

'Descendants of Hai Ba Trung' Podcast

**EP. 01 – DR. NGO ANH DAO
ENGLISH TRANSCRIPT**

Produced by UNDP Viet Nam and Curated by Sen Nguyen

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Dr Ngo Anh Dao, the brain behind the three-layer ecological embankment of sonneratia mangroves, local grass and casuarina trees. These have been protecting the Triem Tay and Cam Kim commune villagers in Hoi An for many years and helping people keep the land from landslides due to the impact of storms and floods in their daily life.

Speakers	Transcription
	<p>You are listening to the English version of a Vietnamese podcast to share with the world part of our work that focuses on the intersectionality of women-led climate change initiatives and gender equality. It has been edited for length and clarity.</p>
Hook intro	<p>Sen Nguyen: I can see that you've had to sacrifice your time, your money, your effort, and even your mental health. Because this job is not without pressure.</p> <p>Dr Ngo Anh Dao: That's right!</p> <p>Sen Nguyen: Do you feel that you yourself are like a mangrove tree?</p> <p>Dr Ngo Anh Dao: (laughing) My friends now call me Professor Mangroves because it suits me very well, and also because I really like the philosophy of mangrove trees.</p>
Host Sen Nguyen	<p>Professor Mangroves is the nickname of Dr. Ngo Anh Dao, a landscape planner and the mastermind behind a vegetated embankment that is made up of three tiers mangroves, local grass, and casuarina trees. Her creative green initiative has for many years been sheltering the people in Triem Tay village and Cam Kim commune who live by the Thu Bồn River, allowing them to keep their land from disappearing due to erosion caused by the annual storms and flooding that have become a ubiquitous feature of life in Central Vietnam.</p> <p>Hello, I'm Sen Nguyen. You are listening to Descendants of Hai Ba Trung, brought to you by the United Nations Development Programme in Vietnam.</p> <p>It is where Vietnamese women from diverse backgrounds and professions – farmers, researchers, climate advocates and others – share their experiences of tackling the stereotype which says that women are more often seen as victims of climate change and less so as changemakers. Their fierce action in addressing and adapting to the impacts of climate change with indigenous knowledge, scientific evidence, community</p>



	<p>values, justice, and empathy inspire a more sustainable world for us all.</p> <p>While typical concrete river embankments have many limitations amid the increasingly intense and unpredictable environmental disasters in Vietnam, to say nothing of the effects of climate change, how can Dr. Dao help with her buffer strips, or “soft embankment,” as she calls it? Can her initiative be replicated in other places where land erosion and other environmental disasters erode local residents’ well-being?</p>
Dr Ngo Anh Dao	<p>With a PhD in landscape design and environmental management from a Canadian university, Professor Mangroves has been working as an independent consultant for a wide range of planning projects, but she also spends a lot of time and money on experimenting with ideas that address climate change issues and sustainable development with a focus on Central Vietnam, particularly in Quang Nam Province with what she called her “life-long project.”</p>
Dr Ngo Anh Dao	<p>From a personal perspective, firstly, the geography of the Central region is very special. It’s not only thin, but it’s also subject to many challenges that are so obvious you can see them immediately. It must have been a predestined fate that I returned to Triem Tay village in Cam Kim commune back in 2015 to work on a UNESCO project that was preserving craft villages in drought-prone areas along the Thu Bon River. They invited me to work as a consultant planning a craft village there that could be incorporated into a UNESCO tourist route in Quang Nam.</p> <p>That place is attractive not only because of its beautiful scenery. Like any Vietnamese countryside, the nature is poetic, and the villages have typical historic relics. People are proud that their home has those features. But no one pays attention to the stories about the challenges the land is facing. That’s the dark side that people don’t often see, the other side of the beautiful thing people often see, isn’t it? What is behind the beauty of the village’s bamboo fence? Behind the historical sites or the gentle people, what is that land facing?</p>
Host Sen Nguyen	<p>According to Dr. Dao, landscape planning requires a deep understanding of natural elements, in other words the four spheres: the hydrosphere, the geosphere, and the atmosphere, which support the biosphere. She focuses on these elements along with a non-combative approach to nature or what she calls “soft thinking” in Vietnamese coupled with her “soft” embankment.</p>
Dr Ngo Anh Dao	<p>It means instead of fighting nature, I soften my thinking. And that softness means that we don’t fight nature, we don’t conquer nature. I am quite allergic to words like that – to words like “resist,” or “conquer,” etc. It’s the softness in terms of thinking. It’s also soft in the sense that we use whatever we have. It has a very local nature, meaning that we use local materials, and that local people participate in this together.</p>
Host Sen Nguyen	<p>One of those local people is Mr. Phạm Được, born and raised in Triem Tay village. He is one of many local people who, together with Dr. Dao build her three-layer vegetated embankment who have also grown to approach nature with the same sort of softness she exemplifies. The 55-year-old man has relocated his home four times due to floods and land erosion since the age of 15.</p>
Mr Pham Duoc	<p>Back then, up there near the water, the land kept sliding, so we kept moving further back into the land. We kept moving back and back until we could no longer do so. Annual disasters, flooding, I think they aren’t very worrisome and it’s just as normal as</p>



	going to work every day. I'm only afraid of storms, storms I can't predict. Flooding and stuff, I can relocate this or that, big or small flooding I can deal with. We used to be terrified of flooding, but now we are not, because the embankment is very strong. It is made up of three layers...
Host Sen Nguyen	Mangroves planted on the riverbed make up the frontline tier of Dr. Dao's embankment. They protect the second tier closer to the shore that is composed of local grasses placed on the river slopes. She says that local grasses are traditionally also storm readers: whenever their flowers bloom, it means flooding is imminent. But because of climate change, these signs are no longer consistently true. The last tier of her embankment is made up of casuarina trees situated right on the riverbank. Each tier is its own ecosystem, and all complement each other aesthetically and physically.
Dr Ngo Anh Dao	Three layers here means one layer planted along the river's shore, one on the slope, and another one underwater. Then the question is why there must be 3 layers instead of 2, and this is the problem in Vietnam. When it comes to what gets put between the water and the shore, we usually deal with it in a very black and white manner by putting a concrete embankment between these two areas. We only care about what is on the shore and what is in the water and forget about the part in the middle, while this is in fact the crux of the matter. Because the ways of an ecosystem are naturally both very logical and very romantic at the same time – you can see it in how the water and the land are constantly moving and changing, from the bottom of the river to the river shore. It's the same thing in development or really anything else – when you go from a low to a high ground level, you need time for a gradual transition, right? There must be a transitional intermediary. And in ecology, the ecosystem along the shore is often forgotten in Vietnam and they only pay attention to the ecosystem on the land.
Host Sen Nguyen	Interrupting the aquatic and terrestrial ecosystems with something as uncompromisingly hard as a concrete embankment might eventually wreak havoc on those very systems that the embankment sets out to protect. Dr. Dao says that each layer of her embankment is designed in accordance with the water depth and slope of the land in each layer. The three layers of three different plants receive the water and slow down its acceleration as it goes up the slope, so that whenever a big wave hits, the water gradually escalates rather than violently hitting a hard surface or a concrete embankment, which can lead to an unpredictably powerful bounce back.
	She started experimenting, testing out different kinds of plants ... and it was a painstaking process of trial and error.
Dr Ngo Anh Dao	In 2016, I experimented with the nipa palm trees that I saw a lot around Hoi An. For example, in Cẩm Thanh area, I tested by planting 700 nipa palm trees in the first year as the frontline layer. Then when we had just a small flood in 2016, it washed away all 700 nipa palm trees. Then I asked myself, "Oh, why is that? Why is it that this is a tree I see in this very local area, but it didn't work?"
Host Sen Nguyen	Dr. Dao spent a lot of time digging deep to find the right pieces and put them together, sometimes even risking her own life just to observe one experiment she did with bamboo – an archetypal symbol of vitality in Vietnamese culture – and how it stood the test of a storm.
Dr Ngo Anh Dao	I have witnessed each cluster of bamboo being washed away. It also washed away the time and money I put into this experiment. I stayed on the night of November 7, 2017, when there was a historical flood. I stayed put, I didn't leave to see how the flooding



	rose. The water level went up to 3.5 meters, but I didn't even go with a rescue boat. So, things like that... they're a challenge to me; it's about pushing myself to find out what nature is trying to tell me.
Host Sen Nguyen	After that historic storm, she drove to Quang Tri Province also in Central Vietnam, about 180 kilometers or 110 miles from where she started. There, she was fascinated by mangroves.
Dr Ngo Anh Dao	They have very deep roots, but they are also "knee roots," which means they can breathe easily, they project above the mud, and they look like spikes. They are very soft, they go with the flow of the water, and they accumulate mud. It means the roots block the mud, they absorb it, and they create ecological "nests" for shrimp, fish, and everything else, and these things love to cling onto these roots.
Dr Ngo Anh Dao	Mangrove trees are tall, and their leaves and fruits are useful to the people of the Mekong Delta. People use them to make fish sauce, salads, and all kinds of things.
Dr Ngo Anh Dao	Their foliage is also sparse, making them an ideal place for storks to make their homes. I contacted this couple in Quang Tri who provide mangrove seeds and I tried planting them, and then I saw immediately that after only the first two months, they grew beautifully and their roots were strong. When we observed the roots at night, there were so many fish, snakefish and all kinds of other fish. So many were clinging onto the roots. It's so interesting, it means we created a home for aquatic species, for fish and shrimp and stuff. They make their homes there.
Host Sen Nguyen	Mangroves don't just have ecological benefits. Dr Dao has also discovered the philosophy behind them that makes mangroves the perfect plant to be the frontline defense for her embankment.
Dr Ngo Anh Dao	I did some more reading about the mangroves and found out what is called the philosophy of mangroves of the mangrove forest. What it means is that mangroves are a kind of tree that have a role of self-sacrifice. After a period of time absorbing enough mud, the mangroves will build up the soil, making it thicker. And when they are washed away by the waves, they leave behind a stronger foundation for the trees behind them. This is such an interesting philosophy, because these trees, they sacrifice for those behind them.
Host and Dr Ngo Anh Dao	<p>Host Sen Nguyen: I can see that you've had to sacrifice your time, your money, your effort, and even your mental health. Because this job is not without pressure.</p> <p>Dr Ngo Anh Dao: That's right!</p> <p>Host Sen Nguyen: Do you feel that you yourself are like a mangrove tree?</p> <p>Dr Ngo Anh Dao: (laughing) My friends now call me Professor Mangroves because it suits me very well, and also because I really like the philosophy of mangrove trees.</p>
Host Sen Nguyen	An embankment made of plants costs about 1/3 or 1/4 of a concrete one, depending on the local context and construction conditions, according to Dr Dao. Not only did she come up with how the tier ecosystems could work together, but Dr. Dao also had to convince locals that this solution was better, considering that many in Vietnam have been used to building concrete embankments on riverbanks and along the coast as a solution to land erosion. Large-scale erosion, including where there are concrete



	<p>embankments and structures, has been reported across the country for years. For example, researchers found that some beaches in Vietnam have been reduced by hundreds of meters to even kilometers over the past 10 years due to beaches being turned into concrete structures and massive sandbag walls, which are short-term solutions using non-durable materials to prevent erosion.</p>
Dr Ngo Anh Dao	<p>It doesn't take much to convince the authorities when they... of course, they see right away that everyone is always looking at the economic factor, right? Is it cheaper or more expensive? To authorities, it's very important. It comes down to the costs of the project.</p> <p>It was obvious that decades ago the province had a project where they spent 50 billion to address erosion. But now that it hasn't succeeded, where are they going to get more money for this? The more you wait, the more you keep on waiting and waiting, the more land you will lose, and still there's no solution. So what can the people do? They just rely on the authorities, right? And the authorities would also like to do something quick and easy....</p> <p>When I implemented this project, the authorities asked, "Can such a soft embankment work?" Using something soft without any hard surfaces, they didn't have any faith in it. I couldn't wait for other financial sources to prove my idea, so I had to spend my own money to do it. I sold my house in Hanoi, literally throwing money into the river to test my idea. It's easier said than done. I can say this way is less costly, but it doesn't mean people will believe me, right? So then I had to push myself in that way, meaning investing my own money and my own efforts.</p>
Dr Ngo Anh Dao	<p>And when it works, people see that it's true, that it has both economic value and aesthetic value. Boats take shelter under the shade of the trees, many aquatic species call them home, and they create a very beautiful landscape instead of a concrete embankment on hot days. Who is going to go there for the shade? Many international tourist groups are attracted by the landscape. The mangroves prove to have both economic and landscape benefits, don't they? And the most important thing is the connection among community members, meaning that we do it ourselves and we connect with one another without relying on any other resources.</p>
Host Sen Nguyen	<p>If you take a look at Professor Mangroves' community building and embankment construction on the Thu Bồn River, there seems to be more men than women on the field, but that impression might be a bit premature.</p>
Dr Ngo Anh Dao	<p>We shouldn't just say, "only men work on the embankment, and women are nowhere to be found," that's not true. Heavy tasks such as working in the water, planting trees, transporting this and that, those are done by men. But many women of various ages participate in supporting tasks. For example, planting trees, planting grass, transporting stuff, and many other things are all done by women. Many men who work on the embankment invite their wives to accompany them to work alongside them planting grass, trees, and other things. So the gender issue that I want to talk about is not just distinguishing between male and female workers, but the message of the embankment itself is already very "soft," so-called femininity, it's very much about peace. That is what nature is about.</p>
Host Sen Nguyen	<p>While we see the many advantages of human-made buffer strips, no solution is perfect. So if every 3-5 years there is historical flooding like the ones Vietnam faced in 2017 and 2020, and that's not enough time for her three tiers of trees to mature, then what does that make of Dr. Dao's solution?</p>



<p>Dr Ngo Anh Dao</p>	<p>Both soft and hard embankments face human-made challenges, not those coming from nature. Those challenges are hydroelectricity, sand mining, and even improper coastal farming. Those issues are at the macro level. The frequency of environmental disasters is much higher and the time between them is much shorter now, and it's unpredictable, right? Before, it flooded once every 10 years, and if that's ideal, then my embankment after 10 years is already so tall. But now it has shrunk to every 3 years or even every 2 years. Soft or hard embankment, you still have to face this frequency.</p> <p>The problem that needs to be solved here is not the limitations of soft or hard embankments, because both can be destroyed during severe floods. With hard embankments, you lose even more, though, not to mention losing money. Any man-made solutions will lead to a problem. It is not only about techniques, right? It's also about our mindset, our attitudes. Even in deciding on a soft or hard embankment, it is difficult to agree on one solution, that is, to agree on a solution, to shake hands and solve the problem together.</p> <p>On the same stretch of river, if there are three different actors with three different purposes, all putting their egos forward, then they cannot agree with each other to come up with the best solution. My neighbor next to the land where the embankment is wants to build a concrete embankment there. As with any technical solution, there is a problem of inconsistency among individuals.</p>
<p>Host Sen Nguyen</p>	<p>According to an official report, in the first seven months of this year alone, Vietnam suffered 72 riverbank erosions, more than 200km of dykes, embankments, and canals have been lost to land erosion, 31 temporary bridges have been damaged or washed away, and over 31km of roads have been lost to erosion and landslides, among many other disasters. Economic losses caused by environmental disasters in the same period were over 4 trillion dong. That's about the same amount of money that Lao Cai province up north invested in education between 2016-2020. This is an example of how environmental damage spells losses to investment in community development.</p> <p>Although the applicability of vegetated embankments is very likely, Dr. Dao believes that it may not be the only solution for Vietnam.</p>
<p>Dr Ngo Anh Dao</p>	<p>This type of embankment can be built anywhere and people can hold on to their land.</p> <p>I also went to the Central Highlands where the authorities in Dak Nong and Dak Lak also came down to visit my embankment and invited me to come up with a solution to save the Krong No and Krong Ana rivers there. They also have erosion issues. The Mekong Delta is now also experiencing river erosion left and right. I want to create a business line, I want to bring this solution to the Mekong Delta and the Central Highlands... then again, it's about the big picture. As a planner, I also clearly see the limitations of planning, not of specific solutions. The Mekong Delta has many big planning problems. It's about how the road is built on the shoreline. Human intervention in the ecosystem is a no-no, always wanting the road to come between the water and the land. Vietnam likes to build roads along the coastline. It leads to ecosystem disruption, with obvious consequences.</p>
<p>Dr Ngo Anh Dao</p>	<p>The road is still built like that, and I can't guarantee that my embankment technology will solve land erosion, but changes have to happen at the planning level. It's a huge problem. In Vietnam, planning doesn't follow the principles of nature. Then we are just going to end up running after land erosion and patching up our problems.</p>



<p>Host Sen Nguyen</p>	<p>In the meantime, Professor Mangroves' leafy initiative is still going to make a statement on its own. Her community's mangroves, local grasses and casuarinas are still dancing with the wind and leaning into the rhythms of the water flow while nurturing the ecosystems around their roots. They also provide shade for local residents and tourists. Most importantly, the embankment provides a mechanism absorbing the blows of increasingly volatile floods and storms. Here is resident Pham Duoc again.</p>
<p>Mr Pham Duoc</p>	<p>People's lives now, I find, are very, very good. The first thing is that the embankment brings tourism, and these kinds of projects retain this village's land. That's a joy – no more selling land, people don't go anywhere. Staying on their native land is bliss. Because I am here in a village like this, I breathe in clean air. If you have a lot of money to buy land, you can only afford something to a certain extent, but it cannot be as spacious as what we have here.</p>
<p>Dr Ngo Anh Dao</p>	<p>I've always believed that if I demonstrate a successful case, everyone will see the effects, but I have no hope that it will effect change on a large scale because that requires solutions at the planning level. But I really believe in approaches like this – it's very small, but it has a huge local impact in a certain locality, or in a community where the impact on humans can stretch for miles and miles.</p>
<p>Host Sen Nguyen</p>	<p>Thank you, Dr. Ngo Anh Dao and Mr. Pham Duoc, and best of luck with your next plans of action!</p> <p>You've just listened to the podcast Descendants of Hai Ba Trung, brought to you by the United Nations Development Programme, where we share inspiring stories about women from diverse backgrounds and professions and their fierce action to combat the climate crisis and build the resilience of their communities and ecosystems to the impacts of climate change.</p>

Contacts:

Nguyen Thi Phuong Dung, Communication Officer, UNDP in Viet Nam

Email: nguyen.thi.phuong.dung@undp.org

