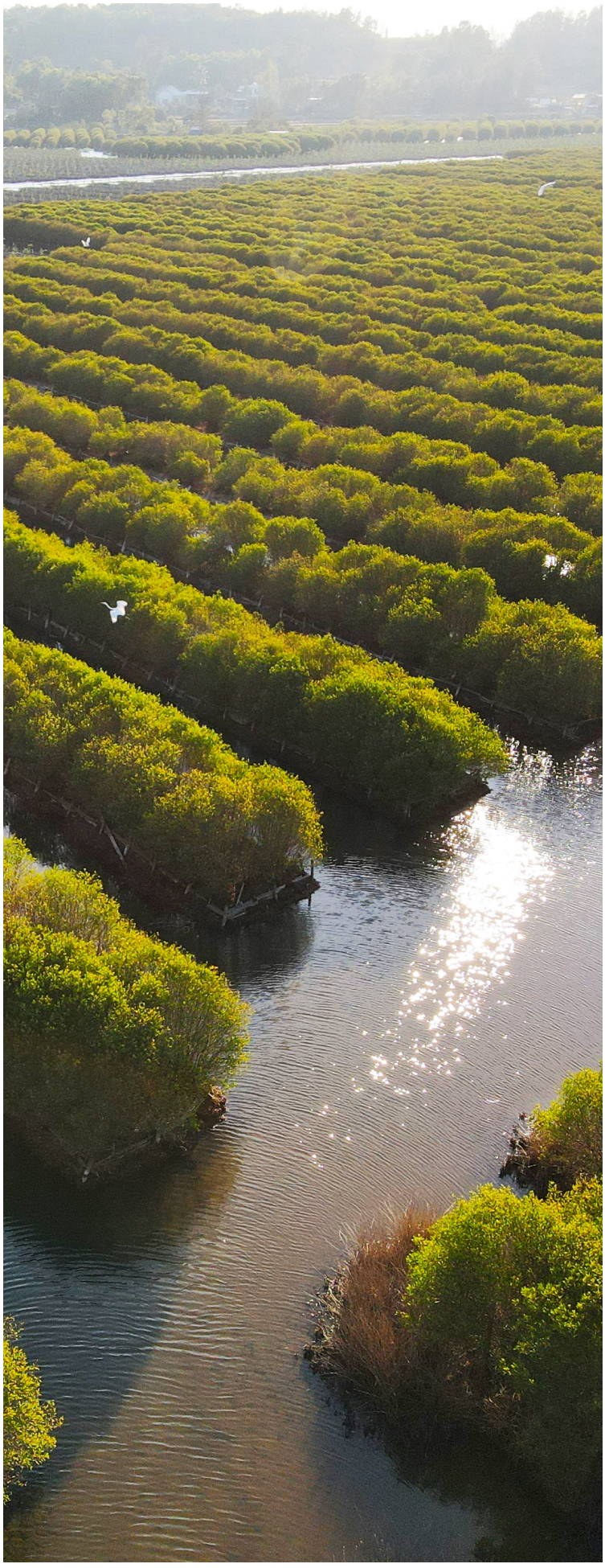
GREEN CLIMATE FUND

VIETNAM CONSTRUCTION

UNDP

Sweet SUCCESS



Sweet SUCCESS

AUTHORS
Phan Huong Giang
Trina Loken
Le Nga
Ngo Nga
Kate Jean
Le Quang Hanh
Thu Hoa
Nguyen Thanh
Thanh Dat
Thanh Thu
Thanh Lan
Khoi Nguyen
Hoang Oanh
Nguyen Đat
Phan Chau Giang
Pham Truong
Quang Nghia

EDITORS
Phan Huong Giang
Merran Eby
Nguyen Thi Kim Anh

TRANSLATORS
Nguyen Thanh
Nguyen Thi Kim Anh

PHOTOS
UNDP in Viet Nam
Phan Huong Giang
Vu Ngoc Dzung
Nguyen Viet Nghi
Nguyen Thi Thuy Dung
Trina Loken
Bui Thanh Trung
Zing News
Quang Nam Newspaper

DESIGN
Nguyen Thi Kim Anh

Contents

Go inside when storm comes and go upstairs when it floods!

PHAN HUONG GIANG
June, 2018

Photos: UNDP in Viet Nam/ Phan Huong Giang

Viet Nam is in the top ten countries affected by climate change, according to the Germanwatch's Global Climate Risk Index. The country has experienced more frequent and unpredictable extreme weather in recent years.

In 2017 alone, Viet Nam was affected by more than 16 typhoons, five of which directly battered its coastal provinces and caused severe floods, flash floods and landslides. More than 350 people lost their lives or were reported missing. Hundreds of thousands of homes were destroyed, and dozens of villages were left isolated by floods.

"There was a terrible flood last September. The water overflowed my window and roof flew away. Therefore, I had to go to the commune People's Committee office for my safety", said Pham Thi Tiem, a single, 54-year-old lady living in the Binh Chanh commune, in Binh Son District, Quang Ngai province.

"I get very worried when there is a storm or flooding. Because I have a disability, I cannot run as quick as the others," said Tiem, tears rising in her eyes.

People here consider housing to be their most valuable asset, but it is also most vulnerable to natural disasters, particularly in the coastal provinces, the most disaster-prone region of the country. Therefore, storm resilient-housing is vital to saving lives and mitigating property loss.

Under the UNDP-GCF project -- 'Improving the Resilience of Vulnerable Coastal Communities to Climate Change Related Impacts in Viet Nam' -- the housing support will benefit the poor households based on government criteria. Priority will be given to ethnic minority households and disadvantaged families, the elderly, families of people with disabilities, households in extremely remote areas, the poorest districts of the Government's poverty reduction program, and other vulnerable people.

Along with Decree 48, that supports poor households in the central region to build houses that can withstand floods and storms, the project provides financial and technical support to build resilient homes.

Tiem now lives in what she calls a new, 'resilient' home where she sells tiny things to earn less than 100,000 Dong per month. She stores most of her furniture on the upstairs floor where she can stay safer during the flooding, and there is a big window that serves as an exit for evacuation.

Her house was built with additional resilient features such as strengthened bracings, reinforced windows, doors, sealing, and improved drainage and plinths.

"I am very happy and do not feel worried anymore. Thank you so much for the project's support. Now when a storm comes, I will go inside the concrete roof room. When it floods, I will go upstairs", she said.

"As a house is the single largest asset owned by individuals and families, building resilient homes is central to the adaptive capacity of most households in the coastal zones of Viet Nam," said Ms Caitlin Wiesen, UNDP Viet Nam Country Director.

"Working with the Ministry of Agriculture and Rural Development (MARD) and the Ministry of Construction (MoC), UNDP is supporting the construction of 4,000 safe houses in five coastal provinces of Quang Ngai, Quang Nam, Quang Binh, Thua Thien Hue and Thanh Hoa over the next 4 years."

Resilient houses *help people* change their lives

TRINA LOKEN
June, 2018

Photo: UNDP in Viet Nam/Trina Loken

Ms. Nguyen Thi Mun, 77 years old, lives in Binh Chanh commune, Binh Son district in Quang Ngai. Over the past years, life has been particularly tough. Her husband, Mr. Vo Khanh, 82 years old, has been sick and is currently in hospital. The family makes very little income and every time there is a storm, parts of the house fall down.

Unfortunately, due to its coastal location, Binh Chanh commune is prone to storms and flooding. Every time the water rises, families are displaced. “Whenever there’s flooding, the commune authorities come to pick me up by boat, taking me to a highland area, and give me instant noodles for food,” Mun said. She has to stay there until the water – which usually reaches 1.5 meters high – withdraws a few days later.

While her life has been protected with this assistance from the commune, her home and possessions have still been damaged over the years.

So, when Mun and her husband heard about a new Government project – supported by the UN Development Programme and the Green Climate Fund (GCF) – providing resilient housing, they immediately applied at their local commune office. “We do not have enough money to build a new house on our own, so we need support from the Government and donors. We were incredibly happy when we heard about the project’s housing programme,” Mun recounted.

Mun looks forward to their new home being finished. She believes her circumstances will be different when extreme weather hits: “I

can go up to the mezzanine floor and stay there during storms and floods and keep my valuables and food safe. I will be able to go up by myself because the stairs will have a railing I can hold onto. I will bring everything I need up there, including water, clothing, rice, other food, and a small gas stove so that I can stay there comfortably."

The project's storm and flood-resilient housing design. Project houses must have mezzanines that are higher than the maximum flood level in the areas in which they are constructed and have an area of at least 10m2. All project houses will have solid, reinforced structures made with high quality materials, starting with strong foundations. Already, during the construction of her new house, Mun's neighbors had been coming to see what was going on, wishing to build similar kinds of houses through the project later on.

Although past storms and flooding have not been easy for Mun and others in her community with similar vulnerabilities, she is highly optimistic about the future:

"I am extremely grateful for the support and happy about participating in the program. The program is very important for the beneficiaries and will help people change their lives. I can live longer because of it... maybe even 10 years more!"

Seventy-seven poor households in Quang Ngai province have been the first to receive housing support from the GCF-supported project, "Improving resilience of vulnerable coastal communities to climate change related impacts in Viet Nam."

Peace of mind in the path of storms

PHAN HUONG GIANG, KATE JEAN
February, 2019

Viet Nam is one of the ten countries most affected by climate change. It's had more frequent and unpredictable extreme weather in recent years, with disastrous and often deadly consequences.

"We used to dream of a safe house every night," says Nguyen Thi Mua.

Nguyen Thi Mua and her family live in a vulnerable coastal community where extreme weather will continue to get worse.

Mua and her husband and four children live in Vinh Hai commune in coastal Viet Nam, where extreme weather is now a fact of life. In 2017 alone, 16 typhoons hit Viet Nam. More than 350 people lost their lives and hundreds of thousands of homes were destroyed.

"Many times, we have had to borrow money to make repairs after typhoons," Mua says. Often, when things got really bad, they would be forced to stay with their neighbours until their house was habitable again.

Extreme weather is expected to get worse in Viet Nam, and it's putting already vulnerable communities at even further risk.

The sea is just 300 metres from Mua's home, and encroaching salination has dramatically reduced how much the family can grow on their land.

In the past their neighbours would hire them to harvest rice, dig potatoes or to do construction, jobs which could earn up to three million dongs-about US$129 a month. However, both Mua and her husband are in poor health and unable to work, which has meant even that small income has dried up.

Mua, her husband, and four children live only 300 metres from the ocean. They used old doors for protection during storms.

"We have not been able to work and earn any money for a few months," she said. "All the little money that we earn we have to spend on food, our children's education and other things."

Until UNDP stepped in, it seemed as if the dream of a safe home would remain just that—a dream. But Mua and her family are now the proud occupants of a sturdy concrete house—one of the first of thousands being built in Viet Nam to withstand an uncertain climate future.

With support from the Green Climate Fund, UNDP and the Viet Nam government are this year building more than 1,300 storm resilient houses, and planting and regenerating 1,300 hectares of coastal mangroves. Mangroves not only act as storm surge buffers and carbon sinks, but they also nurture biodiversity and create income opportunities.

This year's project builds on a successful one completed in 2018 where 1,098 houses were built and 200 hectares of mangroves restored to health.

The initiative will help Viet Nam reach the Sustainable Development Goals—by the end of the project in 2022, it will have saved an estimated 1.9 million tons of carbon dioxide.

It's also going to mean safer, more secure lives for vulnerable families, such as female-headed households, the elderly, and those living with disabilities.

"This is the first project supported by the Green Climate Fund in the ASEAN region. The project has achieved significant successes which are increasingly being noted globally," said UNDP Resident Representative, Caitlin Wiesen. "I hope we can continue the impressive results."

Mua's new two-room home is based on a design that her family chose. It has a mezzanine floor where they can retreat when the waters rise, reinforced roofing, and cement walls and foundations.

"Since we have this resilient house, we feel much safer. Now, if there is a flood, we can move our belongings, rice, and the children's books to the mezzanine level, "she said.

Viet Nam's project is part of a larger initiative in the Asia Pacific region which supports developing countries making the shift to low-emission and climate resilient development.

More immediately for Mua and her family it means one thing - peace of mind.

"We have a resilient house to protect our lives and assets. We could not sleep for many nights because we were so happy," she said.

The final construction of Ms. Nguyen Thi Mua's new resilient house. New features include a mezzanine to protect against flooding, reinforced roofing and the use of quality cement.

A natural green wall against storms

LE QUANG HANH
August, 2019

"Thanks to this mangrove forest, my village will no longer have to worry about storms." Gesturing towards the trees, Mr. Bui Quyet Chien (Yen Loc village, Da Loc commune, Hau Loc district, Thanh Hoa province) proudly shares the journey that led to their planting.

Da Loc, a coastal commune in the Hau Loc district of Thanh Hoa province, suffers annually from storms and floods which frequently cause heavy or even life-threatening damage to houses, property, and crops. Local and provincial authorities have held many meetings to find ways to lower disaster risk in seaside communities like theirs. One such solution, supported by both the government and people, has been planting mangrove trees along the coast.

In the early days, according to Mr. Chien, everyone expected mangrove planting to be a simple task. They soon realized, however, that they had significantly underestimated the high level of technical skill required. Their lack of experience and knowledge of afforestation techniques, as well as the erratic rhythm of the tides and the weather entering the rainy season, caused many difficulties in transporting and planting the seedlings. In the beginning, most of the newly planted trees were swept away by the waves before their roots were able to firmly anchor in the ground. Even after several attempts, very few survived.

Mr. Bui Quyet Chien with the newly planted mangrove forest near his home village of Yen Loc.

Despite these many initial challenges, Da Loc commune's determination to prevent storm damage has since led them to make considerable achievements in planting and restoring mangroves. Thanks to coordination between the government and the community, and with support from a Green Climate Fund (GCF) project on coastal resilience, specialized provincial agencies have assigned technical staff to provide training for the people of Da Loc. As part of their instruction, locals have been taught methods for planting trees, tending forests, and ensuring that boats will not enter the planting area, as well as making additional bamboo barriers to lessen the impact of tidal waves.

"We are very excited to have support from the GCF project to regenerate mangroves in coastal communes like ours," says Mr. Chien. Pointing to a patch of newly planted seedlings, he adds, "This forest will protect not only the people of Da Loc, but also other communes such as Hung Loc, Ngu Loc, and Minh Loc, because it is the most important part of the dyke."

Mangroves are a kind of 'green shield' that can be used to protect people, houses, and fields from disasters, and come with many other economic and environmental benefits. Mr. Nguyen Viet Nghi, project coordinator for Thanh Hoa province, said: "This year, the project 'Improving the Resilience of Vulnerable Coastal Communities to Climate Change-Related Impacts in Viet Nam' organized the planting and restoration of about 350 hectares of mangroves to revitalize coastal alluvial areas, as well as increasing green cover in poor-quality forest areas to enhance their ability to reduce the effect of strong winds and storms."

Over the past twenty years, the first trees planted on the mudflats of Da Loc commune have grown splendidly. Nearly 1,000 hectares of mangroves have been planted along the coast from Hau Loc to Nga Son, forming a solid wall against storms and waves and protecting these peaceful villages every rainy season.

'Now, I am not afraid at all'
Resilient house brings relief in poor coastal village

LE NGA, NGO NGA
January, 2020

With three sides facing the sea and many low-lying areas that are easily isolated or flooded, the vulnerable island commune of Tam Hai is often affected by disasters and extreme weather. Located in the high-risk southeastern part of Nui Thanh district in central Quang Nam province, it regularly suffers from the combined impacts of sea level rise, flooding, storm surges, and saltwater intrusion, causing serious hardship to the local people.

Mrs. Tran Thi Lieu, 82, lives in the small Tam Hai hamlet of Binh Trung. She still can vividly remember her feeling of terror as one particularly powerful storm tore away the roof of her old house while thunder boomed.

"As the storm approached, the door kept slamming. My old house was heavily damaged, and when the roof flew off, my family had to hide under the table. Although we were evacuated safely, I was still very worried after the storm passed, because we had no money to repair the house," Mrs. Lieu said.

Mrs. Lieu has no source of income other than support from the government. Her husband passed away many years ago, leaving her to raise their two young children by herself. Her son tragically drowned in 2016, and her daughter is married far away, so these days she is alone.

Living as she does in a coastal area, Mrs. Lieu is no stranger to disasters. As she led me through her dilapidated old house, her thin, wrinkled hands trailed along the cracked walls. Sunlight was creeping in through a row of roof tiles that had been overturned during a recent storm.

"This house was built 40 years ago, and now it's in very bad shape. The roof leaks during every rainy season, and all the doors are blown off. I was terrified."

Perhaps because of the fear planted by those awful days of extreme weather, Mrs. Lieu never dared to think even in her dreams that one day she might be able to live in a spacious and safe house able to withstand the disasters that have plagued her for so many years.

However, since 2018, an initiative has been supporting the construction of safe houses that can withstand storms and floods and offer people like Mrs. Lieu some relief.

This so-called 'resilient housing' forms one component of the project "Improving the resilience of vulnerable coastal communities to climate change-related impacts in Viet Nam," funded by the Green Climate Fund (GCF), the Government of Viet Nam, and the United Nations Development Programme (UNDP). Mrs. Lieu is one of 436 poor households in Quang Nam province receiving assistance from the project to build safe houses based on carefully designed storm- and flood-resilient models.

With a gentle smile, Mrs. Lieu slowly led us into her new home, her eyes sparkling with joy. This compact, light green house is now a safe place that will be able to protect her from all future floods and storms.

Her house is about 30m2, with a firmly attached corrugated iron roof that will not blow off in the wind. A solidly built set of stairs leads up to the 12m2 flood-proof upper floor, which allows her to take refuge from high water levels and has escape windows for emergencies.

She walked faster and led us down to her new kitchen, which is now is fully furnished with a rice cooker, a gas stove, and a barrel full of rice – a stark contrast to the smoky wood fire she had before. A small altar sits in the corner of the living room in memory of her husband and son.

Living alone is full of difficulties, so Mrs. Lieu feels very grateful to have received the support of the Government and the project to live in such a safe home.

"Now that I have this new house, no matter how terrible the storm is, I can stay safely at home and go upstairs when the floodwaters rise. Now, I am not afraid at all."

Another spring is coming, and happiness shines in the eyes of Mrs. Lieu as she stands in her dream home looking out over the familiar sight of the poor coastal village she has been attached to for so many years. In spite of the COVID-19 pandemic and the record-level storms and floods that Quang Nam province suffered in the fall of 2020, thanks to this storm- and flood-resilient house, Mrs. Lieu has been able to safely overcome an extremely difficult year.

"With this new house, now I have complete peace of mind. From now on, I won't be worried about running away from the storms anymore."

Mrs. Tran Thi Lieu sits in front of her new resilient house, which stands next to the old one battered by four decades of storms.

Resilient homes rescue those in storm- and flood-hit areas

THANH DAT
October, 2020

Flood-resilient homes have been built next to residents' previous houses in order to minimise disruption.

An increase in extreme weather events is posing great hardships to many Vietnamese people in the south-central province of Quang Ngai, with many witnessing their homes being destroyed beyond repair by storms and floods. However, one initiative continues to transform lives for the better with the creation of resilient homes for many of those affected.

Visually-impaired Nguyen Thi Ba has been living alone since her mother passed away last year. The 63-year-old wished that her mother could come back to life to witness their biggest dream come true – to enjoy a new home.

"I feel happy now that I have a new house in which I can live safely for the remainder of my life," said Ba. She lives with some plots of rice, with an ox which she can lease to neighbours to work on the rice field to earn some money.

Located in Duc Nhuan commune of the south-central province of Quang Ngai's Mo Duc district, construction of the 30-sq.m house began in May and was conferred to Ba in July. The storm- and flood-resilient building stands next to Ba's former one. During storms that old house was often damaged, with the roof leaking heavily, forcing many sleepless nights on Ba and her mother.

A lifebuoy

Ba's new house is among 35 storm- and flood-resilient homes set up in Duc Nhuan, with construction of the first beginning in 2018. The buildings are part of a project to improve the resilience of coastal communities to climate change in Viet Nam, funded jointly by the Green Climate Fund (GCF), the Vietnamese government, and the United Nations Development Programme (UNDP). The project is being implemented by the Ministry of Agriculture and Rural Development, the Ministry of Construction (MoC), and the UNDP during until 2021.

Tran Cong Oanh, representative from Duc Nhuan commune and a communal focal point of the project since 2018, said that the people here used to live in shabby conditions. Mostly farmers, they found it almost unbearable to stay in these buildings when the area was enduring storms or floods.

"All the new resilient houses have been built free of charge and provided for the local poor and female–headed households," Oanh said. "Since moving into the new homes, their lives have become easier and they feel safer during storms and bad weather."

In late 2019, Quang Ngai was hit seriously by a big storm named Matmo which, Oanh recalled, destroyed many houses.

Farmer Nguyen Thi Lang in her new storm-resilient home.

"However, all the resilient houses supported by this project were not affected as their structures were prepared for such an event," he said. "It is quite a miracle which has turned many poor farmers' dream of owning new homes into a reality."

All households in the commune live on rice production via two crops a year, with an average annual income of about VND6 million ($260), or VND500,000 ($22) per month, equivalent to a few cups of coffee found in big cities like Hanoi and Ho Chi Minh City.

Initially those, especially poor and female–headed households, wishing to live in the new houses must register at the local communes' headquarters, and then are selected by an authorised team whose members are representatives from different organisations in the province. The house designs and technical specifications are approved by the provincial Department of Construction, but selected households can choose a design and local workers at their own selection, with the money supported by the project via banks.

A new model

The new storm- and flood-resilient houses are based on simple designs to create a stronger structure. Features include a mezzanine level for flooding protection, reinforced roofing, and the use of strong cement. The mezzanine level allows residents to comfortably stay in their houses during a disaster, safe from high flood levels. This level can also be used as an area to store valuables during disasters and avoid it being washed away or spoiled by flooding waters. Each house is funded from about $1,700 from the project, and another $600-800 from the government's Programme No.48 under 2014's Decision No.48/2014/QD-TTg on assistance in constructing storm- and flood-resilient homes for poor households in the central region. If the household wants to install additional parts or expand the houses, they mobilise their own financial resources.

In fact, these types of homes are built not only in Duc Nhuan commune, but also in many other localities in Mo Duc district, and in the three districts of Binh Son, Tu Nghia, and Duc Pho, and Quang Ngai city of Quang Ngai province. The investment capital from the GCF for constructing a total of 683 houses of the type is $1.19 million, in addition to oAver VND9 billion ($391,000) from the state budget, all disbursed from 2017 to 2021.

About 543 resilient houses have been constructed so far, with about 140 homes to be completed in 2020. More than 3,400 people will benefit from the project, according to the provincial Department of Agriculture and Rural Development, which is the project's owner in Quang Ngai.

"These homes have helped protect many locals during extreme weather events. They have greatly supported the locals' life in areas frequently hit by natural calamities in the province," said the GCF Provincial Project Management Unit's vice director Hoang Van Huy.

Meanwhile, Tran Cong Oanh from Duc Nhuan commune hopes to see more storm- and flood-resilient houses continue to be built in this commune. "Many poor farmers like Nguyen Thi Ba are wishing to live in such resilient houses as their existing homes are dilapidated and threaten their lives. Storms and floods are their biggest nightmare," Oanh said.

NGUYEN VAN LAM – *Binh Thuan commune resident*

Binh Thuan commune is located in the flood-prone area, and people living here have to suffer damages from floods every rainy reason. Most of us work in agriculture and make only little money, so costs for things like fixing our houses are hard to cover. Thus, UNDP's packages are very meaningful to us as the climate disasters still last.

To date, about 23 households receive supports. They are all happy for the new houses whose constructions are solid enough to withstand a diversity of weather conditions. However, those houses are still quite small, and at least another 30 households need the same support. Nevertheless, this is the first year we are entitled to the packages, and we hope in the next years, most of the disadvantaged households in Binh Thuan commune will receive similar support.

PHAM THI EM – *Binh Thuan commune resident*

Thanks to the new house, our family could focus on earning a living instead of worrying about weather damages. Before receiving the support, we were struggling with the rainy season and floods.

Our old house was easily broken, so every time we tried to fix it. Thus, instead of using the money for maintaining daily life, we had to pay a lot for fixing our house. That time was terrible.

But now, everything has changed with the new house. It has a solid construction that could hold out in every kind of weather. The house is the most valuable asset of a farmer, so we are appreciating the support.

BUI THI DON – *Binh Thuan commune resident*

Over the last few years, our family has struggled with the weather. In contrast with many households, we are not living in the flood-prone area. However, our old house was too weak to confront heavy rains. Therefore, after getting a new house, our burden has been eased a lot.

We work in a farm mainly, so the income is always fluctuating and depends on the yearly crop. During every rainy season, we mostly cannot earn as much as during spring or summer.

Moreover, heavy rains also impact the quality of our crops. Thus, we cannot earn that much money while our house has been destroyed at the same time.

So, with the new house, one of our main problems has been resolved. Thanks to that, we can pay more attention to maintaining our income during the rainy and flood season.

Photo: UNDP in Viet Nam

Resilient homes on flood plains giving hope to at-risk families

HOANG OANH
November, 2020

More than 3,200 storm- and flood-resilient houses have become a safe shelter for thousands of people in five central coastal provinces in the aftermath of historic flooding due to the impact of various storms and, most recently, typhoon Molave.

Just a few hours prior to the October 28 arrival of the strongest storm seen in Viet Nam in the last 20 years, Bui Thi Chin's family in Binh Son district of the central province of Quang Ngai was completing the final stages of preparation for the incoming threat.

For the families of millions of people in other central coastal provinces, storms and floods have become a familiar part of their lives for many years. However, 2020 has brought disaster over disaster for the central region with some of the strongest storms ever experienced in recent weeks, on top of the difficulties that the global health crisis has brought in recent months.

Chin said that when she learned of storm Molave's approach to the mainland, she was so worried and could not sleep for several nights. It was projected that the eye of the storm would most likely be located over Quang Ngai. "The wind began to blow so fiercely from the afternoon. However, my family had promptly reinforced my home's resistance and moved our belongings to the attic, so I feel safer. My husband and I will also be in the attic for the next few days because heavy rains can lead to flooding," said Chin.

The house of Chin's family is one of more than 3,200 storm- and flood-resilient houses constructed in the central coastal provinces of Thanh Hoa, Quang Binh, Thua Thien-Hue, Quang Nam, and Quang Ngai jointly funded by the Green Climate Fund, the Vietnamese government, and the United Nations Development Programme (UNDP). The partnership aims to improve the resilience of vulnerable coastal communities to climate change-related impacts in the central Viet Nam.

Along with Quang Ngai, Quang Binh, Quang Tri, and Thua Thien-Hue have also been battered by persistent torrential rains, causing widespread flooding and landslides. Since October 5, prior

to Molave's arrival, nearly 150 people have been killed or gone missing, more than 270,000 houses have been flooded, over 37,500 homes have been damaged, and around 57,000 people have been evacuated to temporary shelters, as reported by the UNDP and the Ministry of Agriculture and Rural Development's Viet Nam Disaster Management Authority in Quang Binh, Quang Tri, and Thua Thien-Hue.

Providing shelter

During the flooding, the storm- and flood-resilient houses like Chin's begin to take effect in ensuring the safety of people's lives and property. In the severely-flooded Thua Thien-Hue, nearly 600 such homes have withstood the recent relentless weather, including during historically high flooding over the past few weeks.

Meanwhile, in Quang Binh, many people have lost almost all of their household possessions to the floodwaters, but there are also those who are more fortunate because the storm- and flood-resilient houses are not only a safe shelter, but also act as food storage facilities.

Nguyen Van Duoc's family in Son Thuy commune of Le Thuy district is one of the households in this case. He said his house is a meaningful asset of his life, and he decided to have it built after receiving advice and support from the UNDP as well as the local government.

Elsewhere Duong Thi Trinh, residing in Le Thuy commune in Quang Binh, also shared her gratefulness to own a solid house because it not only becomes a shelter for her family but has also been a common home for many neighbouring families in recent flooding days. "We are fortunate to have a cosy and safe place to live," said Trinh.

According to Dao Xuan Lai, UNDP assistant resident representative, and head of Climate Change and Environment, storm- and flood-resilient houses must ensure criteria such as being resistant to both storms and floods and having flood-proof flooring, while construction cost is kept low.

The central region's woes with natural calamities have badly affected locals' way of life

"A qualified storm- and flood-resilient house must have a foundation made of reinforced concrete, brick, or stone, columns and beams made of reinforced concrete, wall built with brick or stone, flood-proof floors, and a roof that can withstand wind speeds about 100km per hour," Lai explained. The foundation is relatively high compared to normal, and the flood-proof floor must be at least 1.5m above the 6-metre flood level of a historical flood which occurred in 1999. Flood-proof floors (Mezzanines) should have a minimum area of 10 square metres and are made of reinforced concrete or solid wood with safety floor railings made of sturdy iron, steel, or wood.

Flood-proof futures

The resilience of these important homes after major floods has illustrated the outstanding advantages of the buildings. Particularly, for households with difficult circumstances – the main beneficiaries of the project – such housing helps protects lives and assets, quickly stabilises livelihoods, contributes to building a safe community, and proactively mitigates the impacts of climate change.

As a result, there are calls for the model of storm- and flood-resilient houses to be replicated and scaled up in central coastal provinces that are severely damaged by natural disasters.

Nguyen Van Thuc, Chairman of the People's Committee of Son Thuy commune in Quang Binh said, "In addition to poor and disadvantaged households, we should expand the scope to support near-poor households in order to build resilient houses in extremely difficult areas."

The suggestion is already part of the plan for the UNDP project to replicate resilient housing models. According to Caitlin Wiesen, UNDP resident representative in Viet Nam, it has mobilised $100,000 from its emergency resources to assist the government and vulnerable and flood-affected people in the central region through building such homes.

In addition to 600 storm- and flood-resilient houses in Thua Thien-Hue, more than 1,000 houses in Quang Binh and Quang Nam and thousands more in localities of Quang Ngai and Thanh Hoa have been gradually appearing since 2017 and will continue to be built until 2021. More than other 800 resilient houses are planned to be built in the next year.

"UNDP will continue to support vulnerable and flood-affected people by building resilient houses," reaffirmed Wiesen.

A day after storm Molave directly ripped through Quang Ngai with wind speeds reaching 100km per hour, causing many houses to have their roofs blown off and large trees uprooted, Bui Thi Chin informed that her whole family was safe there, and her property had not suffered much damage. She and her husband felt safer than before, and the house did its job despite heavy rain and strong winds outside.

Chin said emotionally, “Vietnamese people have a saying about settling down and thriving. Hopefully many people in Quang Ngai from my hometown as well as people in other central provinces will have warm, safe houses like ours so that floods and storms will no longer become an obsession and bring heavy losses.”

As fact, in Viet Nam, there are already many varying designs of resilient houses such as floating homes, and buildings with concrete pillars that are being constructed in several provinces in the central and south of the country.

“Most of the houses built under this programme are very sturdy and beyond the standard requirements. They are very durable,” said Nguyen Manh Khoi, deputy director of the Housing and Real Estate Market Management Agency under the Ministry of Construction.

These houses have not only been built through contributions from the UNDP initiative but also from policy bank loans and support from international donors, commune resources, and other social resources.

“We have developed a project to build 4,000 resilient houses for poor people who are vulnerable to disasters. As we have been implementing this project, we received much appreciation from the locals, who were very excited. Currently, the provinces are implementing the project, and while its budget is not particularly large, we think that it has had a real practical effect so far,” said Tran Quang Hoai, director general of the Viet Nam Disaster Management Authority.

Storm- and flood-resilient housing is helping flood-hit families
Photo: UNDP in Viet Nam

Livelihoods transformed with *mangrove forest protection*

NGUYEN THANH
November, 2020

With the central region having suffered from recent weather calamities, inhabitants in the south-central province of Quang Ngai's Binh Thuan commune have been struggling to make ends meet. However, the lives of many have started to see significant changes on the back of an initiative to grow mangroves to both shield villages from storms and develop eco-tourism.

Sitting at peace on a wooden sampan sailing on the surface of the water, 43-year-old Pham Duy Nghia, gazes adoringly at the mangrove forest in front of him, with the green leaves and tiny white blossoms shining in the sunlight.

Here and there, white storks and a range of other birds are perched on the mangroves, which have been planted in straight lines in an immense lagoon called Bau Ca Cai in Thuan Phuoc hamlet. The scene, in Binh Son district of the south-central province of Quang Ngai, is akin to a beautiful watercolour painting drawn by both humans and nature.

About 10 years ago, Nghia and local residents often caught fish here, which enabled them to make ends meet with an average income of about VND700,000-800,000 ($30-35) per household. However, the area became increasingly polluted, with no fish to catch and the villagers finding themselves in a more precarious position. Many left for big urban areas to earn a living. Elderly people and children became the majority in the village, while some women maintained their livelihoods by raising oxen and planting rice.

> ***"But now, our life has gradually changed and more and more people have begun to come back to the village to live," Nghia said.***

In 2014, the provincial authorities started a mangrove-planting scheme at Bau Ca Cai lagoon, directly facing the sea. However, it was not until in 2016 when a mangrove-planting project was implemented here to expand the scheme that locals like Nghia were able to see positive changes.

"Many local residents and I were engaged in the project as we began to plant the trees in the lagoon. Water became less polluted and now it is clear and fish can be found. The landscape has become a mangrove forest now," Nghia said while sailing by on the sampan.

Storm-resistant shield

The recent storms which were some of the strongest swept across Quang Ngai and caused significant damage to the livelihoods of hundreds of thousands of households in the province.

However, farmers like Nguyen Thi Hai, 53, in Binh Thuan commune, had their homes and fruit trees protected from any sabotage.

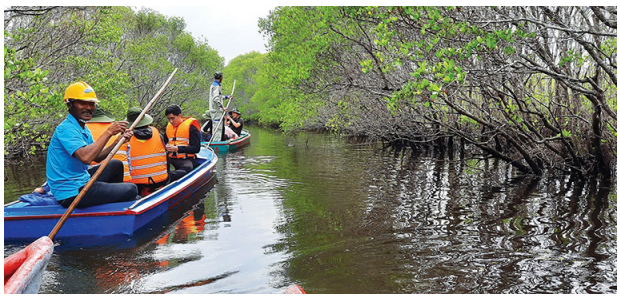
"The mangrove forest is useful as it has protected villagers' houses," said Hai. "I have a garden of pawpaw plants, which would easily be smashed down by strong wind. However, only several plants have been taken down by the storms."

Associate professor Le Anh Tuan, from the Research Institute for Climate Change at Can Tho University, said that this mangrove forest has "not only maintained livelihoods for locals, but also played a very important role in responding to climate change, staving off storms and reducing negative impacts."

The model needs to be expanded in many other localities across Viet Nam, Tuan added.

The mangrove-planting project in Binh Thuan commune is part of a wider project to improve the resilience of coastal communities to climate change in Viet Nam, funded jointly by the Green Climate Fund (GCF), the Vietnamese government, and the United Nations Development Programme (UNDP).

Mangrove areas create a vital buffer between the sea and coastal communities. GCF funds support plantation and regeneration of approximately 4,000 hectares of mangroves in coastal areas vulnerable to climate change impacts, including the provinces of Nam Dinh, Thanh Hoa, Quang Nam, Quang Ngai, and Ca Mau.

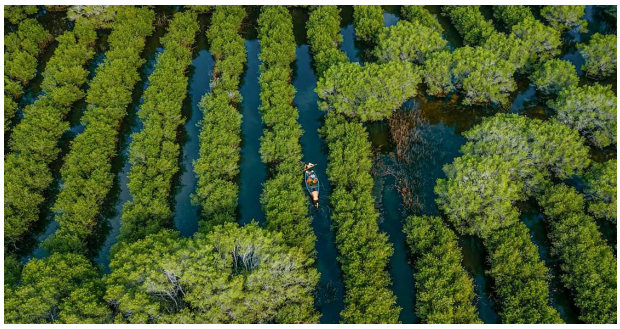


The mangrove trees not only help protect homes but also offer a new way of earning money for families

"Coastal forests, especially mangroves, play a vital role in protecting the lives of vulnerable communities from storm surge due to the impacts of natural disasters and climate change," said Caitlin Wiesen, resident representative of the UNDP in Viet Nam.

In recent years, the government has paid great attention to the promulgation of a series of policies to protect and develop mangrove forests as the decline of mangrove forests in terms of soil erosion and deposition became a more critical issue. Such forests have been declining in both quantity and quality due to natural factors such as waves, wind, and storms, and human factors like construction, exploitation, and aquaculture.

"Human factors are the main cause for mangrove forest degradation including illegal exploitation and construction. That is why UNDP works to plant and regenerate mangrove forests in ways that engage local communities with sustainable livelihoods and with local authorities to plan and protect forests," Wiesen said.



Mangroves are a typical ecosystem of coastal Viet Nam and a transition ecosystem between freshwater and marine environments. They play a huge part in the local environment, especially on sea dyke protection, erosion control, land stabilisation, riverbank protection, and reducing the negative impacts of storms, cyclones and wave surges.

Many benefits from the small trees include timber and non-timber forest products, aquatic resources, ecotourism, biofiltration, and coastal protection, especially protection of sea dykes, land consolidation, and accumulation and CO2 absorption.

New means of subsistence

Along with helping locals protect themselves from storms, the mangrove forest has also given them various other benefits, such as income from taking visitors to the forest for a tour.

Before 2019, Nguyen Thi Hai lived on catching fish in the sea. However, since then her family has been engaging in transporting tourists on sampans to the lagoon. Her family now owns three boats.

Her husband, 54-year-old Nguyen Khuong, worked at Germadept International Port in Quang Ngai for many years but has now become an oarsman cum tourist guide.

"On average, this job can give our family about VND6 million ($260) a month," said Khuong.

Like many other locals, 49-year-old Pham Duy Su, has also become a guide at the lagoon. Before last year he worked at the steel manufacturing complex

from Hoa Phat Group in Binh Son district. However, he eventually quit and began to work at the lagoon on his own.

"I am happy with the work of an oarsman," Su said with a bright smile. "It can give me about VND500,000 ($21.70) a day, tripling that of the salary I got from my previous job."

According to the commune's leadership, since the mangrove forest appeared and was developed, Binh Thuan commune's leadership has established three groups of tourist guides with many sampans which are operated manually in order to protect the environment.

The project has also supported 10 households in the commune with 3,000 breeding sea ducks, medicine, and feed so that they can live well. Another 15 households are also assisted in managing and protecting the forests, and another 40 households in planting and taking care of the mangrove trees.

Pham Duy Nghia and many other residents are even mulling over raising crabs at the lagoon to increase income. Nghia said a volume of 20,000 breeding crabs, worth about VND2 million ($87), can bring about a profit of VND15-20 million ($650-870) after three months, if the business goes smoothly.

"It's clear that the mangrove forest has changed our life," Nghia said. "We want the project to further expand the area for planting mangroves and turn this area into a bigger forest, so that we can receive even more tourists."

Not far from his house, there is a large area of newly-planted mangroves budding out of the water surface. "Over the next two years the new trees will grow into a forest, meaning that our villagers can have a better life. Planting mangroves means we plant the fruits for the future," Nghia said.

For Hai and Khuong, they said that their daughter will soon graduate with a tourism major in a university in Danang.

"We hope that this area will become a bigger tourism destination, and my daughter can come back home to become a tourist guide on this lagoon," Khuong said.

UNDP helps Quang Ngai residents increase resilience to natural disasters

THU HOA
November, 2020

People in Binh Thuan commune, Binh Son district, Quang Ngai province, are recovering from typhoon Molave. They survived the strongest typhoon to hit this region in the past decades, thanks to the safe housing model, part of a project to improve the resilience of vulnerable coastal communities to climate change. This project is funded by the Vietnamese Government, the Green Climate Fund (GCF), and the United Nations Development Program (UNDP).

Molave, which hit Quang Ngai province in late October, was the strongest typhoon 80-year-old Huynh Thi Phuong of Binh Thuan commune has ever witnessed in her life. In a couple of hours, it blew down trees, demolished houses, and submerged crops. Another resident Nguyen Bong was made homeless and is currently sheltering at a relative's house because the typhoon unroofed the charitable house he was given years ago and cracked its wall. It will cost him 860 USD to repair it. Nguyen Long's house was also damaged by the typhoon, but given its slight damage, Long will fix it using his own money so neighbors with worse damage can use the aid. The typhoon prevented Long, along with other local fishermen, from fishing offshore, so his family lost income.

A safe house remains intact through Molave, the strongest storm to hit the region in decades. Photo: baotainguyenmoitruong.vn

Meanwhile, Pham Thi Em stayed safe and sound through the disaster because she lives in a safe house which was completed last June. Her previous house collapsed in a storm last year. Em, who is categorized as a poor household, was granted a new safe house.

"A tree fell on my house and crushed it. As a lonely elder, I was chosen for this safe housing model. I'm so thankful for that. If I had built a house myself, it might have collapsed in storm Molave."

> ***"My safe house also sheltered my neighbors. They didn't have to evacuate to a distant place like they used to," said Em.***

The mezzanine level is a crucial element of the project's storm and flood-resilient housing design. Project houses must have mezzanines that are higher than the maximum flood level in the area in which they are constructed.

UNDP project coordinator Vu Thai Truong noted, "All project houses have solid, reinforced structures made with high quality materials and strong foundations. The mezzanines must be 1.5 meters higher than the maximum flood level. The handrails of stairs to the mezzanines, doors, and windows must be made of strong materials. The doors must have strong latches to keep strong winds and rainfall from getting in. The roofs must be covered with tiles or metal sheets, fortified by bracing bars underneath. The drainage system around each house must be kept clear to ensure hygiene."

The safe housing model primarily supports poor people, single mothers, people with disabilities, and others in difficult circumstances. The cost of a safe house is reasonable. The design, which incorporates local traditional elements, was approved by the Institute for Construction Science and Technology of the Ministry of Construction.

According to Ngo Van Vuong, Chairman of Binh Thuan commune's Peoples's Committee, the safe housing model proved its effectiveness during storm Molave. Local authorities have encouraged people to build safe houses with their own money. If they can't afford it, they are advised to dig a small storm-resistant trench.

"We are keeping our communications campaign going. When a typhoon hits, there has been no better way to protect lives than evacuation. Now, some people have enough money to build a solid house which can provide shelter for their neighbors during a natural disaster and reduce the number of evacuees. In storm Molave alone, more than 1,000 people were evacuated, most of them old people or children. Thankfully, no one was killed by the latest typhoon," according to Chairman Vuong.

Binh Thuan commune is in a disaster-prone area, so, local people frequently study ways to survive calamities. But the safe housing model has proved to be one of the best ways to keep safe in a disaster.

A mezzanine is a distinct feature of each safe house.
Photo: baotainguyenmoitruong.vn

Houses in Binh Son district, Quang Ngai province, are damaged by storm Molave.
Photo: baotainguyenmoitruong.vn

Photo: UNDP in Viet Nam

UNDP helps Viet Nam's coastal communities *adapt to climate change*

THU HOA
November, 2020

Basket boat rides in Cam Thanh nipa palm forest. Photo: baoquangnam.vn

Mangrove forests are an important buffer between the sea and coastal communities. The United Nations Development Programme (UNDP), in collaboration with the Vietnamese Government and the Green Climate Fund (GCF), has revived approximately 4,000 hectares of mangroves in vulnerable coastal areas in Quang Ngai, Thanh Hoa, Quang Nam, Ca Mau and Nam Dinh province. The project has helped coastal residents to stabilize their livelihoods and get involved in ecological and environmental protection.

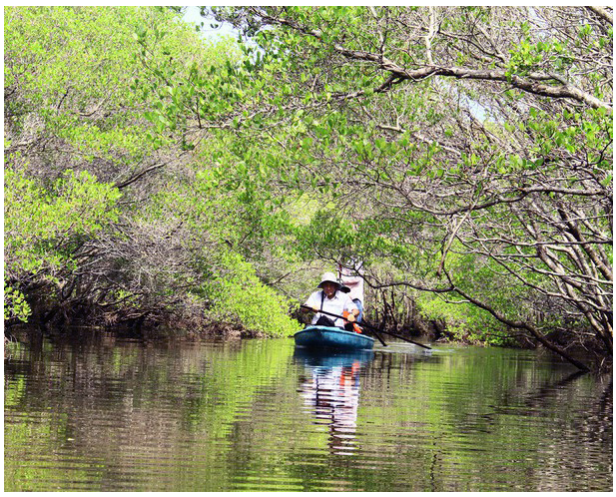
Today, Pham Thi Ly, a resident of Cam Thanh commune, Hoi An city, in Quang Nam province, is rowing a basket boat, taking tourists to visit Cam Thanh coconut forest. For many years she has participated in a project to restore and conserve Cam Thanh nipa palm forest, funded by the Global Environment Fund's Small Projects Program in Viet Nam (GEF SGP) and UNDP. Ms. Ly told us, "In the past, I worked very hard to support my family. Now that basket boat tourism is developing, my life is better."

Bau Ca Cai mangrove forest in Quang Ngai. Photo: Bui Thanh Trung

The UNDP-GEF SGP project protects the land of Thu Bon estuary from waves, wind, and erosion, conserves Cam Thanh nipa palm forest, and sustainably uses forest resources. Communities play a key role in preserving ecotourism.

Nguyen Thi Hoa Man, a local resident, said, “Previously, when tourism was not yet developed, people were mainly dependent on fishing. If the husband went to sea and caught some shrimp and some fish, the wife would sell them. When the sea was rough, especially in the winter, we needed help to escape hunger. Since the project came here, tourism has grown in the coconut forest. Fishermen have switched from fishing to tourism. Tourism provides the women a stable job – rowing a basket boat.”

The Cam Thanh nipa palm forest is located in the cluster of the Tam Hai and Nui Thanh coral reef conservation zones and the Cu Lao Cham marine protected area, forming a marine conservation network in Quang Nam.



Providing basket boat rides in the mangrove forest is a good alternative job for residents of Cam Thanh
Photo: Bui Thanh Trung

Le Nhuong, former Head of the Farmers’ Association of Cam Thanh commune, said, “The project began with 75 ha of nipa palm forest. Later on, with the consent of the locals, we planted more trees and the forest has now expanded to 105 ha. The project has raised people’s awareness of nipa palm forest protection and sustainable use. Before this project, there was improper exploitation. We are now allowed to exploit the forest only twice a year – at the beginning and in the middle of the year – to protect the ecological environment.”

Providing basket boat rides in the nipa palm forest is a good alternative job for residents of Cam Thanh. The number of households involving this service has increased and their income has also increased, from 160 USD per month to 195 USD per month.

In the neighboring province of Quang Ngai, UNDP, the Government of Viet Nam, and the Green Climate Fund are implementing a mangrove project to provide jobs for people in Bau Ca Cai area, Binh Thuan commune, Binh Son district.

Since 2014, the project has planted 80 ha of forest and provided jobs to 50 local families. UNDP local coordinator Nguyen Thi Thuy Dung said, “Households in Binh Thuan commune and Thuan Phuoc village now have this forest to shield them from storms. People can catch shrimp and fish manually instead of using electrical equipment in this area. The ecosystem here has improved remarkably. For example, in the afternoon or early morning flocks of storks or wild ducks gather here. This used to be an empty area filled with water. Now the locals offer community tourism services.”

We arrived at Bau Ca Cai in the last days of October, when storm Molave had just swept through in Quang Ngai. Ms. Nguyen Thi Hai said that thanks to the protection of the mangrove forests, the storm’s damage was significantly mitigated. Hai’s house and trees were hardly affected. Since last year, her family has been transporting tourists to Bau Ca Cai lagoon by boat as a part-time job. Hai has 3 boats. Carrying 3 passengers, she earns 9 USD per trip.

Also benefiting directly from the mangrove project, Mr. Pham Duy Nghia said that, in addition to exploiting aquatic resources from the lagoon, his family intends to raise green crabs. For every 20,000 crab breeds, after 3 months, if things go well, he will make a profit of about 800 USD.

Mangrove forest projects carried out by UNDP, the Vietnamese Government, and GCF are helping to mitigate climate change, protect vulnerable coastal communities, and making local’s lives safer and more sustainable. Colorful boats waiting for passengers at Bau Ca Cai wharf and Ms. Pham Thi Ly’s singing while rowing her customers to Cam Thanh coconut forest, are the visible result of these projects.

Photo: UNDP in Viet Nam

Storm-hit families grasping the knowledge to overcome

THANH THU
November, 2020

Hundreds of training courses have been organised over the last couple of years

Locals are being armed with vital information to protect their communes

Extreme weather is challenging ordinary Vietnamese people, with many failing to know how to fully protect themselves from natural disasters. However, a far-reaching internationally-backed initiative has become increasingly popular among some localities nationwide as it provides them with community-based disaster risk management skills.

More than a week has elapsed since Quang Minh commune in Ba Don town was hit by a historic flood, which caused untold losses to locals. However the commune, in the central province of Quang Binh, would have suffered from far worse if the locals had not been equipped with knowledge about responding to disasters.

The low-lying commune, located next to a large river and consisting of nearly 2,200 households, is characterised with hillocks, which can be easily isolated by floods. All locals live on rice production and fishing with an low average per capita income of VND3 million ($130) a month.

Tran Van Loc, Secretary of Quang Minh commune's Party Committee, noted that the losses have reduced by approximately half compared to similar past disasters.

"Previously, the locals were often subjected to floods and storms and did not know what to do when they came. But now they have learned how to prepare to respond to the menaces," Loc said. "For example, locals defend their fishing farms with nets and evacuate to higher locations to avoid damage and protect stored food."

The knowledge that Loc and many other locals gained was provided by a training course organised in July 2019. The course has enabled locals to determine possible risks, analyse causes, and then advance feasible solutions to cope with the situation. This has enabled them to mitigate losses caused by natural disasters. Moreover, general knowledge about climate change has also been improved.

Diffusing knowledge

The training course in this commune is one of 278 community-based disaster risk management training courses organised since 2018 nationwide by the Viet Nam Disaster Management Authority (VnDMA) under the support of the United Nations Development Programme (UNDP) as part of a project to improve the resilience of coastal communities to climate change in Viet Nam. This project is funded jointly by the Green Climate Fund (GCF) and the Vietnamese government.

The training courses aim to provide knowledge about community-based disaster risk management in seven coastal provinces – Nam Dinh, Thanh Hoa, Quang Binh, Thua Thien-Hue, Quang Nam, Quang Ngai, and Ca Mau. These provinces are seriously vulnerable to natural disasters and climate change.

"The trainees highly appreciate the training for enhancing the capacity of the local community. It is also a chance for the commune leaders to review all the disaster risk reduction measures taken recently and update with new knowledge under the context of climate change," said project staff member Thai Minh Huong. "In 2019, as many as 69 training courses were conducted in Quang Binh province, recently damaged by the long-lasting floods and continuous storms. Trainees, for example in Vinh Ninh commune, told us that the course has helped mitigate damages and losses in both human lives and property."

Located in an area of high risk to such natural disasters as storms, floods, and drought, Vinh Ninh commune of Quang Binh province has enjoyed a similar training course, with the participation of 30 trainees coming from various sectors in the Quang Ninh district's commune.

Trainees have been equipped with the necessary knowledge and skills to be able to conduct assessment processes and finalise community-based disaster and climate change risk assessment reports. At the same time, they have been able to input data to establish, complete, and enhance the application of disaster and climate risk information systems to support decision-making.

Do Muoi, Deputy Chairman of Vinh Ninh People's Committee said, "The training course has enabled us to raise awareness about disaster risk reduction, and enhance the resilience of the community."

Apart from Vinh Ninh commune, the project is currently conducting similar training courses in other coastal communes in the province, where a total 78 courses have been organised, training nearly 9,000 people.

So far, the UNDP has assisted the VnDMA in conducting 278 community-based disaster risk management training courses for coastal communes in Viet Nam, benefiting 7,260 directly (of whom 40 per cent are women) and 34,700 indirectly.

Another 242 courses of the type will also be held this year and beyond. The courses have contributed to the implementation of a government programme on community awareness-raising and community-based disaster risk management.

In order to carry out capacity-building activities on disaster prevention and control, the GCF project has also built a team of central and provincial trainers. Most of the trainers of the scheme are those who have many years of experience in training in disaster prevention and climate change in the community. They come from the provincial Red Cross, women's unions, and some international cooperation programmes, and they are considered central resource persons.

Raising awareness

Viet Nam is one of the most disaster-prone countries in the world. Annually, floods, typhoons and other types of natural disasters cause death and hold back essential economic growth. Damages and losses are estimated at $1 billion per year, with about $913 million in 2020 to date. Unfortunately, disasters are becoming more frequent and intense due to the impacts of climate change.

With more than 3,260km of coastline, approximately 30 percent of Viet Nam's population live in 28 coastal provinces. They are particularly vulnerable to sea level rises and the associated risks of saltwater intrusion, storm surges, and flooding.

Vulnerable communities and groups – mainly ethnic minorities, people with disabilities, poor women, and children – especially in remote areas are most affected. They lack both the resources to recover from damage, and knowledge to better prepare for future disasters.

In cooperation with the VnDMA, the UNDP has developed technical guidelines for post-disaster needs assessments and trained 150 staff and officers from national level institutions and provincial agencies on these new guidelines.

"We have enhanced understanding and access to climate risk information for 28,800 people. We have also built more than 2,000 new resilient houses and repaired 5,000 homes for the poor, near-poor, single mother households in the coastal provinces of Thanh Hoa, Quang Nam, Quang Binh, Quang Ngai, Thua Thien-Hue, Khanh Hoa, and Phu Yen," said Caitlin Wiesen, UNDP resident representative in Viet Nam.

With GCF's funding, the project will also make information more accessible to government decision-makers, carried out by combining local knowledge with the best scientific data to develop and produce risk mapping of the entire coastal area.

With improved data available, better climate change projections can be generated, helping government policymakers produce transformative policies that will protect coastal communities' livelihoods now and for future generations.

Experiences which are expected to be shared among stakeholders in these training courses together with community-based disaster and climate change risk assessments will continue to be practical lessons for natural disaster prevention and control in the country.

For Quang Minh commune in Quang Binh province, it wishes to continue enjoying more training courses as the previous one has been more than useful. "Previously we didn't conduct community-based disaster risk management and assessment. However, since we attended the training course last year, our knowledge has changed," said Tran Van Loc, secretary of the commune's Party Committee.

"After analysing information, we can make accurate reports which are used to formulate plans on preventing and combating natural disasters and are also integrated in the commune's socioeconomic development plans."

Storm-proof home initiative *transforming living conditions*

NGUYEN DAT
November, 2020

Poor residents in several provinces are realising life-long dreams to have stable and safe homes

The recent storms causing misery in central Viet Nam may have left large wounds in the lives of poor residents in the south-central province of Quang Ngai. However, many of them are able to avoid the very worst thanks to firm shelters provided through a jointly-funded special scheme.

More than a week has elapsed since storm No.9 swept across the south-central province of Quang Ngai, but both sides of the 35km road from the centre of the province's Quang Ngai city to Binh Thuan commune in Binh Son district still look like a war zone. Large patches of acacia trees planted by farmers and many big trunks have been uprooted, laying in disorder. Next to them, hundreds of homes have been destroyed.

Heavy rains have continued for days, causing numerous and lengthy power cuts, and many people have become homeless.

According to Quang Ngai People's Committee, the storm has caused losses of about VND4.48 trillion (nearly $195 million), or 8.1 per cent of the province's regional GDP last year.

The disaster injured 13 people, smashed down 325 houses, and blew away the roofs of over another 140,000 houses. Moreover, it also damaged 450 educational establishments, 70 health care facilities, and 105 communal homes, in addition to seriously damaging many roads and irrigation systems.

Poor fates

Binh Thuan commune directly faces the sea, with a coastline of 12km. Many of the residents live on fishing activities, with an average annual income of VND30 million ($1,300). However, the commune has 273 poor households with an average monthly income of VND500-600,000 ($22-26), tantamount to the second-rate shirts that many white-collar workers in urban areas wear on most days.

With fear still on his face, the commune's chairman Ngo Van Vuong said, "The storm has been the most serious since early this year. It has heavily damaged 1,155 houses here, and some schools at different levels. We are finding ways to support affected people."

A few hours before the storm arrived, the commune's leadership ordered the evacuation of more than 1,000 people living in shabby houses to safety shelters that protected them from strong winds and flooding.

In Song Cau hamlet, 45-year-olrd rice farmer Huynh Anh Tho was among these evacuees. Two hours before his four-member family left his home with some belongings, the storm turned his brick-

and-mortar home into a pile of rubble, with the roof blown away into the garden of a neighbour.

"We have lost everything in a wink. We had saved money for a decade to build this house a few years ago. Now we don't know what to do, and many others are also suffering from such a plight. They can't offer me much help," said Tho, clearly struggling with sunken eyes due to sleepless nights.

The tortuous road to his house was still flooded, filled with waste which is polluting the living environment. Not so far from Tho's house, 51-year-old ox farmer Nguyen Thi Huong also had her house unroofed by the storm. The skinny ox, which is the sole money-maker for the four-person family, escaped death when Huong swiftly removed it from the cowshed.

"Hardly any time had passed after I took it out to the gate when the cowshed collapsed. The rain and the winds were so harsh," Huong said. "If the animal died, we would have no way to earn money to feed my family."

Next to Song Cau is Tuyet Diem 1 hamlet, also in Binh Thuan commune. The hamlet's residents are all suffering from woes caused by the latest storm. Nguyen Bong, a 60-year-old fisherman, has his house roof ripped off by a strong gust of wind. Bong is now living in his cousin's home.

Bong's house, whose walls are now broken, was built a few years ago as one of gratitude provided by the state. "My relatives are poor, and so are my neighbours. I don't know what to do to get a new roof and repair the house. This is very expensive," Bong sighed. The cost for installing a new roof is estimated to be about VND20 million ($870), equivalent to a top-of-the-range smartphone.

Bong said that he has no idea how he can get that sort of money, which would take his three-member family at least five months of consecutive labour. "I don't have even a single penny now. It is very hard to fish right now, simply because there are no fish – the sea has been contaminated."

The lives of almost all residents in the commune remain in great woes with the storm polluting all sources of water, in addition to an invasion of mosquitos. It is also not easy for locals to buy mosquito nets because they are sold in the city, quite far from the poor village.

Safe dwelling

While many families in Binh Thuan commune became homeless, some have remained safe in their nests, free from the natural disaster's effects. Poor female farmer Pham Thi Em, 51, is one of them.

Em has been living in her two-storey home since March. What makes the 30-square metre dwelling different from others is that it is a specially-constructed storm- and flood-resilient house, with a special and simple design which creates a stronger structure.

Features include a mezzanine level for flooding protection, reinforced roofing, and the use of strong cement. The mezzanine level allows residents to

comfortably stay in their houses during a disaster, safe from high flood levels. It can also be used as an area to store valuables during disasters and avoid it being washed away or spoiled by flooding waters.

"The house is my life-long dream. When I was given the house, I was like the cat that got the cream," said the day-labourer who lives on an average of $2 a day.

"Previously, my old wooden house was shabby with a leaked roof and cracked walls, making it very hard to live in, especially during rainy days."During the latest storm, dozens of neighbours stayed in Em's house as their own had been uproofed.

Em's special house, worth VND63 million ($2,700) is among 23 storm- and flood-resilient homes set up in Binh Thuan commune alone. The buildings are part of a project to improve the resilience of coastal communities to climate change in Viet Nam, funded jointly by the Green Climate Fund (GCF), the Vietnamese government, and the United Nations Development Programme (UNDP).

The project has been running since 2017 by the Ministry of Agriculture and Rural Development, the Ministry of Construction, and the UNDP. Its total investment capital is nearly $42 million, including over $30.8 million in grants from the GCF and $1.6 million from the UNDP, while the remaining comes from the Vietnamese government. It is expected that about 4,000 houses of the type will be built in the five coastal provinces of Thanh Hoa, Quang Binh, Thua Thien-Hue, Quang Nam, and Quang Ngai.

"All the beneficiaries in the commune are very poor or disabled people who mostly live alone," said Binh Thuan commune chairman Vuong.

One disabled local, 75-year-old Ngo Thi Hanh, had to live in her cousin's house for years in Tuyet Diem 2 hamlet before she was selected by the commune to receive a 30-sq.m house from the project in April.

"It has gone beyond what I could imagine – it is quite good and quite safe. It is an invaluable gift," said the woman, sitting on the shining floor made of enamelled tiles. "I can live safely for the remaining years of my life. The old house had an earthen floor which often got wet during rainy days."

The project is not only found in Binh Thuan commune, but also in another 35 communes in the districts of Binh Son, Tu Nghia, Mo Duc, and Duc Pho, as well as in Quang Ngai city in Quang Ngai province.

As of late October, 666 houses of the kind have been put into use in Quang Ngai, according to the UNDP.

"The houses are especially important to vulnerable people in disaster-prone areas. They are safe during stormy and rainy days, helping protect poor people's lives. We would say that they have turned the dreams of the locals into reality," said Nguyen Van Han, vice director of Quang Ngai's Department of Agriculture and Rural Development.

Pham Thi Em's resilient house
Photo: UNDP in Viet Nam

Poorest areas offered helping hand *with breeding initiative*

NGUYEN THANH
December, 2020

Located in the southernmost point of VietNam, the Mekong Delta province of Ca Mau is frequently attacked by natural disasters, with many poor inhabitants living solely on small-scale fishing activities. Still, hundreds of households in the locality are staying afloat with the support of a high-profile initiative.

Having raised shrimp for 20 years, 50-year-old Phan Tien Ben calls Nguyen Viet Khai commune home – one of the poorest localities in the Mekong Delta region.

The commune, in Phu Tan district of the southernmost province of Ca Mau, faces the sea and difficult conditions for development as the majority of the inhabitants live on small-scale fishing activities, with an average annual income of VND40 million ($1,740) per household. Ben's family used to be as poor as many others, with an annual average income of VND30-35 million ($1,300-1,500), making it very hard for him to feed his family of four.

Under the severe impacts of climate change and natural disasters, Ca Mau is seeing its land shrinking, not only because of sea level rises and coastal erosion, but also due to the soil subsidence which was estimated at a reduction rate of three centimetres annually.

Figures from the provincial People's Committee showed that in October, a major flood and storm raged in the province, drowning nearly 14,300 hectares of rice crops, 552ha of shrimp farms, and over 26ha of other crops, in addition to homes being smashed down in Dam Doi and Tran Van Thoi districts.

Since early this year, natural disasters in the province have destroyed fishing boats, left 11 people missing, smashed down over 800 houses, and sabotaged nearly 38,000ha of crops and 18,000ha of fishery farms. Besides that, more than 1,300 spots in rural roads were depressed, with a total length of 45 kilometres. Some 105km of coast line was also eroded.

A few months ago, the government provided VND70 billion ($3 million) for Ca Mau to cope with saline drought frequently attacking every year.

However, despite the serious aftermath of the natural disasters, the life of many households in Ca Mau has been improved. In fact, while Ben's commune has a total of 3,078 households, only 69 of those households are now considered to be poor.

As the bread-winner, Ben runs a 5-ha shrimp farm in the commune, not far from his newly-built house. He has also recently bought a new big TV, a dream of the family. Over recent months, the family's economic conditions have changed remarkably.

"Our annual average income has risen to VND50 million ($2,175), meaning we have become richer than before," said Ben with a smile. "So have many other households in the commune. Their livelihoods have been on the rise."

Game changer

So, what has led to such visible positive changes?

In October last year, many households including Ben's in Nguyen Viet Khai commune, and Vien An Dong commune in Ngoc Hien district, were provided with black tiger prawn and crab breeds in a component backed by the Green Climate Fund (GCF). This component is part of a wider project to improve the resilience of coastal communities to climate change in Viet Nam, funded jointly by the GCF, the Vietnamese government, and the United Nations Development Programme.

Under this component, known as regeneration of mangroves, each household like Ben's were provided an average of 30,000 free-of-charge black tiger prawn breeds and 1,600 crab breeds (the number of breeds depending on the pond area), all of high quality, along with technical training as well.

"The breeds are big and easy to raise. After four months of farming, we can sell the prawns at a very high price, ranging from VND8,000 (35 US cents) up to as much as VND20,000 (87 US cents) for each," Ben said. "Previously we often used low-quality and cheaper breeds bought in the local market, which made it difficult for us to earn high prices when selling."

The products are sold to shrimp processors and exporters in the province. Like Ben, farmer Ngo Tuong Loi, 38, in Vien An Dong commune has also received the same amount of free items through the project just over a year ago, as well as technical support training.

Vien An Dong currently has 2,840 households with an average annual income of about VND60 million ($2,600) for each. About 60 of those households are classes as poor, with each earning an average annual income of VND30-35 million ($1,300-1,500). However, Loi's family now seems to be better off. "Previously we earned about VND150 million ($6,500) a year from shrimp farming. However, under the support of the Ca Mau GCF project, revenues have increased to VND200 million ($8,700)," said Loi, revealing that his family has been able to purchase some expensive items including a refrigerator and a washing machine, previously deemed as out-of-reach luxuries.

After four months of raising, Loi's prawns have been sold to Nam Can Seafood Import-Export JSC in Ca Mau's Nam Can district. The company's export markets include the likes of the US, Japan, Europe, South Korea, China, and the UAE.

The high-quality prawn breeds are enabling households to make more money than ever

Extending livelihoods

The GCF project has been providing the prawn and crab breeds free-of-charge for many other localities in Ca Mau. Last year, it handed out more than 5.5 million black tiger prawn breeds and 297,000 crab breeds for 176 households in Phu Tan and Ngoc Hien districts.

Earlier, the amount of such breeds was put out to tender by the Project Management Unit of Ca Mau province to select a reputable contractor with experience in high quality breeding. Through inspection, the quantity and quality are met, ensuring the conditions for rearing.

"The households were happy to receive the breeds from the project at the right time for farming season," said provincial project coordinator Pham Trung Thanh.

This year the GCF project has also provided prawn and crab breeds to 453 households in project areas (Phu Tan, Ngoc Hien, Dam Doi and Nam Can districts) with over 12.1 million black tiger prawn breeds and 741,200 crab breeds. This is the second year that this initiative has supported breeds for locals in the province with a view to helping gradually improving their living conditions.

Supporting local people with these breeds aims to ensure that temporary disruptions to livelihoods are addressed due to the relocation of communal aquaculture ponds impacted by plantations as part of the regeneration plan. The total funding comes to about $3 million from the GCF, and another $85,500 as counter-funding from the Vietnamese government, for the entire programme in Ca Mau.

Mangroves are a specific kind of forest in coastal areas. They are a special ecosystem with unique characteristics that are very different from other habitats in the area. Mangrove forests can protect people from natural disasters. Furthermore, mangroves have cultural and economic value and help to reduce the impacts of climate change.

According to Thanh, the project is now in good progress. As of late 2019, it supported the lives of 176 households in terms of raising shrimps and crabs and providing breeds, newly planted 109ha of mangrove forests, planted in supplementation another 645ha, and provided technical training on community-based disaster risk management skills for 13 coastal communes and towns.

This year, the project has been supporting 453 households, newly planting 49ha of mangrove forests, additionally planting another 474ha and protecting 1,389ha while providing technical training on community-based disaster risk management skills for five coastal communes.

As planned, it is expected that by the end of its lifespan, the project will have helped Ca Mau inhabitants plant and recover 3,224ha of mangrove forest, supported the livelihoods of about 1,000 households, and provided training on community-based disaster risk management for 38 coastal and near-coastal communes in the six districts of Dam Doi, Nam Can, Ngoc Hien, Phu Tan, Tran Van Thoi, and U Minh.

As these districts are the most vulnerable to natural disasters in Ca Mau, and if the project can be extended, it will surely continue benefiting farmers like Ben and Loi.

"We hope that after 2021, the project will be continued to benefit more people. Thanks to its training courses we now know how to select better breeds and protect farms during floods and storms," Ben explained.

Flood-proof homes *saving the day for* central coast families

THANH THU
December, 2020

Storm- and flood-resilient homes could be rolled out to even more at-risk provinces

With the country facing the sea in the east, half of Viet Nam's population of nearly 100 million in coastal provinces and cities are often attacked by natural disasters annually smashing down hundreds of thousands of houses. In the context that many poor households are dwelling in shabby shelters, there has been a strong need for safe homes.

One month has elapsed since storms and floods swept across the coastal district of Quang Ninh in the central province of Quang Binh, where there are thousands of poor households. Today, many of them like Nguyen Thi Linh's in Hien Ninh commune have been unable to rebuild their homes torn down by the disaster.

Linh, a 65-year-old disabled farmer, lives in Bac Co Hien hamlet and depends on support from relatives and neighbours. Her husband passed away many years ago.

"The terrible flood has swept away homes in a wink. Many have become homeless and penniless," Linh said. "Our house was heavily damaged, and I don't have money to repair it. I'm living temporarily at a relative's home."

Along with Bac Co Hien hamlet, many others in the district have faced the same fate in the wake of the disaster.

Le Thi Nho, 80, from nearby Nam Co Hien hamlet in Hien Ninh, said that her house and assets had been swept away by the flooding. "We have nothing now," said the woman in sorrow. "So do the villagers. Many of them have become homeless."

Le Hoai Vu, Deputy Chairman of Hien Ninh commune, said that many households like Linh's and Nho's have been facing the same plight. "Many have been evacuated to higher locations to avoid the flooding. Their shabby houses have been heavily damaged."

The commune has a population of over 8,000 people living on 270 hectares of agricultural land, with an average per capita income of VND20 million ($870) per year.

Towering losses

According to the Ministry of Agriculture and Rural Development (MARD), the natural disasters have become increasingly fiercer. "Never has the central region faced such horrific storms and floods, with 249 deaths, 57 missing, over 1,500 houses smashed down, and another nearly 240,000 seriously damaged," said Deputy Minister of Agriculture and Rural Development Nguyen Hoang Hiep.

Moreover, agriculture was also seriously affected, with the damage and losses of 4,000 hectares of rice, 7,600ha of different crops, and 12.670ha of fishery farms, besides the death of 38,500 cattle, 3.2 million poultry, and the damage of 165km of sea dykes and estuaries, 50km of embankments, and 88 depression spots with a total length of 141km.

"The total financial loss is estimated to be about VND30 trillion ($1.3 billion). However, this statistic remains insufficient. The storms and floods will continue to leave a long-term aftermath that cannot be calculated with just figures. So many people have lost their livelihoods and had to leave their home lands for other locations to live," Hiep said. "I think it may take over 10 years for many to resume their normal lives."

In an attempt to help many in the face of increasing disasters, the MARD and the Ministry of Construction (MoC) have been implementing an initiative to construct over 4,000 storm- and flood-resilient houses since 2017 in the five coastal central provinces of Thanh Hoa, Quang Binh, Thua Thien-Hue, Quang Ngai, and Quang Nam.

The initiative is part of a nearly $42 million project to improve the resilience of coastal communities to climate change in Viet Nam, funded jointly by the Green Climate Fund (GCF), the Vietnamese government, and the United Nations Development Programme (UNDP). The capital includes over $30.8 million in grants from the GCF and $1.6 million from the UNDP, while the remaining comes from the Vietnamese government.

"This is quite a helpful and practical housing initiative. It has helped provide storm- and flood-affected people with safe homes," said Nguyen Manh Khoi, deputy director of the MoC's Housing and Real Estate Market Development Department. Khoi is also director of the GCF Management Unit for the component of constructing such homes. "Beneficiaries have been able to protect their assets. The houses are their big dreams."

So far about 3,200 houses of this type have been built in the five provinces, with 426 built in Quang Nam. Under this project, the 4,000 new houses will benefit 20,000 poor and highly disaster-exposed people over 100 communes of the five coastal provinces.

These houses are based on simple designs to create a stronger structure. Features include a mezzanine level for flooding protection, reinforced roofing, and the use of strong cement. The mezzanine level allows residents to comfortably stay in their houses during a disaster, safe from high flood levels. This level can also be used as an area to store valuables during disasters and avoid it being washed away or spoiled by flooding waters.

Each house is funded from about $1,700 from the project, and another $600-800 from a government programme under 2014's Decision No.48/2014/QD-TTg on assistance in constructing storm- and flood-resilient homes for poor households in the central region. If the household wants to install additional parts or expand the houses, they mobilise their own financial resources.

Wider hopes

Khoi of the MoC said that the initiative should be expanded in terms of beneficiaries and localities.

"It has turned the dreams of thousands of people into reality. They have felt safer during storms and flooding. Many of their neighbours, who have strong houses but were flooded due to low locations, even came to their houses for temporary dwelling," Khoi said.

The project aims to support vulnerable households, especially poor ones and those consisting of single mothers, in the five central provinces.

"However, we expect that the initiative will be implemented in all 28 coastal provinces and cities nationwide, meaning there more houses and more beneficiaries," Khoi said.

As for poor people Nguyen Thi Linh and Le Thi Nho, they wish to be supported with new houses. "We need a safer home," Linh said. "It will give us a good sleep. We need to have a stable life."

Vu of Hien Ninh said that currently under the initiative, 37 storm- and flood-resilient houses have been built so far. "The commune needs a total of about 500 houses of the type. Many poor households are in misery as their houses have been heavily damaged."

In another case, 50-year-old Nguyen Ngoc Thinh in Cam An commune, situated in Hoi An town district of the central province of Quang Nam, said that his dilapidated house cum shop at Cua Dai beach slipped into the sea due to serious depressions in the location. "We need money to build a new house, but we can't afford it," said Thinh, who has become jobless now.

At present, a study is being formulated with a plan to apply the initiative in all of these 28 localities. If it becomes feasible, the designs of houses will have to be changed because the houses will be located from north to south in the country, while the existing design is only applicable to houses in the central region.

According to a recent study by the UNDP and the MoC, there is a large need of support to build around 110,000 resilient houses in 28 coastal localities, of which nearly 25,000 are of urgent need to protect

people and their properties. It is important to replicate and scale up resilient housing models in Viet Nam, especially for the poor and near-poor in these localities. This requires concerted efforts by the government, the private sector, individuals, and development partners.

"We believe that the more of these resilient homes are built, the less people will suffer from loss and damages, and with safe homes and protected property the less people will need emergency support in the future. We would like to invite all partners to join with us to build more storm-resilient houses to ensure that no-one is left behind," said Caitlin Wiesen, UNDP resident representative in Viet Nam.

Thousands of storm- and flood-resilient homes have been built in Vietnam since 2017. Photo: UNDP in Viet Nam

Modern technology complementing flood-resilient home creations

THANH DAT
December, 2020

Many poor locals in five coastal provinces are being supported with storm- and flood-resilient homes that can protect them during disasters. However, these gifts are not simple dwellings, but scientifically designed and solidly built, as well as supervised during their construction through state-of-the-art technology.

As fate would have it, Tan An hamlet is annually sabotaged by strong storms and floods, with many families becoming homeless as their shabby houses succumb to the rage of nature.

The recent storms and subsequent flooding in the hamlet, which belongs to Loc Binh commune in coastal Phu Loc district of the central province of Thua Thien-Hue, forced numerous locals to higher ground to find shelters. However, a number of poor farmers, like Phan Thi Hanh and her daughter, stayed safe in their newly-built house, provided for them in April and located right next to their run-down old home.

Hanh is among 26 poor households in the village given new homes, which are part of a nearly $42 million project to improve the resilience of coastal communities to climate change in Viet Nam. Funded jointly by the Green Climate Fund (GCF), the Vietnamese government, and the United Nations Development Programme (UNDP), the capital includes $29.5 million in grants from the GCF and $1.6 million from the UNDP, while the remaining comes from the government.

The project is being implemented by the Ministry of Agriculture and Rural Development, the Ministry of Construction (MoC), and the UNDP from 2017 to 2021.

“The house is good. The mezzanine especially helps us to stay safe when there’s flooding,” Hanh said. “We used to be very anxious and miserable whenever the floods came.”

Phan Ba Chiem, Deputy Chairman of Loc Binh commune, said that after the storms all 26 of the project’s houses in the village still stand solidly, without any damage.

Those in Loc Binh are not the only ones to be offered such houses – many others in the south-central province of Quang Ngai are also afforded the same luxury.

Nguyen Thi Mun, 78 years old, lives in Binh Chanh commune of Binh Son district in Quang Ngai. Over the past years, life has been particularly tough, and her 83-year-old husband Vo Khanh has a long-term illness. The couple makes very little income, and every time there was a storm, parts of their old house were damaged.

Unfortunately, due to its coastal location, Binh Chanh is prone to storms and flooding. Every time the water rises, families are displaced. “Whenever there was flooding, the commune authorities came to pick me up by boat, took me to a higher area, and gave me instant noodles for food,” Mun said. She had to stay there until the water – which usually reaches 1.5 metres high – withdrew a few days later.

Eventually, Mun was provided with a new house under the project. “Now I can go up to the mezzanine and stay there during storms and floods, keeping my valuables and food safe. I can go up by myself, because the stairs have a railing I can hold onto. I can bring everything I need up there, including water, clothing, rice and other food, and a small gas stove so that I can stay there comfortably.”

A helping hand

Under the project, about 4,000 storm- and flood-resilient houses are to be built by the end of next year in five coastal provinces of Thanh Hoa, Quang Binh, Thua Thien-Hue, Quang Ngai, and Quang Nam.

These houses are designed and constructed through a local consultation process with the participation of communities, appraised in terms of technical specifications by the Viet Nam Institute for Building Science and Technology under the MoC, and approved by the provincial departments of construction.

“Since 2017, more than 3,200 houses of this type have been constructed, and all of them have remained safe in defiance of natural disasters,” said Vu Thai Truong, a project management specialist from the UNDP. “Even the Matmo storm in 2019 and the recent Molave storm have failed to shake any of these buildings.”

Nearly 600 storm- and flood-resilient houses have been built in Thua Thien-Hue alone, with high anti-flood floors that have protected locals from any loss of lives or assets, Truong said. “Therefore, they have become shelters not only for the homeowners, but also for other locals living nearby.”

Not all people can be offered such houses, and there must be a selection process. At the top of the list are extremely poor people or single-mother households, who can register at the local commune headquarters if they want to apply for the scheme. Then, they are selected by an authorised team whose members are representatives from different administrative agencies and organisations at all levels in the province. Selected households can choose an appropriate design and local workers themselves, with the money supported by the project via banks.

The homes are based on simple designs to create a stronger structure. Features include a mezzanine level for flood protection, which must be higher than the maximum flood level in the areas in which they are constructed and have an area of at least 10 square metres. All project houses have solid, reinforced structures made with high-quality materials, starting with strong foundations.

Currently, the UNDP is cooperating with the MoC in studying a plan to build such houses for poor people in all 28 coastal provinces of Viet Nam.

Useful innovation to monitor construction

The resilient houses are very special for poor people. However, it is little-known that one of the reasons behind the stability of the dwellings lies in the construction process, which is managed and supervised by a tool called KoBo.

KoBo's free-of-charge software is helping to supervise construction of new homes

In the second phase, construction images of the houses' foundations, walls, roof, structure, and building materials are uploaded to KoBo. This helps the project's management units to supervise the quality and process of construction, especially the techniques being used.

In the third phase, when construction is completed, detailed images of the new houses, donor information, and the beneficiaries' perceptions about the houses are updated in the platform. Quick feedback is given on any recommendations about the houses, with all requirements in structure and quality strictly obeyed.

"This mobile data collection has provided information and images for supervising house construction, especially in the difficult conditions in terms of geographical distance and given the large number of houses being built at the same time," Hien said. "In addition, it is also very helpful in that it stores concentrated information for all the houses of all five localities in the same system. When we need any piece of relevant information or a specific image, we have easy access to it."

"One of the innovations in our resilient housing programme is the ability to include communities' contributions with real-time monitoring. KoBo is helping us to monitor the construction process by enabling communities to collect and share information and images in the field," said Caitlin Wiesen, UNDP resident representative in Viet Nam.

"The data is collected through mobile phones and then made available in real time in Hanoi for further analysis and reporting, and response to issues raised. It saves time and resources in collecting and analysing data, and enabling rapid responses as necessary," Wiesen said.

According to Cao Xuan Hien, resilient housing consultant from the UNDP in Viet Nam, all three phases for construction of the resilient houses are supervised by KoBo.

Specifically, in the first phase, the operators of this tool – who are often local authorities and project coordinators – feed all information about the old houses into the system: their degradation, damage, and detailed information about the beneficiaries' families, jobs, and incomes, as well as their residential places and information about the design sample for the new houses.

Photo: UNDP in Viet Nam

Quality breeds **aiding** *rural families*

KHOI NGUYEN
December, 2020

Some households have received 1,000 grouper breeds for free through the scheme

Frequently hit by natural disasters, many households in the northern province of Nam Dinh have been able to have better livelihoods thanks to rearing groupers – a type of fishery product with high economic effectiveness – and planting mangroves to protect locals from natural disasters.

These days Pham Ngoc Nhan, 56, are preparing to catch groupers that he is raising on his project supported 2,000 square metre pond. The fish, about 1.35 tonnes in volume, are expected to bring about just over VND209 million ($9,000) to his four-member family.

"We will catch the groupers before Lunar New Year. Besides the money to be earned from them, we will also catch shrimp and crabs that are also raised at the pond together with the groupers. The money from shrimp and crab sales is estimated to be about VND60 million ($2,600)," said Nhan.

The total sum of about VND269 million ($11,700) will be the largest that Nhan's family have ever earned, because usually the sum hovers around VND100 million ($4,350) per year due to low-quality grouper breeds. In fact, the family, which has been engaging in raising groupers for eight years, was introduced in August 2019 with a fish-shrimp integrated farming model by a component backed by the Green Climate Fund (GCF).

This component is part of a wider project to improve the resilience of coastal communities to climate change in Viet Nam, funded jointly by the GCF, the Vietnamese government, and the United Nations Development Programme.

Under this scheme, each household like Nhan's was provided with 1,000 free-of-charge grouper breeds, which are of high quality, along with technical training as well.

Previously, the amount of such breeds was put out to tender by the Project Management Unit of Nam Dinh province to select a reputable contractor with experience in high quality breeding. Through inspection, the quantity and quality are met, ensuring the conditions for rearing.

Improving livelihoods

Nhan's family lives in Nghia Hai, a coastal commune of Nghia Hung district in the northern province of Nam Dinh. Nghia Hai boasts about 80ha of fishing ponds involving the participation of over 70 households and located at the commune's Con Xanh area.

However, 11 of these households with a total of 2.2ha fish pond, including Nhan's were in August 2019 provided with fish-shrimp integrated farming model by the project. They feel happy as the high-quality breeds received and the technical knowledge taken from the training courses can help them improve livelihoods.

"With the 1,000 grouper breeds from the project, we also bought another 1,000 breeds. Besides that, we also raise shrimp in the pond," said farmer Vu Van De, 38, who owns a 1.6ha fish-pond.

Last week he caught the fish and sold them to the market, earning over VND200 million ($8,700), also the highest income for a grouper crop since he began the business a few years ago.

"One of the reasons is that the quality of the grouper breeders provided by the project is far better than that of the same breeds sold in the market," said De. "We can use the money to reinvest into the business, with part of it earmarked to buy a new motorbike."

In another case, Dinh Van Thai, 60, was also provided by the project with 1,000 grouper breeds. “Never had I seen such a good type of breed. The groupers have been growing very fast, with their health better than that of other ordinary groupers. They seldom suffer from diseases.”

Thai owns one hectare of grouper pond, in which a reasonable amount of shrimp are also raised. It is expected that when they are sold, they will bring hundreds of millions of VND to his family, which has been engaging in the fish trade for decades.

In fact, the coexistence of groupers and shrimp in these ponds means a miniature “circular” economy, in which shrimp will deal with all waste from the other fish. “It is an eco-circle. If there is no shrimp raised together with groupers, the water would become polluted,” Nhan said.

According to the Project Management Unit in Nam Dinh, this integrated farming model clearly show an enhancement in both quality and yield of fish and shrimps raised together. The success of this model in Nghia Hai commune brings an opportunity for coastal farmers with about 20 per cent higher income generated from a same area of fish pond.

Previously, the project beneficiaries used to catch fish at areas where there were some long-standing mangroves. However, after the areas of the forests began to be expanded with newly-planted mangrove species under another initiative from the GCF project, such households were affected in terms of livelihoods as they could not fish in the area any longer. They have since received support as grouper breeds from the project.

Mangroves help protect coastal communities from some sea impacts

Regeneration of mangroves

Among the effects of climate change, sea level rises and severe typhoons pose the greatest threat to the stability of human settlements along coastlines. In Nam Dinh, Nghia Hung district is a coastal one often hit seriously by storms directly coming from the sea. Over a month ago, a storm attacked the district, eating up a large part of the coast lined with casuarina trees planted a long time ago to keep land from erosion.

Many trees have been swept away, with sandy areas already depressed into the sea, and strong waves threatening to continue eating up the land and smashing down houses and gardens of locals whose livelihood depends on fishery activities. As reported, the recent storm No.7, combining with high tide, affected two sections of the sea dyke embankment in Hai Hau district with a total sag pit area of 278sq.m. This section of sea dyke stands alone without mangrove forest around.

Thus, protecting and enhancing mangrove forests must be prioritised to mitigate the influences of strong typhoons and persistent sea level rise for coastal protection.

Under the project to improve the resilience of coastal communities to climate change in Viet Nam, in Nam Dinh, mangrove regeneration has been implemented since 2018, with 112.69ha planted as supplementation and another 85.08ha newly planted. They play an important role in protection from natural disasters and for the lives of communities in coastal areas considered the most vulnerable to the impacts of climate change.

Farmer Nguyen Duc Thuy from Nam Dien commune in Nghia Hung district spends most of his time taking care of the mangrove forest near his

house, and takes pride in his work. “The forest can help shield villagers from storms and also protect dykes,” Thuy said. Like many other forest planters, he often wakes up at dawn every day to look after the forest when the sea tide ebbs away. Once or twice every year when the rainy season comes round, forest planters have to review the area, remove low-quality trees, and foster new ones.

Nguyen Van Hien, Vice Chairman of Nghia Hai commune, said, “The mangrove forest here is quite useful as it protects the sea dyke and mitigated negative effects of storms and floods. Local residents are well taking care of the forest, and thanks to training courses, they have improved their awareness in protecting them.”

Mangrove areas create a vital buffer between the sea and coastal communities. GCF funds support regeneration of approximately 4,000ha of mangroves in coastal areas vulnerable to climate change impacts, including the provinces of Nam Dinh, Thanh Hoa, Quang Nam, Quang Ngai, and Ca Mau. Thanks to the project on improving resilience of coastal communities to climate change in Viet Nam, many locals in Nam Dinh have been able to secure their sustainable livelihood, while mangrove forests can have a good environment for development, protecting residents from disasters. This is very mutual support between residents and the forests at coastal areas.

It can be said that the biggest success in each activity against coastal disasters is the change in the mindset of the community. They have not been passive to the disasters any longer, but have taken the initiative in responding to them.

Equipping localities in climate fight

THANH DAT
January, 2021

The UNDP-led initiative covers not only climate change adaption but also disaster risk reduction for affected provinces up and down the country

Being one of the most vulnerable countries to natural disasters and climate change, Viet Nam annually suffers from huge losses. To mitigate this, integrating disaster risk reduction and climate change adaptation into local socioeconomic development plans is one of the most effective measures, enabling them to take the initiative in coping with this major threat.

Tropical thunderstorms Linfa, Nangka, Ofel, and Molave hit Viet Nam's central region last October, causing devastation and death. By the end of the month, they had killed over 240 people, collapsed and flooded an estimated 243,000 houses, and caused around $1.3 billion in infrastructure damage, according to the Viet Nam Disaster Management Authority under the Ministry of Agriculture and Rural Development (MARD).

"Provinces and cities in the central region have experienced two spells of heavy rain with record rainfall. The total rain volume in Ha Tinh, Quang Binh, Quang Tri, and Thua Thien-Hue provinces exceeded the historical toll seen in both 1979 and 1999. Some places recorded rain of up to 800mm per day with total rainfall of more than 3,000mm each period," explained MARD Minister Nguyen Xuan Cuong.

According to the World Bank, the average annual disaster losses are about $2.7 billion, of which 60 per cent are concentrated along the coast.

Major menace

Disaster and climate challenges have become a top priority for policymakers in Viet Nam. This is evidenced in national and sector strategies, and these challenges are identified as one of the key pillars of the new national development plan for the next decade. For example, the government adopted the National Climate Change Strategy in 2011 and the Viet Nam Green Growth Strategy in 2012, which lay out a vision through to 2050. In addition, the government adopted the Support Programme to Respond to Climate Change for 2016-2020 that supported policy reform, capacity building, and increased investment for prioritised climate change and green growth actions in key sectors, including energy, transport, forestry, and water resource management.

Internationally, the government has also championed the cause of the environment, including at the Paris Climate Conference in 2015. Climate and disaster risks are now recognised as a direct threat to Viet Nam's aspiration to become a high-income economy. Direct and indirect disaster losses are affecting not only the economy's resilience and sustainability, but also its capacity to maintain rapid and inclusive growth.

For instance, rapid infrastructure development in the absence of consideration of disaster and climate risks is leading to rapidly-growing exposure and vulnerabilities to adverse natural events. "With anticipated growth of 265 per cent over the next 10 years, annual average direct disaster losses on the coast alone are expected to grow to $4.2 billion a year," stated a recent World Bank report titled "From COVID-19 to climate change: How Viet Nam can become the champion of green recovery".

The report makes clear that development gains could be undermined by the loss of human life; destruction of commercial property, cultivable land, and infrastructure; reduction in agricultural yields and labour productivity; loss of tax revenue; and strained public budgets from spending on relief and reconstruction.

"Viet Nam is standing at a crossroads of post-pandemic recovery. It has an opportunity to set itself on a greener, smarter, and more inclusive development path that will bolster resilience to future shocks from both pandemics and climate-related disasters," said Carolyn Turk, World Bank country director for Viet Nam.

A fresh initiative

The United Nations Development Programme (UNDP) in Viet Nam has collaborated with the Eco-community Development Centre (ECODE) under the Viet Nam Union of Science and Technology Associations to initiate an information package on disaster risk reduction and climate change adaptation (DRR-CCA) in seven coastal provinces of Nam Dinh, Thanh Hoa, Quang Binh, Thua Thien-Hue, Quang Nam, Quang Ngai, and Ca Mau, aiming to help the provinces integrate disaster and climate change risk into their socioeconomic development plans.

The programme sits alongside the initiative to improve the resilience of coastal communities to climate change in Viet Nam, jointly funded by the UNDP, the Green Climate Fund (GCF), and Viet Nam's government. Specifically, ECODE last week cooperated with the GCF's Project Management Unit in Quang Binh to organise a planning workshop in Dong Hoi city, focusing on integrating DRR-CCA into the province's 5-year Socioeconomic Development Plan for 2021-2025 (SDP). In December, a similar event in Quang Nam also took place.

"In its new SDP 2021-2025, Quang Nam sees climate change adaptation is the responsibility of authorities at all levels, sectors, businesses, and the whole community," said Le Thi Tuyet Hanh, deputy director of Quang Nam Department of Natural Resources and Environment. "The province will integrate climate change factors into development strategies and plans at all levels, sectors, and localities, both in legal documents and in implementation."

Statistics of damage caused by natural disasters in Quang Nam during 2010-2016 showed total economic loss was estimated at around VND4.2 trillion ($182.6 million). Especially in 2020, extreme natural disasters caused great losses worth hundreds of millions of US dollars to Quang Nam, with floods and landslides killing dozens of people.

In another case, Nam Dinh Department of Planning and Investment (DPI), also beset by natural disasters, has also advanced the province's plan on integrating DRR-CCA into its SDP 2021-2025. Under the plan, the provincial People's Committee enacted a directive which must be integrated with DRR-CCA. At that point, the DPI promulgates a related guideline. After that, the plan will be discussed with comments from the Ministry of Planning and Investment. Thereafter it will be submitted to the committee before being implemented by districts which will have to make their own plans of the types including DRR - CCA integration.

According to the GCF-UNDP Project Management Unit, workshops on integrating DRR-CCA into SDPs for 2021-2025 have also been organised in Nam Dinh, Thua Thien-Hue, Quang Ngai, and Ca Mau.

Results showed that so far, about 270 delegates from these provinces have partaken in the events including 300 key planners participating in workshops, and 60 people participating in consultation process – with 30 per cent being women. They are representatives from province, district, and commune levels. "Participants have been equipped with knowledge about impacts of disasters and climate change on all sectors of their localities. Especially, they understand that it is necessary to boost the integration of DRR-CCA in their localities' SDPs," stated a report from the Project Management Unit.

This project has also assessed DRR-CCA for about 330 communes of 35 districts in the seven provinces.

As of late December 2020, five provinces - Nam Dinh, Thua Thien-Hue, Quang Nam, Quang Ngai, and Ca Mau - have completed their drafts on SDPs for 2021-2025.

For example, Ca Mau has integrated DRR-CCA into its plan of the type, with specific targets in some sectors like agriculture and rural development, natural resources and the environment, industry and trade, transport, construction, education and training, and healthcare.

Meanwhile, Thua Thien-Hue has also carried out the same, with DRR-CCA integrated into sectors such as irrigation infrastructure, development of coastal works, and land use planning. Some specific projects involve strengthening 1,180km of irrigation canals, strengthening a section of coast in Thuan An-Tu Hien, preventing landslides at a coastal area of Hai Duong; and constructing an area for shielding ships and boats from storms in Phu Hai area.

Commenting on the benefits of integrating DRR-CCA into strategy and planning, Professor Truong Quang Hoc, an expert on climate change and sustainable development said, "Comprehensive integration will save and increase the efficiency of resources, especially in terms of time as well as funding. Moreover, it increases the quality of climate change adaptation projects and solutions because of investment-focused stakeholder engagement."

Insurance gap adding risk to families

THANH LAN
January, 2021

With a large percentage of the poor population in coastal localities often living in run-down houses, many families are in need of insurance packages for their homes. However, a lack of related insurance programmes among banks may leave their dreams out of reach.

Directly facing the sea with a coastline of 12km, Binh Thuan commune in Binh Son district, in the south-central province of Quang Ngai, has more than 2,000 households and is home to over 10,000 people. Nearly one-tenth are classified as poor, with an average monthly income of VND500,000-600,000 ($22-26).

Ferocious storms last October caused serious damage both in the commune and beyond. Here in Binh Thuan, a total of 1,155 households were seriously damaged, with many having their roofs blown away or their walls cracked. One was even completely destroyed.

“The locals are trying to stay afloat. Many of them have no money to repair their houses and are waiting for state support,” Ngo Van Vuong, chairman of Binh Thuan commune, said. “If they were offered insurance packages, their lives would be less difficult. We used to work with some insurance firms on this, but none of them were ready to cooperate because they were afraid of the risks that may come from this type of insurance.”

In the commune’s Song Cau hamlet, 45-year-old rice farmer Huynh Anh Tho also added he wishes that he could engage in an insurance package from a bank. His home was the only one in the commune to be fully destroyed by the storm, and he remains homeless.

“If the house had had an insurance package, I might have been able to repair it. Now we don’t know what to do, and many others are also suffering from such a plight. They can’t offer me much help,” Tho said.

In fact, throughout Quang Ngai, Tho is not alone in his plight. According to Quang Ngai People’s Committee, the storm has caused losses of about VND4.48 trillion (nearly $195 million), or 8.1 per cent of the province’s regional GDP in 2019. The storm injured 13 people, razed 325 houses to the ground, and unroofed another 140,000. What is more, it also sabotaged 450 educational establishments, 70 healthcare facilities, and over 100 communal homes, in addition to seriously damaging many roads and irrigation systems.

Along with Quang Ngai province, the whole central region has yet to overcome the consequences of the lethal storms. Quang Binh province, for example, saw 12 coastal communes seriously hit, with thousands of poor households becoming homeless, like Nguyen Thi Linh’s in Hien Ninh commune.

Linh, a 65-year-old disabled farmer, lives in Bac Co Hien hamlet and depends on support from relatives and neighbours. Her husband passed away many years ago. Her house's walls were cracked, and she now feels very cold during the winter weather, as she has no money to repair them.

"I have never thought about an insurance package for my house. If it were a reality, I would have a better home," Linh said.

Le Hoai Vu, Deputy Chairman of Hien Ninh People's Committee, explained that many households like Linh's have been facing the same plight. "We looked into insurance packages for poor households, but there has been no specific programme or policy from the state in this regard, so no insurance firm can cooperate with such poor people."

The commune has a population of over 8,000 people living on 270 hectares of agricultural land, with an average per-capita income of VND20 million ($870) per year.

No programme available

In Viet Nam, almost all 30 non-life insurance companies – including top ones such as PetroVietnam Insurance, Bao Viet, Petrolimex Joint Stock Insurance Company (PJICO), Post and Telecommunication Joint Stock Insurance Corporation (PTI), Bao Minh, and BIDV Insurance Corporation (BIC) – said that in the domestic market, only common insurance products protecting private homes in general are available, and so there is no such product specifically for houses in flood-prone areas.

Nguyen Viet Son, vice head of PJICO's Technical Asset Division, said that there are almost no insurance firms in Viet Nam providing insurance packages for houses in flooding areas, and the few available services are deemed unpopular.

"PJICO has no such service. It offers insurance services for private houses, with a focus on certain types of houses, including apartments, townhouses, and villas, under specific conditions," Son said.

Similarly, BIC is not an exception. Nguyen Manh Hai, vice director of BIC's customer care and marketing division, said, "The most common packages are for houses in general. Normally, customers can purchase packages for flooding after they engage in packages protecting from fire and explosions."

With its strong investment into the insurance segment for private homes in recent years, PTI also said there are insurance packages only for private houses in general.

"Because the areas are prone to natural disasters and floods, especially those which are about 1km from the sea, there are very high levels of risk, and so insurance products for private houses in these areas are limited. We currently have no such product," confirmed a representative from PTI's marketing division.

Since 2017, thousands of storm- and flood-resilient homes have been built for poor families in some coastal provinces through a joint project by the Green Climate Fund, the Vietnamese government, and the United Nations Development Programme

In need of insurance

With increasingly complicated developments and risks, insurance experts said that, without policies from the government on supporting flood-hit houses, many poor people will continue to be bogged down in difficulties.

According to the United Nations Development Programme (UNDP), insurance plays an important role in disaster risk financing by providing the government and other stakeholders with the financial means to cope with disaster response and recovery. Insurance products are often referred to as 'market-based risk transfer solutions' by providing more cost-efficient financing measures for medium- to high-level risks that generate higher levels of loss at lower levels of frequency. Although insurance is one of the critical components of risk financing, in Viet Nam it remains under-represented in the financial toolbox currently being used by the government.

In fact, over the past few years, a number of organisations have been implementing programmes and projects to grant anti-flood houses for poor people in coastal areas up and down the country.

In an attempt to help many in the face of increasing disasters, the Ministry of Agriculture and Rural Development and the Ministry of Construction have been implementing an initiative to build more than 4,000 storm- and flood-resilient houses since 2017 in the five central coastal provinces of Thanh Hoa, Quang Binh, Thua Thien-Hue, Quang Ngai, and Quang Nam.

The initiative is part of a nearly $42 million project to improve the resilience of coastal communities to climate change in Viet Nam, funded jointly by the Green Climate Fund (GCF), the Vietnamese government, and the UNDP. The capital includes over $29.5 million in grants from the GCF and $1.6 million from the UNDP, while the remainder comes from the Vietnamese government. So far, over 3,300 houses of this type have been built in the five provinces. Under this project, the 4,000 new houses will benefit 20,000 poor and highly disaster-exposed people across 100 communes in these coastal provinces.

These new homes are based on simple designs to create a stronger structure. Features include a mezzanine level for flooding protection, reinforced roofing, and the use of strong cement. The mezzanine level allows residents to comfortably stay in their houses during a disaster, safe from high flood levels. This level can also be used as an area to store valuables during disasters and prevent it from being washed away or spoiled by flooding waters.

"We have just completed some research on disaster and climate risk financing and insurance options in Viet Nam's coastal areas. Based on that, we will work with the Viet Nam Disaster Management Authority to explore further opportunities for supporting local poor and near-poor households to have better resilience to the impacts of disaster and climate risks," said Vu Thai Truong, UNDP programme management specialist.

As long as there are no policies on insurance for flood-hit houses, hundreds of thousands of poor farmers like Huynh Anh Tho in Quang Ngai or Nguyen Thi Linh in Quang Binh will continue living in misery.

"We expect that one day their homes will enjoy preferential insurance from the state," Binh Thuan commune's chairman Vuong said. "Insurance can help them to be less anxious about having money to repair their houses."

Escaping poverty *via breed initiative*

THANH THU
January, 2021

In defiance of difficulties induced by climate change, natural disasters, and output markets, many farmers in Nga Son district of the north-central province of Thanh Hoa have escaped prolonged poverty thanks to the professional models of black tiger shrimp farming, intercropped with green crabs and tilapia, which can churn out strong profits.

Despite the piercing cold winter weather, 43-year-old Trinh Van Hoan, wakes up early to walk to his family's two-hectare pond, at which he will continue to raise black tiger shrimp and tilapias. In recent weeks he has been renovating the pond in order to begin a new season for the next two months.

"I am dredging the pond, sanitising it, and strengthening the pond's banks before pumping clean water into it and raising new shrimp and tilapias," Hoan said.

Living in coastal Nga Tan commune, located in Nga Son district of Thanh Hoa, Hoan has been raising shrimp for five years – a trade that has only helped his four-member family ensure sufficient livelihoods, without creating any major savings. This has made it difficult for him to expand the trade and purchase more assets for his family.

However, in July last year Hoan was supported 94,000 breeding black tiger shrimp and 1,890 tilapias breeds by a project to improve the resilience of coastal communities to climate change in Viet Nam, funded jointly by the Green Climate Fund (GCF), the Vietnamese government, and the United Nations Development Programme (UNDP).

In addition, at that time Hoan's family also purchased 40,500 breeding shrimp and 810 breeding tilapias of the type from the market. Altogether he raised 135,000 shrimp and 2,700 tilapias. Last October, about 1.65 tonnes of shrimp and 900kg of tilapias were caught and sold to the market at an average price of VND300,000 ($13) and VND45,000 ($1.95) per kg, respectively, with total revenues of about VND495 million ($21,500) from the shrimp and VND40.5 million ($1,760) from the tilapias.

> *"This was the highest-ever revenue that we have earned so far," Hoan said.*

However, what has been more valuable is that in addition to receiving some feed for initial production, Hoan has been equipped with special knowledge from the project's professional technical training course offering modern techniques in raising black tiger shrimp and tilapias, improving the quality of water used for the pond, and enabling the farmers to increase their product sales as the stocks are free from diseases.

Also in Nga Tan commune, like Hoan, the farmer family of Mai Thi Nga, 50, also benefited from the project in 2020 – the first time they did that since they began raising shrimp in 2015.

In early July last year, Nga's four-member household also received 94,000 breeding black tiger shrimp and nearly 1,900 breeding tilapias from the initiative. The family at that time also owned another 40,500 breeding black tiger shrimp and 810 breeding tilapias. All of them were raised together.

A few months later in October the stocks were sold, with nearly two tonnes of shrimp worth over VND555 million ($24,100) and 1,100kg of tilapias valued at over VND49.5 million ($2,150). The breeds provided were far better than ordinary ones sourced from the market.

"The trade has been changed by the project. We have earned high incomes and especially known how to raise shrimp and tilapias in a more professional manner – meaning we can ensure the trade can develop sustainably in the future," said Nga.

The model of black tiger shrimp farming intercropped with tilapias in Nga Tan district commune is considered a profitable trade for local residents in the context that shrimp farming is facing big risks of diseases and abnormal weather conditions.

According to UNDP and VNForest experts, tilapias biologically can coexist with black tiger shrimp or white-leg shrimp. Being an omnivorous animal, the tilapia can deal with aquatic algae and discharged organic waste. This can ensure the quality of the water habitat, and reduce the risk of catching diseases for the shrimp. Moreover, this model can help farmers to take maximum advantage of the water surface and especially increase their income.

"Mangrove forest is the green wall to protect the people and their assets from storms, typhoons and to mitigate the risks of climate change. It can only be protected and regenerated sustainably if the local livelihood is improved and therefore local pressure on the mangrove forest is reduced," said Vu Thai Truong, UNDP programme management specialist.

Intercropping benefits

With its support for vulnerable people hurt by natural disasters, the project supported 15 households in Nga Son district's Nga Thuy commune, which borders Nga Tan district, through a model of black tiger shrimp farming intercropped with green crabs which have helped change their livelihoods.

Farmer Tran Van Dien from Nga Thuy commune never thought about the fact that his family was granted last July 7,000 breeding black tiger shrimp and 70 breeding green crabs for free. Like many other beneficiaries, Dien, who has been raising shrimp since 2010, also already had 30 crabs and 3,000 shrimp of his own.

"We raised these 10,100 heads together. In late October, we harvested and sold them, at an average price of VND250,000 ($11) per kg of shrimp and VND400,000 ($17) per kg of crabs," Dien said. "All of the other 14 households also benefited from big revenues." Dien's total output was one tonne of shrimp and 47kg of crabs, meaning over VND250 million ($10,900) for shrimp sales and VND18.8 million ($817) for crab sales.

"This model is extremely effective. Crabs can eat leftovers from the shrimp at the bottom of the pond. This is a good cycle of the feeds, helping to protect the environment," Dien said. "The breeds from the project are quite good. In addition, we have also gained much knowledge and know-how from the training courses that have helped us to conduct sustainable production and business."

Dien is now renovating his farm covering nearly two hectares of water surface. He will continue the new shrimp season this March.

According to a report from the Project Management Unit of Thanh Hoa, after four months of raising shrimp

and crabs in Nga Thuy commune, all the beneficiary households reported that the average weight of each black tiger shrimp is 26 grammes at least, with the rate of live shrimp being over 50 per cent, and the average weight of each green crab hit 310g, with the live rate sitting at over 60 per cent.

Need for expansion

Thanh Hoa boasts a total area of about 4,300ha for brackish fishery production and another 7,500ha for intercropping fishery and rice cultivation. The climate change impacts on the province's fishery activities have led to changes in farming methods with farmers hoping to raise productivity, output, and economic effectiveness.

"The models of black tiger shrimp farming intercropped with green crabs and tilapias have ushered in big prospects for farmers as they helped the farmers approach new production techniques, with higher incomes and environmental protection," said Nguyen Viet Nghi, coordinator of the Project Management Unit in Thanh Hoa. "These models need to be expanded to many other localities as they have high economic effectiveness."

For example, the model of black tiger shrimp farming intercropped with green crabs is 25-30 per cent higher in economic effectiveness than raising the shrimp in monoculture. Meanwhile, the model of black tiger shrimp farming intercropped with tilapia is 35-40 per cent higher in economic effectiveness than raising the shrimp in monoculture.

Pham Van Hieu, husband of farmer Mai Thi Nga from Nga Tan commune, said that these models should be multiplied as many other farmers in the commune are expecting to be supported by the project.

"The farmers have visited our farms and learnt some experiences in raising black tiger shrimp and tilapias. The knowledge from the training courses are quite useful," Hieu pointed out.

Meanwhile, farmer Tran Van Dien also said, "If the intercropping model is expanded to the whole commune, it would be great as the farmers will be able to have additional incomes, meaning their livelihood will be further improved. However, they still need more support from the state. For example, the land rental timeframe should be extended to over 10 years, not several years as it is now. This will help farmers to boost investment and expand production."

Two different pictures *in the flood*

PHAM TRUONG, PHAN CHAU GIANG (ZING)
February, 2021

Ms. Hong cannot remember how many times her family has had to flee from floods throughout her life. However, this burden has at last been lifted with the completion of her new resilient house.

More than a month after the prolonged historic floodwaters finally receded, the people of Son Thuy commune, in Le Thuy district of Quang Binh province, are still busy cleaning up the wreckage from the disaster and stabilizing their lives.

Son Thuy has 10 villages with more than 2,100 households. Given its low-lying terrain, the area is further disadvantaged by to its location along the two rivers of Cam Le and Kien Giang and behind Hac Hai lagoon. This unfavorable placement explains the absolute isolation of this poor commune during every flood season. The latest 2-week-long floods acutely fatigued the local people, as all their property was engulfed and swept away in a flow of muddy water.

Amidst the immense scene of loss and ruin following the floods, the pink tiles and blue iron sheets of sturdy two-storey houses built by a resilient housing project emerge. These houses have become shelters for people in Quang Binh, and have helped to realize the dreams and hopes of many households for making it safely through the rainy season.

Fleeing floods and dreaming of houses

Mrs. Phan Thi Hong, from Vinh Quang village in Son Thuy commune, is nearly 60 years old this year. For more than half of her life, she has struggled in this highly flood-prone area. She cannot remember how many times her family has had to run away from floods.

"If the flood level ever reaches the attic, we will lose everything and have to escape. We don't dare risk our lives to bring anything with us."

Her small, battered wooden house has been a refuge for herself, her chronically sick daughter, and her visually impaired grandson. Like many other houses in the region, hers has a temporary attic made of cheap wooden panels.

"The attic is called a tra,. We either hide there ourselves, or put our property up if it floods and bring it down again when the water recedes. If the flood level ever reaches the attic, we will lose everything and have to escape. We don't dare risk our lives to bring anything with us," Ms. Hong said.

Ms. Hong still remembers the sudden floods at midnight, when she and her daughter and grandson did not have enough time to do anything but help each other climb onto the roof and watch the water rising in the dark.

All of the possessions which they had gathered through hard labor over many years have been swept along with the floodwater. If the floods do not recede quickly, or take 3 to 5 days to go away, they can only wait for food and water from relief teams – usually instant noodles, dry food bags, and the like – until it is actually safe to come down.

Year after year, poverty has been like a vicious cycle for Ms. Hong without any way out.

Things slowly began to change when the dream of a highly elevated and resilient house which could save her and her children from fierce floods in the middle of the night finally came true. In August, a storm- and flood-resilient housing project funded by the Green Climate Fund (GCF), the Government of Viet Nam, and the United Nations Development Programme (UNDP) was launched in the area. Thanks to support from the project, Ms. Hong was able to borrow money from banks and relatives and managed to build a strong house.

Standing next to her new house, she said this has been the greatest joy for her family, because from this year's flood season onwards she will no longer have to escape from floods to a ramshackle roof that can be swept away at any time

During the historic flood this year, the 15 m2 second floor of her resilient house was not only a shelter for her and children, but also provided refuge to nearly 20 other people in Vinh Quang village.

"In the past, every time the floods came, we climbed up to the attic and stayed there to call for help from other villagers. This year, the floods were really violent, so we are so fortunate to have this house. Otherwise, we would have had to flee, bringing our chickens and possessions with us like before," Ms. Hong said.

Hundreds of kilometers away from Quang Binh, Ms. Nguyen Thi Duyen and Mr. Tran Ngoc Dao (84 years old, from Tan Hien village, Hien Ninh commune, Quang Ninh district) shared a similar joy as their resilient house was being built. Builders were placing concrete on the second floor of the house of one of the most disadvantaged couples in the village.

Her joy shows on the face of this woman in her 80s. Ms. Duyen said that in mid-2020, her family was ranked as a household with hardship and thus became eligible for a resilient house. Receiving about VND 50 million as housing support from the jointly funded Green Climate Fund (GCF), Government of Viet Nam, and UNDP project, the couple borrowed some more from their relations to build a strong and permanent house with a high mezzanine.

"This year, we will have a new house and we will no longer worry about running away or having nothing to eat when floods come all of a sudden..."

"Whenever a flood comes, the peak can be as high as 4m here. As an old couple, we used to be able to do nothing but climb up to our wooden attic, eating instant noodles and waiting for relief and rescue. This Tet New Year, we will have a new house and we will no longer worry about running away or having nothing to eat when floods comes all of a sudden," she said.

A wish for full coverage of resilient houses

Mr. Truong Ngoc Khiem, a consultant for the project "Improving the resilience of vulnerable coastal communities to climate change related impacts in Viet Nam" in Quang Binh province under its first component (with the Ministry of Construction), said that the project is supporting the construction of resilient houses to increase community resilience to disaster and climate change risks for poor people living along the coastal areas, contributing to reduced human and economic damage and loss.

Through the last historic storms and floods, resilient houses have proven to successfully bring into play their integrated resilient functions as the name suggests.

"Each house is built against a set of standards. The construction cost of each house is only about VND 60-65 million. Quang Binh has 767 houses in the list, including 693 that have already been completed and moved into by local beneficiaries and 74 still under construction," shared Mr. Khiem.

According to Mr. Khiem, there are 6 designs of resilient house, all of which have been approved by the Quang Binh Department of Construction and validated by the Institute of Science and Technology. The area of the first floor is from 13m2 to 45m2. The second floor is also a mezzanine of at least 10m2. A project-funded resilient house must meet 4 "hard"

criteria, i.e. hard foundation, hard frame, hard wall, and hard roof.

However, despite a large number of resilient house needs in the province, few houses have been built, as not all of them are eligible for housing support. Mr. Khiem hopes that there will be more eligible beneficiaries of this housing policy and more storm- and flood-resilient houses will be built in the future.

Mr. Le Vinh, the Party Committee Secretary of Le Thuy District, revealed that during the last flood up to 26,000 out of 38,000 households in the district were flooded, mainly in the deepest flooded communes of Loc Thuy, An Thuy, Phong Thuy, Lien Thuy, and Son Thuy. Son Thuy commune in particular is considered to be the most flooded and difficult areas to access due to strong waves. Flood-related damages have been estimated at more than VND 1,100 billion.

“A resilient house will always remain safe and resilient to storms and floods at any time, and will be effective in terms of rescuing and protecting people as well as providing a shelter for people and their property during floods. The cost of each standard resilient house is about VND 50-100 million, which makes it quite affordable for many people,” said the Le Thuy District party committee secretary.

Mr. The emphasized that these resilient houses, once replicated on a larger scale, will be effective shelters for local people where they can store their food and supplies. Resilient houses will significantly support people in coping and living together with disaster.

Talking about the project, Ms. Caitlin Wiesen, UNDP Resident Representative in Viet Nam, said that these low-cost resilient houses have not been affected by the recent storms and floods. As a result, families living in these houses can use their scarce resources.

“Resilient houses can resist storms and floods. Thus, households living in these houses can feel more secure.” Ms. Caitlin Wiesen – UNDP Resident Representative in Viet Nam

“Instead of rebuilding houses after floods and storms, these families can use their scarce financial resources for other household needs or livelihood activities,” Ms. Wiesen said.

Meanwhile, Mr. Nguyen Manh Khoi, Deputy Director of the Housing and Real Estate Market Management Department (Ministry of Construction), also said that most of houses built under this project are quite strong and even exceed the sstandard resilience limit.

Sweet Success

PHAN HUONG GIANG
July, 2021

In Viet Nam, smallholder farmers are turning to beekeeping and other alternative livelihoods for climate-resilient income in an initiative backed by the GCF and UNDP.

Da Loc commune, in Viet Nam's coastal Thanh Hoa province, is only one of many low-income communities that have been facing the devastating impacts of climate change on an increasingly frequent basis. Every year, approximately 60,000 houses along the Vietnamese coastline are destroyed or damaged by floods and storms, while the climate crisis and environmental degradation are exacerbating the cycle of poverty.

As part of its efforts to better protect these at-risk communities through accelerated climate action, the Government of Viet Nam is implementing the “Improving resilience of vulnerable coastal communities to climate change in Viet Nam” project, a five-year initiative financed by the Green Climate Fund (GCF) and supported by the United Nations Development Programme (UNDP). The project’s integrated, three-pronged approach incorporates storm- and flood-resilient design features into new houses, manages flood risks by regenerating mangrove ecosystems, and enhances the use of climate data to help with improved planning, response and recovery.

Many coastal farmers in Da Loc commune rely on mudflats as a source of seasonal income. Each can earn from US$600 to US$900 per year from collecting aquatic resources such as fish, crabs, snails and clams. This catch is unstable, and is not available throughout the year. The project’s mangrove regeneration work, and in particular the newly planted areas, has brought further reduction in these farmers’ regular catch. The strict requirements for maintaining the plantation areas prevent them from gathering as freely as before, affecting their livelihood opportunities and income.

Vu Tan Suu and his family of six cultivate mangrove honey for a living. When he first started his business a few years back, Suu was only able to produce two to three kilograms of honey per bee colony each year, providing a meagre earning that was just enough to get by. They supplemented their small income with the money they received from fish and shellfish, and so when the mangroves were planted, the strict regulations temporarily reduced their small income.

Thanks to the project, however, things are actually looking up for Suu and his family. Its livelihood support activities help families like theirs to improve their income from aquaculture, livestock and beekeeping, thereby compensating for the temporary losses from mangrove regeneration.

Last February, the project provided Suu's family with two colonies of breeding honeybees, along with the food needed to settle them into their new hives. To enhance their productivity, Suu and others like him were given professional training on beekeeping techniques and methods to improve product quality without using too many commercial additives, harming the bees, or extracting immature honey.

"From the first two hives we received from the project, we've been able to grow the number of colonies up to ten so far," says Suu.

The quality of the honey has also improved significantly. Each colony can produce seven to nine kilograms of honey per year, providing as much as US$8.70 per kilogram. With project support, Suu has significantly increased his production and profit. "Our life has gradually been improving as more and more mangroves are being planted and regenerated," he added.

For Suu, the support has meant increased yields and better quality, and therefore more income. For farmers who just started beekeeping, like Mr. Bui Chi Cong and Mr. Nguyen Van Nam - two others in Da Loc commune whose households have received project support - their thriving new bee colonies are even more important. They can both earn about US$700 - 800 per year from their beehives, which have now also multiplied fivefold to ten colonies each and can compensate for the majority of their reduced aquatic catch.

At the outset of the initiative, a total of 84 colonies of breeding honeybees were given to 40 households in Da Loc commune, including Suu's family. In just seven months, the number of colonies increased to 420.

There is a symbiotic relationship between the bees, the beekeepers, and the mangrove forest. The

Vu Tan Suu is making more money with his honey business.
Photo: UNDP in Viet Nam/Nguyen Viet Nghi

bees feed on the mangrove flowers, making highly desirable honey free from commercial additives. The mangrove forest benefits not only from the project's regeneration and reforestation efforts, but also from pollination by the bees. It further acts as both a carbon sink and a natural barrier protecting local communities from floods, while more aquatic resources are found in well-maintained mangrove forests that farmers are able to collect according to regulations.

To continue this initial success, the project is working with the Thanh Hoa Provincial Project Management Unit, the Da Loc Commune People's Committee, local experts, and 40 members from the beekeeping team to improve honey quality and beekeepers' income through quality verification and registration, brand development, and market expansion. In addition, the project has supported the setup of a cooperative group for any households interested in working together in the honey business. The group's members have all been regularly exchanging ideas, techniques, experience, and materials for beekeeping.

This further support is streamlined into the 'One Commune One Product' (OCOP) standard that Da Loc commune is targeting in 2021.

Photo: UNDP in Viet Nam/Vu Ngoc Dzung

Dao Trong Cu, 61, has raised honey bees for many years. Currently, his family keeps 34 colonies, including five provided by the GCF-financed initiative. "This beekeeping model has been warmly welcomed in the commune because locals see long-term potential from it, which can produce high profits and ensure environmental sustainability," Cu says. "Our family's income has also increased significantly, while our investment costs have decreased."
Photo: UNDP in Viet Nam/Vu Ngoc Dzung

"Through the project more than 3,300 hectares of mangrove forest have been planted and regenerated, with multiple positive effects. Firstly, we have reduced greenhouse gas emissions by almost 180,900 tons of CO2. Secondly, the project's mangroves also serve as an essential buffer to storm surges, protecting more than 129,000 people. Thirdly, and importantly, this provides livelihoods for some 500 households," highlighted Caitlin Wiesen, UNDP Resident Representative in Viet Nam. "By supporting shrimp farming, beekeeping and other alternative livelihoods, we can regenerate and manage the mangrove with local participation while ensuring the coastal vulnerable poor and near-poor people are not left behind," she added.

The project continues to promote alternative livelihoods for vulnerable coastal communities living on the frontlines of the climate crisis. In addition to beekeeping, these initiatives also include raising ducks and chickens or intercropping black tiger shrimp with green crabs and tilapia to incentivize sustainable aquaculture through protecting the ecosystem, improving biodiversity, and ensuring economic opportunities. These initiatives benefit the economy, benefit the people, and benefit the planet.

‘This year, I can set my mind at ease’

How special safe houses are protecting people from floods

QUANG NGHIA
October, 2021

Viet Nam’s 3,260 km-long coastline is a double-edged sword. While it blesses the country with abundant marine resources and huge potential for building a strong blue economy, every year Viet Nam’s coastal areas face increasingly frequent and severe disasters such as storms, floods, and saltwater intrusion.

Quang Binh is one of the provinces most vulnerable to natural hazards. In 2020, it experienced two historic floods and a series of several powerful storms, flooding more than 100,000 houses and causing damage estimated at 3.7 trillion VND. In Le Thuy district, one of the most disaster-prone areas in the province, the people are especially used to living with floods; experience, however, does not make their lives any easier. Every storm season, many poor coastal households dream of having a solid and sturdy house that can resist the strong winds and rains so that they no longer have to worry about their homes, crops, and possessions being washed away by the floodwater.

Sitting in her resilient house, Mrs. Le Thi Dieu (of Tan Thinh hamlet, Tan Thuy commune, Le Thuy district) points to the 2.5m-high horizontal waterline left by the 2020 floods. “I am 74 years old, and I live by myself now that my children have settled far away. My old house is now in very poor shape. In 2020, I was supported by the local authorities and the project to build a resilient house, and now I feel a great sense of relief. Above all, a storm arrived right after the new house was handed over to me, so I felt very fortunate that I had somewhere safe to shelter.”

In order to help poor and disadvantaged households in disaster-prone areas, the project "Improving the resilience of vulnerable coastal communities to climate change-related impacts in Viet Nam," financed by the Green Climate Fund (GCF) and the United Nations Development Programme (UNDP) and implemented in collaboration with the Government of Viet Nam, has been supporting coastal communities like Le Thuy district to build storm- and flood-resilient houses that can withstand the extreme weather they experience on an annual basis.

Mrs. Dieu's safe house has two floors of about 25m2. The ground floor is made of solid concrete, tiled floor, with a strong iron staircase leading upstairs. The upper floor includes emergency windows, and the corrugated iron roof is firmly attached to prevent it from blowing off in the wind.

During the historic floods in October 2020, the second floor of Mrs. Dieu's house became a shelter for many people in her neighborhood who could not safely stay in their own homes. Mrs. Dieu shares:

"Thanks to this house, I was able to help my neighbors during the disaster, and especially many children from the village."

For the last three years, the project has supported Quang Binh province to build 897 storm- and flood-resilient houses. This safe housing model proved its effectiveness time and time again throughout the 2020 historic floods, protecting many others like Mrs. Dieu. According to Mr. Dinh Khanh Hau, Deputy Director of the GCF Project Management Unit in Quang Binh province, these resilient houses serve not only as shelter for family members, but also as small-scale evacuation points can help neighbors in the surrounding area.

Mrs. Dieu's neighbor, Mrs. Tran Thi Thiet, says that due to the rapid rise of the floodwater her house was almost completely submerged. All six people in her family had to evacuate to Mrs. Dieu's house for four days while they waited for the water to recede so they could return to their home.

"At the beginning of 2021, hearing from the commune that I would receive support to build a safe house made me so happy that I couldn't sleep," says Mrs. Le Thi Lan of Tan Thuy commune, Le Thuy district.

Mrs. Lan also lives alone, and before she received a safe house she was forced to flee from the floods during the rainy season every year.

Building a flood-resilient house so that she would no longer have to worry about finding shelter was a dream that Mrs. Lan cherished for a long time. From now on, she can finally feel reassured whenever the storms return. "After four months of construction, the house was completed. This year, I can set my mind at ease living with the floods."

Support to build resilient houses is meaningful work to help poor households, disadvantaged families, and vulnerable people in the coastal areas of Quang Binh province. The project is continuing to build and hand over more houses to local people, helping them feel more secure during the storm season and striving to eliminate hunger and reduce poverty.