ADVANCING SEA
by Paolo Palermo

PAOLO PALERMO OFF-SCREEN
On August 17 Indonesia celebrated the 79th anniversary of independence from the Netherlands in front of the new Presidential Palace in Nusantara. A grand ceremony marked the inauguration of the country's new capital.

AGUNG WICAKSONO - DEPUTY INVESTMENT - AUTHORITY NUSANTARA NEW CAPITAL
Our goal is to ensure the sustainable development of the new capital, that will be designed in the forest as a 'smart city'.

PAOLO PALERMO OFF-SCREEN
The government plans to complete the new capital in 2045. The expected cost will be over 30 billion euro. Five of the six planned from the public money have already been spent. The remaining 24 should be coming in by the private sector.

AGUNG WICAKSONO - DEPUTY INVESTMENT - AUTHORITY NUSANTARA NEW CAPITAL
We are putting pressure on private companies to complete the first investments by the end of the year. They are the ones who are creating Indonesia's future.

PAOLO PALERMO OFF-SCREEN
As private investments are slow in coming, President Joko Widodo is offering large tax incentives and state concessions of up to 190 years to companies that wants to invest in the new capital.

AGUNG WICAKSONO - DEPUTY INVESTMENT - AUTHORITY NUSANTARA NEW CAPITAL
Jakarta will always remain the economic capital of the country, but with the construction of Nusantara, it will shed the burden of its population growth and the environmental impacts of its development.

PAOLO PALERMO OFF-SCREEN
Huge patches of felled trees to make way for the concrete of the new capital. This is how the 200,000 hectares of forest where Nusantara is going to be built look like today, from Nasa satellites, compared to two years ago. Yet despite this massive deforestation, the new capital aims to be a carbon negative city.

MYRNA SAFITRI - DEPUTY ENVIRONMENT - AUTHORITY NUSANTARA NEW CAPITAL
To achieve this, we must apply the principles of 'green building', such as using plants to cover buildings, creating many urban gardens and community gardens. We will also encourage urban agriculture.
And then all the trees you see around here will be converted into tropical forest.

PAOLO PALERMO OFF-SCREEN
These new tropical forests are expected to cut CO2 emissions by 2045. The new capital, while destroying a piece of one of the earth's green lungs, should absorb more carbon dioxide than it emits into the atmosphere.

MYRNA SAFITRI - DEPUTY ENVIRONMENT - AUTHORITY NUSANTARA NEW CAPITAL
According to our calculations, Nusantara will emit 10 million tonnes of carbon dioxide in 2045. But, thanks to the tropical forest, we will reduce emissions to minus 1.1 million tonnes.

PAOLO PALERMO OFF-SCREEN
Also contributing to this controversial environmental operation is Eni with an environmentally sustainable project. In October 2023, Eni announced the discovery of the new Gengh North-1 gas field, not far from Nusantara, off the coast of East Borneo.

AGUNG WICAKSONO - DEPUTY INVESTMENT - AUTHORITY NUSANTARA NEW CAPITAL
Eni will work alongside our state oil company to replant and rebuild a new fruit park in the village of Suko Mulyo, near Nusantara.

PAOLO PALERMO OFF-SCREEN
Last February, Eni CEO Claudio Descalzi met with Indonesian President Joko Widodo to discuss Eni's new fields in East Borneo.

AGUNG WICAKSONO - DEPUTY INVESTMENT - AUTHORITY NUSANTARA NEW CAPITAL
Now is the time for those who benefit from economic growth to reinvest in our country by reforesting in Indonesia, especially through Nusantara.

PAOLO PALERMO OFF-SCREEN
Will it be worth destroying 60,000 hectares of tropical forest to build the sustainable city of the future?
Jakarta, population 10 million, one of the largest metropolises in South-East Asia, is sinking under its own weight, 40 per cent of it is already below sea level. According to predictions, by 2050 some areas bordering the ocean could sink almost entirely. Geologists call this phenomenon subsidence, the ground lose solidity and sink. In the Muara Baru district in North Jakarta, this is happening faster than in any other city in the world, and the sea is advancing.

PULUNG PRANANTYA - ENGINEER - MINISTRY OF PUBLIC WORKS
Here we can measure how far the land has sunk. This pile is 300 metres deep. This rock remains suspended, it stays still, while the road underneath sinks.
Since 2009, Muara Baru has sunk more than a metre.

PAOLO PALERMO OFF-SCREEN
The Jakarta government built a concrete wall to defend Muara Baru from the advancing ocean, but the wall has sunk along with the houses, roads and its

inhabitants. Pulung Pranantya is an engineer in the Ministry and is in charge of counteracting the sinking of Jakarta's coastal areas.

PULUNG PRANANTYA - ENGINEER - MINISTRY OF PUBLIC WORKS
Look at the houses. They are below the road. You can see it here. This is the first floor of the house. And that's the ground floor.

EMI - INHABITANT MUARA BARU
30 years ago, there was the beach here and we used to bathe. Now we are 2 metres below sea level.
This restaurant is the oldest in the neighbourhood. I remember many floods, every full moon the sea would go over the wall and flood these streets.

PAOLO PALERMO OFF-SCREEN
Emi was born in Muara Baru and lives next to the restaurant where she works with her mother Daspiah, right in front of the concrete wall that the Jakarta government has built to defend her neighbourhood from the advancing ocean.

EMI - INHABITANT MUARA BARU
See. Look up there. There was my house, on the second floor. The sea took it away. We never rebuilt it because it would have cost too much.

PAOLO PALERMO OFF-SCREEN
Maya and her family also lost everything in another flood. The shop, the house, everything was destroyed. She shows us a video of that day.

MAYA - INHABITANT MUARA BARU
This is when the sea broke the wall. A river in flood. The current was so strong that my niece was swept away. My brother barely saved her.

PAOLO PALERMO OFF-SCREEN
To stem the advance of the sea, the construction of a new seawall began in 2022, a hundred metres further out to sea than the other.

PULUNG PRANANTYA - ENGINEER MINISTRY OF PUBLIC WORKS
We are building it 2.40 metres high. We believe that the sea will not be able to overcome it. We are also considering sea level rise because this is a measure of adaptation to climate change.

HERU BUDI HARTONO - GOVERNOR OF JAKARTA
We are building a new coastal dam together with the central government and private companies. It will be completed by 2027 and will cost between EUR 300 and 350 million euro in total.

PAOLO PALERMO OFF-SCREEN
At the moment, little more than half of the 40 kilometres of the new dam on which the Indonesians are banking to save Muara Baru is complete. But they already have an alternative ready.

PULUNG PRANANTYA - ENGINEER MINISTRY OF PUBLIC WORKS
We must complete the construction of the coastal dam. If it works, it will last until at least 2060. If not, we will have to build the Giant Sea Wall.

PAOLO PALERMO OFF-SCREEN
The Giant Sea Wall is also called 'The Great Eagle'. An enormous sea wall formed by 17 artificial islands in the shape of the nation's legendary bird. A new city inhabited by hundreds of thousands of people off Jakarta Bay that will transform a gulf into an artificial basin.

HERU BUDI HARTONO - GOVERNOR OF JAKARTA
We have to build the Giant Sea Wall, whether we like it or not. We have been studying the project together with the Dutch since 2010. It will cost one and a half billion euros and will also have an economic return from the motorway toll.
Jakarta's future will look more and more like Holland's, we cannot avoid it.

PAOLO PALERMO OFF-SCREEN
For the Indonesian authorities, The Great Eagle will be the ultimate solution against the sinking of the city and the rising of sea level. But environmentalists and researchers sound the alarm about the environmental sustainability of the pharaonic work.

ELISA SUTANUDJAJA - RESEARCHER - RUJAK CENTRE FOR URBAN STUDIES
We must address the causes of subsidence, such as the withdrawal of water from the subsoil. If we do not solve this problem, any adaptation measures will have limited effects.

PAOLO PALERMO OFF-SCREEN
In fact, the poorest coastal neighbourhoods, such as Muara Baru, still do not have an aqueduct that guarantees access to water for the entire population, and people are forced to buy water in jerry cans from retailers who buy it in bulk and sell it at retail. Much of this water comes from illegal wells that deflate the ground beneath the city's feet.

ELISA SUTANUDJAJA - RESEARCHER - RUJAK CENTRE FOR URBAN STUDIES
We believe that the poor suffer the most from the climate crisis so we try to explain to the most vulnerable people what climate change is.

PAOLO PALERMO OFF-SCREEN
Even the United Nations study centre that monitors climate change has expressed its doubts that The Great Eagle will solve the problem of sinking coastal districts in Jakarta. On the contrary, some argue that it will make it more vulnerable to rising sea levels in the long run. According to researchers, Indonesia has little time left to save Jakarta, the exploitation of groundwater must be stopped and access to water for the entire population must be ensured through a modern aqueduct. Jakarta is the first city in the world to face the impact of rising sea levels and in the future we will also have to worry about Venice.

GEORG UMGIESSER - RESEARCH DIRECTOR - CNR INSTITUTE OF MARINE SCIENCES
Unfortunately with a situation where we have rising seas, where we have a climate change as we have it now, we have to decide what we want to save. There is no longer a chance to save the ecosystem of the lagoon and also save the city of Venice together.

PAOLO PALERMO OFF-SCREEN
Georg Umgiesser is a researcher at the CNR (National Center of Research) and has carried out a study that warns of the future of Venice and its lagoon: when the sea level will be 50 cm higher, the Mose will be closed once a day, and with 75 cm more, the lagoon will remain closed for longer than open.

GEORG UMGIESSER - RESEARCH DIRECTOR - CNR INSTITUTE OF MARINE SCIENCES
There will be less and less exchange between the lagoon and the sea and the lagoon lives on the exchange between lagoon and sea. Either these sandbanks disappear because the water grows too much or we close the lagoon. Then the whole ecosystem will change completely.

PAOLO PALERMO OFF-SCREEN
According to estimates by the IPCC, the UN study centre that monitors climate change, the sea level in Venice could rise by 50cm by 2050.

MARCO ANZIDEI - RESEARCH DIRECTOR - NATIONAL INSTITUTE OF GEOPHYSICS AND VOLCANOLOGY
In the Venice lagoon, an estimated average land area that could be lost between now and 2100 corresponds to approximately 21 square kilometres.

PAOLO PALERMO OFF-SCREEN
An area the size of 3,000 football pitches: these interactive maps show us which areas of the lagoon may remain submerged by the sea at the end of the century if no action is taken.

MARCO ANZIDEI - RESEARCH DIRECTOR - NATIONAL INSTITUTE OF GEOPHYSICS AND VOLCANOLOGY
It must be considered that the Mose was an exceptional work, but that it was designed before current scientific knowledge and therefore possible upgrades to a lagoon defence system will probably have to be considered in the coming years.

PAOLO PALERMO OFF-SCREEN
The Mose, although not yet complete, already protects the Unesco heritage city from high water. Its construction costed more than 6 billion euro, including more than 10 million in corruption, and will still cost taxpayers 50 million euro a year in maintenance. Today, researchers are sounding the alarm: in the future, the barriers cannot be raised every day, otherwise the lagoon and the port will die.

PAOLO PALERMO
How long can MOSE last?

LUIGI D'ALPAOS - HYDRAULIC ENGINEER - UNIVERSITY OF PADUA
I think it will have a life of 20, 30 years ahead of it. And after that very strong contrasts will start to emerge because defence against high waters, defence of the port, and defence of the lagoon environment are absolutely irreconcilable with each other.

GIANFRANCO BETTIN - VENICE CITY COUNCILLOR - PROGRESSIVE GREEN GROUP
Venice has been equipped with a system that not only keeps it dry when the tide is high, but also traps it. Because the system was conceived imagining that it would be necessary to close it a few hours for a few days a year.

PAOLO PALERMO
It will come to hundreds of closures per year.

GIANFRANCO BETTIN - VENICE CITY COUNCILLOR - PROGRESSIVE GREEN GROUP
The risk is to reach hundreds of closures.

PAOLO PALERMO OFF-SCREEN
The 2001 Mose project was built on the basis of sea-level rise forecasts that have now been proven wrong. At the time, it was assumed that the sea level would rise by the end of the century by 22 centimetres, while the IPCC estimates already considered a global intermediate scenario of 48 centimetres. Those predictions were made by Corila, the university consortium for the protection of the lagoon.

PIERPAOLO CAMPOSTRINI - GENERAL MANAGER - CORILA RESEARCH COORDINATION CONSORTIUM
The forecast was made that way there with the knowledge of that time. But even if we had said double, MOSE would not have changed.

PAOLO PALERMO OFF-SCREEN
Since 1997, Corila has been the body that coordinates scientific information for the protection of the lagoon. Since 2018, Corila has been entrusted by the City of Venice with the task of advising on the drafting of the Sustainable Energy and Climate Plan with the aim of reducing emissions and designing measures to adapt to climate change.

PIERPAOLO CAMPOSTRINI - GENERAL MANAGER - CORILA RESEARCH COORDINATION CONSORTIUM
We had some contacts about two years ago and after that, we did the work we were asked to do, and after that, I don't know.

GIANFRANCO BETTIN - VENICE CITY COUNCILLOR - PROGRESSIVE GREEN GROUP

Nothing is known about it. There have been many statements that the Municipality is studying this plan. Today there is only an impact mitigation plan that dates back 10, 12 years now.

PAOLO PALERMO
The plan would be ready by 2023 but nobody knows it, not even the Corila who worked on it. It envisages 45 climate change adaptation and 42 mitigation actions. The Municipality continues to work on updating it with the goal of taking it to the City Council for approval.
Meanwhile, the UN study centre that monitors climate change warns that the more time passes, the greater the risk that the city will find itself unprepared in the event of rapid sea level rise. In short, it took 40 years to make the Mose, a work that may last less time than it took to build it.