

# EbA in the North Central Coast of Vietnam: Restoration and Co-management of Degraded Dunes and Mangroves

implemented jointly with  
**IREN of Hue University**



Dr. Till Pistorius  
unique land use GmbH

BMWK-BMUV-ZUG IKI BBL, 5.4.22



Supported by:



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## Viet Nam with its 3,200 km shoreline is highly vulnerable to climate change impacts



Source: Esri, Digital globe et al. 2015

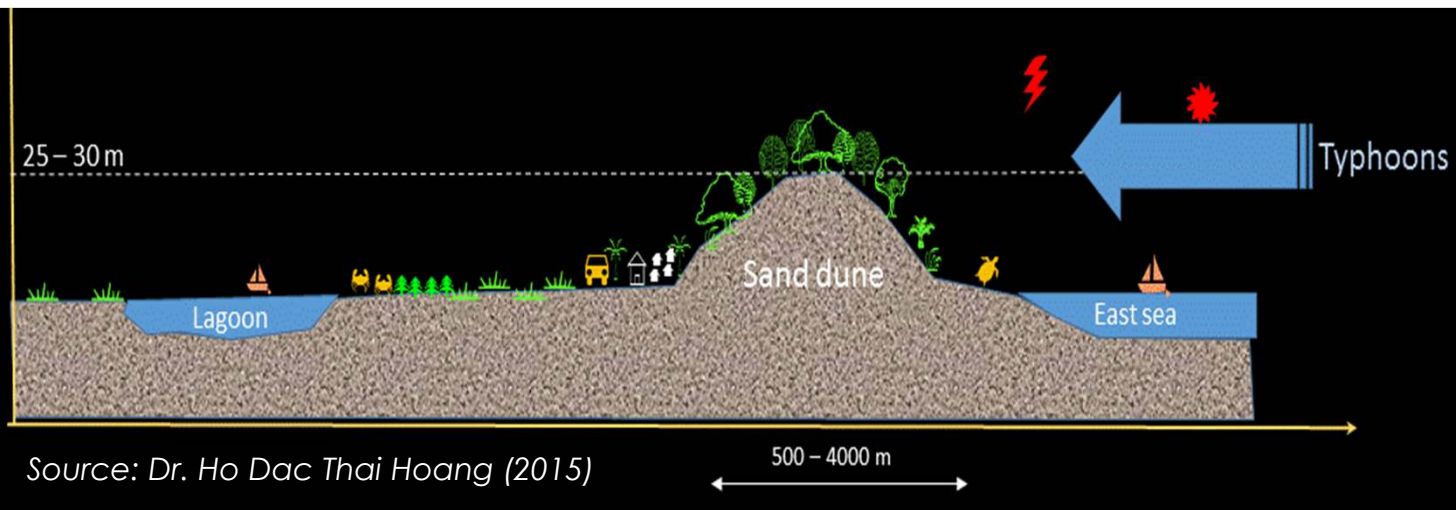
- many typhoons make landfall in Vietnam
- they cause many casualties and high economic damages
- expectation that intensity of storms and damages will further increase
- the rural local population is most impacted – mostly small-scale farmers with low resilience



# Project background II



- forested dunes & sandy areas in Viet Nam have important **protective functions** against typhoons



- most coastal forests have been **severely degraded**
- only few reforestation attempts, despite good level of scientific knowledge and research (esp. Hue university and IREN)

# Project area, rationale & lifetime



Source: WB FCPF Carbon Fund 2016

- objective: to develop an ecosystem-based adaptation approach for the sandy areas and estuaries in NCC-VN
  - project area: Thua Thien Hue, Quang Tri & Quang Binh province
  - in line with policy objectives and priorities of communities
  - strengthens the resilience & adaptive capacity
  - replicable and significant upscaling potential
- Partners
  - National level: MOET & MARD DOSTIC
  - Provincial level: DARD FPDs of respective provinces
- Project lifetime: April 2018 – October 2024





- **WP 1: development and preparation of an EbA model for restoring degraded coastal forests and estuaries in QB, QT & TTH**
  - identification of native tree species, seedling production, planting design, site-species-matching
  - agreement & planning with relevant authorities, pilot communes and communities (based on FPIC)
  - Scoping business models & pre-feasibility (e.g., NTFP as essential or edible oils)
  
- **WP 2: piloting and proof-of-concept for ecological restoration**
  - site preparation, trainings for planting and co-management
  - restoration of 500 ha (450 ha of degraded coastal forests & 50 ha mangroves in estuaries)
  - extension (approved 2022): typhoon recover and establishment of a best practice nursery
  
- **WP 3: Dissemination activities and proposals for upscaling**
  - publications, TV documentaries, scientific book chapter, video clips, education (schools)
  - workshops, national conference and international dissemination

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Hue University



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# **EbA in the North Central Coast of Vietnam: Restoration and Co- management of Degraded Dunes and Mangroves**

Speaker: Dr. Ho Dac Thai Hoang

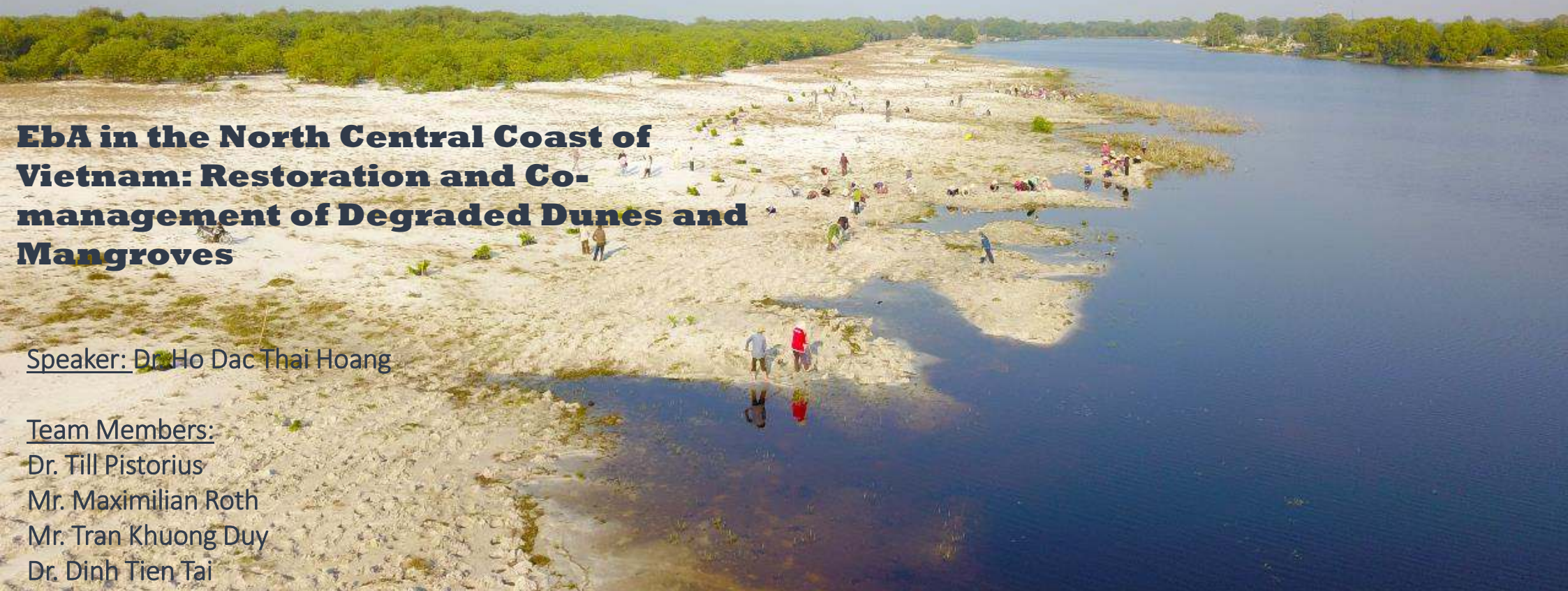
Team Members:

Dr. Till Pistorius

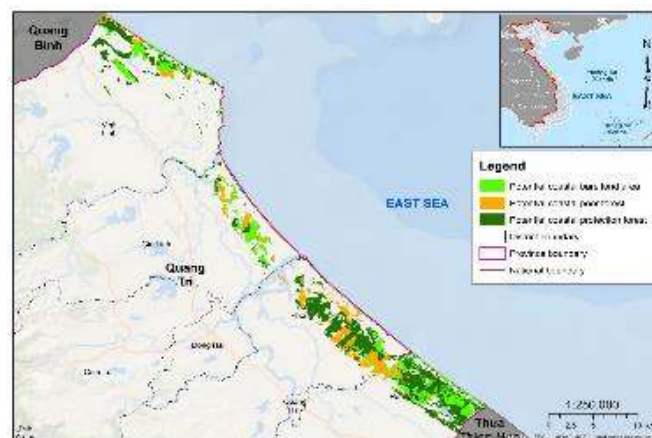
Mr. Maximilian Roth

Mr. Tran Khuong Duy

Dr. Dinh Tien Tai



# Sand dune and mangroves of North Central coastal Vietnam



District	New planting areas (ha)	Restoration (ha)	Protection (ha)
Bo Trach	261.0	29.0	11.0
Le Thuy	1,160.0	1,496.0	950.0
Quang Ninh	993.0	1,468	1,108.0
Quang Trach	34.0	60.0	
Dong Hoi	0.0	180.0	
Ba Don	139.0	170.0	
<b>Total</b>	<b>2,587.0</b>	<b>3,403.0</b>	<b>2,069.0</b>

District	New plantation areas (ha)	Restoration (ha)	Protection (ha)
Vinh Linh	902.0	107.0	1,294.0
Gio Linh	713.0	440.0	279.0
Trieu Phong	289.0	1,162.0	2,139.0
Hai Lang	1,385.0	431.0	2,262.0
<b>Total</b>	<b>3,289.0</b>	<b>2,140.0</b>	<b>5,974.0</b>
			<b>11,403.0</b>

District	New plantation (ha)	Restoration (ha)	Protection (ha)
Phong Dien	2,356.0	2,296.0	3,614.0
Quang Dien	670.0	75.0	1,193.0
Huong Tra	0.0	15.0	190.0
Phu Vang	98.0	404.0	854.0
Phu Loc	7.0	56.0	724.0
<b>Total</b>	<b>3,131.0</b>	<b>2,846.0</b>	<b>6,575.0</b>
			<b>12,552</b>





## Restoring/ planting areas: new planting

### Main targets:

- 450 ha enrichment and restoration of sand dune areas
- 50 ha mangroves at estuaries and lagoon areas



# Restoring/ planting areas: improvement

An aerial photograph of a coastal restoration site. The landscape is a mix of sandy dunes and low-lying, scrubby vegetation. A wide, sandy path or cleared area runs through the center, where several people are visible, likely engaged in planting or maintenance work. The surrounding areas are covered with dense green trees and shrubs, indicating a transition from a degraded state to a more restored one.

## Main targets:

- 450 ha enrichment and restoration of sand dune areas
- 50 ha mangroves at estuaries and lagoon areas



# Restoring/ planting areas: enrichment

An aerial photograph showing a large-scale coastal restoration project. The central focus is a vast area of planted mangroves, appearing as a dense grid of small green trees. To the left, a dark blue lagoon is visible, with several small islands of mangrove forest. To the right, a river or estuary flows, bordered by a thick, continuous line of mature mangrove forest. The background consists of green agricultural fields and some residential buildings under a clear sky.

## Main targets:

- 450 ha enrichment and restoration of sand dune areas
- 50 ha mangroves at estuaries and lagoon areas



# Restoring/ planting areas: mangrove restoration



## Main targets:

- 450 ha enrichment and restoration of sand dune areas
- 50 ha mangroves at estuaries and lagoon areas



**Actions: Target species, mother trees and seed collection & seedlings**





# Actions: Target species, mother trees and seed collection & seedlings

- More than 20 potential indigenous tree species studied
- Mother trees were documented and seed bank preparation
- Main potential indigenous tree species are endemic, high value and locally occurring
- Local & indigenous knowledge for species selection





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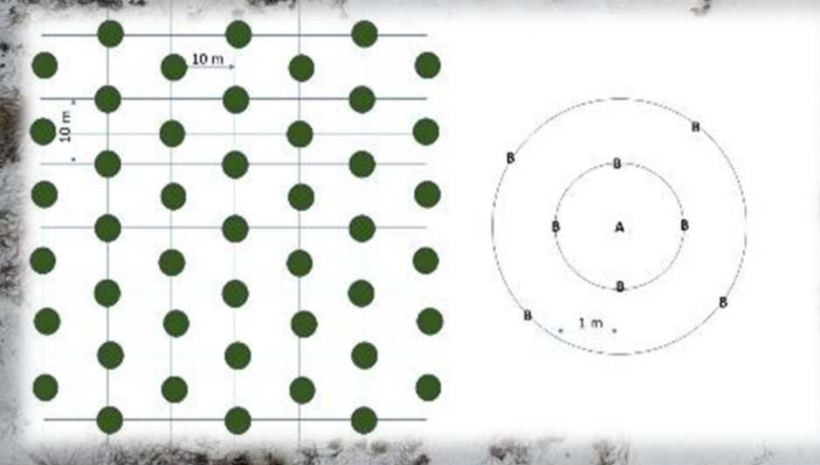
# Actions: Target species, mother trees, seed collection & seedlings



- 850.000 seedlings from 25 potential species were prepared/are currently in nurseries
- 4 main nurseries at Thua Thien Hue and Quang Tri province
- Further seedling production through scaling activities and own “best-practice” nursery in the context of the project extension



# Actions: planting design and practices





# Actions: planting design and practices

ToT Trainings – Learning by doing





# Actions: planting design and practices

Learning by doing: community-led activity implementation





# Actions: Community-based, Indigenous and scientific knowledge

Learning by doing: training and learning





# Actions: Community-based, Indigenous and scientific knowledge

Planting for the future









# Actions: Community-based, Indigenous and scientific knowledge







Actions: Community-based, Indigenous and scientific knowledge



Actions: Community-based, Indigenous and scientific knowledge

















# Actions: transportation – seedlings to fields

By boats





# Actions: transportation – seedlings to fields

By buffalos





















# Actions: project participants





# Actions: project participants





# Actions: project participants





Then & now







Then & now







# Mangrove planting successes





# Mangrove planting successes





# climate-related challenges



Drought



Drought and extreme hot temperature



Seedling bag become brick



Forest fire



Flood and typhoon



# Conclusion

Continuous community-based maintenance, protection & replanting to recover climate-induced losses





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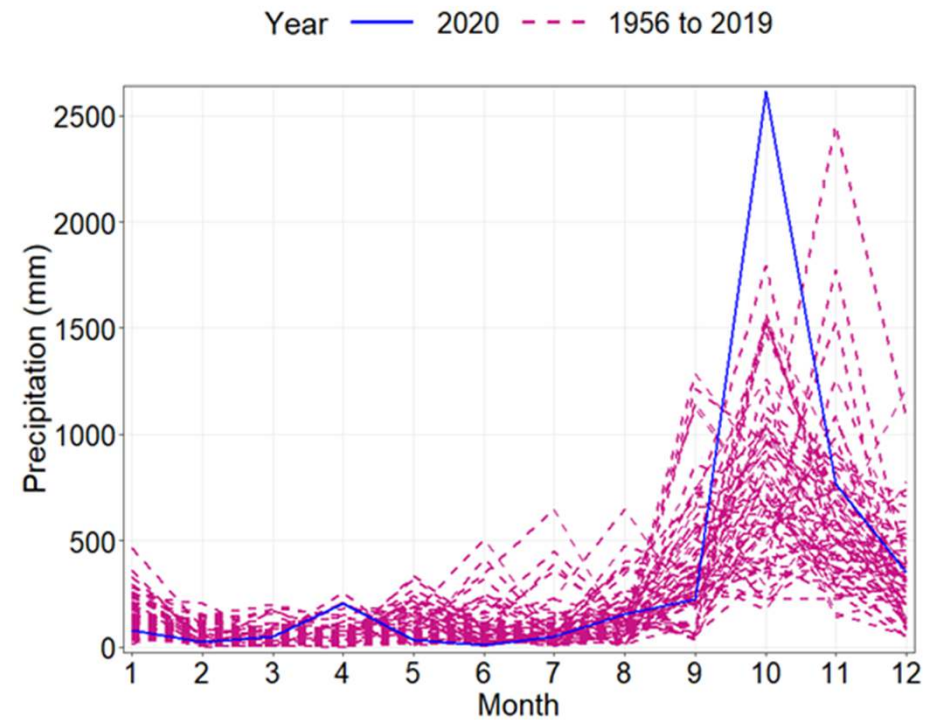
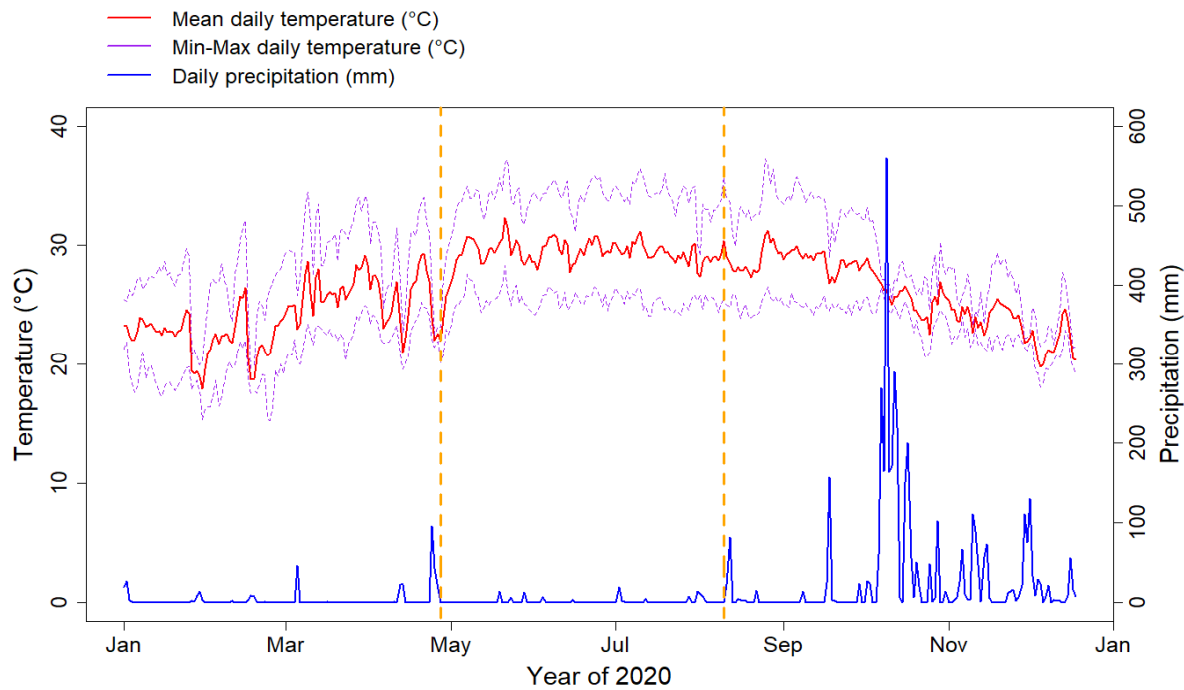
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# Summary

## Living with extremes



- High exposure to climatic extremes
  - extended periods of drought & heat
  - heavy precipitation
  - Strong winds & typhoons



# Summary

## Living with extremes



Extreme weather events 2020:

- Highest recorded rainfall since recording in central VN
- Extended periods of flooding
- Sand movement

→ loss project plantings

→ Loss of life (~240)

→ Economic damage (1.5 bn USD)





# Summary

## Proof of Concept



Forest restoration is not a silver bullet against climate change impacts

→ Central part of an integrated approach towards coastal resilience

Observed ~30% re-sprouting of dead seedlings lost to extreme weather events

→ Proof of concept for

→ Restoration with wative seedlings

→ Site-species matching





# Looking ahead

## Scaleability & Quality



### **project extension / “typhoon recovery“**

- improving seedling quality for better survival rates  
→ establishment of a „best-practice“ nursery for high-quality native tree seedlings
- replanting the typhoon-impacted sites

### **further activities:**

#### **focus on dissemination & upscaling**

- using the policy momentum for CC adaptation and nature-based solutions
- promotion of our CFR-approach to private and public stakeholders



# Thank you

Contact:

[fill.pistorius@unique-landuse.de](mailto:fill.pistorius@unique-landuse.de)

[maximilian.roth@unique-landuse.de](mailto:maximilian.roth@unique-landuse.de)

**unique land use GmbH**

Schnewlinstr. 10

79098 Freiburg, Germany

Tel +49 761 208534 - 0

[unique@unique-landuse.de](mailto:unique@unique-landuse.de)

[www.unique-landuse.de](http://www.unique-landuse.de)

