is different from ICH which is more focused on the rural areas. But now it integrates practices also in the peri-urban and urban areas.

We see it as something communal, so it is extended in different generations. So out of this research we developed a framework together with the people. Here is an example of different categories of the local and indigenous knowledge. You can see here at the diagram that there are

Sound for provision of Early Warning

Color	Alert Level	Kanungkong Warning Signal
White (Ready)	Normal	0
Yellow (Get	Alert (There is	5 strikes at 20 minutes interval
Orange (Go)	Prepare for evacuation or proceed to area (There is possibility of flooding)	10 strikes at 20 minutes interval
Red	Full evacuation encouraged (Forced evacuation if necessary)	Non- stop (15 strikes at 10 minutes Non-Stop (20 strikes at 5 minutes
Green	Back to normal	

Figure 2 A and B: People testing the *kanungkong* (Source: Dagupan City Information Office) and Table of Warning Codes adopted in Dagupan City (Dagupan City Government, 2008; Molina, 2016; Victoria, 2008)

five examples. There is material culture, observation of natural environment, traditional preparedness practices, animal behavior and faith-based practices.

So, we included the faith-based practices because we believe that we should just not focus on the natural environment but also the social experiences that the people do in order to adapt in the changing context of risks and as the Philippines has four approaches for disaster risk management process: mitigation, preparedness, response and recovery.

In this research we tried to look into the integration in the different pieces of disaster risk management for ICH or LINK. And we ask about in the box below. We documented what is it about, it's duration, it's frequency, so as to know if it's relevant because you see the LINK is not static, it's changing over time. Sometimes some knowledge are no longer relevant today because environment is also changing and the people inhabiting an environment is also changing because of migration and many other things.

One of the examples that we were able to get from the people is the sound that they do in order to provide early warning for flooding. This sound is made out of an instrument which is made up of bamboo and locally called as the *kanungkong*. This is used by one of the research areas; it's an urban area in the city of Dagupan in Northern Philippines.

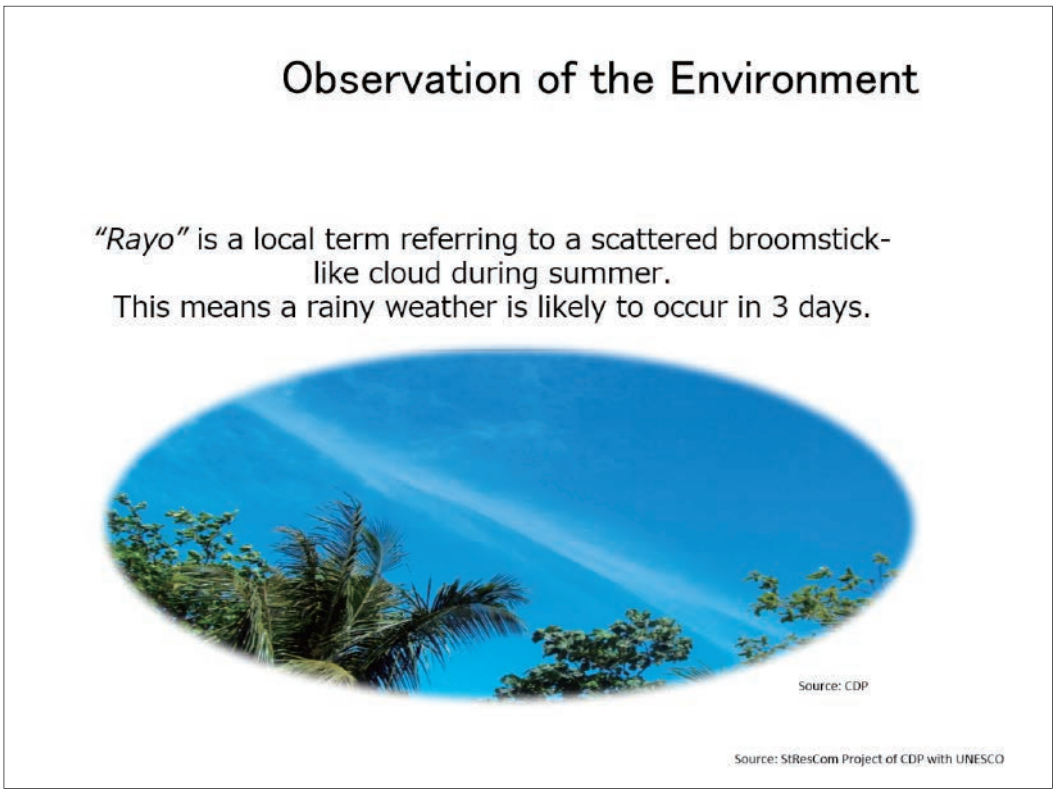
You see that it has different meanings. A sound has a corresponding meaning. At first it has also a corresponding color so as to easily disseminate the information. For the white one, it's assigned that the people have to get ready once the *kanungkong* is set up. So no sound is made yet, but it's already put in place. And the second one is the yellow one, means people have to prepare. So it's already an alert, and every 20 minutes five strikes are played. Each village is divided into a zone and in each zone, there is someone who carries the *kanungkong* around the area. You see

that it is very focused, it's really divided among the community people, so that they can easily communicate with each other. So, it's really a huge responsibility of the messenger. One wrong strike, like if he commits a mistake, it can affect the overall early warning process. So, for the orange one, ten strikes for every 20 minutes and then the red one, it's nonstop 15 strikes in every 10 minutes. So, it means that full evacuation is needed.

So, what's the meaning of other colors? The orange one is for the preparation for evacuation and the red one implies actual evacuation of the people. For example, the white one will be activated if the status is that there will be a high-tide forecast accompanied by heavy rains. The city also has to get forecast from other agencies, for instance, there is flood alert forecast from the Agno Flood Control. Therefore, it means that it is inter-governmental. Other groups and agencies must act upon the situation. The city has neighboring municipalities and these municipalities are surrounded by the Agno River. So there is a warning from the Agno River System Control, goes down to the city, the city down to the communities, the community leaders down to the zone leaders. So, there is a system.

Who are the corresponding villages that respond to it? There is the village like Lasip Chico and Pogo Grande, these are the high risk zones. The warning starts from the high risk zones, then to the medium risk zones, and then to the low-risk zones. So, the village officials in these zones act upon the situation and also report to the city level government agencies involved in the disaster risk management such as the City Disaster Risk Reduction and Management Office (CDRRMO).

The indicator for flood levels is actually anthropometric, in a sense that the measurement is based on the human body to link it with the people's experience, like example for the hips, which is usually two feet, the knees, one foot. So, you see that the peoples' measurements are also arbitrary. So, the government needed more standardised by putting corresponding metric measurements in the form of feet. So, there is actually a corresponding responsibility according to the flood level.



So here we can see in the presentation that it's possible to integrate indigenous knowledge in the practice, given that the government supports it, since there is a system already in place.

Okay, in this photo, we observe the people performing a song. This is a faith-based practice in Alabat Island in Quezon Province. Usually the people in the islands suffer drought also in the area. So, what they do is to sing a song to their Patron Saint of the farmers*, San Isidro Labrador,* or *San Isidore*. I actually asked one of the oldest residents in the island. When I did my field work, she was 91 years old and it's difficult for her to sing but she tried her best to sing about it. And its lyrics mean is more of peace. She is praising *San Isidro*. She is asking *San Isidro* to humbly give them rain because their plants are dying already and it's a form of veneration also.

Another one is the local practice on food preservation. Here, we can see that the indigenous knowledge can also become a form of survival. It's not just about providing early warning systems, it's not just about putting the people in safe zones, but it's also for their survival. So, there is also a need to see how the food banking process is done.

You see, we teach people to become more self-sufficient. They are not just receiving relief, so we have a manner of food preservation. One of them is drying, so this is practiced actually across the Philippines where they dry fish, vegetables, to have alternative source of food when the rainy season comes, and in Rapu-Rapu Island in Albay, some of them have nature as the refrigerator. How? They dig the soil and they put root crops to preserve it, which is also the same with the practice of the people in Fiji. You see a lot of different countries in the Asia-Pacific area have a lot of common coping mechanisms.

This one is the observation of the environment. Here you can see the convergence of nature and knowledge come together. *Rayo*, this is what we call like street lined sky; it's a local term referring to scattered broom-like clouds during summer. So based on the people's experience after they observed that *Rayo*, the clouds, it rains after 3 days. But now due to the climate change this can change, it can be shorter or longer days. So, we see that's how the local knowledge becomes not static because of the changing seasons as well.

Here are some examples of the materials that tackles about local indigenous knowledge integration. In the project we were able to produce some material, actually Dr Shaw was one of the co-authors of this material, the local indigenous knowledge for community resilience, with UNESCO Jakarta, and they were able to produce a joint article together with Dr Lisa Hiwasaki of UNESCO Jakarta, Dr Luna the director and one of the research team members, my sister, she was able to write in Springer also on the local knowledge and Casiguran and I was also able to write in Springer for Dagupan city. So, it's about inter-regional transfer.

What is the relevance of local knowledge for disaster risk governance? Right now, participatory governance has to recognise local indigenous knowledge because it is a capacity of the community people. So, once there is recognition, it would be easier to realise its value, its worth for policy and practices and also partnerships with different sectors. In the Philippines, there are a lot of opportunities of indigenous people's participation in this governance. But this is yet to be written.

Right now we are doing policy advocacy for the amendment of the Republic Act 10121, the Philippines Disaster Risk Reduction and Management Act, there is community basis doctrine in the past but the IPs are indigenous people, so they are not really identified as seen with Bangladesh. I think it's really important for us to advocate higher of cultural heritage, both tangible and intangible cultural heritage, and also one of the challenges is that even in our structure the National Commission for Culture and the Arts is not part of the structure of the National Disaster Risk Reduction and Management Council. I think it's very important for us to advocate at the

policy level to have longer impact and to have more sustainable efforts for integration of ICH and disaster risk reduction. Thank you.

NARRATIVES OF RISK AND COPING IN RESPONSE TO TYPHOON HAIYAN IN SELECTED COMMUNITIES IN THE PHILIPPINES

Soledad N. M. Dalisay[1]

* The following presentation is based on her recent publication (below), which was awarded 'Highly Commended' in the 2017 Emerald Literati Network Awards for Excellence.

> Dalisay, S. N. M. and De Guzman, M. H. (2016). Risk and culture: the case of typhoon Haiyan in the Philippines. *Disaster Prevention and Management: An International Journal*, 25 (5), pp. 701–714.

Good afternoon everyone and I will be sharing with you this afternoon the findings of a study we did. It's a case study of Typhoon Haiyan in three affected communities in the Philippines. So this is co-authored, the papers are actually co-authored by a graduate student from the Department of Geography, while I'm from anthropology.

These are some statistics about Typhoon Haiyan. So everybody, I suppose, is familiar with the really devastating typhoon which hit the Philippines in 2013. It left so much devastation and for the objective of our study we tried to provide an understanding of the social and cultural contexts that shape risk perceptions in relation to evacuation during Typhoon Haiyan. The study was actually commissioned by the Department of Science and Technology. They came to us and asked us to do the study because according to them we already did all the science but still people did not evacuate and so much devastation occurred, and so they're trying now to understand the social and cultural contexts that shape the risk perceptions. This is the geographical focus of the study; we looked at three coastal communities, the Tacloban City, Guiuan, Eastern Samar and San Francisco Cebu. But there were different conditions post Haiyan in these three communities. The three study sites are located in Central Philippines in the middle of the map of the Philippines.

Okay, during Typhoon Haiyan there were areas where loss of lives and property was great and losses were confined to simply the property. In Tacloban City, we have this classic photograph of the ship that was washed on shore because of the strong storm surge. So there was so much devastation in Tacloban City as well in Guiuan, Eastern Samar, but in this island community in San Francisco Cebu, where everyone had evacuated, the loss was confined to property. There were no lives lost in this island community in the Philippines, okay. So, we are trying to do a comparison now of what happened and why people evacuated in certain areas and in certain areas why they did not evacuate.

We devised this conceptual framework which was based on or inspired by Douglas and Wildavsky's Cultural Theory of Risk. So, we see here the social and cultural contexts that shape

1 University of the Philippines-Diliman

risks and vulnerability perceptions and responses to natural hazards as actually linked to the physical environment. So, concepts about the physical environment in relation to natural hazards are shaped by social-cultural contexts.

These are some of our findings. I tried to confine my presentation this afternoon to findings that would be relevant to ICH. When we ask people why they evacuated or why they did not evacuate, they gave us the same answer which was '*Sanay na kami dyan*' or we are used to it. In some areas like in San Francisco, Cebu, they were used to evacuation because the local government had already been implementing effective evacuation programme and people knew where to go, what to do in case there was a call for evacuation by the local government. And by the way, San Francisco Cebu was also a recipient of the Sasakawa Award for Disaster Risk Reduction. Whereas in Tacloban City and in Guiuan Eastern Samar, they also said that they were used to the typhoons because the Philippines is actually situated, as Fatima said, within the Pacific Ring of fire and we're visited by around 20 or more typhoons a year. So they said we are used to it and we've already developed ways of dealing with a hazard in our daily lives. And so, they did not evacuate because they thought that Haiyan would be like any of the other typhoons that they've encountered in the past. What they did not expect was the storm surge and that was what cost much of the devastation.

Ties that bind, so in all the three communities, relatives were a valuable resource. Because the roads were devastated during the typhoon, the national government were able to bring aid into the affected communities, it took about 3 days. So before the government came, the relatives were already there helping their fellow relatives.

They had a system in place they called the *pauswag* wherein even before the typhoon hit, relatives and friends already accommodated, those with houses that were made of concrete and were deemed to be safe from the storm. They were already accommodating the relatives and friends into their homes. They housed them there during the storm and even after the storm while they were cleaning up. They call it the *pauswag*, it's a traditional practice that has been in place in Guiuan, Eastern Samar.

There is a similar practice called the *pagpapadagos* in the Bicol region, another area that's often visited by typhoons in the Philippines. In terms of probably finding commonalities and scaling up of ICH, particularly in the context of involving relatives in DRRM, I suppose there are many other examples in other parts of the Philippines. It just so happened that I did research in Guiuan and in the Bicol region so that's what I know. Probably if we expand the research into other areas we will find similar social systems in place as well.

And then also in terms of ethnicity and identity, people in Guiuan Eastern Samar and in Tacloban City were saying that *tuminongnong* — it's a Visayan term for those who are born and raised in the area. So, for our informers they felt that the *tuminongnong* possessed greater resilience to natural hazards because they have a network of relatives and friends already in the site as compared with new migrants who are newly establishing residence in the site and therefore they are more or less left on their own. That's why in the more rural areas like in Guiuan Eastern Samar and in San Francisco Cebu, where everyone was a relative of everybody else, the support system was great. But in Tacloban City, which is an urban site, composed of migrants coming from many places. The relatives were not really with them, and so they were more or less had to help themselves.

They also had local knowledge which they said they saw even before as warning signs, even before Haiyan, like for instance the red skies the night before the typhoon hit. It was a sign of a strong typhoon or the halo around the moon they said means rains soon. So they had noticed this, also they witnessed unusually huge waves, particularly by the fisher folk. These were some of the warning signs that was in place in the three sites.

They also had local knowledge of wind that told them when it was safe to go back to their residences. The local term is *kanaway sa timog*, which referred to the final rush of wind that signified the end of the storm. So the elders or elderly informants told us that they had this local knowledge, but many of the younger people in the communities no longer knew how to read the signs. They relied more on news from the radio or from the television. So, there is a challenge now on how to promote ICH here.

They also had ways of identifying safe and unsafe spaces based on the impending hazards. They also knew how to secure the roofs of their houses, they had technology of tying the houses to the ground; some were able to do this.

And then in terms of gendered aspects, while many of the literature pointed out the vulnerability of women in the face of hazards, the study also showed that men can also be vulnerable. Women were vulnerable but men could also be vulnerable because in this case, in the context of machismo, the man stayed behind to protect their pieces of appliance and their property, while they made sure that their wives and their children were sent to the evacuation centers. So they were the ones who were exposed to the hazard. Even in that small island where everyone were supposedly evacuated, there were two men who stayed behind because they had to protect their possessions not only from the hazard but from looting after the storm, and that was what they told us.

What are some of the recommendations for community level DRRM considering ICH. First of all, we thought that in terms of capacity building, friends and relations could be a valuable resource during disasters. They could be involved in formal DRRM programmes and provided with incentives because there is some of the people were skeptical of evacuating to the evacuation centers designated by the local government. In fact in Tacloban City, it was in the evacuation centers where some of the people died because they were also affected by the storm surge. The evacuation centers were situated along the coast and so the storm surge was able to reach that area. Because in the evacuation centers also they were housed with people they did not know, not only their neighbors but there were other people also in the evacuation centers. And so they did not feel safe, so they preferred the homes of their relatives. But not everyone has a relative in safe space. So I have some other recommendations for that.

Also to include local knowledge in communicating risks from hazards, we suggested that using traditional channels of communication. The usual channel that was used was through the local government and the mass media, but there are ways in which information is also disseminated in the communities through people that they knew and were part of their social networks, so this can also be tapped in DRRM programmes.

And then to develop safe evacuation centers for those who need this in their sites, we thought that it would be good to identify and designate a site or a structure that will serve as a permanent evacuation center for specific communities. This could be situated in recognised safe areas. The centers could also serve as disaster museums where information, education seminars can be held when it is not used for evacuation. We've been told also that having a center that's dedicated solely for evacuation may not be cost-effective because nobody knows how many times in a year you need to evacuate people. So, we thought that it would be good to have other purposes that are disaster related also because right now the current evacuation centers in the Philippines are multiple purpose centers. They are schools that serve as temporary evacuation centers. Therefore, when there is evacuation, schooling is interrupted because sometimes the people have to stay in the evacuation centers for a long period of time. Or if there are other purposes for the evacuation center, like it could serve as a gym or any other community activity for the long term, the buildings might be retrofitted for other purposes, other than evacuation. And therefore you lose now its value and its function as an evacuation center, so we have this recommendation.

Candle lighting ceremony during the 1st year anniversary of Haiyan in Tacloban City

And then, looking at developing social memory. Social memory frames people's responses to hazards and the lessons learned from typhoons Durian and Haiyan. Because there was Typhoon Durian after Haiyan which was also very strong but not as strong as Haiyan, and the social memory could be done through sustained community rituals and ceremonies that commemorate people's resilience efforts after the typhoon. So it's not much remembering the devastation, but more remembering the lessons learned. When we were talking with our informants, they were telling us that they fear that the very young children would lose the memory of Haiyan and those who were not born yet would have no experience of Haiyan and they would go back to their complacent ways. This is an example of the candle-lighting ceremony that was held during the first year anniversary of Haiyan. This was LGU led actually and while of course there is this separate ceremony to commemorate Haiyan, the same ritual could be integrated with other festivals and rituals that are already ongoing, that have been there in place in the communities for a long period of time already. So that's the candle-lighting ceremony.

As the final recommendation, we also felt that DRRM programmes have to be linked to broader human development and environmental protection concerns. Usually DRRM programmes focus on the hazard, but in the everyday lives of people, hazards are only one part of their many concerns. So when faced with a hazard, they may prioritize those other concerns over the hazard and hence refuse to evacuate. This may take a very, very long time but there could be a need for a more comprehensive human development programme that would address this multitude of concerns so that this would be able to reduce people's vulnerabilities and develop greater resilience.

And by way of going forward in terms of research we felt also that we need to do more research on viable channels for the transmission of local knowledge to the young that are, of course, taking into consideration the local context, social, environment, and the local cultural contexts of

communities. And this will vary depending not only on ecological zones but also whether the communities are urban community or a rural community.

It would also be good to look at the genesis of new myths and legends that arise in disaster contexts. In Guiuan, we encountered a new legend that emerged now after Haiyan. So it would be good to look at the narrative of the myths, who are the transmitters of the myth, the lessons that have been imparted through those myths that arise and the contexts in which these emerged. These are some of the suggestions.

Also, to look at the dynamism of ICH as a function of changes not only in the physical environment but changes in the socio-cultural world of the bearers as well. ICH is part of culture and the resilience of culture is also based on its dynamic nature, so it's important to look into this.

And also the identification of novel ways of integrating ICH into actual DRRM programmes. Because while our National DRRM Act RA10121 actually has a provision on the incorporation of local knowledge into DRRM programmes, we really have to find out who are implementing this already and if these are not yet being implemented, why are these not being implemented. I suspect there are successful examples in the field now but we have to document this and share this to argue more strongly for the incorporation of ICH in DRRM programmes.

ICH AND DISASTER RISK MANAGEMENT IN FIJI

Ilaitia Senikuraciri Loloma[1]

Good afternoon everyone. *Ni bula vinaka*.

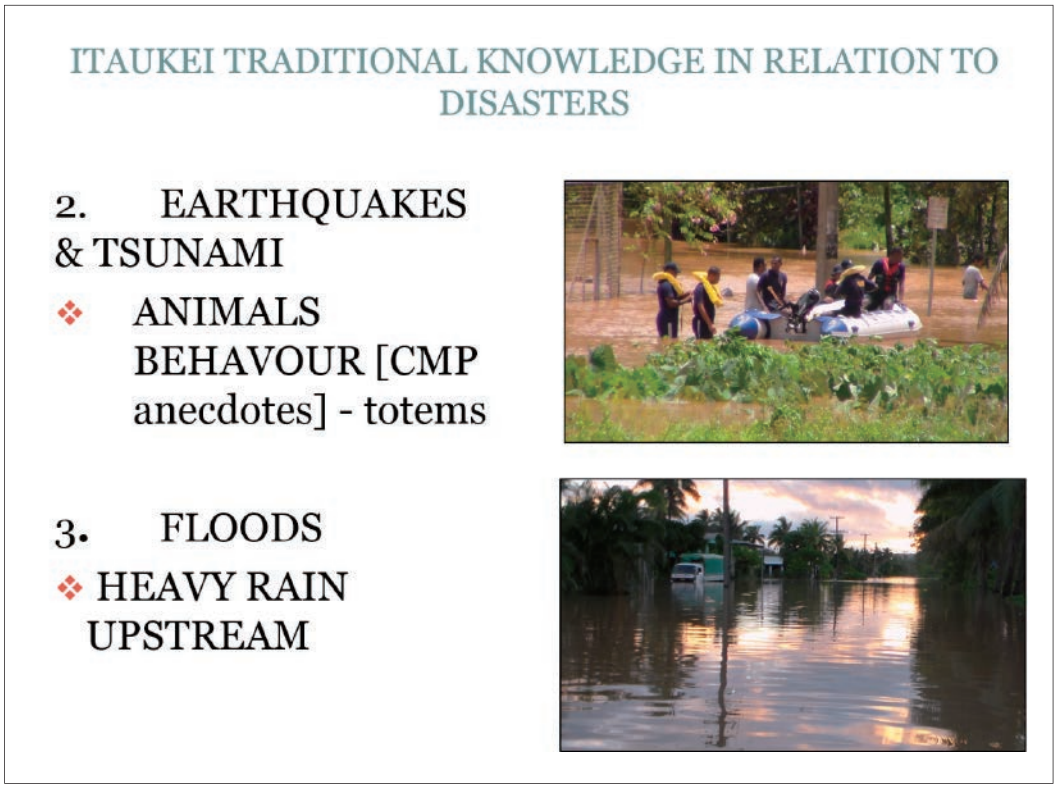
Fiji's presentation includes a brief historical account of events that unfold in the past centuries thus forming its social, economic, and cultural cosmology. The presentation will also include a brief report on Cultural Mapping Programme and from which emanate the theme for this conference, 'ICH in relation to disaster risk management and its challenges'.

The Republic of Fiji consists of 333 islands; located within hurricane-prone area in the South Pacific Ocean with our neighboring island states. This information is made available in the national telephone directory thus the public are aware hurricanes.

In February 2016, Fiji was struck by a category 5 cyclone which followed the path of 11 degrees and 21 degrees within the cyclone path. In the traditional lunar calendar, hurricane season falls in November to April. December to February is often referred to as 'warm season' called *vula i katakata*. People would not be sailing to the neighboring islands during this period, but rather prepare themselves for cyclone events. This is also known for as the breeding season for land crabs and insects. However, due to climate changes, the weather patterns are changing.

Fiji is currently conducting cultural mapping in the Institute of iTaukei Language and Culture under

1 iTaukei Institute of Language and Culture, Fiji



the Ministry of iTaukei Affairs which began in 1974. The institute was then named Fijian Dictionary Project unit funded by Mr Raymond Burr, an American actor and focuses on compiling a Fijian monolingual dictionary. In completion of that project, through the approval of the cabinet in 2004, the new name of Institute of Language and Culture was provided to the department to undertake cultural mapping in the 14 provinces of Fiji. The institute has completed cultural mapping in the 13 provinces and currently commencing this work in the final province.

Fiji ratified the 2003 Convention in 2010. The institute had set up a special revival unit, tasked with facilitating revival workshop of Traditional Knowledge & Cultural Expression through the transmission of knowledge, know-how related to cultural expressions.

These are just a few of our traditional indicators in the olden days till today. Our traditional indicators on the left-hand side, are fruits bearing before a cyclone approaches, this is normal in Fiji. If it is bearing more than the usual number of fruits that means a cyclone is approaching.

Last week I took this picture of a bee hive. It indicates cyclone according to traditional knowledge of the iTaukei. Normally bee hives are situated on top of the trees but when it's at ground level that means a cyclone or a hurricane is approaching.

Another indicator according to traditional knowledge is seashells. Normally this type of seashell is easy to gather while diving in the ocean. But when a cyclone is approaching, the seashells are firmly attached to corals and rocks at the bottom of the seabed. When divers experience this, they become aware of a neighing cyclone.

Before Cyclone Winston last year, category 5, there were more than thousands of dead fish washed up ashore on the coral coast of Fiji. This is due to the change in sea temperature and the elders know that a hurricane or a cyclone is approaching.

ITAUKEI TRADITIONAL KNOWLEDGE IN RELATION TO DISASTERS

INDICATORS

- PRE-CYCLONE

❖ BREADFRUIT [bearing more than usual number of fruits]

❖ BEEHIVES

CONT.

SEA SHELLS AT DEPTH

DEAD FISH [sea temperature change]

DURING DISASTERS – Earthquakes, Tsunami, Cyclones & Floods;

Pre-western practices:

- FOOD PREPARATION TECHNIQUES
- SOLESOLEVAKI [Traditional communal collaboration]
- Caves used for shelter during hurricanes/ cyclones
- IN CASES OF FLOODING – Swift currents in the village]
- TRADITIONAL MEDICINE [in cases of accident, injuries with limited resources available]

The connection between Mother Nature and animals are quite similar across culture even here in Japan, prior to earthquake, tsunamis, animals have a peculiar sense of knowing the unforeseen natural disaster.

Last December, a tropical depression was experienced in Fiji which causes flooding in low-lying areas. For people living in the low-lying areas, when the flood turns into dark-colored muddy waters, that indicates that more flooding will occur in the next few days.

During disasters, a traditional communal collaboration known as *solesolevaki* allows everyone to participate in the securing of the villagers. The elderly and the mothers are escorted to the safe areas. In some villages, caves are used for shelter during hurricanes. Traditional medicines as indicated in the picture, are used to address any injury sustain during the disaster. Communications during the natural disasters are often limited since all communication terminals are down.

After the cyclone, when breadfruits are plentiful, a pit is dag, and all fallen breadfruits are stored in it as a preservation method preparing them for the aftermath of cyclone.

Similarly, people resort to other traditional activities such as the use of traditional medicines, healing practices, fishing methods and agricultural farming for sustainable livelihood in their community.

Cyclone-resilient ICH: The traditional architecture of *bure* in the village of Navala, highlands of Fiji has been recognised as a natural resilient zone. During Cyclone Winston, the villagers were not stirred but rather they enjoyed the scenery. The roofs made of leaves were been blown away yet there was not any major injury to the community members.

There are also flood resilient mechanisms that the people used. Villages have ring ditches build around their village which serves as a countermeasure during tribal wars, preventing enemies from reaching the village, the other purpose of the ring ditch is to prevent flooding. Now the communities have migrated from their ancestral village to a new location, often they choose to live along a river or stream. In the case of Navala village, the ring ditch is called *korowaiwai*.

These are some of our pre-colonial indigenous knowledge and beliefs. We normally believe in the silence and the elements. During Cyclone Winston last year, the indigenous community, iTaukei, have inner belief that people can survive cyclones; the will to survive during natural disasters. iTaukei have their own traditional beliefs on natural disasters and these are mainly from past experiences of their forefathers. However, the question remains, why Winston did a lot of damage? iTaukei have their own traditional beliefs, but still families suffered during this disaster. Pre-Westernisation, before the 1700s, as already mentioned regarding cultural mapping, *lali* (wooden drum) are beaten and conch cells are blown to counter or warn tsunamis. These are the traditional approach in the olden days when tsunami is approaching. Conch shells are blown or *lalis* are beaten. However, these approaches are not practised anymore. iTaukei have got many strategies in Fiji pre-1700s that are transmitted down from one generation to the next.

iTaukei have got their own challenges, in which at present, it is reconnecting the local people with their traditional knowledge. The older generations of today no longer care about the traditional knowledge in Fiji.

We need more awareness and appreciation, and also the insufficient research on ICH and their connections with the DRM. Some other weaknesses are the national and regional stakeholder's capacity and partnerships, inadequate technical expertise and capacity, and the geographical distance to remote communities. I think that is all of my presentations. Thank you very much. *Vinaka*.

BLUE SHIELD PASIFIKA AND ICH SAFEGUARDING IN FIJI

Elizabeth F. D. Edwards[1]

Today I am going to be talking about Blue Shield Pasifika. I know you must be asking what is Blue Shield Pasifika; short form for it is BSP. You have Blue Shield Australia, you have Blue Shield USA and this is a newly formed organisation. It's an NGO and as you can see we've got that term Pasifika. So it's regional, it's not only for Fiji.

These are the contributing institutions that have contributed towards the Blue Shield Pasifika. It's newly established; we just established last year in April, Dr Masuda was present. Our partners are E-Commerce Pasifika, PIMA, Fiji Museum PURBICA, PIALA, UNESCO which is the actual founder that initiated Blue Shield Pasifika and UNISDR.

Our mission is working to protect the world's cultural heritage from human-induced disasters and

1 Blue Shield Pasifika, Fiji

natural disasters, as you can see on the brochures there. This is the brochure that I created and that's one of the first national heritage site declared by UNESCO that's the Levuka Heritage Site, that's one of them. The second one was the one Dr Masuda was actually commenting on Navala, soon after that we've only got Levuka at the moment.

With my presentation I will be talking a bit about Blue Shield and then interacting with Cyclone Winston; the cyclone that impacted Fiji and till today it's almost a year; we still have families, students, schools that are in tents, as you can see there. Cyclone Winston was a category 5 cyclone. When it came on the news the people thought, oh, it's just category 5. For our community that are back in the villages, they thought, oh, it's just a normal cyclone, not understanding the fact of the categories, that it's 1, 2, 3 or 4, 5.

That's Levuka, that's one of the heritage sites again. This is the Levuka School, as you can see the UNICEF tents, you see in the background there. It was actually scorched, all leaves, everything, totally devastated. Honestly speaking, I have never seen a cyclone at this extent and these are all people back at home in the tents.

What is Blue Shield Pasifika? BSP is a Pacific branch of Blue Shield. It is a coalition of international nongovernmental organisations; NGOs that engaged in Disaster Risk Reduction, DRR, activities to protect culture heritage and institutions from risks associated with natural and human-induced disasters.

Today, we only have two members on the team, that's we have one of my colleagues. She was actually invited to this meeting, Mere Ratunabuabua. I am sorry to say she had to be in Canberra and I am actually at the Secretariat.

These are the activities. UNESCO normally gives us the task and then we execute. We launched BSP in April last year. At the national archives, we have established a Blue Shield Pasifika

guideline. We did our first awareness through Facebook because it was free. We currently have 1001 members. I did presentation at the IUCN World Congress for youth in Hawaii in September last year. We've created a Blue Shield brochure as you can see and the next we were tasked to do an exhibition at the Fiji Museum. So, this is the way we are incorporating it.

With natural disasters, it's a new thing for us back at home. It's not something that we get daily but on that scale of the Winston, we were given this task, live to tell, to interview the community, for them to tell the story. So they said, okay, Lizzie, you've got to do DVDs; I said, oh, I don't, where is the budget. There is no budget; so we actually brought in partners. We've invited partners.

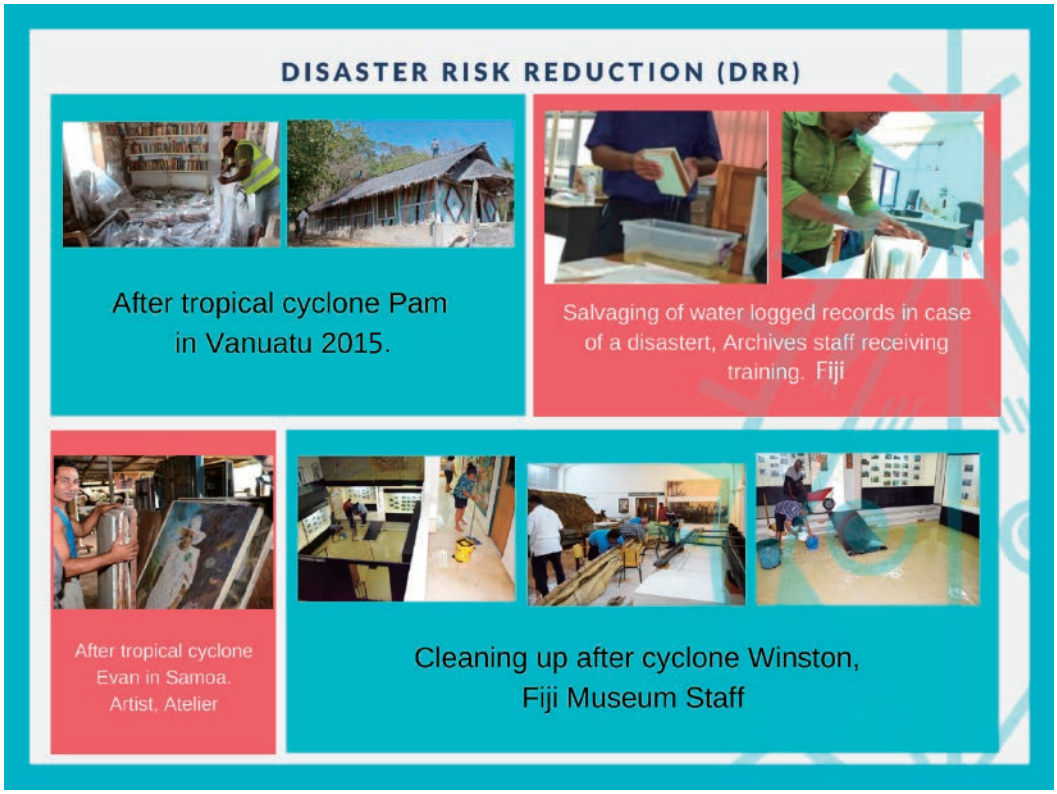
What I've normally suggested to the government bodies is to integrate the public sector with the private sector and merge them together. We did our research and we found under the DMO Department that straight after Winston they had all the stakeholders there on the websites. We had no funding, so we drafted out a letter. We sent it to them and then we asked them if they can exhibit at the Museum. They already have the materials. So we bought them in all at the Fiji Museum under one roof; it was like history. It has never been done; so we had the private sector, we had the government sector, we had the embassies that even funded it.

So, basically disasters impact everyone across the globe, across all sectors and the universities. We also collated responses for my survey questionnaire and this was sent out to national and regional agencies on the status of DRR in their sectors. GLAM, that's looking after the galleries, libraries, archives and museums. So we sent them out to PIAL PURBICA, PIMA, ICOMOS Pasifika, regional organisations and networks, even the USP library. Our University of the South Pacific is a regional University where we have students from all the South Pacific countries and individual organisations. We also had our challenges in receiving responses. We managed to establish a database for existing and not well-known organisations, part of it was most of them said oh! okay, what's Blue Shield Pasifika? So, we had a workshop. As you can see the participants present there were directors of the museums, archives, libraries, all throughout the Pacific. We even had lawyers, from the States. This is Dr Stone, UK Blue Shield; Dr Akatsuki (Takahashi) who is also like my boss and all the Pacific regional participants. I think Richard, that's your boss there.

Concerning the current status of disaster risk reduction in BSP institutions, our findings are: not all institutions has had OHS training; most of these institutions have no backup plan in place for their data, meaning all the information that's in your museum, your library, your archives. I ask them, do you have a backup in place, if a tsunami strikes your building where will that information be, and most of them say, it's all in that building in another room, but they never thought of that to take it off-site. Some tell us there is lack of funding, limited human resources to manage DRR, no plans are in place in case of a disaster, limited knowledge on DRR in their institutions.

This is the BSP brochure; our mission is to empower small island developing states in DRR on cultural heritage and institutions, and to promote the 1954 Hague Convention under UNESCO. Our three main objectives are to share good practices in DRR for cultural heritage and institutions, GLAM, in Pacific small island developing states promoted by NGOs in the Pacific; to gain a better understanding on the role of Blue Shield within the framework of the 1954 Hague Convention and it's two protocols which is also natural disasters. It's lined up from 2015 to 2030 and the third bit is to support capacity building activities.

As you can see in the brochure that's after the Cyclone Pam in 2015 with our national archives; it's never been hit by any terrible disaster. So the staff was normally put into trainings in case they do have something but fresh off the shelf last week they got robbed; so that's an incident. These are the artists after Cyclone Evan in Samoa and this is at the Fiji Museum. Flooding in the gallery spaces. Sometimes it's just the lack of funding to repair.



These are our action plans. Priority one is to understand disaster risk. Priority two, strengthening disaster risk governance to manage disaster risk. Priority three, investing in disaster risk reduction for resilience. Priority four, enhancing disaster preparedness and effective response to build back better in recovery, rehabilitation and reconstruction.

I'd like to speak a bit about the exhibition. It was opened by Mr Timothy Wilcox. So this is how we engaged the community, boarding the stakeholders, never been done but it's possible, it can be done. We share that with our regional counterparts. They could also implement. This is how we did our awareness. We engaged the artists. This group performed an item stronger than Winston and this is part of the displays that were done. This is Save the Children, this is an institution that looks after children. Psychologically, the children were impacted too and still recovering. UNISDR, and those are the DVDs that playing in the background there.

ICH and DRM in Fiji. Today also, I have a background from the media, television production site. So, we have recorded Living Human Treasures documented at the Fiji Museum. We have bought in Fiji's top Living Human Treasures with the knowledge on the culture sector and also ICH which is totally unique in their caliber. Secondly, we are raising awareness to the younger generation on the traditional knowledge on science of disaster in nature. Third bit is the information should be communicated through DVDs. I think that's a platform that most of us should be looking at and incorporating that to move with the 21st century. Most of our information are either in pamphlets or brochures. But then if you look at the day and age and time you have the telephone technology, you have got DVDs and I also strongly believe that the information, like my colleague stated earlier that the rural people know and you have the urban. I think these two information should be documented and circulated vice-versa and it can be distributed through schools at secondary level, primary level or even taking up to the ministry levels.

The signs of disaster is stated earlier the bearing of excessing fruits, birds, even the fish having

their hearts black, the bees and the sky. Regional ICH priorities, firstly sharing and exchange of information secondly value and revival of traditional house building, boat building skills and seafaring skills. That is the two components that I would like to highlight at this meeting. As stated earlier, most of our communities back at home are still intense and most are waiting for handouts from the government to come and provide. Whereas not everybody had their – whether it's their natural habitat, scorched out or it's still available but it's just a knowhow, most of them don't know how to do it. And I think that information needs to be disseminated back to them on how they can build back their own homes.

ICH safeguarding, storage of ICH recorded data for backup, skills and knowledge, transmission, raw materials must be grown, cyclone proof, for example the sago plant in Dakunikoro Village is becoming extinct. So, I think with SPC they have gone into taking this plant and planting it in another village. Traditional *bure* builders, house builders are in high demand now, families and schools are still housed in tents. The habitat for humanity, it's a building NGO with DISMAC. This is the NDMO Government Office that looks after our citizens in times of disaster. Fiji Museum, these are the multi-partners, knowledge and awareness, linked to the prototype linking up to the agriculture sectors with cultural knowledge for cultural post-disaster needs analysis results. Supply of funds to replant certain types of woods, like the *vesi*, *dakua*, *voivoi* or the sago. The collection of data on all of the above.

These are some of the pictures of what's actually happening now on the ground back at home. Students are having their classes out there. This is the family and those that have lost their homes are still in the tents.

Just an example on the Fiji background statistics. As you can see on this chart here, shelter is the fourth priority, that's why we are emphasising on traditional home building and this is a rough estimate on the 38.6 billion. This is a PDNA after Cyclone Winston. It also has stats on the ICH.

Impacts




Activities on ICH at the Fiji Museum



A study of ICH safeguarding, a study on each step, SPC data research on Vanuatu and they found that the impacts of disasters not only affected ICH but also the resource materials, regeneration communications between all sectors. Surveys must be done well before disaster and the ICH traditional practices. Fiji and the South Pacific need to have a baseline research information. Right now, we don't have that.

These are some of the practices that are still happening at the Fiji Museum. The pottery makers, *manimani* weavers, the fire walkers and we invite the students and the public at large to attend and to keep it alive instead of just having it there back in the villages. We bring it to the museum because apart from the artifacts these are the living human treasures too.

Our strengths are the partners and the networks that we already have in place. Our challenges are raising awareness and communications. In our action plan, we are trying to develop more informative DVDs for the public at large and use it as a training tool. *Vinaka vakalevu*. Thank you.

ICH AND DISASTER RISK MANAGEMENT IN THE REPUBLIC OF VANUATU

Richard J. Shing[1]

Good afternoon. Before I start, I would like to say my presentation would be more general and broader. I have my other colleague, Meredith Wilson, who will be doing a case study on a more specific case study on her presentation.

Though ICH is a prominent and is an important part of everyday life in Vanuatu, the work to preserve, promote and protect ICH is still in its infancy.

The National Laws on Legislation dealing with ICH: The Vanuatu National Cultural Council or VNCC Act is an act to provide for the establishment, for the preservation, protection and development of various aspects of the rich cultural heritage of Vanuatu and for provision of public libraries. The objects of the council that are relevant to ICH and that I quote from the VNCC Act One is to support, encourage and to make provision of the preservation, protection and development of various aspects of cultural heritage in Vanuatu. Two, to support, encourage and make provision for the establishment, maintenance and development of public libraries. Three, to establish, maintain, administer and make provision for such national institutions as the council shall consider necessary and appropriate for the purpose of these objects, including but not limited to the following national institutions; the Vanuatu Cultural Centre, including the National Museum, the National Library, the National Film and Sound Unit, the Vanuatu National Heritage Register and the National Archives. Four, to initiate, encourage and support all services, matters or things that are conducive towards the proper and orderly development of any national institution set up in accordance with this act. Five, to initiate, encourage, support and conduct research and training programmes on any matters relating to any national institution set up in accordance to this act. Six, to foster cooperation in matters related to the provision of museums, libraries and international relations between the council, governments, organisations and bodies interested

1 Vanuatu Cultural Centre

Heritage Conventions

- Vanuatu ratified the World Heritage Convention on 13 June 2002
- Vanuatu became a signatory to the Convention for the Safeguarding of Intangible Cultural Heritage in 2002
- Inscription of Vanuatu's Sandroing on the Representative List of Intangible Heritage, 2003
- Chief Roi Mata's Domain was inscribed on the World Heritage List in July 2008

***Above**: A sandroing; **below left**: Mangaas (Roi Mata's residence); **below centre**: Excavation on Artok of Roi Mata's burial; **below right**: Rockart in Fels Cave (where Roi Mata drew his last breath)*

therein. In addition, Vanuatu has the Archive Act; the Book Deposit Act, the Preservation of Sites and Artifacts Act to assist in the preservation, protection and promotion of cultural heritage.

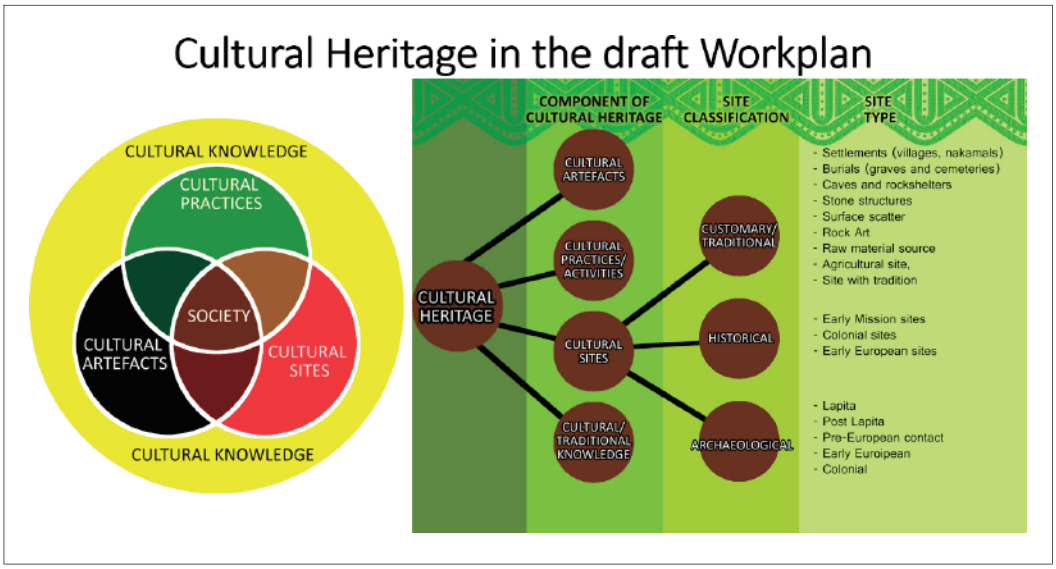
Despite the legislations already in place there still is a lot of need to improve and implement the national legislature for the protection of World Heritage sites since Vanuatu does not have any specific legislation that protects World Heritage sites. The site of the Chief Roi Mata's Domain which is Vanuatu's first and only World Heritage site, are currently protected under the Vanuatu's Protection of Sites and Artifacts Act but there are specific needs that need to be addressed regarding World Heritage in Vanuatu.

There is also a need to develop a legislation that gives recognition to and protect Vanuatu's intangible cultural heritage.

Heritage Conventions: The Republic of Vanuatu signed the World Heritage Convention in 2003 and shortly thereafter the Vanuatu Cultural Centre in consultation with the Environment Unit worked to develop a tentative list of sites for future nomination and presented the list in 2005. Chief Roi Mata's Domain was inscribed on the World Heritage List in 2008 and is our country's only world heritage site.

A nomination is currently being prepared under the auspices of the Environment Unit for Lake Letas. Lake Letas is the largest lake in Vanuatu. It is a crater lake on the volcanic island of Gaua in the Banks Islands of Northern Vanuatu. Vanuatu became the signatory to the 2003 Convention in 2002 and Vanuatu sand drawings were proclaimed in 2003 and inscribed on the representative list of the Intangible Cultural Heritage of Humanities in 2008.

Vanuatu's first and only World Heritage site is the Chief Roi Mata's Domain and the site is located about 20 minutes' drive north of Port Villa in the area of Havannah Harbour and is a cultural landscape consisting of three sites; Mangaas, Fels Cave, and Artok. These three sites of the Chief Roi Mata's Domain represent the life and death of the last holder of the Roi Mata chiefly line title who died around the around 1650 A.D.



The site of Chief Roi Mata's Domain has provided us with an opportunity to reflect on the threats, both cultural and natural, to the cultural property of our nation and is managed entirely by the traditional landowners and custodians of the area.

Cultural Heritage in the Draft Corporate Plan: The Vanuatu Cultural Centre is in the process of drafting its next corporate plan for the next 5 years and its first yearly business plan. It gives us the opportunity to rethink our role and make plans on how we want to manage cultural heritage in the years to come. It is the first time that the managers of the different sections under the Vanuatu Cultural Centre are being part of putting this plan together with the vision of the institution as a whole.

In the Vanuatu Cultural Centre, cultural heritage is divided into four components. Due to the lack of adequate human resource, the institution is attempting to define cultural heritage in this manner, which I have on the slide above; that aligns its various components with the various roles of the different sections that make up the Vanuatu Cultural Centre to ensure that all current sections assist and have a role to play in the protection, preservation and promotion of cultural heritage in Vanuatu. Four components are the cultural practices, cultural sites, cultural artifacts and cultural knowledge and inside all of this is the society.

Cultural artifacts are anything created by humans which give information about the culture or its creators and the uses are significant because they offer an insight into the technological processes and economic development and/or social structure, livelihood and well-being of the people who created and used them.

Cultural artifacts are tangible and movable and include, but not limited to, tools, for example tools for gardening, fishing, cooking and cleaning, etc., ornaments, for example shell bracelets, earrings, pendants, necklaces, headdresses, etc., and instruments, for example flutes, drums, ankle rattles, etc., ceremonial objects, for example *tamtams* in funerary effigies, etc., weapons, for example club, spears and slings, etc., and traditional attire.

Cultural activities are performances, actions, practices and activities that are connected to the culture of a society. They are social, artistic or ceremonial pursuits considered to be valuable, enlightening and/or beneficial to the people living in a society and are related to their habits, beliefs, traditions and life ways.

They are visible when performed and include, but not limited to, activities and practices associated with gardening, for example food production and preparation, traditional medical practices, traditional games, traditional rituals and ceremonies, for example weddings, custom dances grade taking ceremonies, etc., infrastructural construction, fishing, traditional music, carving, art, song and chants, creating traditional clothing and ornament making.

Much of our cultural heritage, our cultural activities are big succumbed to external influences and change over time. There is, therefore, an urgent need to preserve, protect and promote the utilization of these practices.

Our cultural sites are the immovable places within the terrestrial and marine environment that is of cultural, historical and/or archaeological significance or value. The size of a cultural site may vary from the size of a small area surrounding stone to the size of the island itself and may sometimes contain artifacts and physical evidence of past events, activities and practices.

Cultural knowledge is translated as being the information, intelligence, ideas, wisdom, skills, awareness, understanding, manners, beliefs and practices that are developed, sustained and passed on from generation to generation within a society often forming part of its cultural and spiritual identity. Cultural knowledge includes types of knowledge about traditional technologies of subsistence, for example, tools and techniques for agriculture and hunting, ethnobotany, ecological knowledge, traditional medicine, celestial navigation, weather and climate.

These kinds of knowledge are crucial for the subsistence and survival and are generally based on the accumulation of empirical information on interactions with the environment. In tradition of Vanuatu's societies, knowledge is passed orally from generation to generation, from person to person and finds expressions in the form of stories, legends, folklore, rituals, songs and laws.

Cultural or traditional knowledge is essential element of all three components of cultural heritage, artifacts, activities and sites and also is a very essential component of society as a whole.

Potential Natural and Man-Made Threats to Cultural Property: According to the 2015 World Risk Report, which I found on the internet, Vanuatu is the riskiest place in the world to live.

Vanuatu straddles a particular difficult series of environmental hazard zones, being exposed both to high levels of volcanic and seismic activity as part of the Pacific Ring of Fire and to frequent tropical cyclone activity. The global challenge of sea level rise also takes on a particular significance in this oceanic environment. When preparing a risk and management plan for cultural property in Vanuatu, we need to consider as a priority the impacts of – and I read them in order of frequency; tropical cyclones, earthquakes, flooding, volcanic eruptions and activity, El Nino effects, global warming and sea level rise.

With regard to the theme of this conference, Vanuatu has experienced a land sale boom which is in large tracts of the customary land sold to foreign investors. The separation of land and people at the time of colonisation and now more recently through land sales represents the biggest threat to cultural heritage in Vanuatu because it severed people's connections to their *kastom* or traditional places. It severed the connection between the tangible and intangible heritage of our people. We are being in danger of losing our intangible cultural heritage if the tangible land and the tangible resources that are around them are lost. The Ministry of Lands is currently working hard to address this issue through new land reforms but we still have a long road ahead in relation to this issue. The site of Chief Roi Mata's Domain has undergone numerous land use planning workshops to address the issue of land sales seeing Lelema World Heritage Committee working exceedingly hard to educate the community about the impacts of land sales on cultural heritage.

The Vanuatu Cultural Centre does not have a complete Disaster Risk Reduction Plan, though some projects and initiatives may be seen as a risk reduction before, during and after the disaster.

The slow food initiative and the safeguarding of indigenous vernacular architecture and building knowledge in Vanuatu are two projects aimed at promoting traditional food and architecture to areas where the use of ICH is important to the survival of the community in times of disaster. It is, however, essential that the Vanuatu Cultural Centre oversees the protection of cultural property in Vanuatu, invest in the development of disaster risk reduction plans to protect the tangible and intangible cultural heritage within its territory.

Of all the disasters in Vanuatu, cyclones are the most frequent and destructive. After the cyclone, as we saw after the category 5 Cyclone Pam, people's main concerns were about housing and food. The majority of people living in Vanuatu heavily rely on food. They produce for the daily sustenance.

The indigenous knowledge on where and how certain food are grown and how they can be processed for preservation are important in times of disaster. For example, in Vanuatu some local food damaged during cyclones can be dried or fermented to preserve it for months or years. The breadfruit, as my colleague, two of our friends have discussed, is one type of food that people can dry and ferment and store for long periods. In addition, there are many plants that people normally do not eat but do so in times of disaster and food shortage. One example I have put up there in the picture is that in the bark of the black palm.

More than half of the people living in Vanuatu cannot afford cyclone-proof cement houses but our ancestors have been living in this cycle prone environment for 3000 years and have invented certain ways of building traditional houses, using materials available to them in the surrounding environment which possess the capacity to withstand strong winds and earthquakes.

During Cyclone Pam many of these locally built *nakamals* or large meeting houses served as storm shelters. Different islands have different ways of building indigenous houses using different materials but one common feature that makes them cyclone and earthquake resistant is the fact that all of them are built with the roof log and embedded into the ground.

The problem we have faced today is many people build their traditional houses with high walls, a feature that was introduced by the early missionaries in the late 1800s to allow for more room

Objectives of the Vanuatu Cultural Centre in relation to the protection of intangible cultural heritage

- DRR Plan for Chief Roi Mata's Domain and Fels Cave
- Improving and implementing national legal protection for World Heritage sites
- Cultural Mapping of the association between the tangible and intangible heritage of traditional food practices and traditional architecture
- Fieldworker workshop on disasters and *kastom*
- Survey of fieldworkers (intangible cultural heritage)
- Festivals. Culture and Arts Festival 2018

Inside the Taloa nakamal on Nguna island

space. This type of housing is not cyclone resistant and has led to the loss of knowledge of building low roof traditional houses in some of the islands, especially in the urban areas.

The Objective of the Vanuatu Cultural Centre in Relation to Protection and Promotion of ICH and DRR: The Vanuatu Cultural Centre's immediate goals for ICH in relation to DRR are, one, to undertake cultural mapping with the assistance of the Vanuatu Cultural Centre field workers on intangible cultural heritage which would provide us with the information on ICH in different regions of Vanuatu, identify intangible cultural heritage that are under threat, record and document *kastom* knowledge associated with disaster preparedness and survival, for example food preparation. Two, develop and implement national legal protection and recognition of ICH for World Heritage sites. Vanuatu does not have any legislation specific to World Heritage sites and also to include more legislation on ICH. And three, to produce materials, written, audio and audiovisual, and organise activities, events and festivals aimed at promoting the role and importance of ICH and DRR. Four, prepare Disaster Risk Reduction Plan for World Heritage property of Roi Mata's Domain based upon how ICH can be utilized to reduce risk. And five, organise and support projects that actively promote the connection between the tangible and intangible cultural heritage of traditional food practices and traditional architecture.

The Vanuatu Cultural Centre will continue to support work on the transmission, revival or promotion of its ICH and this concludes my talk.

To conclude, I would like to thank Dr Shaw. One thing I wanted to get from this meeting here is a way forward for our country. We are very – a bit back in the policymaking and what all of you have been presenting today, you are well advanced in what we are doing as an institution and what I learned a lot from this morning's discussion is a way forward. And I will use a lot of examples which Dr Shaw presented and I am sure after this meeting I will have a lot more to contribute to ICH in our country and disaster risk reduction.

ENHANCING TRADITIONAL MECHANISMS OF ICH TRANSMISSION AT CHIEF ROI MATA'S DOMAIN, VANUATU

Meredith L. Wilson[1]

Firstly, I would like to acknowledge that some of the ideas that I will be presenting in this paper emerged during a recent trip to Vanuatu with Yoko Nojima from IRCI, and I would also like to thank IRCI for inviting me today to present on the intersection of these ideas of ICH safeguarding and disaster risk management.

My husband, Christopher Ballard, and I have been working at Chief Roi Mata's Domain, Vanuatu's first World Heritage Site, since 2004, initially with the landowning community and the Vanuatu National Museum and Cultural Centre to prepare the nomination document for the property which was inscribed in 2008, and thereafter as part of a growing international advocacy group to build and strengthen the management and tourism activities of the site. So, this paper really emerges from a long history of discussion between myself and the landowning community, and particularly the property management committee that is pictured in the slide, and colleagues at the Vanuatu National Museum and Cultural Centre.

Chief Roi Mata's Domain is the former territory or domain of a famous Paramount Chief, as Richard talked about, who held the title Roi Mata and who died in about 1600 CE. Legends of the life and deeds of Roi Mata are told throughout Central Vanuatu, although these legends almost certainly refer to the lives and activities of several different holders of this title.

It's the very last Roi Mata who appears to have been an exceptional individual responsible for settling a long period of widespread conflict in the mid-16th century and for establishing *Naflak* which are basically group totems that continued to structure marriage patterns and connections to land in Vanuatu. The property is demarcated by the dark gray area on the map to the right and consists of the three sites: Mangaas on the mainland of Efate, Fels Cave on the Island of Lelepa and then on the left-hand side Artok Island, or Hat Island as it's also referred to, which is separated by Havannah Harbour.

Figure 1

The Lelema World Heritage Committee (LWHC) that manages Chief Roi Mata's Domain

1 Stepwise Heritage and Tourism Pty. Ltd., Australia

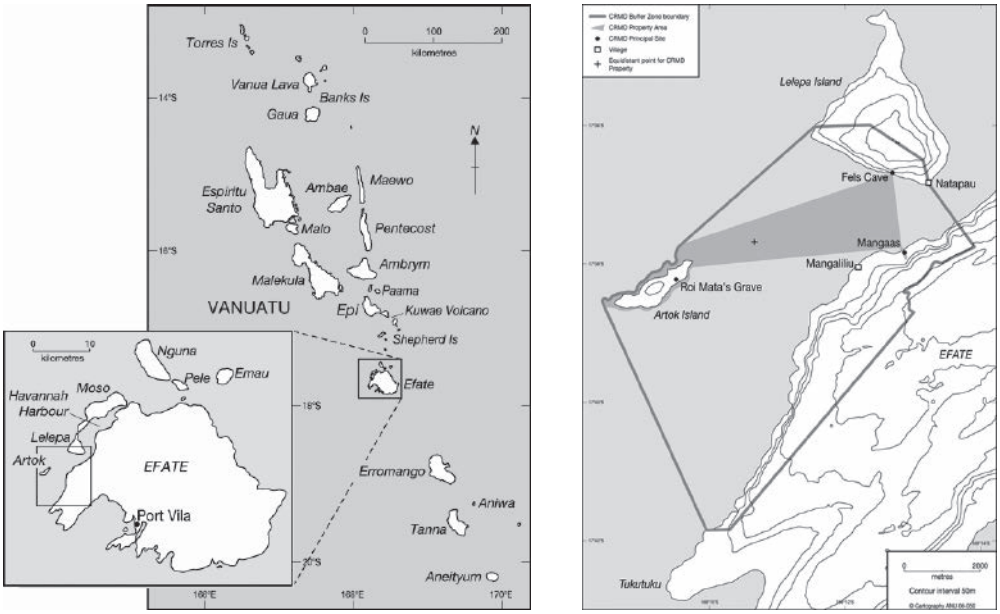


Figure 2 The location of Chief Roi Mata's Domain, Vanuatu

So, resident at Mangaas on the main island of Efate and Central Vanuatu, this last Roi Mata is said to have died as an old man in Fels Cave on neighboring Lelepa Island. His residence at Mangaas was abandoned, never to be resettled again and his body was transported to the small island of Artok, whose residents were displaced so that the entire island could be declared taboo or *fenua tapu*. There, Roi Mata was reputedly buried in a ceremony that saw as many as 300 people buried alive to accompany him in death. Excavations at the site in the 1960s by the French archaeologist, Jose Garanger, uncovered an extensive cemetery that confirmed the story of Roi Mata and the presence of the largest-known sacrificial burial site in the Pacific.

There are two concepts that are important for understanding Chief Roi Mata's Domain and the history of management at the site. The first concept is integral to the Lelema Community that lives in the Buffer Zone around the site and which looks after and tells the stories of Chief Roi Mata's Domain. *Nafsan natoon* translates as the 'talk that is'; it's like a local law. It's a natural way of being in the landscape. This concept lies at the heart of all intangible cultural heritage that authenticates Chief Roi Mata's Domain; the stories that give meaning to the sites and the social and cultural codes that dictate how people behave in relation to the sites of Chief Roi Mata's Domain. For instance, it is inappropriate for people to call out the name of Chief Roi Mata on the Island of Artok, particularly close to the grave site, due to a belief that the sea surrounding the island will become rough and impassable by boat, stranding them on the island until they make an offering on the grave.

The second concept is a modern framework that has been developed over time to explain the community's approach to managing Chief Roi Mata's Domain as a cultural landscape and a World Heritage Site. In pigeon, this framework is referred to as a 'trifala' leg, basically a three-legged stool, as it has three components: people, place and story. It's the places which are the sites within the property; the people, the landowners and chiefs and residents who look after the site and the people for whom the site has meaning; and the stories about Chief Roi Mata and the landscape. While World Heritage inscription involves the registration of physical properties, the category of the cultural landscape recognises that the stories and the beliefs of the community are essential to the outstanding universal value of the site. The Management Plan of Chief Roi Mata's Domain takes each of these three factors into account for they are interdependent and

Figure 3 Left: Mangaas immediately after the Cyclone; Right: Mangaas after the rehabilitation of the site

critical to the overall value of the property. If one leg of the stool is threatened or damaged, the stool topples over. However, when the nomination dossier for Chief Roi Mata's Domain (CRMD) was being conceived, its classification as a potential World Heritage property led to the development of a monitoring programme that actively measures changes to the physical components of the property, for the place essentially.

Seismic impacts, for instance, were considered in relation to their potential impact on the rock art and the structure of Fels Cave on Lelepa Island and monitoring points were established accordingly, and we set up similar monitoring points on Artok Island. However, while the Management Plan for Chief Roi Mata's Domain promotes the revitalisation of storytelling associated with the Roi Mata site, specific indicators for measuring the rate or quality of the transmission of the stories or knowledge, the intangible elements of the site, within the community have only recently started to be articulated and piloted.

Cyclone Pam, a category 5 cyclone, struck Vanuatu on 13 March 2015. While the cyclone did surprisingly little structural damage to the material sites of the CRMD, it severely damaged homes, gardens and livelihoods. This slide shows before and after shots of the rehabilitation of the sites which were undertaken over a period of a week with funding from UNESCO, and you can see that we were able to make significant changes to the site within that short timeframe.

The event brought into sharp focus that without security for the health and livelihoods of the community, the stories and thus the meaning of the cultural landscape of Chief Roi Mata's domain are profoundly threatened. When a natural disaster strikes the cultural landscape, that natural disaster becomes a cultural disaster relevant to the people who have been devastated by its effects and who give meaning to its impact.

Our understanding of the relationship between disasters and cultural heritage of Chief Roi Mata's Domain has evolved over time. So, in 2002, prior to the nomination project, an earthquake struck close to Efate that caused significant damage to the entrance of the rock art site of Fels Cave where Chief Roi Mata drew his last breath. This event emphasised the material threats to the property and our need to address them.

By 2004, and Richard talked a little bit about this, we were confronted with a much larger threat of widespread land sales to foreign investors, essentially a human induced disaster. While this threat awoke us to the idea of the community's well-being, we were still thinking at that time like archaeologists, and were concerned about the sites, the site access and site ownership. We were acutely aware of the threat posed by, and Richard talked about this, the splitting of the tangible heritage (the place) and the intangible (the people in the stories) as a result of land sale.

But what the cyclone of 2015 made us realise is that while the impacts to the sites were superficial, the cyclone posed a significant threat to the community's well-being and therefore the site's values. After an assessment of the impacts of the cyclone to the people, places and stories of CRMD, the main finding was the need to develop a Disaster Risk Management Plan that placed the community and its well-being at the heart of future disaster planning for the property.

The recent mission to Vanuatu by IRCI at the end of last year provided us with a brief opportunity to return to the community concept of *nafsan natoon* in the context of disasters and to use this as one of the founding principles for eventually developing a disaster risk management plan for the site. An afternoon meeting on the beach at Mangaas with the managers of the site allowed us to undertake a preliminary study of how indigenous knowledge and intangible cultural heritage informs disaster risk management at Chief Roi Mata's Domain.

The workshop focused on the use of indigenous knowledge in relation to four different types of disasters; cyclones, earthquakes, fire and coastal water inundation as a result of tsunamis and sea level change. As time was limited, to guide a discussion, we asked the community to frame their responses in relation to the Disaster Risk Management Cycle to obtain a sense of what people do before, during and after a disaster. We didn't address the issue of community vulnerability because the session was too short. So, we specifically addressed the hazards themselves. So to look just very briefly at the *langwot* (which is the cyclone) and the indigenous knowledge that was used in preparation for the cyclone.

In the months leading up to a cyclone, people prepare their grass houses; they construct them; they repair them. There is seasonal planting of particular types of crops (one of these is called *nalo*, which is a yam, and it's a cyclone resistant crop) and people look out for environmental indicators of a cyclone. So, for example, this particular slide shows my colleague Richard Matanik, who is Chair of the World Heritage Committee, drawing in the sand to demonstrate the location of the sun in relation to a site called *napsinfor*, which is a casuarina that sits on the top of Hat Island, and if the sun exceeds the line of *napsinfor* then that is an indication to the community of an impending cyclone.

In the event that a cyclone is imminent, gardens are prepared to reduce damage. Wild cane is used to secure yams in the ground. Manioc (cassava) is cut low to the ground. Food is harvested and stored for post cyclone use. In Lelepa, they have a particular technique called *namru* which involves the hanging of food in the houses for consumption after a cyclone and, as others have talked about, in Fiji and throughout Vanuatu people used fermenting techniques to store food in underground silos. The health and well-being of members of the Lelepa Community after Cyclone Pam can be directly linked to the extent to which they embraced these historically-adapted techniques of preparing for cyclones.

The site managers at CRMD, after our short discussion, felt that to 'build back better' they need to focus particularly on strengthening the transmission of indigenous knowledge associated with food security and cyclone resistant shelter construction. In terms of the future safeguarding of intangible cultural heritage in the Pacific, what can we realistically achieve at the grassroots level or at the level of government policy to: prevent the loss or damage of intangible cultural heritage; to revitalise intangible cultural heritage in conjunction with introduced technologies to assist in disaster preparedness and management; and use ICH practices to recover from disasters?

I didn't mention this but the community coming together to work on the rehabilitation of the sites after Cyclone Pam was a process of collective healing in itself. Numerous civil society organisations, and the Vanuatu Cultural Centre, are making a concerted effort to record indigenous knowledge and practice in relation to disasters. So, the National Advisory Board on

Figure 4 Richard Matanik, Chair of the Lelema World Heritage Committee, illustrating the path of the sun in relation to *napsinfor*

Climate Change and Disaster Risk has created a website which is an excellent repository for this type of information. However, while the national government of Vanuatu actively supports the recording of this knowledge, given Vanuatu's status as one of the most dangerous places to live in terms of a natural disaster the government is understandably invested in strengthening infrastructure that will ensure the safety of its citizens, utilising mobile phone technology to provide early warning systems, etc, and therefore relies to a very large extent on communities to practice disaster-related ICH management before, during and after a cyclone.

As cultural heritage practitioners, we see our role within such an approach as supporting and enhancing traditional mechanisms of knowledge transmission within communities. This requires first that we work with the communities to understand how knowledge is transmitted horizontally (so, within a living community) and vertically, and Fatima talked about this a lot, in terms of inter-generationally within the same community. In Vanuatu, this task would need to be undertaken in conjunction with the local institutions – the National Museum and Cultural Centre in this case – which is in a better position to influence policy.

There is substantial evidence to suggest that much of the transmission of information about intangible cultural heritage generally, or more specifically intangible cultural heritage that helps people to survive a natural disaster, occurs between grandparents and grandchildren – the two elements of the community that have the most time on their hands but who are also the most vulnerable to disasters.

So how might we support mechanisms of knowledge transmission within communities, allowing them to reflect on their approaches to DRM? If we take, for instance, the traditional practice in Vanuatu of planting wild yams or *nalo* in anticipation of a natural disaster, at CRMD, those families which planted wild yams prior to the cyclone had enough food to last for several months. Those that didn't plant wild yams faced hunger, and a prolonged El Nino fueled drought impacted that issue. How might the wider community at CRMD and indeed the broader Pacific region learn from this experience and how can we support them in the process of knowledge transmission. One approach might be, and we've talked a little bit about this and Lizzie mentioned it as well, is to provide Pacific Island communities with the resources to stage workshops, to share information about their own knowledge and the capacity for survival. Secondly, to define the knowledge that needs to be transmitted and identify how that knowledge is transmitted. And thirdly, to pinpoint blockages to the transmission of knowledge and decide what is needed to improve transmission.

While the survival of intangible cultural heritage, and by extension human survival in the face of

disasters, requires the ongoing documentation of intangible cultural heritage, we also need to support the infrastructure, so the engine essentially, of community-based mechanisms for information sharing between families, between islands, and across generations.

* *

Questions and Comments following the Presentations by Participants

There were some brief question and answer sessions between the series of presentations by participants from the Asia-Pacific region. The major points raised were as follows:

Policy development on ICH and DRM in Bangladesh

Ms Molina (Center for Disaster Preparedness) asked about the current opportunities for policy integration and linking ICH with DRM in Bangladesh. Mr Selim (Gaanbangla Television), the first Bangladeshi presenter, noted that there is no mention of ICH in their DRM policy; however, when a human is protected, ICH is also protected. Meanwhile, they should endeavour to add ICH to their policy. Mr Mahmood (UNESCO office in Dhaka), another Bangladeshi presenter, furthered this point by mentioning that the protection of the community is closely interlinked with ICH because craftsmen like potters, weavers and *baul* singers are all part of the community, and he also added that it is the right time to push the government because a new policy is under consideration following the completion of the current term.

Dr Shaw questioned which ministry or department, either at the national or local level, could be a realistic target to apply some of the findings, given that there are so many institutes and ministries involved in policy integration and intervention in the Bangladeshi context. Mr Mahmood answered that they must involve the Ministry of Culture and should conduct the integration as an inter-ministerial activity. Adding to this, Mr Selim mentioned that he would communicate with the Ministry of Culture to further explore this new field of ICH in relation to disasters.

Traditional and indigenous knowledge related to DRM

After the presentations on Bangladesh, Mr Shing (Vanuatu Cultural Centre) asked if there was any example of traditional knowledge being used to protect people's lives, belongings or housing in times of a natural disaster. In response, Mr Mahmood further explained his presentation about the exploitation of forest resources.

Following Mr Loloma's (iTaukei Institute of Language and Culture) presentation on the traditional knowledge of cyclone indicators and practices such as emergency food preparations useful for the community's DRR, Ms Nojima (IRCI) questioned whether such knowledge and practices were effective and actually used during Cyclone Winston in 2016. In response, Mr Loloma explained that people in Fiji are now more dependent on government support rather than using traditional knowledge that has caused a delay in people's recovery, and some of the affected are still living in tents nearly a year after Winston.

Following the four presentations from the Pacific Islands (Fiji and Vanuatu), and reflecting upon her own experience of the workshop with Ms Wilson (Stepwise Heritage and Tourism) in Vanuatu, Ms Nojima commented that the Pacific Islands are fascinating due to their rich local knowledge that is very useful for DRR, but it is unfortunate that such knowledge is not really put into practice. Ms Wilson responded that Chief Roi Mata's Domain (CRMD), where they had a workshop, is on the fringes of Port Vila and has experienced a profound impact of globalisation,

whereas indigenous knowledge is still firmly embedded in everyday life in other remote areas. We could start holding workshops in such areas to discuss how such information is transmitted and how science is embraced. She added that by looking at various cases including the CRMD one, we can identify where transmission breakdowns are occurring. Then we will have a more informed picture of how transmission processes impact the resilience of these communities.

Traditional architecture in Fiji

Mr Masuda (National Task Force for the Japanese Cultural Heritage Disaster Risk Mitigation Network), who visited Navala village to conduct a post-disaster needs assessment (PDNA) on traditional building technology, recognised the resilience of traditional Navala architecture against disasters and asked Mr Loloma if it could be recommended for inscription on the UNESCO list of the 2003 Convention.

In response, Mr Loloma mentioned that they would like to list the traditional architecture in Navala as World Heritage, but there have been some problems involving the landowners. Although Navala village is best known in Fiji for retaining traditional architecture, Mr Masuda clarified that the village was established at the end of the 19th century to protect local people from enemy; hence, it is considered too recent to be listed as a heritage site despite its important history of refugees. This made UNESCO to shift its focus to the building technologies inscribed in the list of ICH. He thinks there would be less obstacles in comparison with registering tangible heritage, and it is more viable. Ms Wilson added that there were some discussions in Vanuatu about whether or not to list building knowledge on the list of ICH and agreed that they could circumvent some of the issues regarding landownership by thinking about safeguarding the village on another register.

Mr Iwamoto (IRCI) questioned Ms Edwards (Blue Shield Pasifika) about how she would like to ensure the transmission of skills such as house building in schools or in non-formal education, because sometimes it is very difficult for the younger generation to learn skills that do not accrue a financial income. Ms Edwards responded by explaining that they came up with the idea to have workshops in villages affected by Cyclone Winston, where there is a lack of carpenters with the skills to construct houses, and they are waiting for government action. Given that we cannot depend on the government entirely, it would be helpful to revive the knowledge of traditional *bure* building through workshops and encourage the villagers to rebuild using their own efforts and materials available in their backyard.

FINAL DISCUSSION

Before starting the final discussion, Ms Nojima from IRCI briefly summarised the project background and activities in FY 2016. Subsequently, she introduced the following themes to facilitate the final discussion:

1) potential of indigenous knowledge

2) the positive role of ICH in the disaster management process

3) impact of natural disasters on ICH

4) ICH and DRM in the context of sustainable development

5) the tangible and intangible relationship in DRM of cultural heritage

Due to the time constraint for the final discussion, most of the opinions and comments focused on issues related to indigenous knowledge, while other aspects were also referred to during the course of the discussion.

General comments on the project

At the beginning of the discussion, Dr Shaw provided some general comments on the working group session and the project as a whole, noting that addressing anything intangible, be it cultural heritage or a disaster, is always challenging; nonetheless, it always has a positive impact and he expected to see some tangible outputs from the research on ICH. Moreover, there are three important intervention areas which he calls the GET framework: governance, education and technology. Following are the major points that were addressed:

While we all recognise the importance of ICH, indigenous knowledge or local knowledge, it is not included in governance and decision-making either at the local level or at the national level. Therefore, it is extremely important to gain government recognition to mobilise sustainable disaster management strategies, such as early warning and other local practices during or after disasters. Among the presentations by Asia-Pacific participants, he found a very strong focus on integrating traditional indigenous knowledge and practice in DRR with scientific validation. He expressed a willingness to link IRCI with those developing science-technology plans for the countries and the region to implement the Sendai Framework, because there is strong focus on including ICH. This would also justify the governance mechanism.

ICH is mostly transmitted orally and is culture-specific; therefore, understanding how to include ICH in an educational component under UNESCO's overarching umbrella will be very important. He noticed the strong linkage between the participants' presentations and education for sustainable development (ESD), which enhances the appreciation of culture, environment and the local community, not just DRR. Linking the project with educational programmes could lead to a pilot project of IRCI in the future, which would provide an entry point to explore this linkage.

With regard to the technology part of the GET framework, validation is important. We should understand that not every element of ICH is equally useful for DRR. Some ICH elements are useful for DRR, but there also might be some knowledge that needs reviewing, especially in a

modern context. Gaining a certain level of scientific validation would be helpful for lobbying for the inclusion of ICH in the government's decision-making.

Finally, Dr Shaw added that collaborating with other researchers from different fields is important in this type of work and that not only researchers but also local government and community leaders should be invited to share their experiences. Due to a series of disasters in Japan, we have numerous experiences, and the Tohoku region in particular would be insightful in this respect. Including the perspectives of non-researchers could be useful for this project.

Indigenous knowledge, scientific validation and the ICH-DRM linkage

Mr Selim (Gaanbangla Television) and Mr Mahmood (UNESCO office in Dhaka) introduced some cases of indigenous knowledge in Bangladesh, such as the boatman's knowledge to read winds and the flowering of bamboo that signals potential famine. The latter is associated with an increase in the number of rats feeding on bamboo that eventually damage agricultural crops.

Mr Iwamoto (IRCI) proposed that we should investigate indigenous knowledge in the context of ICH safeguarding in two different ways: first, indigenous knowledge is sometimes transmitted as a form of ICH like folktales; second, it should be evaluated as ICH. Although it is very important for DRR, we cannot blindly believe in indigenous knowledge without validating it in a modern, scientific sense. Recognising that the boundary between indigenous beliefs and superstition is sometimes highly ambiguous, he questioned how and to what extent we should pursue scientific rigour or should we believe in indigenous knowledge.

Mr Shing (Vanuatu Cultural Centre) reflected upon Dr Shaw's comment on technology by touching on the link between indigenous knowledge and science and describing a series of ongoing programmes regarding traditional houses in Vanuatu. He noted that in the Pacific and in most developing countries, the majority of people do not have enough money to purchase good houses. Vanuatu's traditional houses with roofs touching and embedded into the ground can withstand earthquakes and certain strength of cyclone; however, they are temporary because the materials deteriorate over time and have to be replaced every 5–10 years. The structure itself is important but, in Vanuatu, many people who live in rural areas do not value the strength of these traditional houses. However, he thinks traditional housing is very cost-effective because the materials are readily available in the surrounding environment. Conducting a scientific assessment of the strength of traditional houses in Vanuatu would be helpful in addition to establishing recommendations for building better traditional housing. This will also raise awareness among the local people.

Mr Kubota (Tokyo National Research Institute for Cultural Properties) introduced some methods for transmitting the knowledge of past disaster events such as the tsunami monuments from Japan, and he acknowledged the significance of local knowledge for DRR. However, he reminded us that some knowledge cannot be useful because it may not be relevant today. As an example, he cited the traditional practice to reduce flood risks in a major river in the Kanto region, where people in the upstream sacrifice their agricultural fields by releasing the potentially flooding river water into the fields to save the downstream region. Such practices are not possible in contemporary Japan for many reasons, including various stakeholders' rights. Therefore, it is important to pay attention to changing social backgrounds that make local knowledge unusable today, and the same could be applied to certain elements of ICH that have discriminatory implications.

Mr Kubota further commented on cases of indigenous knowledge that may be superstitions with no scientific validation, such as rituals and dances for rain or no-rain. Such knowledge and practice may not be useful in terms of DRR science; however, they might be valuable for

revitalising the local community's vigour. From the ICH perspective, it is important to investigate how ICH was used before, during and after a disaster. When ICH is a viable component of people's day-to-day activities, it would be highly functional during a disaster. It would help safeguard people's health during a disaster, and this could be a valuable asset for DRM.

Ms Wilson (Stepwise Heritage and Tourism) remarked that Mr Kubota's comment confronted all of her concerns about the sometimes unhappy marriage between ICH and DRM. She noted that cultural heritage is founded on significance and value. When we start to question the significance and value that exist in the minds of the people who own their cultural heritage, we are questioning the value of the place or the tradition. Therefore, as we move forward, it will be important to think about the way we question, when we question the use of ICH. In the case of Chief Roi Mata's Domain (CRMD), there are many different types of ICH or indigenous knowledge that are incredibly useful in a disaster context, but there are also stories that could not be validated scientifically. She thought approaching CRMD from that perspective would be interesting, citing her experience of running a community DRM workshop using the traditional knowledge (*nafsan natoon*) as the founding principle, where she had to ask questions sensitively and respectfully.

Agreeing with Ms Wilson's point, Ms Molina (Center for Disaster Preparedness) commented that we should look at the meaning-making process that is internal to the communities, not just people's ICH, and it is unfair to impose external justifications or indicators for DRR. Alternatively, we can question how local people define DRM and what it means to them. We should be careful of how we converge external with internal processes involved in DRM to better understand culture and humanity at large.

Ms Dalisay (University of the Philippines-Diliman) also noted that some engineers are deeply sceptical of local knowledge or the value of practices that have not been validated. She suggested that the validation of ICH could be an entry point to open a dialogue, beginning with the science part and gradually introducing the value of those that have not been validated because from local people's perspective, ICH and local knowledge is also science, or ethno-science. It will be a challenge to develop a research method to validate local knowledge that has not yet been validated. However, it may find validation later on, with the right technology and a creative mind-set.

Ms Wilson added that it would be worth thinking about how we link the two concepts of ICH and DRM in this project, and how we decide what to include or exclude from our investigations, due to the issues mentioned previously. She identified the Vanuatu disaster shelter as a good example of a happy marriage; it is open to questioning and will not impact the local values. Another example is food security, where people are incorporating technologies and crops from outside Vanuatu but combining them with their ICH.

Summarising the discussion so far, Mr Iwamoto stated that the broad theme of ICH and DRM has two core dimensions. One is ICH safeguarding as a new dimension of DRM, meaning that alternative means of recording and protecting ICH from disasters will be necessary. The other is that we should think about interdisciplinary research to remove barriers between the natural and social sciences and should involve the local communities as protecting local communities is very important. Exploring this dimension would also link the project to policy and community development.

Tangible and intangible heritage in the context of DRM

A brief discussion of how to protect and safeguard tangible heritage alongside ICH followed. Ms Nojima (IRCI) requested Ms Wilson to further comment on the issue by referring to Ms Wilson's

presentation on CRMD as a World Heritage site rich in intangible knowledge and practices.

Ms Wilson explained that she has been working on CRMD from a cultural heritage perspective, not from DRM point of view, but she has started to investigate risk management at the site. One component of CRMD, the Fels Cave, has many risks associated with a recent roof fall. This has posed a major risk to the tourists visiting the site and has been affecting the community's tourist economy. If the cave collapses tangible aspects and the value of the site would be affected. Moreover, the intangible components of the site, such as the stories associated with the site would be affected and the people would no longer have access to the place.

Ms Nojima added that other elements of CRMD have been maintained by people transmitting the associated stories and significance of the place, which could be actively used to protect the area. Then, she asked if the Ifugao rice terraces, which are also a World Heritage site, are exposed to any disaster risks.

Ms Dalisay commented that major risks include pests or 'worms' that erode the walls of terraces, in addition to landslides. She further added that components of tangible cultural heritage are the evidence of intangible knowledge and practice; therefore, when you conserve the tangible aspects of a culture, you also conserve its intangible aspects.

Ms Dalisay also shared the case of Batanes in the northern part of the Philippines, where a form of traditional architecture is known that uses small boulders for the house walls with a thatched roof. Recently the local government has placed a policy to prevent the extraction of boulders from the beach because the increasing population on the island accelerated the extraction of small boulders for their houses. People are now building their houses with concrete walls and iron roofs, but this is not appropriate for the environment of Batanes, as traditional houses are more typhoon resistant. This raises the issue of the role of ICH in sustainable development.

Concluding the final discussion at the international working group session, Ms Nojima thanked all participants for their important contributions and comments and asked for further cooperation with IRCI over years to come to help the project deliver some tangible outputs from research on ICH. Ms Yamanashi (Tokyo National Research Institute for Cultural Properties), in her closing remarks, noted that ICH and indigenous knowledge should be shared with younger generations and also with newcomers as the community is always changing, and she hoped that our discussions would open a new dimension to enhance our understanding of ICH in the context of DRM.

ANNEX 1

International Research Centre for Intangible Cultural Heritage in the Asia-Pacific Region (IRCI)

Preliminary Research on ICH Safeguarding and Disaster Risk Management in the Asia-Pacific Region

International Working Group Session

(30 January 2017, Tokyo)

Programme

10:00 Opening Remarks
Wataru Iwamoto (Director-General, IRCI)

Part I Session with Dr Rajib Shaw

10:10–11:40 *Science Technology and Disaster Risk Reduction: The Missing Link*
Guest speaker: Rajib Shaw
(Executive Director, Integrated Research on Disaster Risk / IPO)

11:40–13:10 Lunch hosted by IRCI
Venue: Restaurant Yurinoki (Toyokan, Tokyo National Museum)

Part II Cases of Disaster-Risk Management and ICH in Asia-Pacific Countries

13:10–13:30 *ICH Safeguarding and Disaster Risk Management in Bangladesh*
Rahmatullah al Mahmud Selim (Gaanbangla Television)

13:30–13:50 *Disaster and ICH: Bangladesh Context*
Md. Amanullah Bin Mahmood (UNESCO Office in Dhaka)

13:50–14:10 *Integrating Local and Indigenous Knowledge in Disaster Risk Management: Learning from Philippine communities*
Fatima G. J. Molina (Center for Disaster Preparedness)

14:10–14:30 *Narratives of risk and coping in response to typhoon Haiyan in selected communities in the Philippines*
Soledad N. Dalisay (University of Philippines-Diliman)

14:30–14:50 *ICH and Disaster Risk Management in Fiji*
Ilaitia S. Loloma (iTaukei Institute of Language and Culture)

14:50–15:10 *Blue Shield Pasifika and ICH Safeguarding in Fiji*
Elizabeth F. D. Edwards (Blue Shield Pasifika)

<< Break >>

15:20–15:40 *ICH and Disaster Risk Management in the Republic of Vanuatu*
Richard J. Shing (Vanuatu Cultural Centre)

15:40–16:00 *Enhancing Traditional Mechanisms of ICH Transmission at Chief Roi Mata's Domain, Vanuatu*
Meredith L. Wilson (Stepwise Heritage and Tourism Pty. Ltd.)

16:00–16:10 *ICH Safeguarding and Disaster-Risk Management in the Asia-Pacific Region: Summary of FY2016 and Prospects*
Yoko Nojima (IRCI)

16:10–17:10 Discussions

17:10 Closing Remarks
Emiko Yamanashi (Deputy Director-General, Tokyo National Research Institute for Cultural Properties)

ANNEX 2

International Research Centre for Intangible Cultural Heritage in the Asia-Pacific Region (IRCI)

Preliminary Research on ICH Safeguarding and Disaster Risk Management
in the Asia-Pacific Region

International Working Group Session
(30 January 2017, Tokyo)

List of Participants

Name	Title/Association
Guest Lecturer	
Rajib Shaw	Executive Director International Program Office, Integrated Research on Disaster Risk (IRDR)
Participants from Asia-Pacific Countries	
Soledad Natalia Dalisay	Professor, Chair Department of Anthropology, University of Philippines-Diliman (Philippines)
Fatima Gay Jamilosa Molina	Senior Research Associate Center for Disaster Preparedness (Philippines)
Elizabeth Fiona Daveta Edwards	Secretariat Blue Shield Pasifika (Fiji)
Ilaitia Senikuraciri Loloma	Executive Officer Special Revitalization Unit iTaukei Institute of Language and Culture (Fiji)
Richard Japuneyo Shing	Senior Archaeologist Heritage Section, Vanuatu Cultural Centre (Vanuatu)
Md. Amanullah Bin Mahmood	Project Officer, Science UNESCO Office in Dhaka (Bangladesh)
Rahmatullah Al Mahmud Selim	Head of Research Gaanbangla Television (Bangladesh) (Former Director, Bangladesh Shilpakala Academy)
Resource Person	
Meredith Louise Wilson	Associate Stepwise Heritage and Tourism Pty. Ltd.
Observer	
Melaia Tikoitoga	MA Student Regional Development Studies, Toyo University (Former acting executive officer, Special Revitalization Unit, iTaukei Institute)
Participants from National Institutes for Cultural Heritage	
Nobuo Kamei	Director-General Tokyo National Research Institute for Cultural Properties
Emiko Yamanashi	Deputy Director-General Tokyo National Research Institute for Cultural Properties

Masataka Hokama	Director Department of Management, Tokyo National Research Institute for Cultural Properties
Mitsuru Ijima	Director Department of Intangible Cultural Heritage, Tokyo National Research Institute for Cultural Properties
Hiromichi Kubota	Head Intangible Cultural Properties Section, Department of Intangible Cultural Heritage, Tokyo National Research Institute for Cultural Properties
Tomo Ishimura	Head Audio-Visual Documentation Section, Department of Intangible Cultural Heritage, Tokyo National Research Institute for Cultural Properties
Yoko Futagami	Head Cultural Properties Information Section, Department of Art Research, Archives and Information Systems, Tokyo National Research Institute for Cultural Properties
Megumi Maehara	Senior Researcher Department of Intangible Cultural Heritage, Tokyo National Research Institute for Cultural Properties
Kanefusa Masuda	Senior Researcher CH-DRM Network (National Task Force for the Japanese Cultural Heritage Disaster Risk Mitigation Network)
IRCI (Organiser)	
Wataru Iwamoto	Director-General IRCI
Yoko Nojima	Associate Fellow IRCI
Fuyuki Doi	Assistant IRCI