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# Typhoon Haiyan – how do you rebuild after such destruction?

The devastation caused in the Philippines will take years to repair. Previous efforts in Haiti, Japan and elsewhere point the way, but how can we build back better?

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No quick fix ... an entire neighbourhood is destroyed in Tacloban after Typhoon Haiyan. Photograph: Kevin Frayer/Getty Images AsiaPac

First things first: there are people to rescue, mouths to feed. Medical supplies to distribute, bodies to bury, law and order to reinstate. But what next? When the immediate threat from Typhoon Haiyan has passed and the rains have stopped, when the suddenly homeless of Tacloban take stock and regard the obliterated ruins of their city, where do you start? How do you rebuild a city?

There is no shortage of recent precedents: Port-au-Prince following the 2010 earthquake, the towns of northeastern Japan following Fukushima a year later. The

tsunami cities of southeast Asia, New York after Hurricane Sandy, New Orleans. But the lessons are sobering. There is no quick fix.

## Clear up

Storms make a mess. After the 2010 quake in Haiti, there were 19m cubic metres of debris in Port-au-Prince, a quantity that could have filled a line of containers all the way from London to Beirut. The 2011 Fukushima tsunami created 25m tonnes of rubble and wreckage. The first daunting task: what to do with it all?

The Japanese authorities were praised for quickly clearing destroyed coastal towns like Rikuzentakata. These days, neat piles of debris and rubbish stand on the outskirts of levelled towns that the passage of time has turned into empty fields overgrown with grass and weeds. The waves themselves did their bit, too: as much as one fifth of the wreckage was washed out to sea. Some of it even turned up on the other side of the Pacific.

In Port-au-Prince, international agencies such as the UN and USAid financed removal programmes with excavation equipment, as well as on a smaller scale, with neighbourhood teams working on specific plot of lands. But it's not a process that is done overnight. Just clearing Tacloban of the ruins will take months.

Experts say that the first priority is to clear roads and other transport connections. Access to all places is crucial. And not everything should be thrown away. Some of the wreckage will be reusable.



Wrecked ...

communities along the Fukushima coast in Japan are still debating whether to rebuild inland. Photograph: Kimimasa Mayama/EPA

## Plan

Following a survey of the disaster-hit buildings, there needs to be a reconstruction strategy. Perhaps the first question is this: are you going to just revive the city on the

devastated site?

After the 2004 tsunami, for example, the Sri Lankan authorities considered relocating the city of Galle inland. "The government had thought of a buffer zone along the coast of about 200 metres," says Jan Meeuwissen of UN-Habitat, who worked in the region after the tsunami, "but you can't move a city inland that easily." The plans were shelved. Galle was restored on its original site. But Meeuwissen adds: "You can't say that in general you can build specifically where a city was before. Sometimes it's not relevant to build back in the same place if the place is prone to floods, or on a slope that would expose it to other risks."

In Japan, communities along the wrecked Fukushima coast are still debating whether to rebuild inland, which would require levelling mountains to free up land for housing, or construction of huge and expensive, sea walls to keep out any future tsunami. In Banda Aceh, decimated by the 2004 tsunami, some of the 140,000 houses rebuilt were done so on higher ground. New Orleans, unfortunately, is not so moveable. So ever since the 2005 Katrina storm that killed 1,400 and flooded 80% of the city, much of the effort has focused on making the city more viable in the face of the perennial threat from the other side of the levees.

"The physical barriers that are in place are much more robust," said John J Kiefer, director of the University of New Orleans' master of public administration program, who specialises in disaster research. "The mechanisms to inspect those physical mechanisms such as the levies are now much more professional than they were."

For the residents of Banda Aceh, there was a different imperative: ensuring that inhabitants would stand a chance if there was a repeat disaster. "There are roads built to escape," said Satya Tripathi, former UN recovery coordinator for Aceh. "Everytime an earthquake alert is set off, evacuation of the population is very orderly. A safe way out has become part of the living space." The realisation in the city was this: that in the face of a tsunami, the city cannot be saved. But people can.



Daunting ... the 2010 quake in Haiti left 19m cubic metres of debris in Port-au-Prince. Photograph: Jorge Silva/REUTERS

## Rebuild

Some of the more resourceful survivors may try to rebuild their homes immediately, or at least repair shelter temporarily. Yet unfortunately there are no quick fixes. Reconstruction is not just about the four walls of your own home; there is the wider social infrastructure – access to water and sanitation, electricity, supply chains, roads.

Practitioners say it is crucial to "build back better", to mitigate the impact of future disasters. Good governance is vital. If the authorities thought of the possible disaster scenarios in advance, they are more likely to achieve a better outcome in the face of a real one.

The high density of urban areas can be problematic. "In many urban situations the occupancy rates of multi-storey buildings are very high and there may be a high percentage of renters, as in Haiti," says Sandra D'Urzo, shelter officer at the International Federation of Red Cross. "The collapse of the building creates problems of ownership, access and temporary re-housing. Who owns the rubble? Who should remove it? What to do with slabs of concrete? Do renters move elsewhere and rent again?"

Before reconstruction begins, the local authorities and the agencies need to assess the conditions of the buildings after a disaster. It is crucial to see which buildings can be repaired and which cannot, explained Robin Cross, CEO of Article 25, a charity that works on reconstruction in disaster-hit areas and has rebuilt schools in Haiti. After conducting assessments on around 20 buildings, Article 25 rebuilt nine.

"We are always trying to build back better so that buildings are more resistant and communities more resilient to the threats," Cross said. Authorities also usually decide about "no-build" areas, which will have an impact on the longer term solution they are

seeking to find.

But again, it's a slow process. Thousands of Japanese have still yet to be rehoused after Fukushima. In Haiti, there are still around 300,000 people living in temporary shelters.

"In all the recreation of urban space after a disaster there is a potential mistake: because people have immediate need for shelter, you establish post-disaster camps at the edge of a city," says Paul Knox-Clarke, head of research at the ALNAP international humanitarian group. "The problem is that those settlements become permanent.

## Red tape



Perennial threat ...

New Orleans after Hurricane Katrina. Photograph: Mario Tama/Getty Images

Another problem is bureaucracy. In Japan, more than two years after the earthquake and tsunami hit, the Fukushima prefecture is still grappling with radiation cleanup and recovery. This week Japanese officials admitted that thousands may never be able to return home. Earlier this year, the mayor of Kamauchi, a town in the prefecture, told the Guardian that the village's future was in doubt and there had been considerable delays in cleanup.

The main obstacle to swift reconstruction is not financial – the administration of Shinzo Abe has raised the reconstruction budget to 25tn yen over five years. It is red tape. Progress in towns such as Rikuzentakata, where 1,800 people died out of a population of 24,000, is being held up by Japan's infamous bureaucracy and disagreement among residents over where to rebuild their homes, schools, hospitals and businesses.

About 5,000 of Rikuzentakata's survivors live in temporary housing units built on higher land, while others have moved to towns and cities inland. Construction of new residential areas began in April, more than two years after the disaster.

The town's mayor, Futoshi Toba, whose wife, Kumi, died in the tsunami, has been a

vocal critic of the red tape and inaction by politicians in Tokyo.

"Reconstruction isn't going well at all," Toba said earlier this year. "We are still surrounded by mountains of rubble, and the few buildings that survived the tsunami have been left standing. The survivors share my view that there is little hope for the future."

Toba added: "I have come up against that vertical thinking time and again over the past two years. Politicians here say they stand with us, but their words are not being matched by actions."

## **Communities**

Rebuilding a city is not just a physical process; it's also psychological. And that is why, according to Meeuwissen, it is vital to include locals. "They call it the people's process," he says. "It's extremely important to involve people affected by the disasters. Identifying what their needs are and involving them in the reconstruction process. The people who experienced a disaster have a capacity to build back: it is not just about physically rebuilding communities, but also rebuilding them psychologically."

Charities such as Article 25 agree, and talk to residents about what they want for their communities in the long run.

John McAslan, the architect behind the refurbishment of King's Cross Station in London, has a special relationship with the city of Port-au-Prince. He had visited several times before the earthquake, and in 2010 worked to restore the city's Iron Market, built in 1891. The market was the heart of commercial life in the Haitian capital.

The site had been damaged by a fire in 2008, and it collapsed after the 2010 quake, killing a number of people. For nine months, McAslan's practice worked with 700 local constructors – bricklayers, artisans and metalwork specialists – to bring the market back to life. "The Iron Market, along with the cathedral and the citadel, is a symbol of the country, so it was incredibly important and more than just a building," McAslan said. The project was finished in January 2011, almost a year after the quake.

Statistics from the UN show that for the first time in history, there are more humans living in cities than in the countryside, and the rate is likely to increase. With extreme weather becoming more common, issues of reconstruction after natural disasters are crucial for the future of cities and how they adapt. There is a perception that in Haiti it was not the earthquake that killed people, but the buildings.

"Building back better" may become a mantra for the 21st century.

*Additional reporting by Justin McCurry in Tokyo and Adam Gabbatt in New York*



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