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D-MOSS

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D-MOSS: Dengue forecasting MOdel Satellite-based System

December 2020

UK Space Agency

International Partnership Programme (IPP)

The UK Space Agency's International Partnership Programme is a £150 million multi-year programme launched in 2016. It uses UK organisations' space knowledge, expertise and capability to provide a sustainable, economic or societal benefit to emerging nations and developing economies.

Project themes cover:

- Disaster response
- Early warning
- Health
- Land-use monitoring
- Reducing maritime problems
- Deploying renewable energy

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Project team

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

World Health Organization

UNDP
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Resilient nations.

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MINISTRY OF HEALTH

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INTERNATIONAL MEDICAL UNIVERSITY
MALAYSIA

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IMHEN

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IMR
INSTITUTE FOR MEDICAL RESEARCH MALAYSIA

NIHE

Met Office

INSTITUT PASTEUR

Oxford Policy Management

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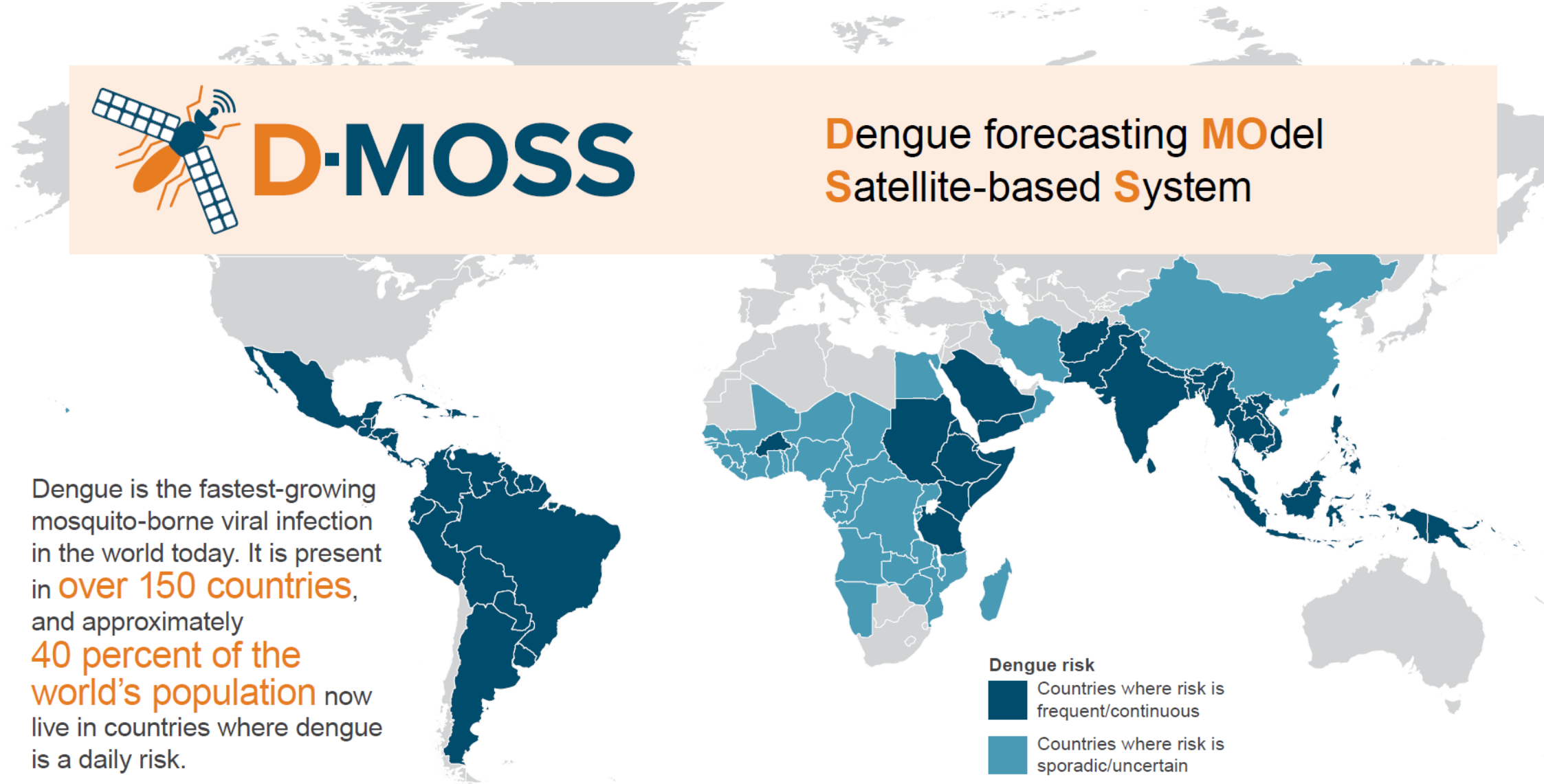
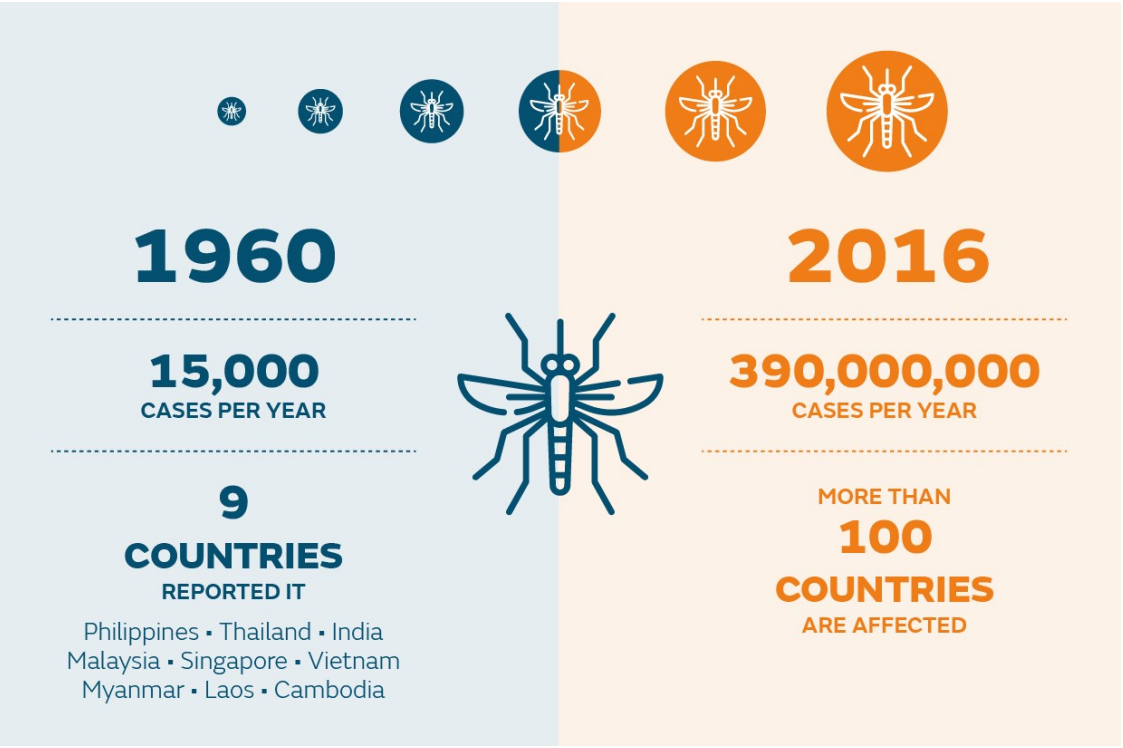
Dengue forecasting **MO**del
Satellite-based **S**ystem

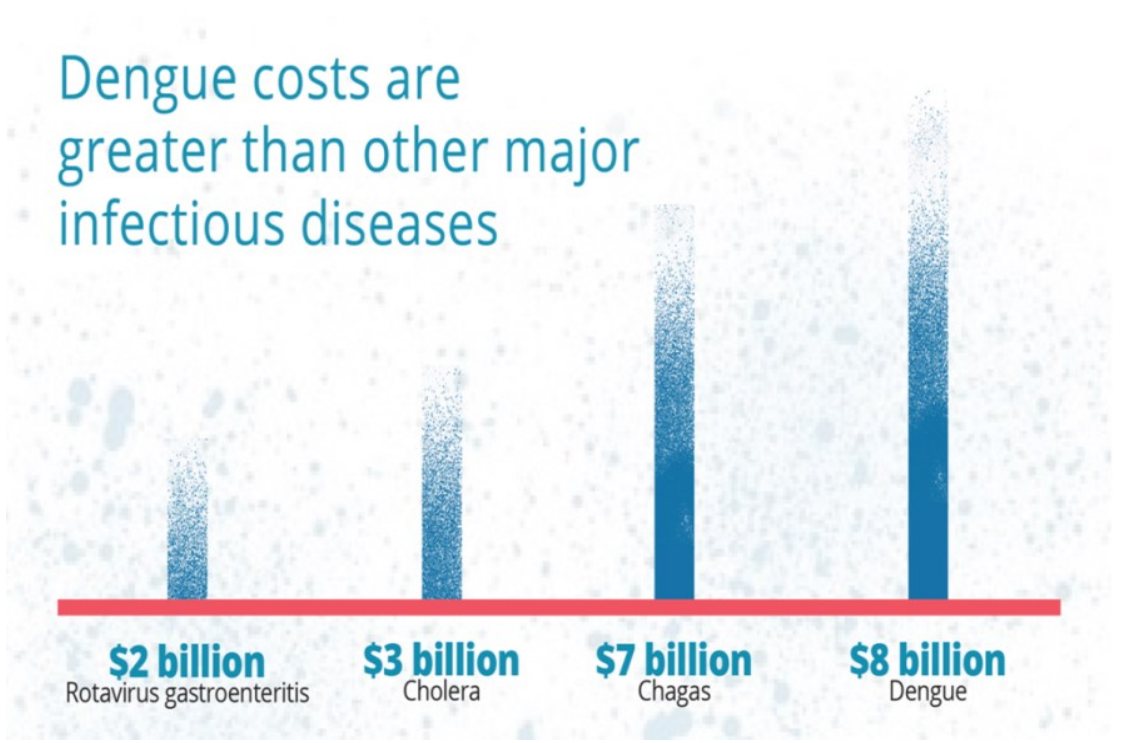


Dengue is the fastest-growing mosquito-borne viral infection in the world today. It is present in **over 150 countries**, and approximately **40 percent of the world's population** now live in countries where dengue is a daily risk.

Our Vision: To see D-MOSS become a key factor in reducing dengue fever worldwide.

Dengue fever forecasting system using satellite-based information

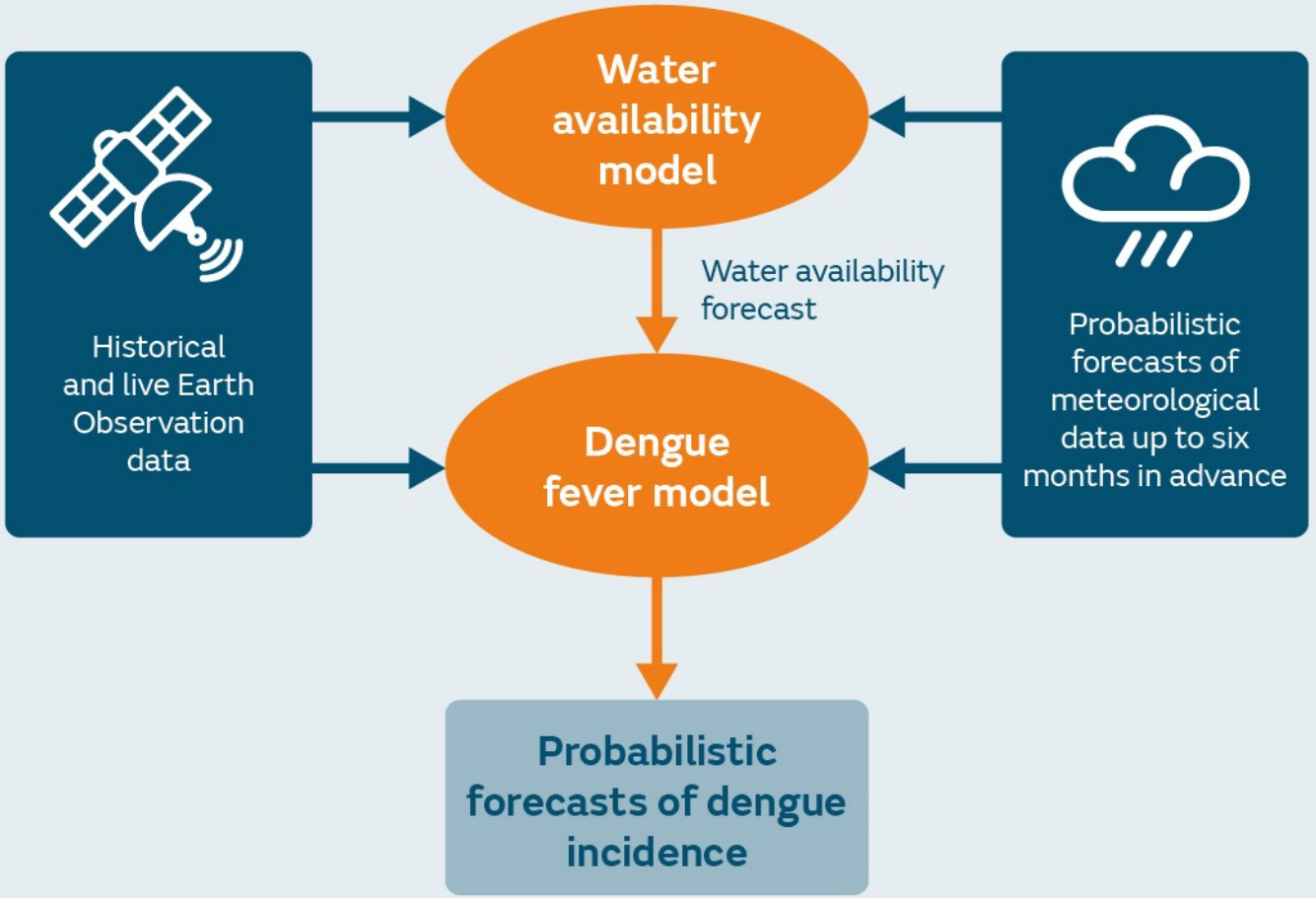




Objective:

- To produce the first fully integrated dengue fever forecasting system incorporating EO data and seasonal climate forecasts to issue warnings on a routine basis.

Overview



Website

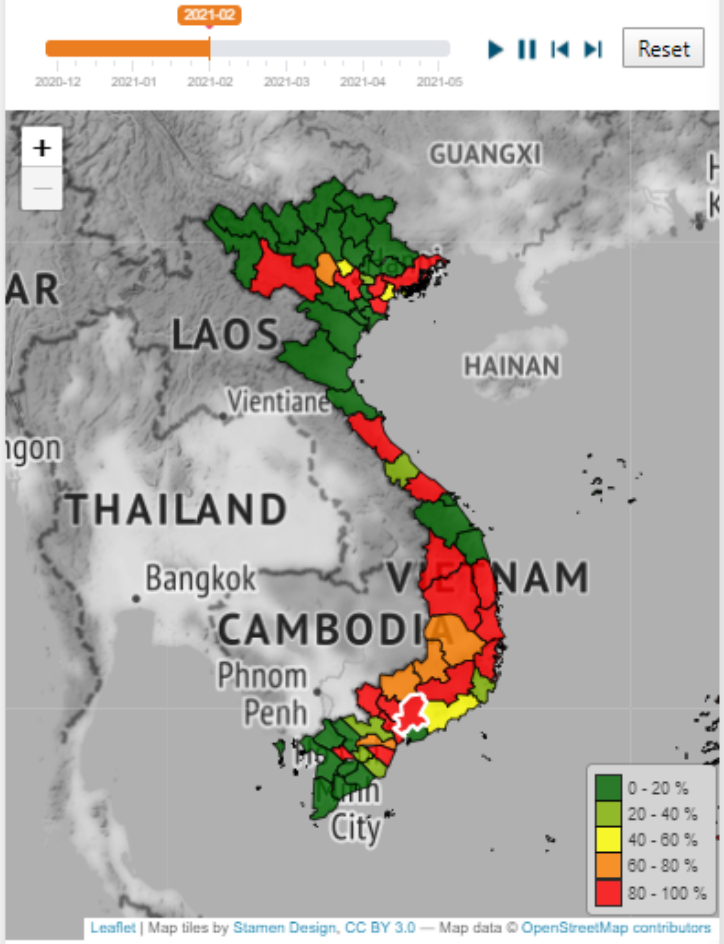
Dengue forecasting MOdel Satellite-based System for Vietnam

Last update: 2020-12-07 Status:
Logged in as: hrw | Log Out
User guide
Tiếng Việt | English

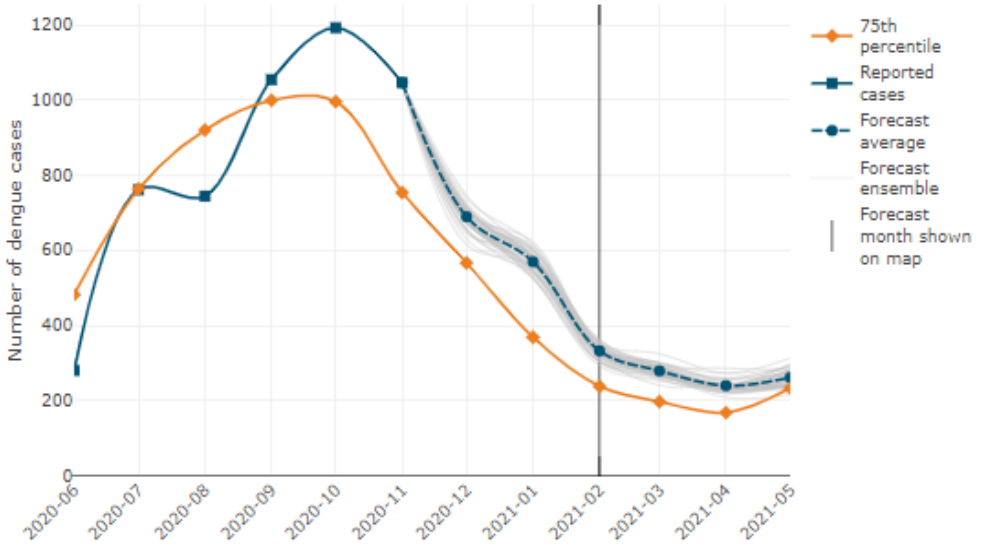
Dengue | Weather | Contact us | Technical information | About D-MOSS

Variable: 75th percentile | Province: Dong Nai | Greyscale | Print | Technical information

Monthly probability of exceeding: 75th percentile



Forecast number of dengue cases: Dong Nai province

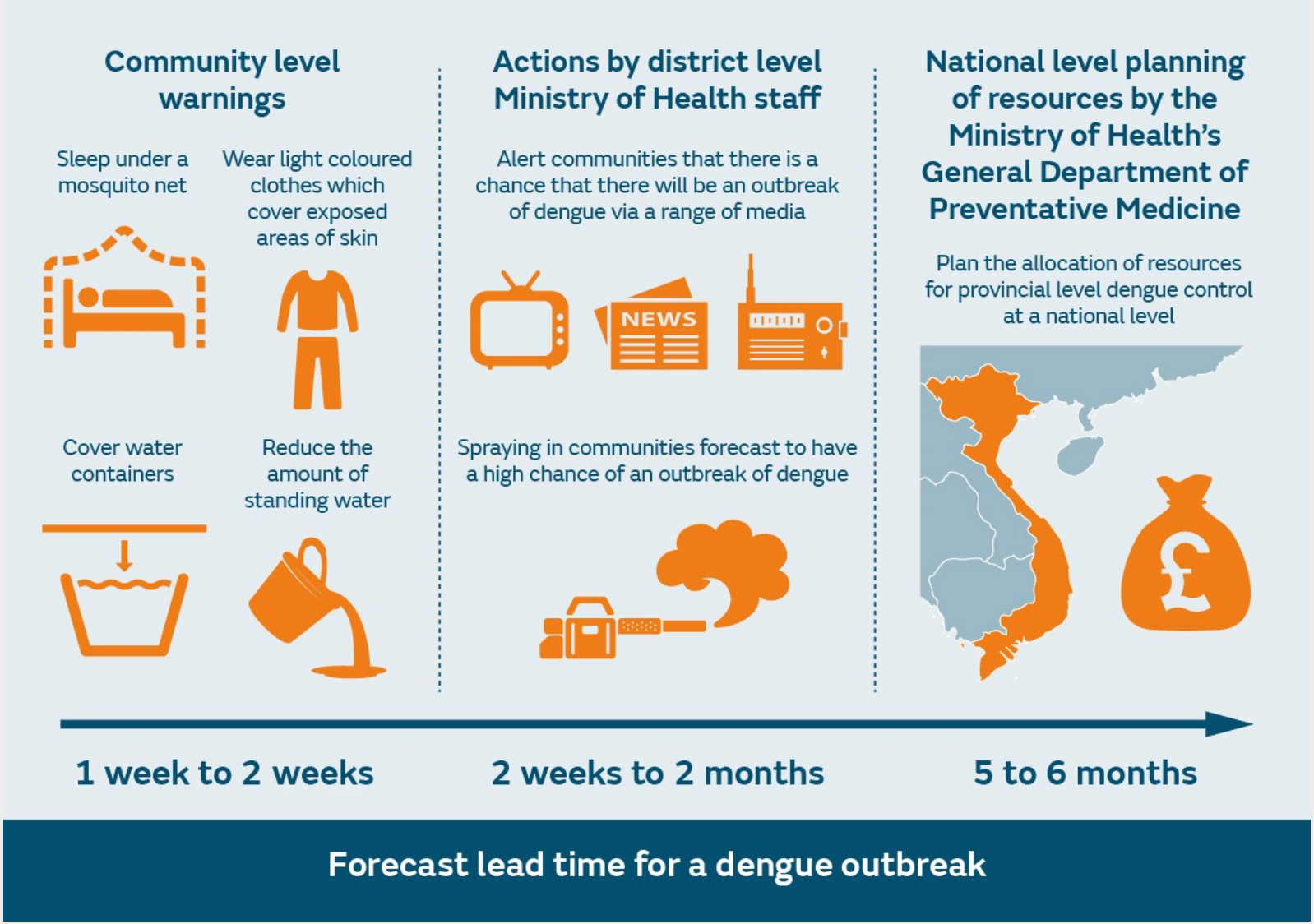


Forecasted probability of exceeding 75th percentile threshold

Show lower and upper bound probabilities

Forecast months	2020-12	2021-01	2021-02	2021-03	2021-04	2021-05
75th percentile threshold value (Cases)	566.3	368.5	237.5	197.0	167.5	233.0
Probability of exceeding 75th percentile	77%	95%	88%	89%	90%	66%

How the forecasts work on the ground



Why D-MOSS works for me

Name: Dr Pham Ngoc Thanh

Position: Deputy Director of the epidemiology department, Tay Nguyen Institute of Hygiene and Epidemiology (TIHE), Vietnam.

Role description: I plan and direct dengue response activities in the Central Highland region of Vietnam.

D-MOSS end users at TIHE

How do I use D-MOSS?

We use the D-MOSS dengue forecasts and early warnings to help develop relevant and effective dengue response plans and actions.

"Using D-MOSS has… helped reduce the number of dengue cases and mortality rate."

How has D-MOSS made a difference?

Reducing cases and mortality

Using D-MOSS to help develop action plans, take dengue response actions, make recommendations and issue warnings has helped to reduce the number of dengue cases and mortality rate.

Usability

The system includes graphics that allow us to track the trends in our area and there is a map to help us to understand the situation in neighbouring provinces.

Coordination

D-MOSS improves coordination and timely decision making at regional and provincial level.

Integration

We have combined D-MOSS outputs with information collected by our existing procedures for dengue control.

Taking action

We are beginning to see D-MOSS supporting us to bridge the gap between early warning and early action. D-MOSS helps by engaging health officials and decision makers on a shared platform that is linked to follow-up action.

"D-MOSS is helping bridge the gap between early warning and early action."

BE-107-3 R1

Why D-MOSS works for me

Name: Dr Nguyen Thanh Dong

Position: Head of Dengue office, Pasteur Institute of Nha Trang.

Role description: Heading up the Department for Entomology and Quarantine, at the Pasteur Institute of Nha Trang, I am responsible for planning, research and assessment of dengue, zika and vector-borne diseases in 11 provinces in the central region of Vietnam.

End users at the Pasteur Institute of Nha Trang

How do I use D-MOSS?

We analyse and evaluate the differences between the data from D-MOSS forecasts with actual data retrieved from the electronic Communicable Disease Surveillance software.

This allows us to predict cases up to six months in advance and report forecasts to different cities and provinces. D-MOSS also helps us implement surveillance and response activities.

"D-MOSS's accurate forecasts have helped us to save resources."

How has D-MOSS made a difference?

Case monitoring

We can now be proactive in our management of dengue. We have been able to identify districts and towns with potentially high numbers and increased case monitoring by escalating surveillance in hospitals and communities.

Resource allocation

D-MOSS's accurate forecasts have helped us to save resources. It allows us to order the right levels of chemicals and equipment in advance with more certainty and we can now make requests to the Pasteur Institute months in advance.

Communications

Communications campaigns at a community level are also important to reduce dengue and we can now plan these in advance.

Budgeting

We can now ask for budget allocation based on the number of predicted cases.

Coordination

D-MOSS improves the coordination and monitoring of dengue outbreaks and incidence between different levels (national and provincial level).

Accuracy

Using the forecasts since January 2020, we have found that D-MOSS forecasts are fairly accurate. The forecasts for Binh Thuan, Ninh Thuan and Quang Tri provinces are very accurate.

D-MOSS's accurate forecasts have helped us to save resources in some areas (for example in Ninh Thuan Province). This evidence-based decision-making on resource allocation and dengue prevention, which is underpinned by D-MOSS, is very valuable for staff working in areas with high dengue risk.

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Expansion to South Asia

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Thank you