


21 Apr. 2022




# PRELIMINARY SATELLITE-DERIVED FLOOD AND LANDSLIDE ASSESSMENT



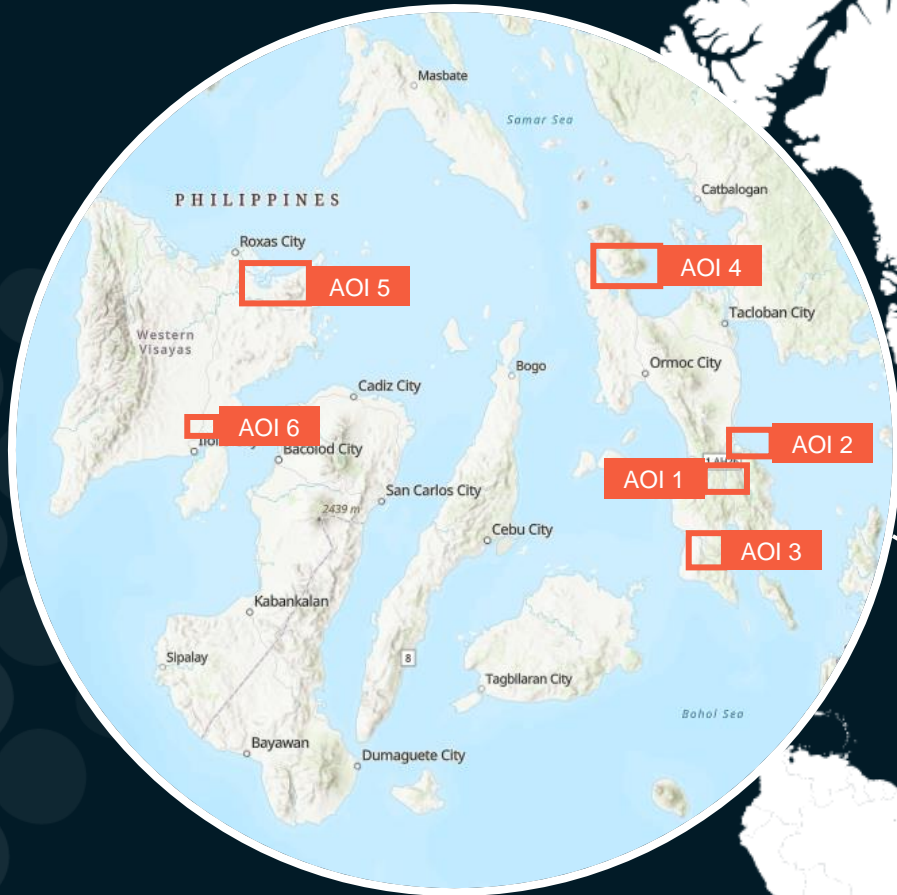
Leyte, Southern Leyte, Biliran, Capiz and Iloilo Provinces, Philippines



 Status: : Extensive damage to structures and road including agricultural area observed

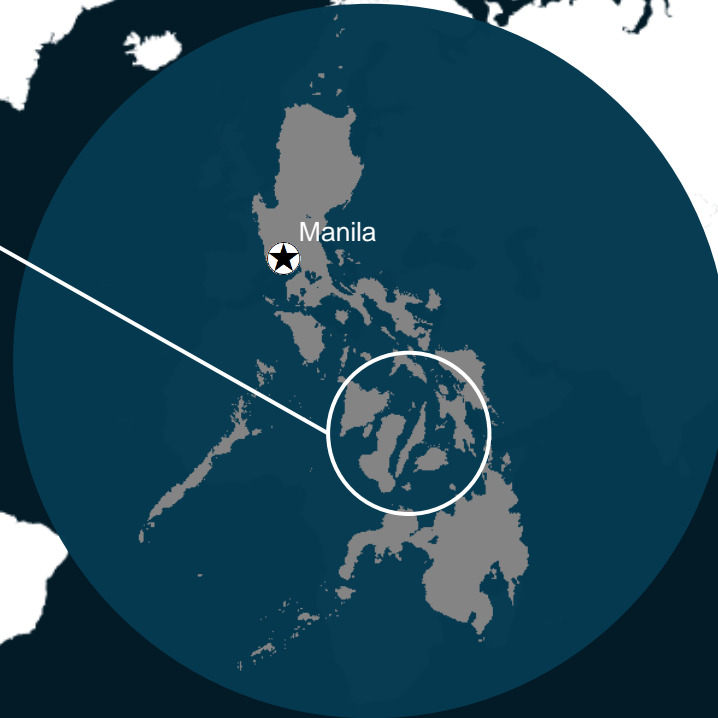
 Further action(s): Continue monitoring



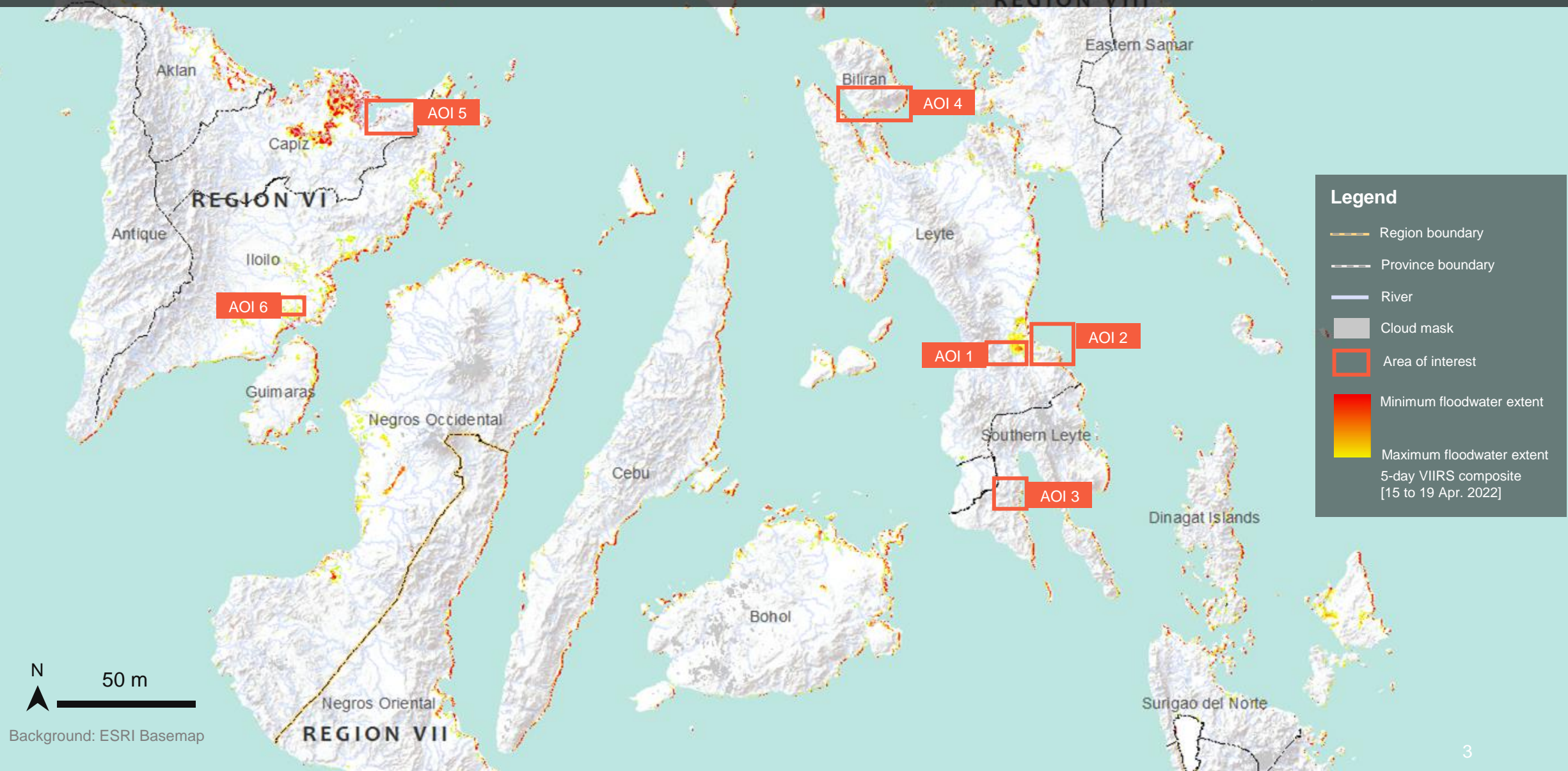
# PHILIPPINES



 AREA OF INTEREST  
 PROVINCE BOUNDARY



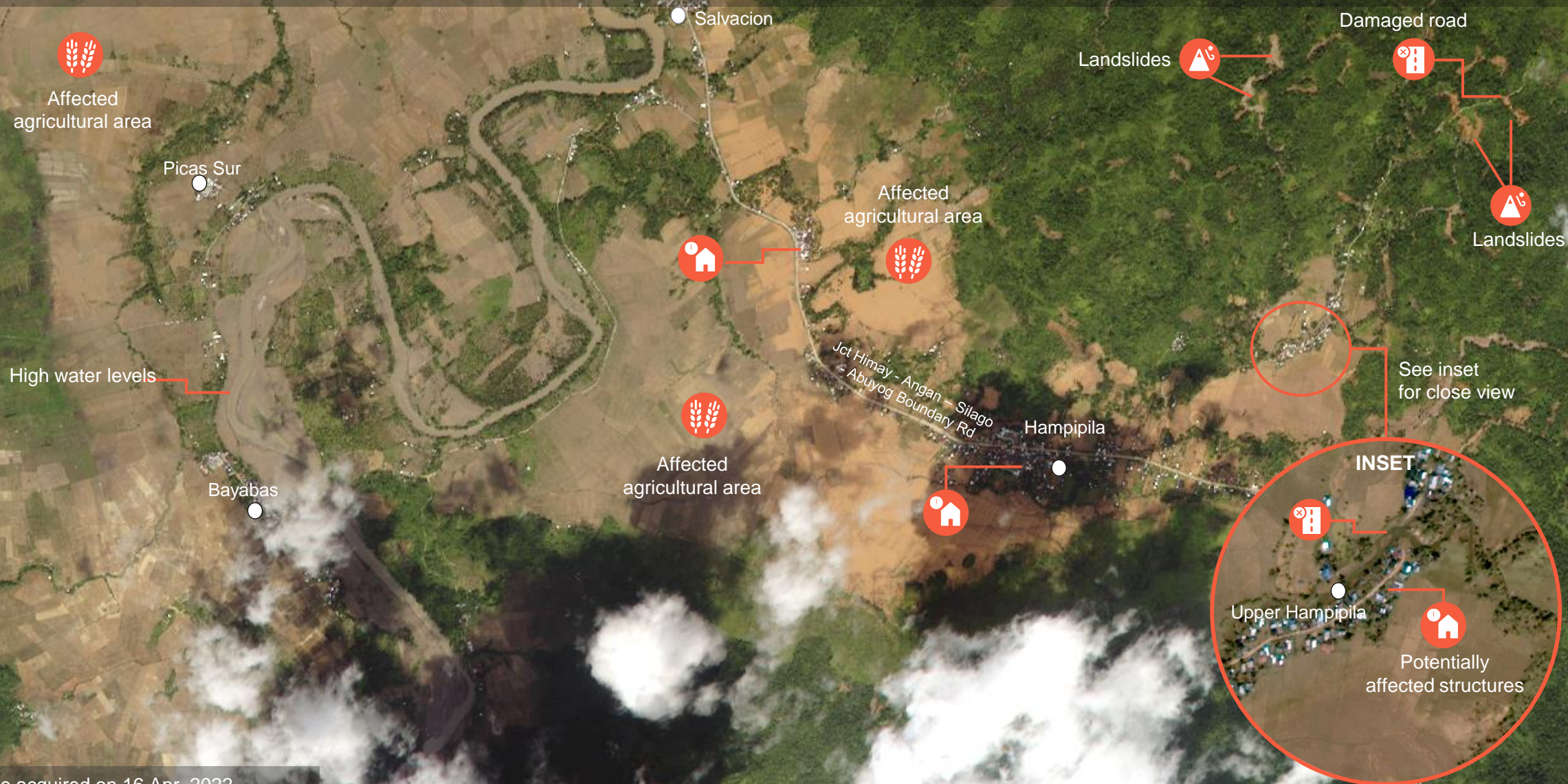
# FLOODS OVER PHILIPPINES





# AOI1-ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

Affected agricultural areas and potentially affected structures



WorldView-2 image acquired on 16 Apr. 2022  
Image Center : 125°1'20.475"E 10°40'29.987"N



# AOI1-1 ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

Affected agricultural areas and potentially affected structures

Image center:  
125°1'38.994"E  
10°40'41.834"N



WorldView-2/ 29 Jul. 2021



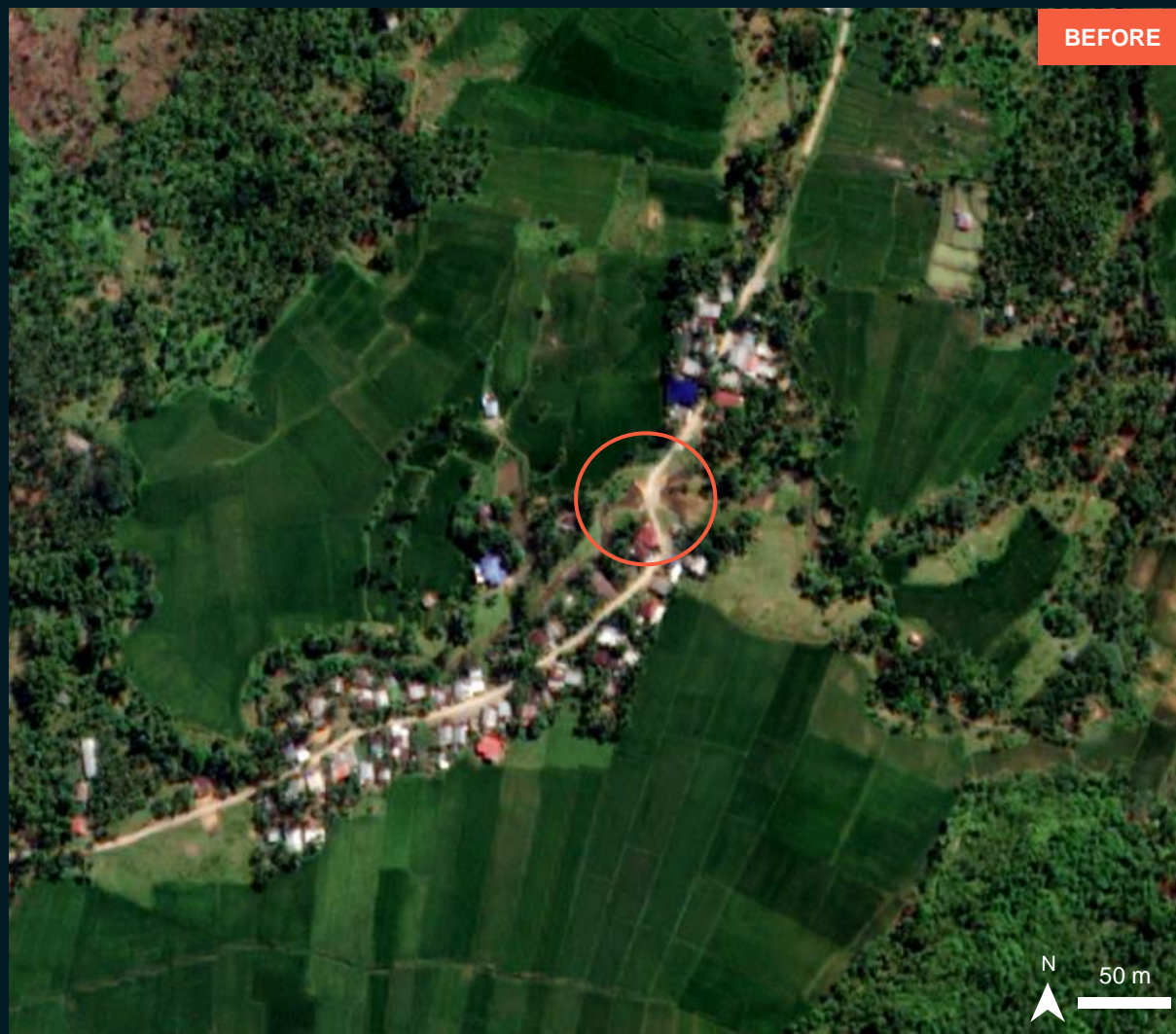
WorldView-2/ 16 Apr. 2022



# AOI1-1 ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

Affected agricultural area, damaged road and potentially affected structures

Image center:  
125°2'45.366"E  
10°40'30.272"N



WorldView-2/ 29 Jul. 2021



WorldView-2/ 16 Apr. 2022



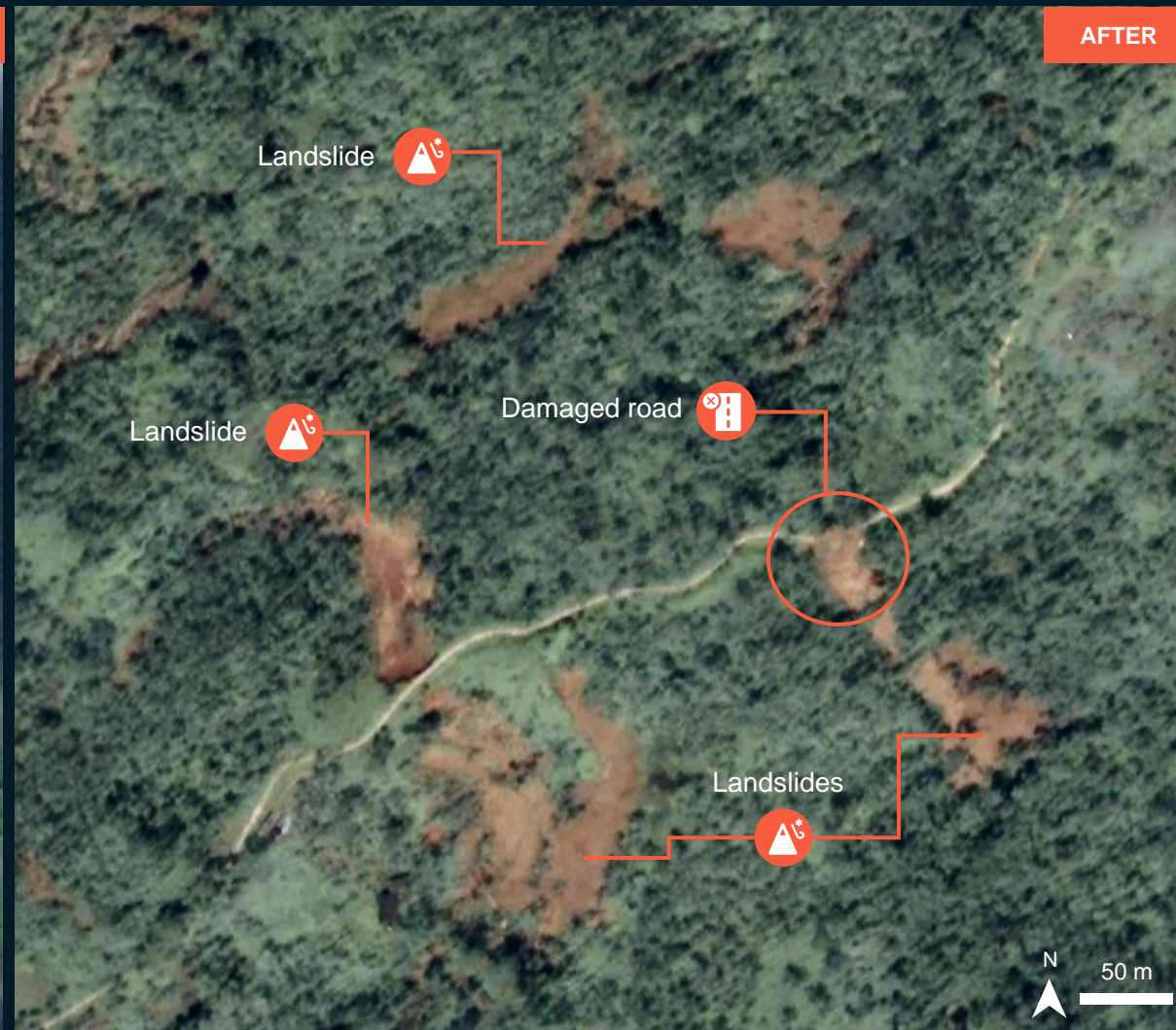
# AOI1-3 ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

## Landslides and damaged road

Image center:  
125°3'8.157"E  
10°41'0.08"N



Google Earth/ 04 Jun. 2016



WorldView-2/ 16 Apr. 2022



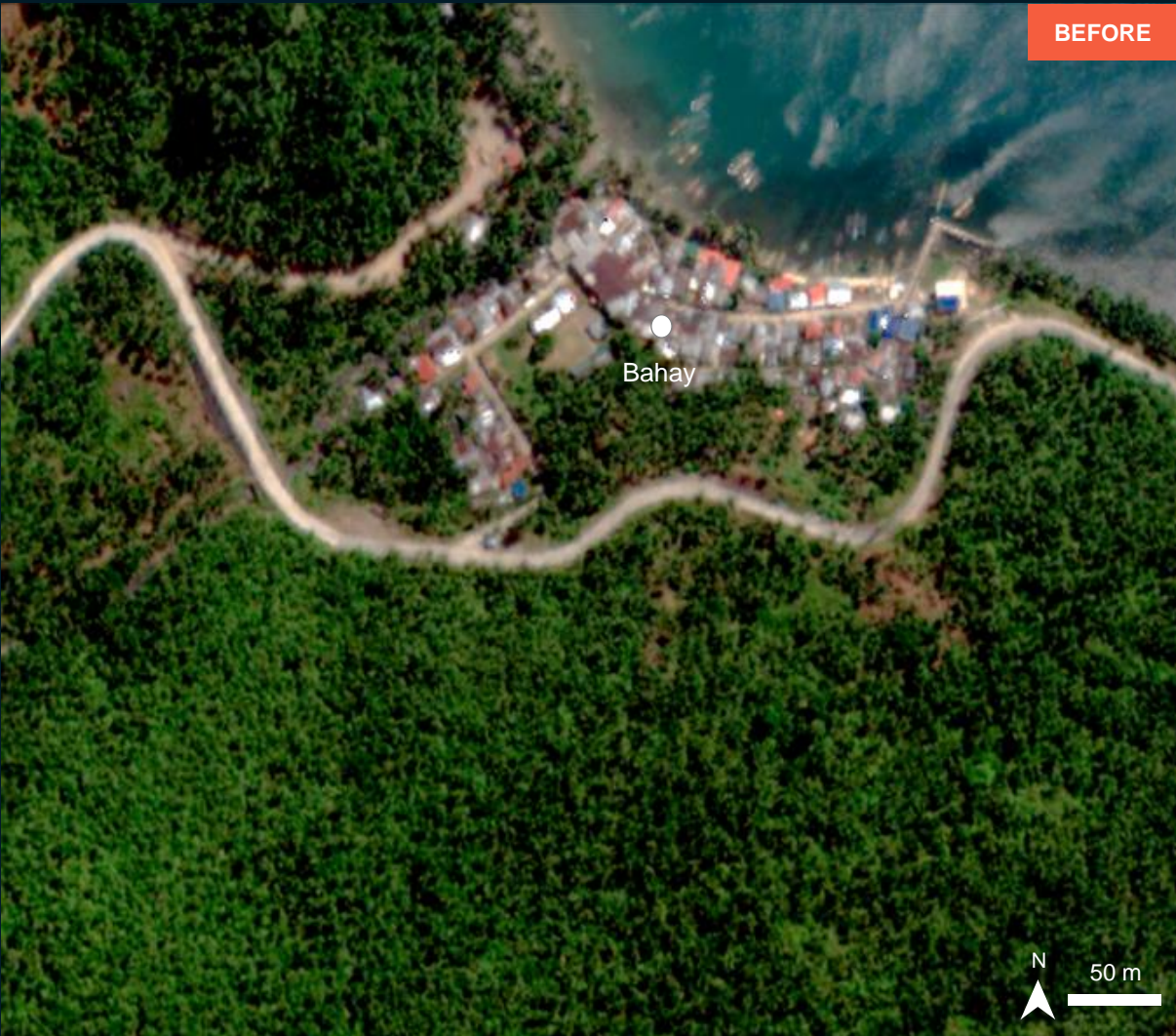
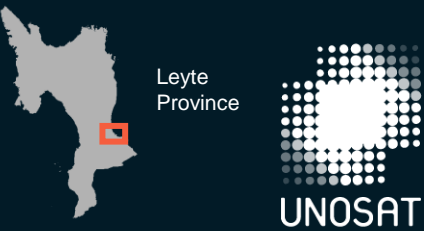




# AOI2-1 BAHAY VILLAGE, ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

## Landslides and damaged roads

Image center:  
125°2'24.713"E  
10°42'56.639"N



BEFORE

WorldView-2/ 29 Jul. 2021



AFTER

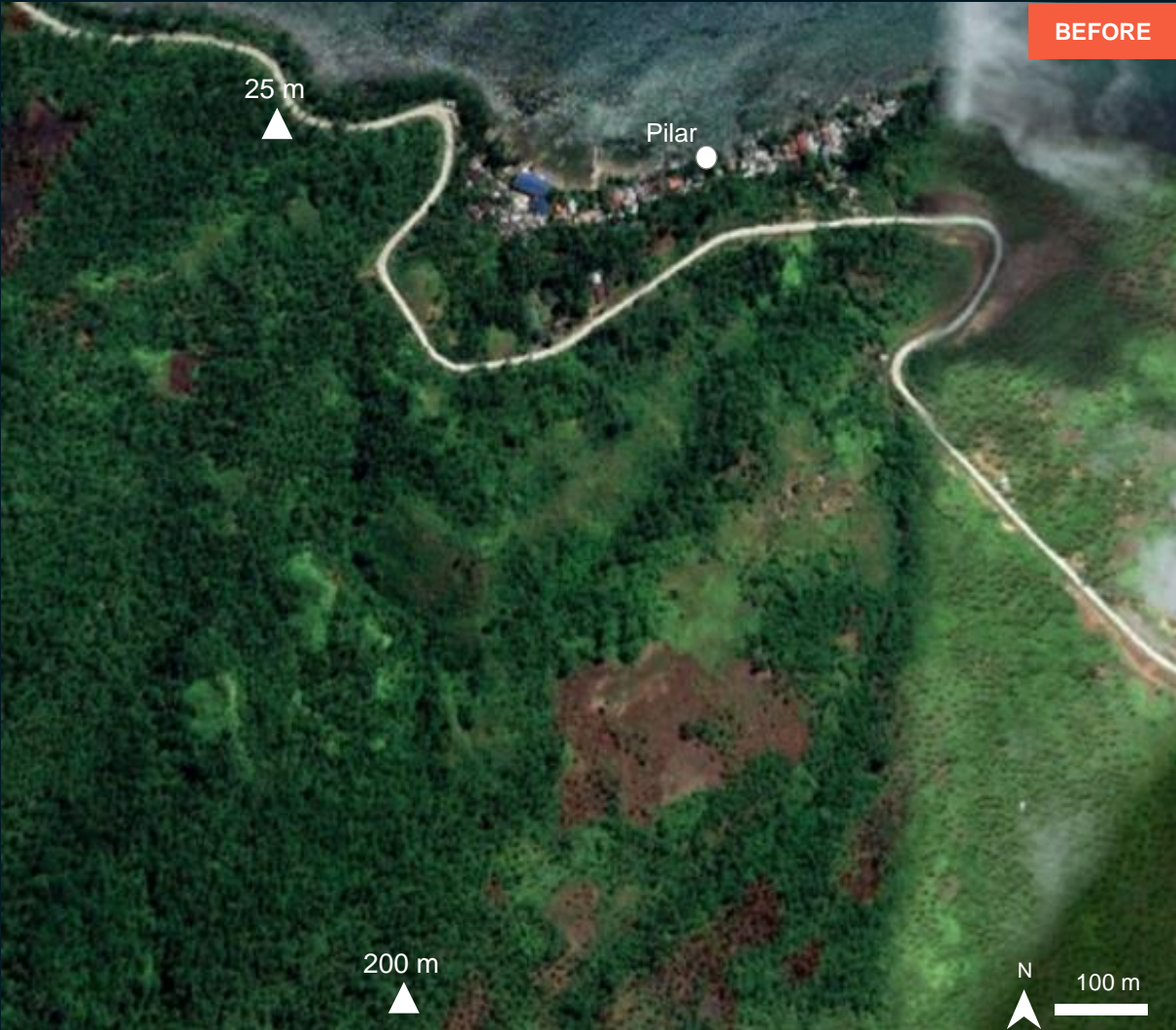
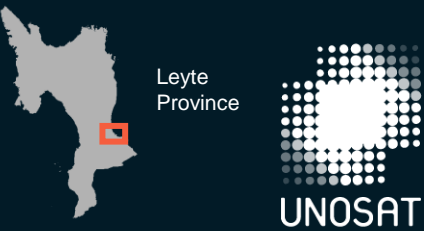
Pléiades/ 17 Apr. 2022



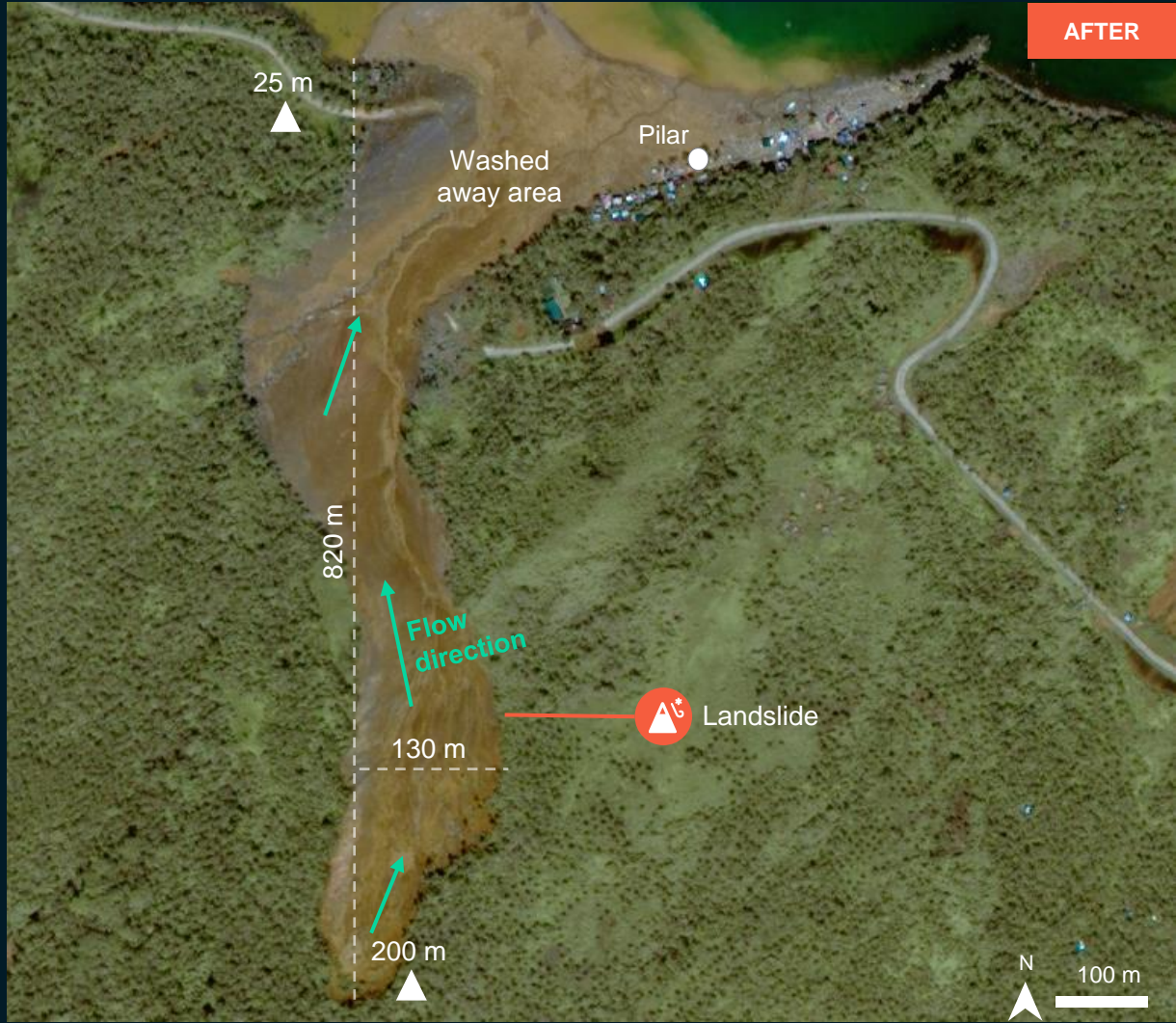
# AOI2-1 PILAR VILLAGE, ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

Extensive damage to road and structures in Pilar village

Image center:  
125°2'52.509"E  
10°42'41.884"N



WorldView-2/ 29 Jul. 2021



WorldView-2/ 16 Apr. 2022



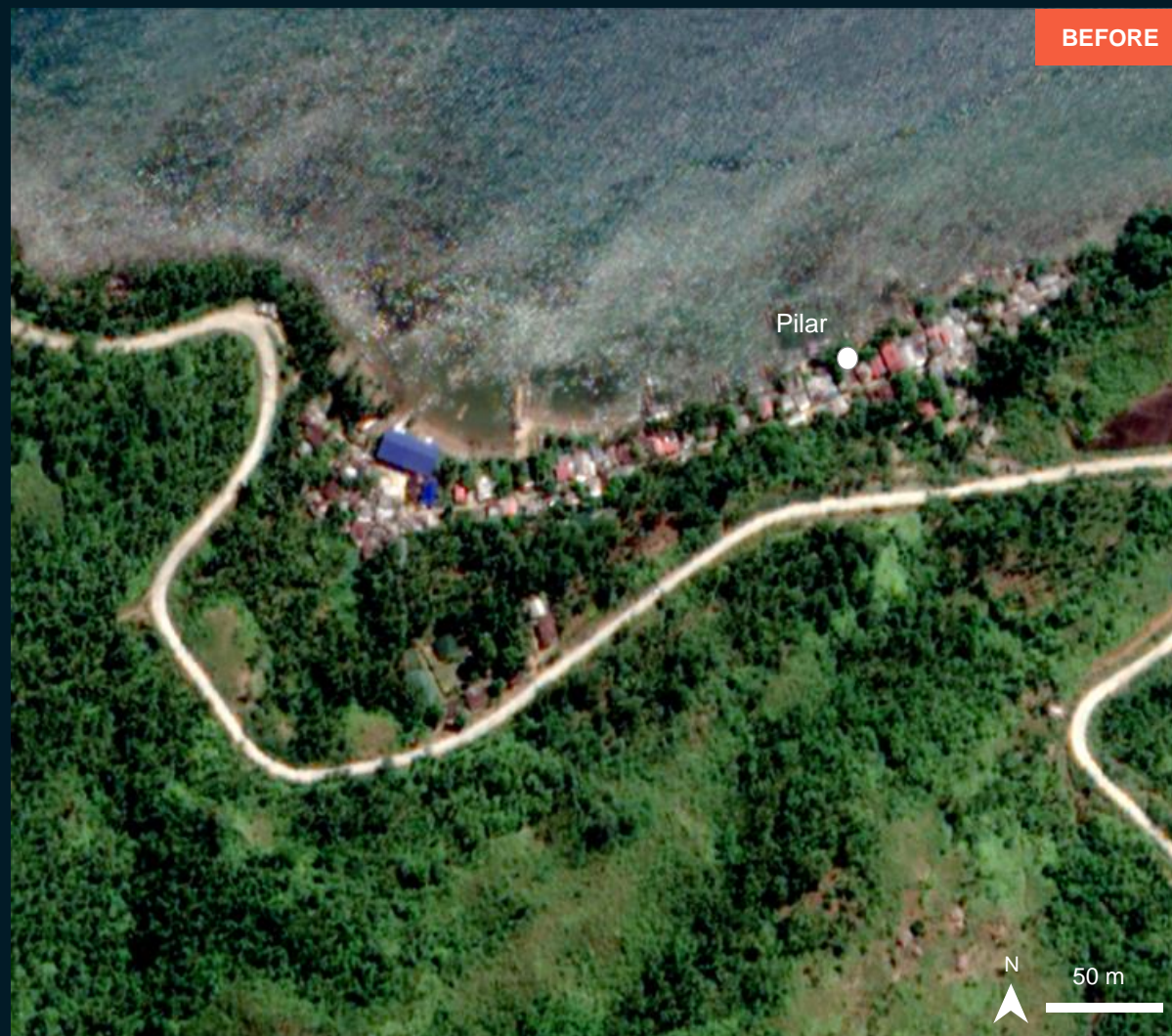
# AOI2-1 PILAR VILLAGE, ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

Extensive damage to roads and structures in Pilar village

Image center:  
125°2'53.269"E  
10°42'50.702"N



Leyte  
Province



BEFORE

WorldView-2/ 29 Jul. 2021



AFTER

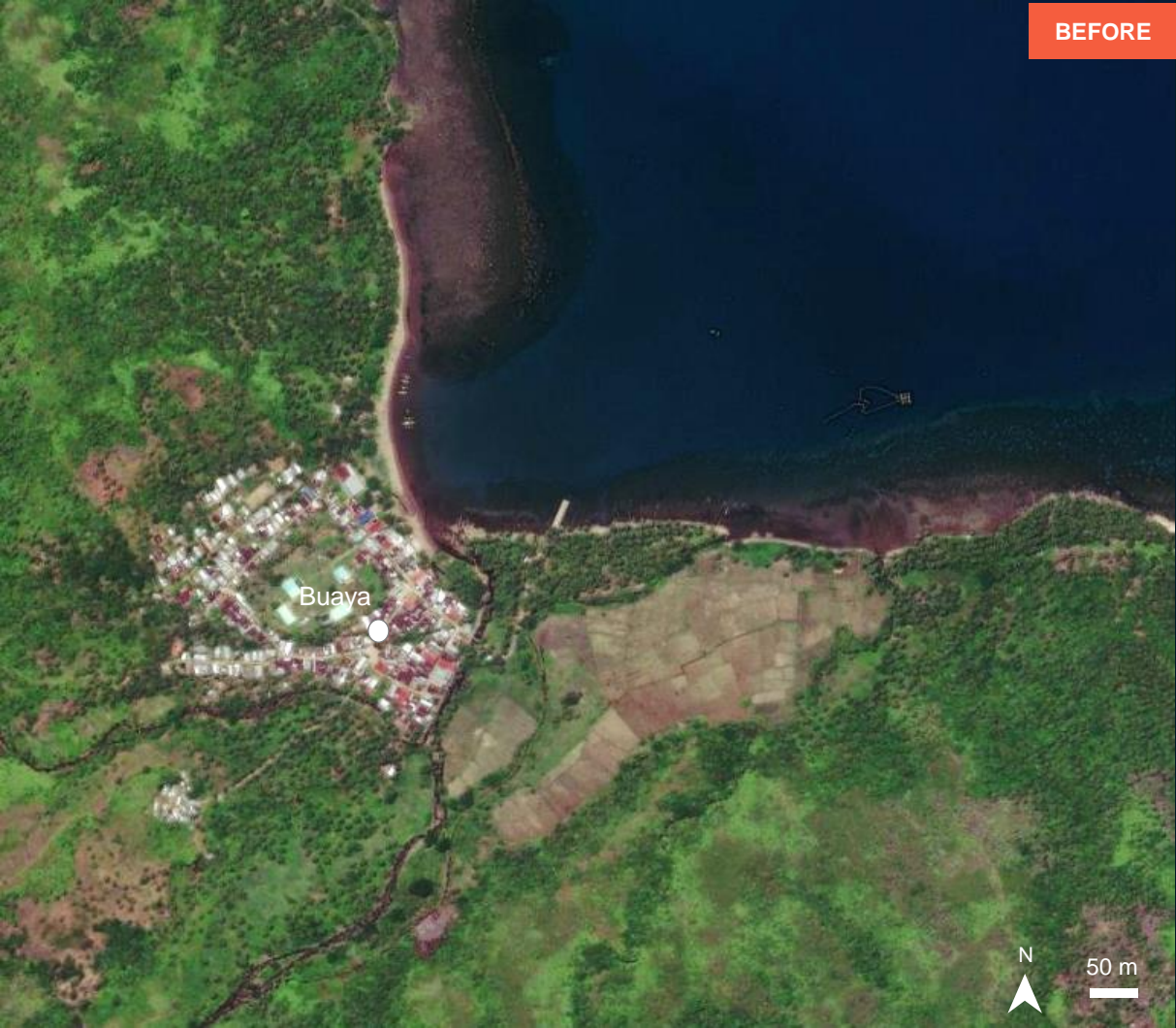
WorldView-2/ 16 Apr. 2022



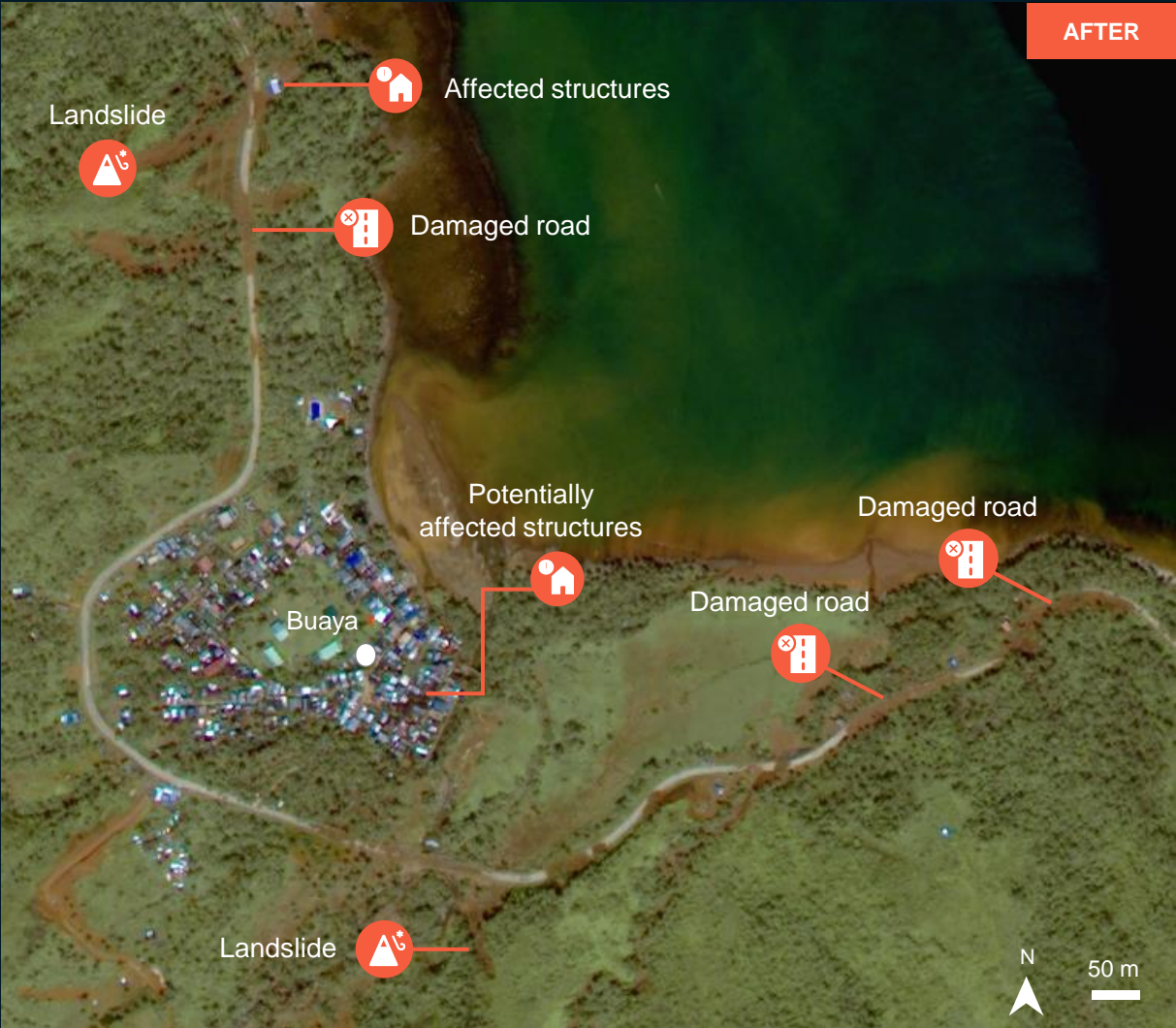
# AOI2-2 BUAYA VILLAGE, ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

Landslides along the road and affected structures

Image center:  
125°5'32.531"E  
10°42'12.357"N



ESRI Basemap/ WorldView-2/ 18 Jun. 2017



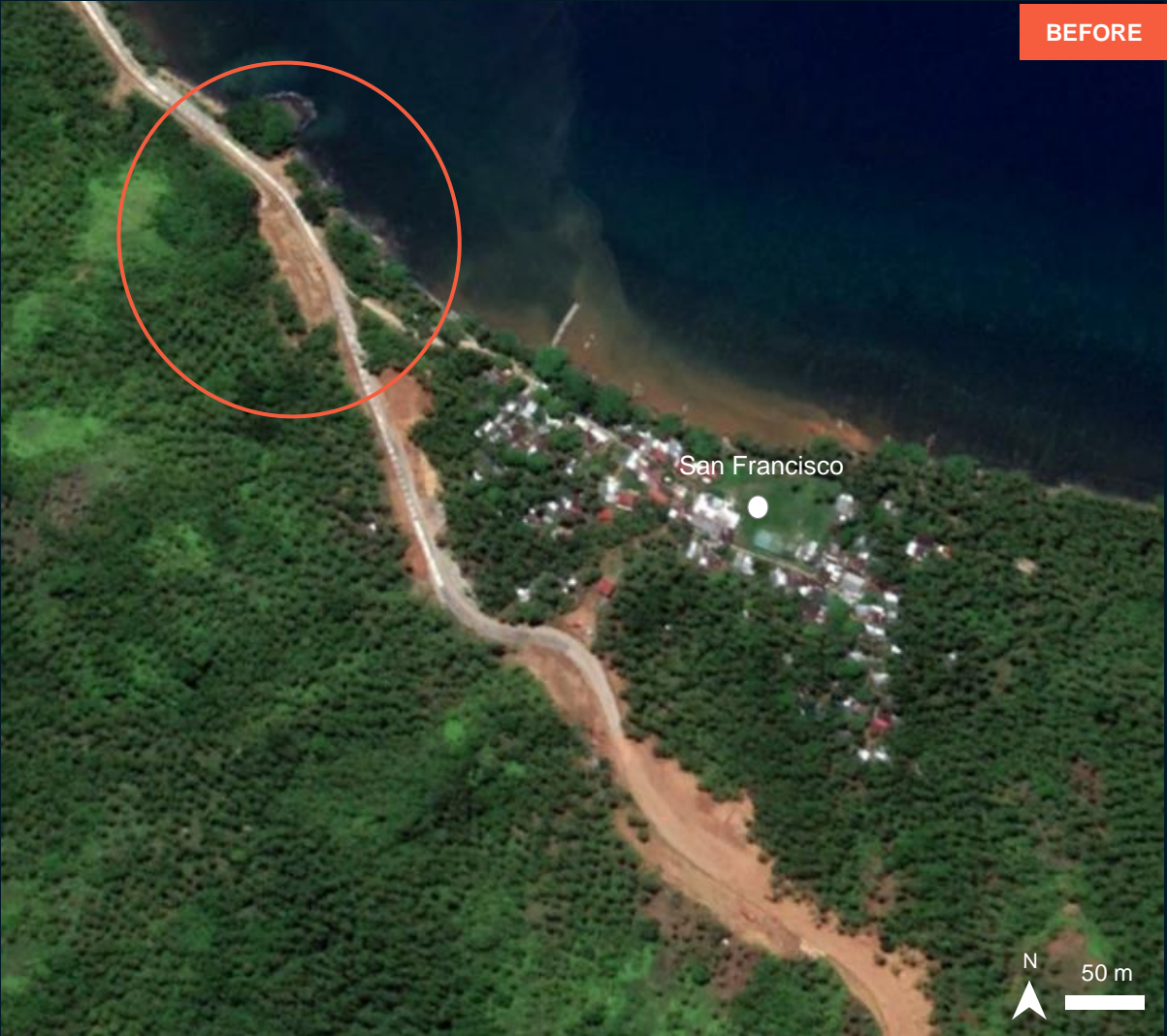
WorldView-2/ 16 Apr. 2022



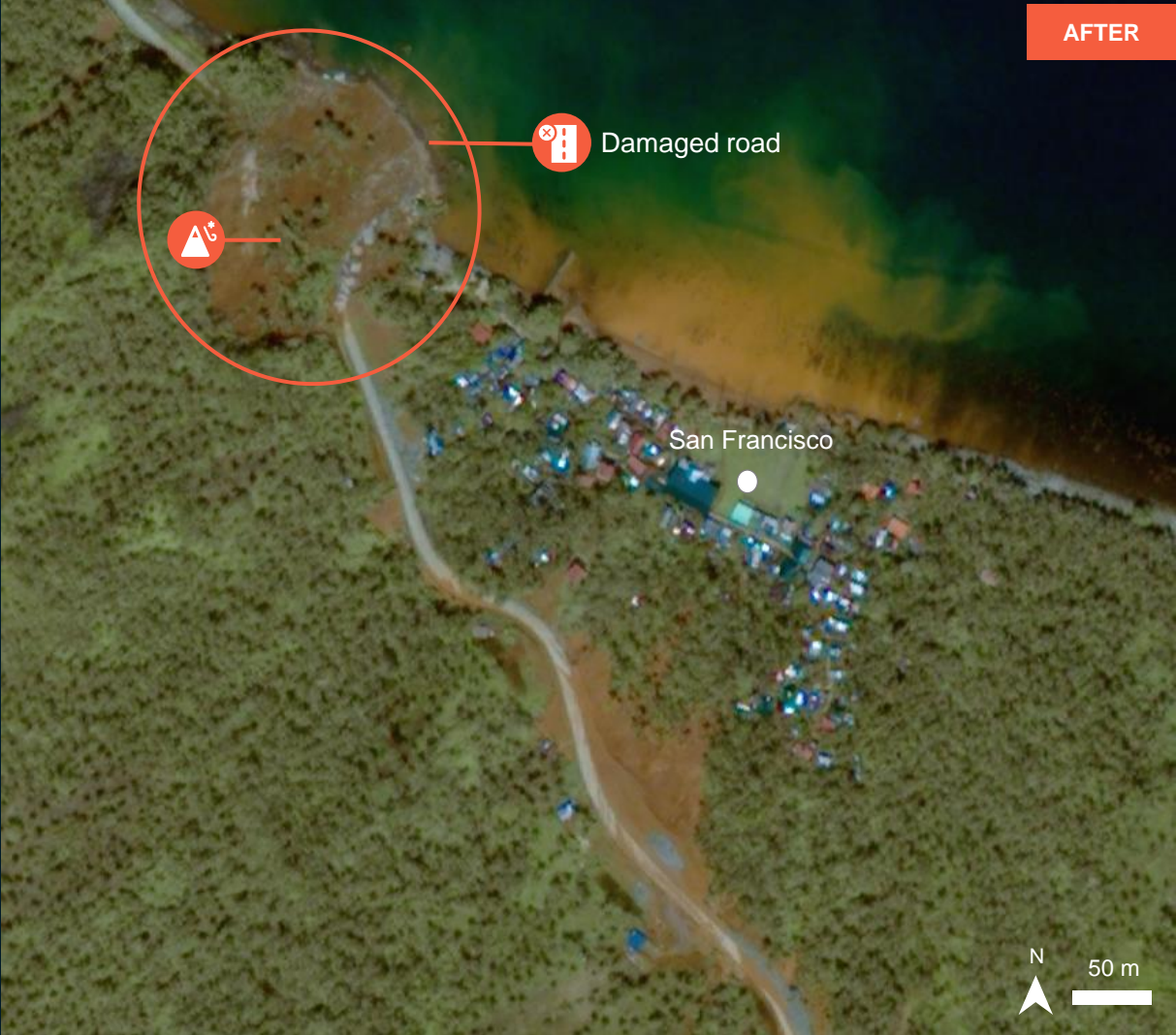
**AOI2-3 SAN FRANCISCO VILLAGE, ABUYOG MUNICIPALITY,  
LEYTE PROVINCE, REGION VIII**

**Landslide and damaged road**

Image center:  
125°6'25.55"E  
10°41'42.106"N



Google Earth/ 23 Jun. 2020



WorldView-2/ 16 Apr. 2022



# AOI2-4 TIB-O VILLAGE, ABUYOG MUNICIPALITY, LEYTE PROVINCE, REGION VIII

Landslides and affected village

Image center:  
125°6'16.029"E  
10°40'39.087"N



Google Earth/ 23 Jun. 2020



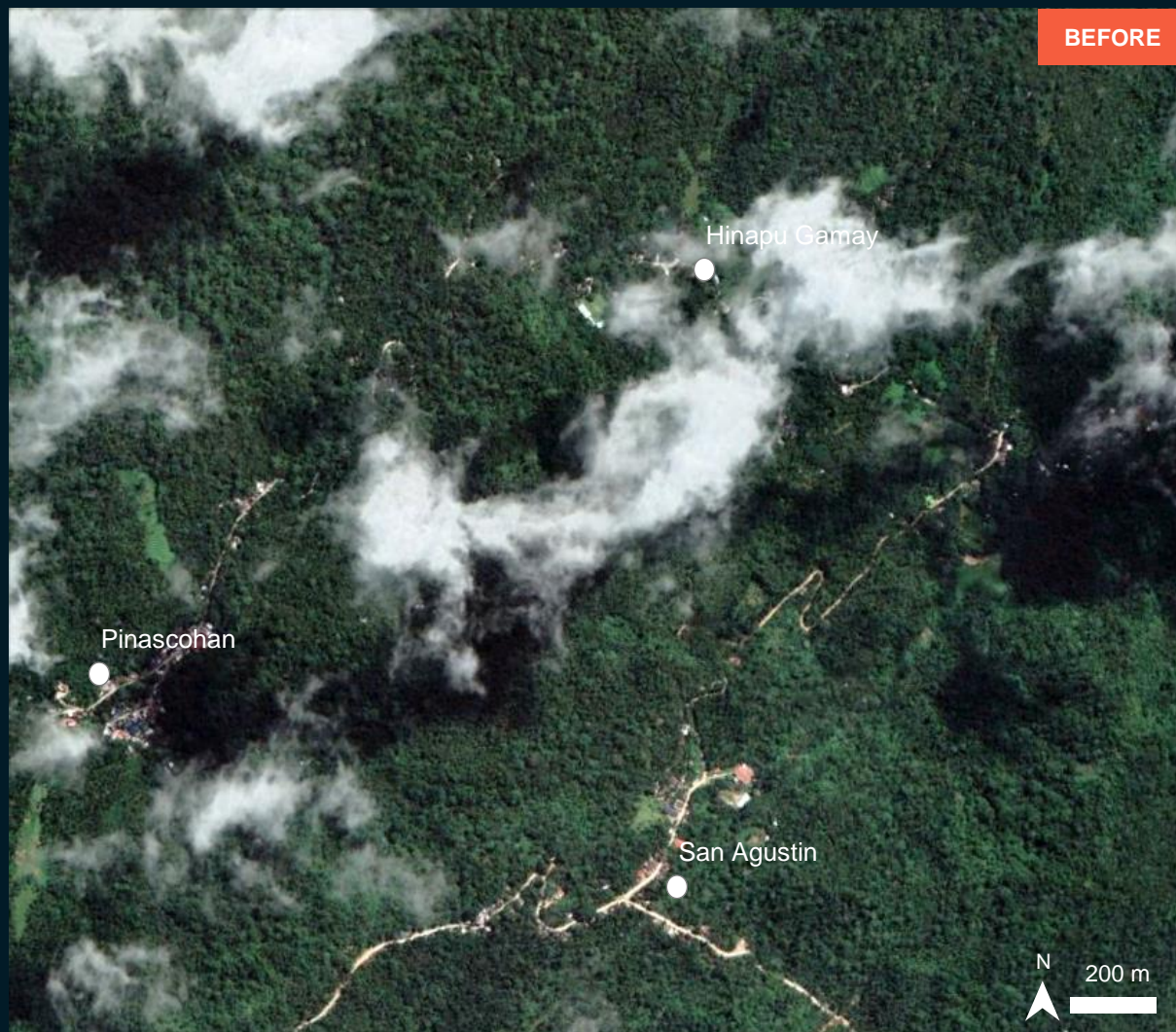
WorldView-2/ 16 Apr. 2022



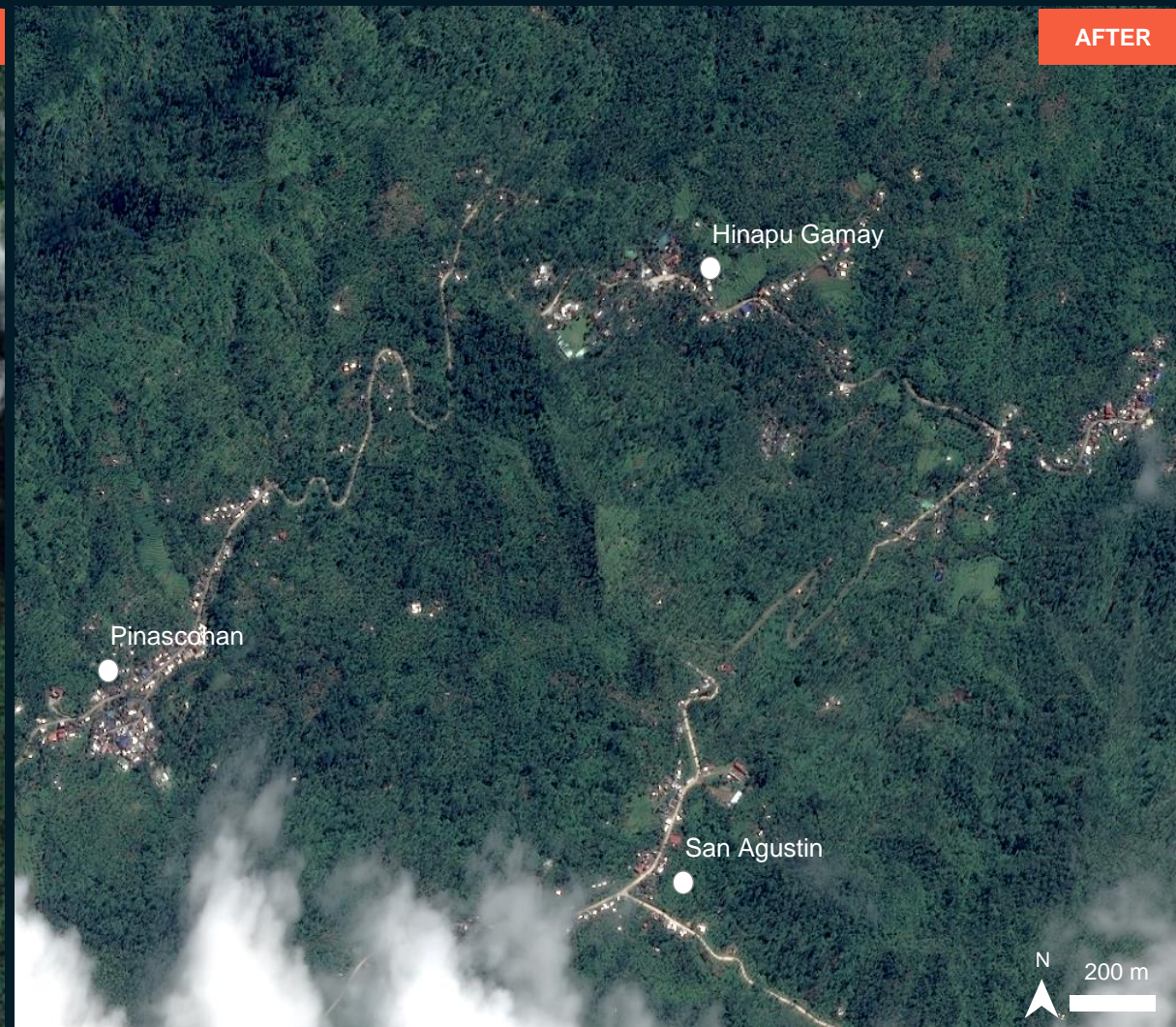
# AOI3-1 HINAPU GAMAY, PINASCOHAN, AND SAN AGUSTIN VILLAGES, CITY OF MAASIN, SOUTHERN LEYTE PROVINCE, REGION VIII

No visible landslide in cloud free zone

Image center:  
124°54'25.583"E  
10°13'58.213"N



Google Earth/ 29 Jul. 2021



WorldView-2/ 16 Apr. 2022



# AOI3-2 SAN JOSE VILLAGE, CITY OF MAASIN, SOUTHERN LEYTE PROVINCE, REGION VIII

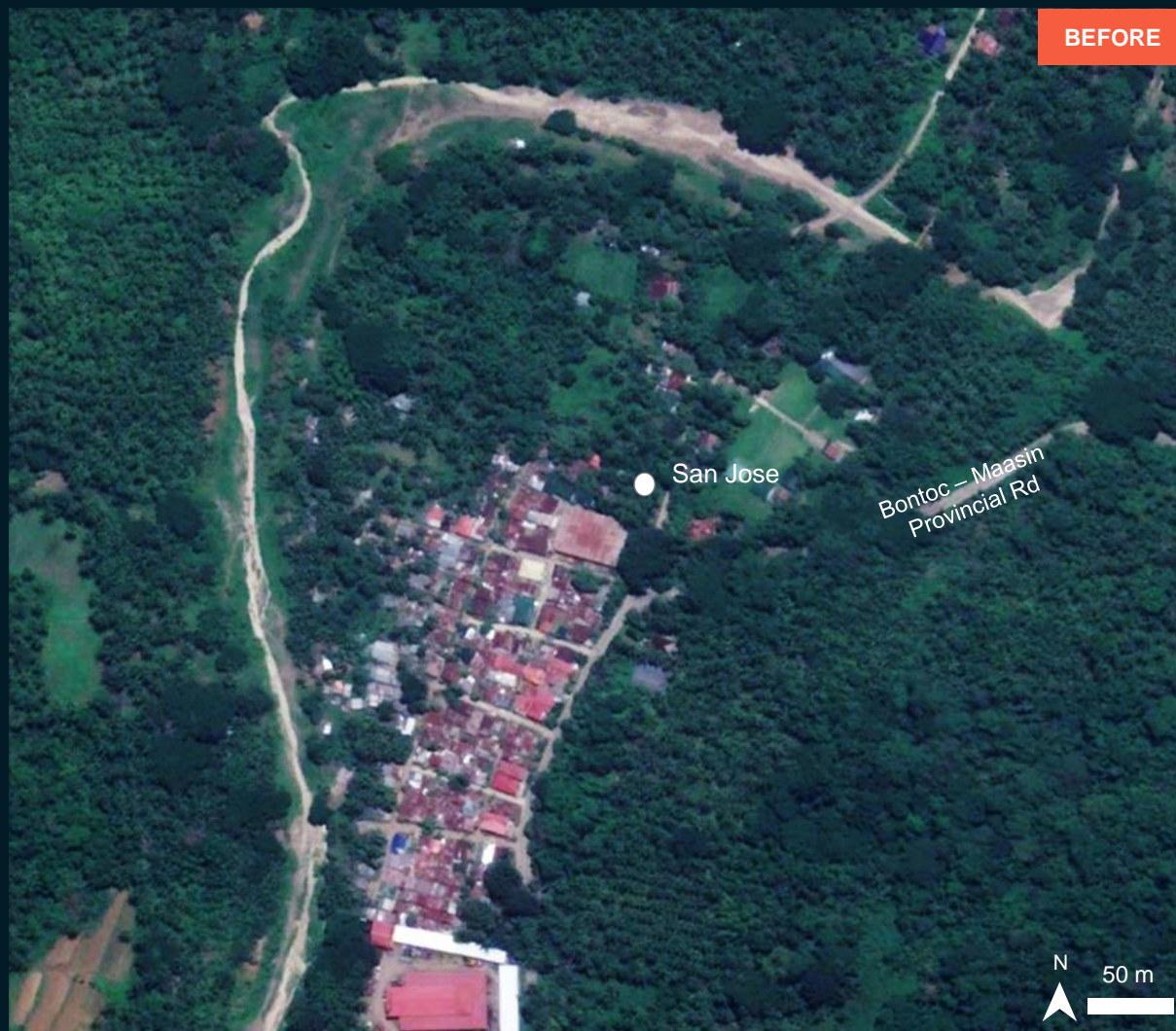
Image center:  
124°51'36.654"E  
10°11'48.167"N



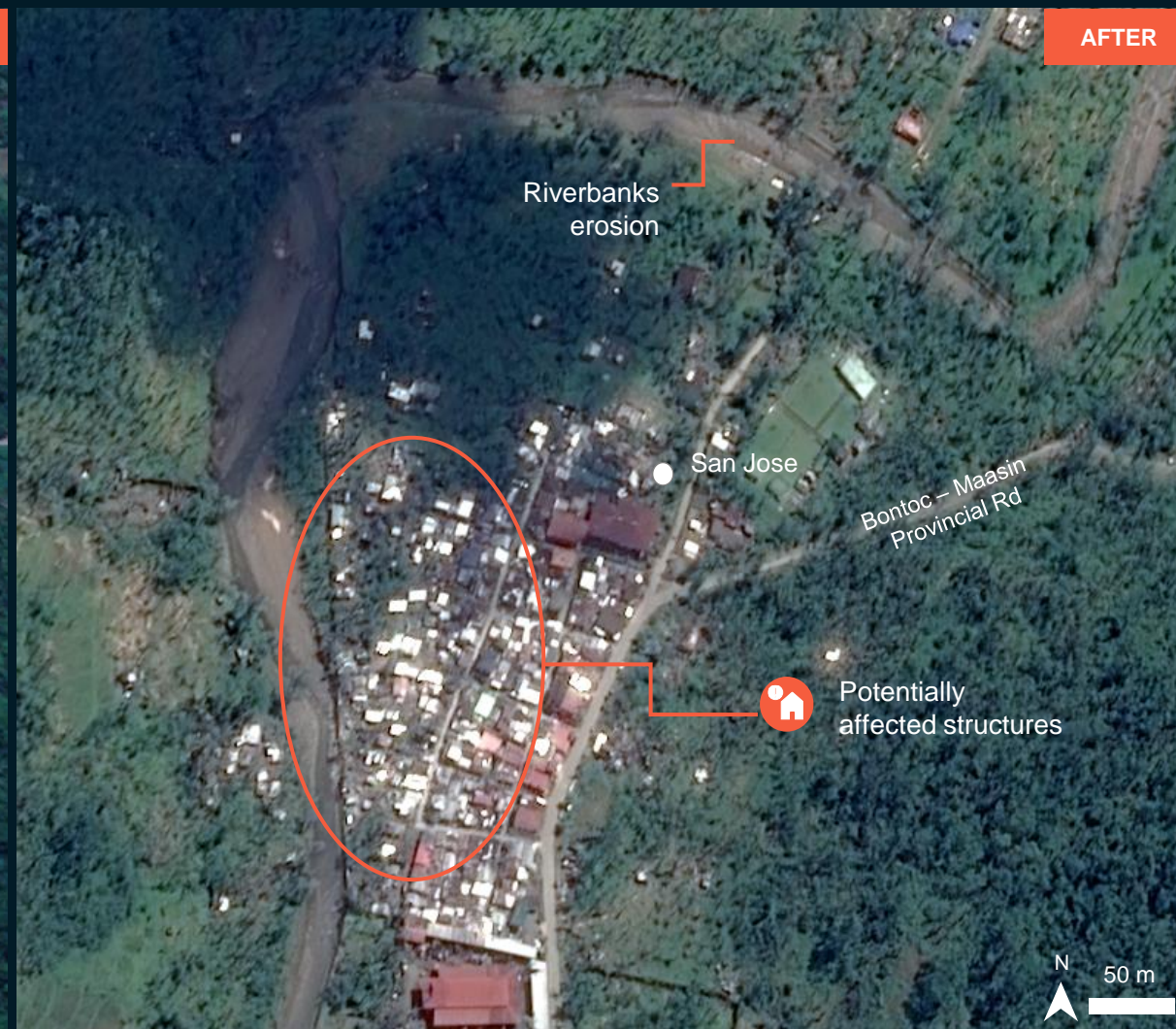
Southern  
Leyte  
Province



## Riverbanks erosion and potentially affected structures



Google Earth/ 29 Jul. 2021



Pléiades/ 20 Apr. 2022

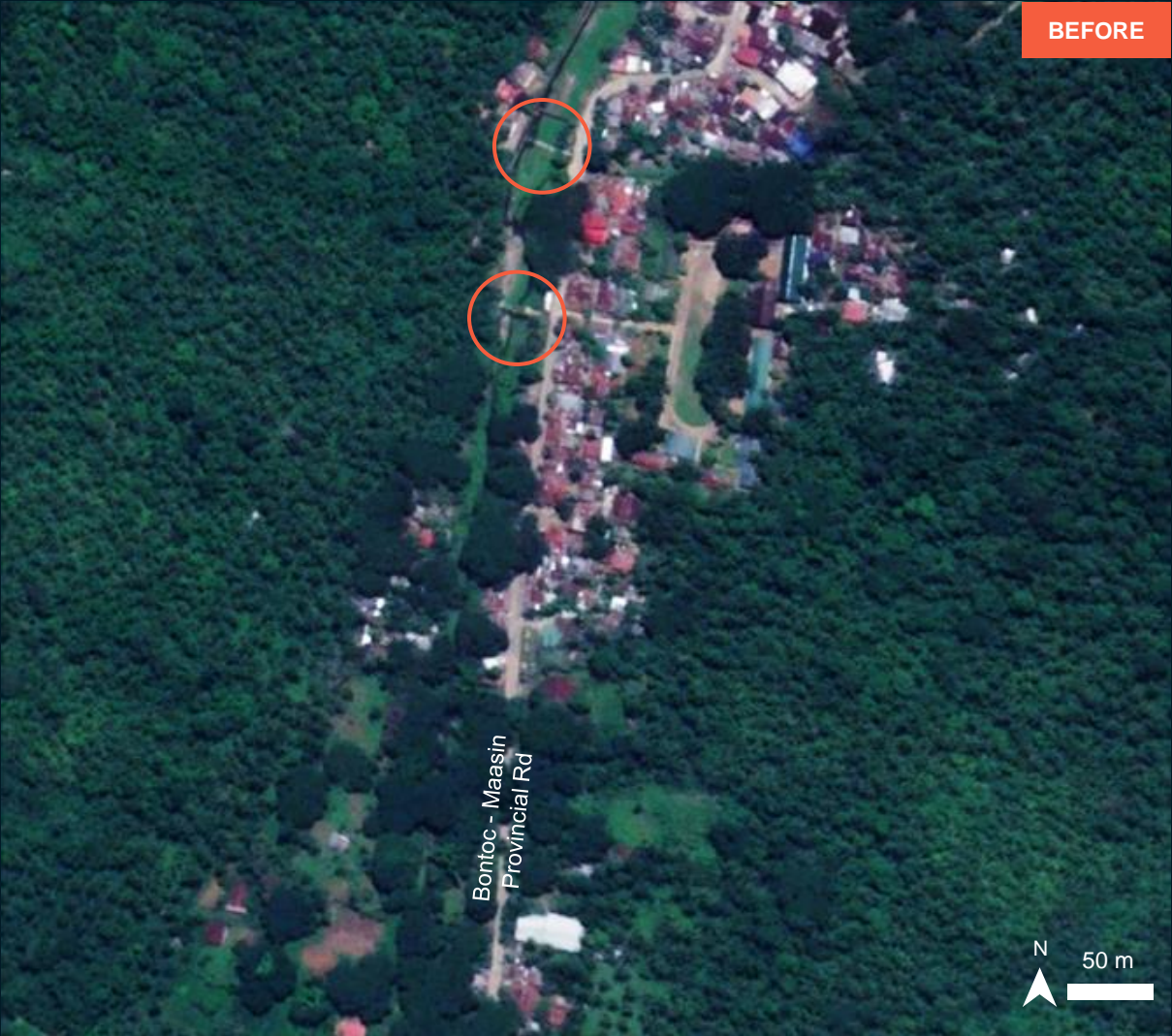


# AOI3-3 SAN RAFAEL VILLAGE, CITY OF MAASIN, SOUTHERN LEYTE PROVINCE, REGION VIII

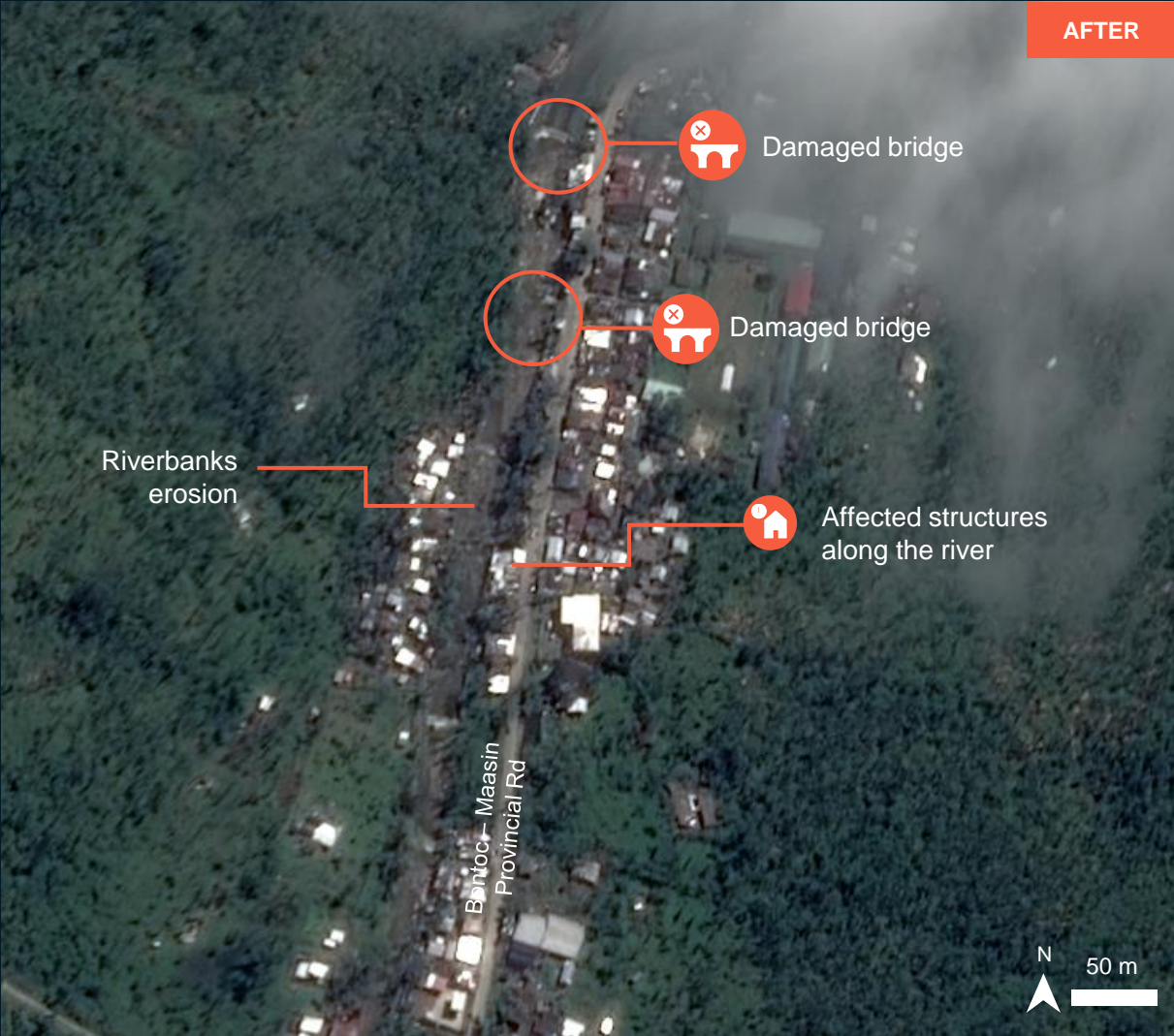
Image center:  
124°51'59.913"E  
10°12'21.423"N



## Damaged bridges and affected structures along the river



Google Earth/ 19 Aug. 2016



Pléiades/ 20 Apr. 2022



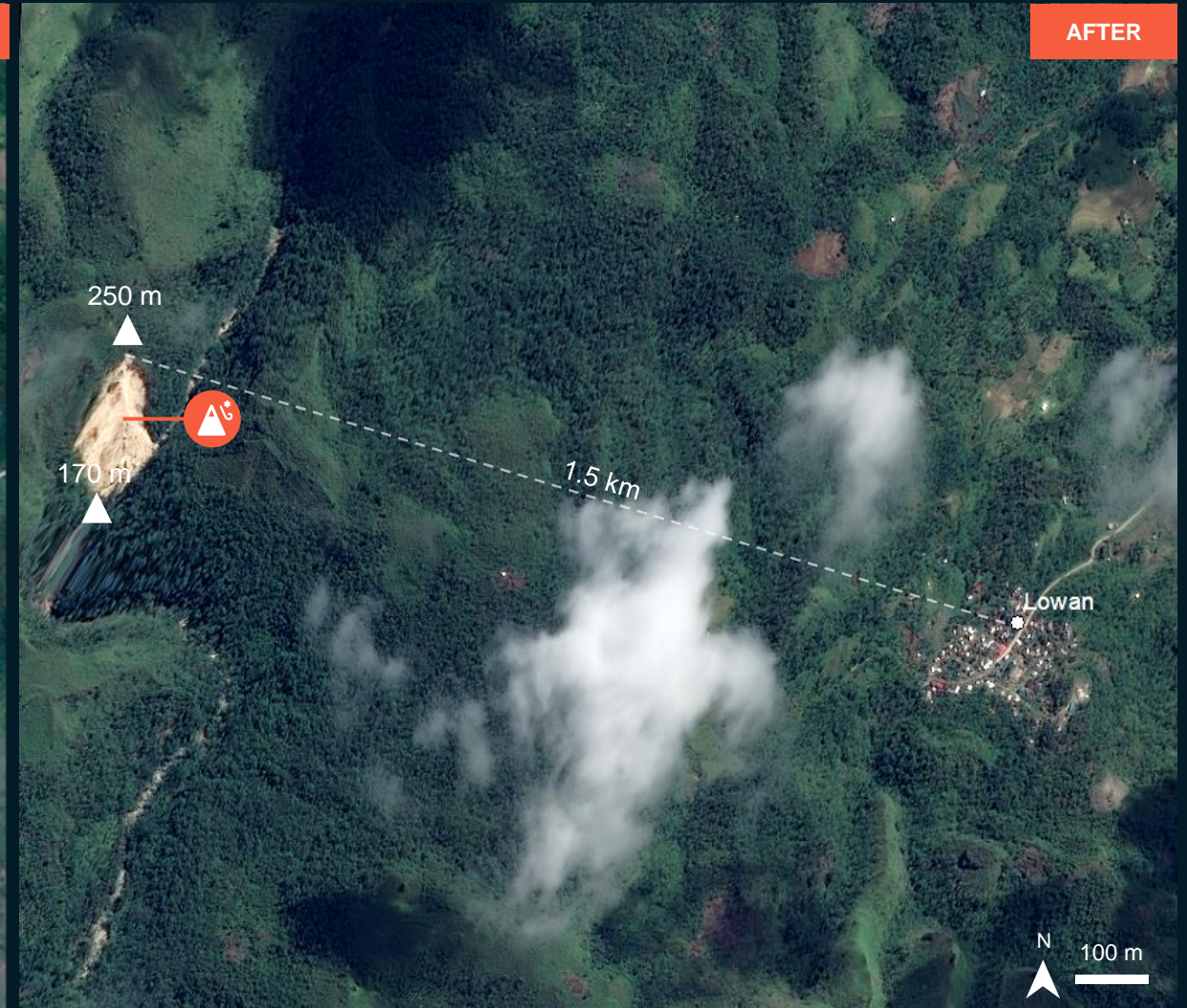
# AOI3-4 MATALOM MUNICIPALITY, SOUTHERN LEYTE PROVINCE, REGION VIII

## Landslide

Image center:  
124°51'54.837"E  
10°17'12.061"N



Google Earth/ 19 Aug. 2016



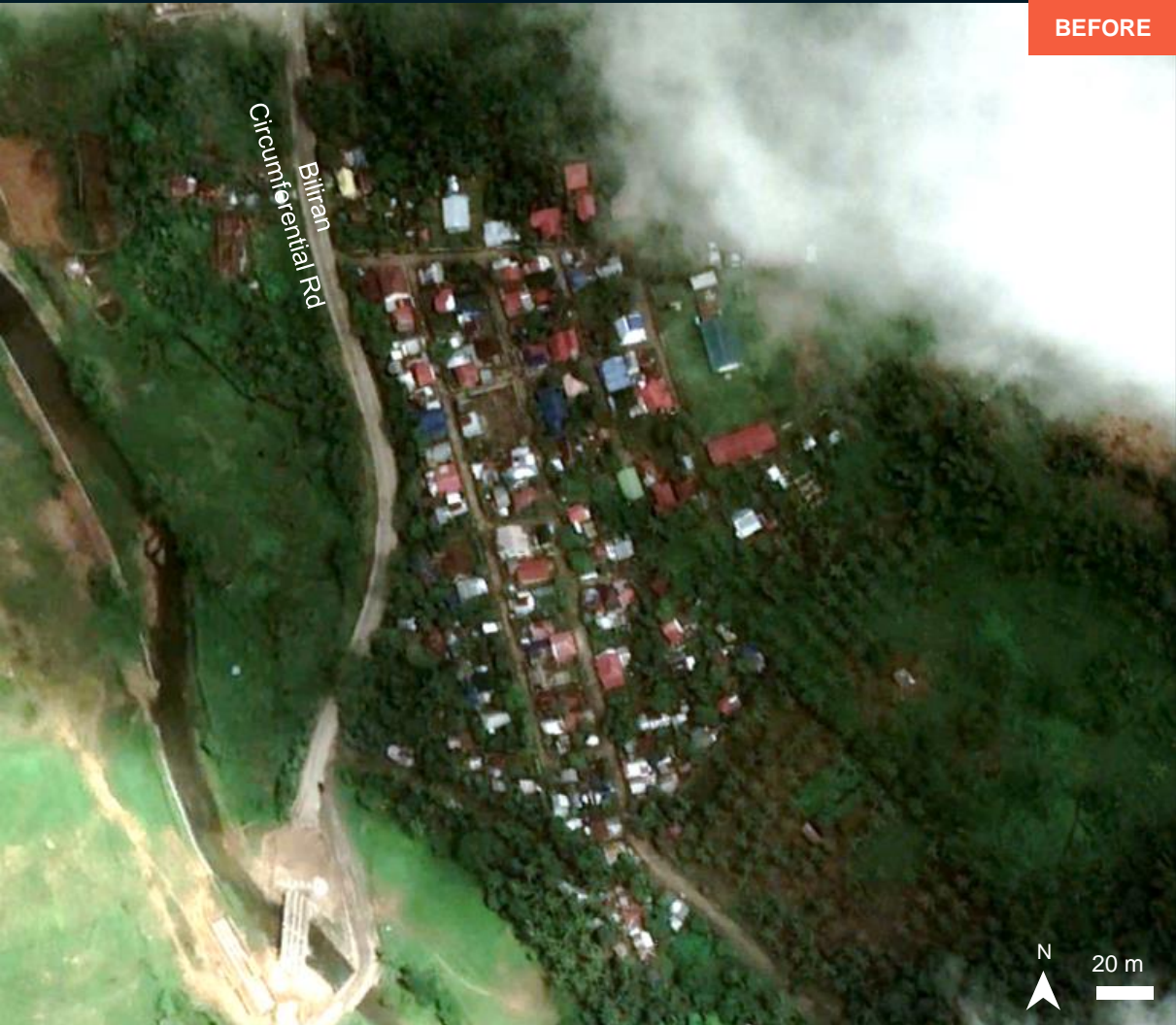
Pléiades/ 20 Apr. 2022



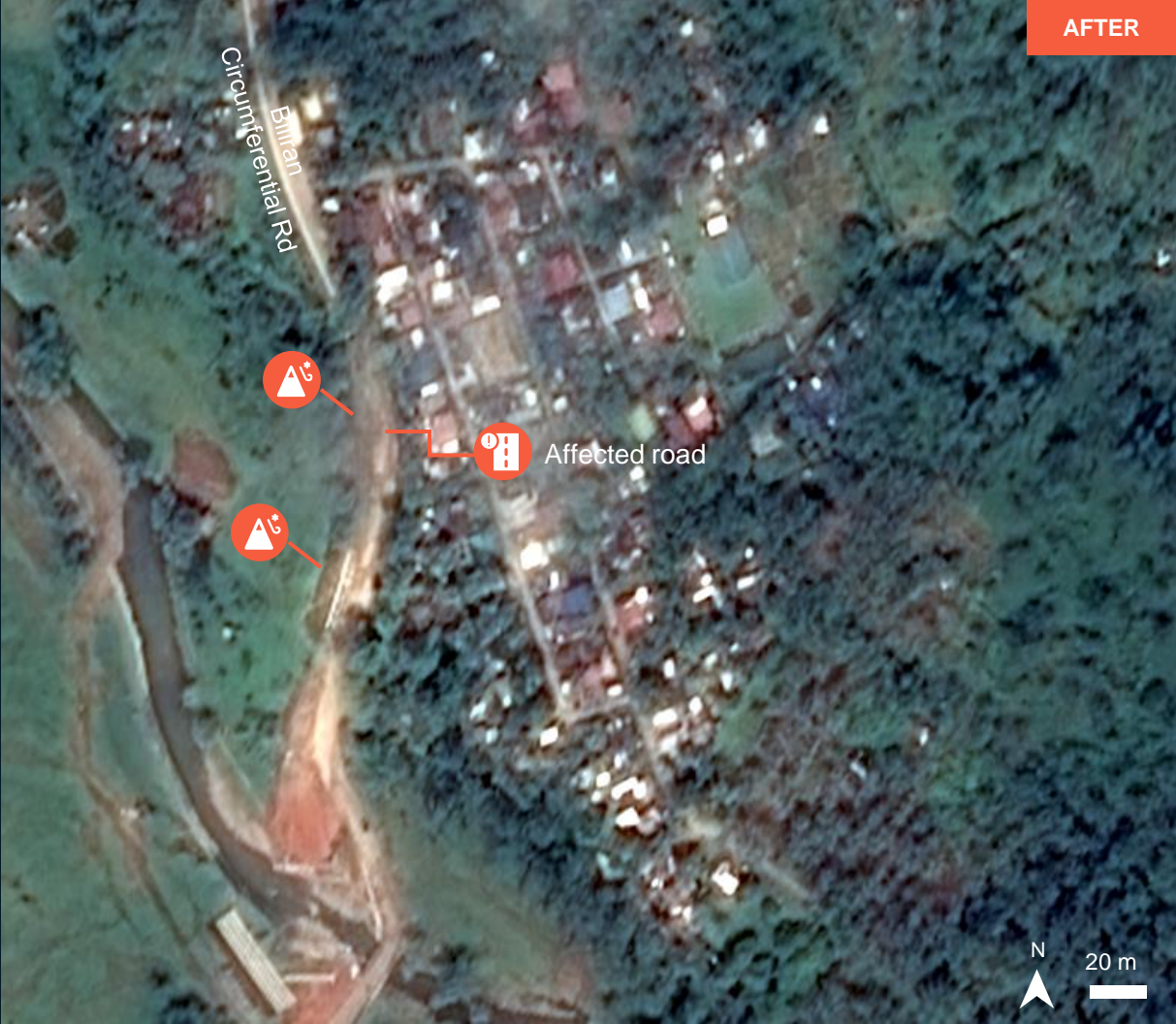
# AOI4-1 NAVAL MUNICIPALITY, BILIRAN PROVINCE, REGION VIII

## Landslide and affected road

Image center:  
124°25'34.037"E  
11°31'49.059"N



Google Earth/ 02 Mar. 2021



Pléiades/ 21 Apr. 2022



# AOI4-2 BILIRAN TOWN, BILIRAN MUNICIPALITY, BILIRAN PROVINCE, REGION VIII

No visible landslide and flood

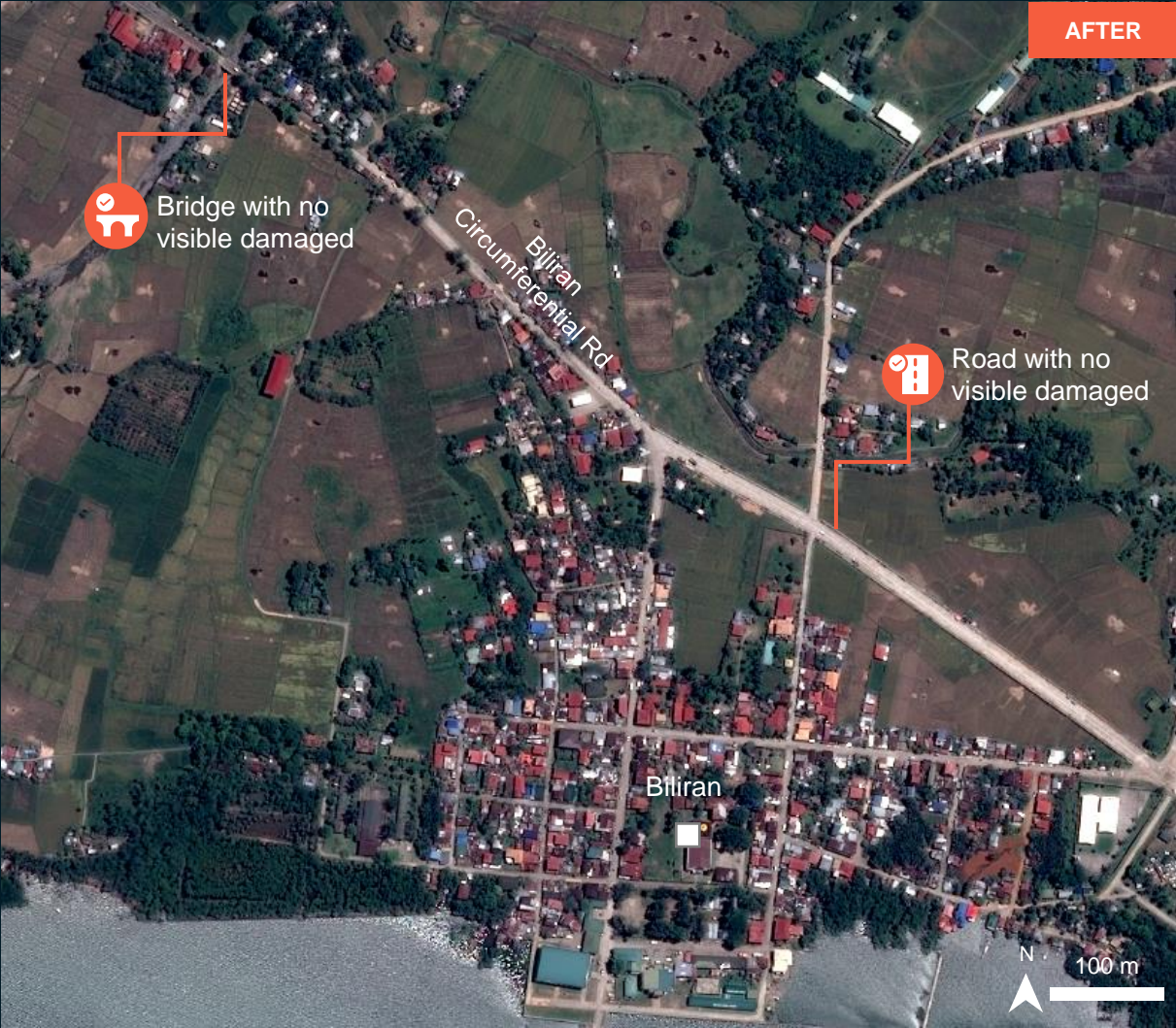
Image center:  
124°28'24.954"E  
11°28'8.783"N



Biliran  
Province



BEFORE



AFTER

Bridge with no  
visible damaged

Road with no  
visible damaged



# AOI4-3 BILIRAN MUNICIPALITY, BILIRAN PROVINCE, REGION VIII

Riverbanks erosion, no visible landslide and flood

Image center:  
124°31'1.975"E  
11°28'35.794"N

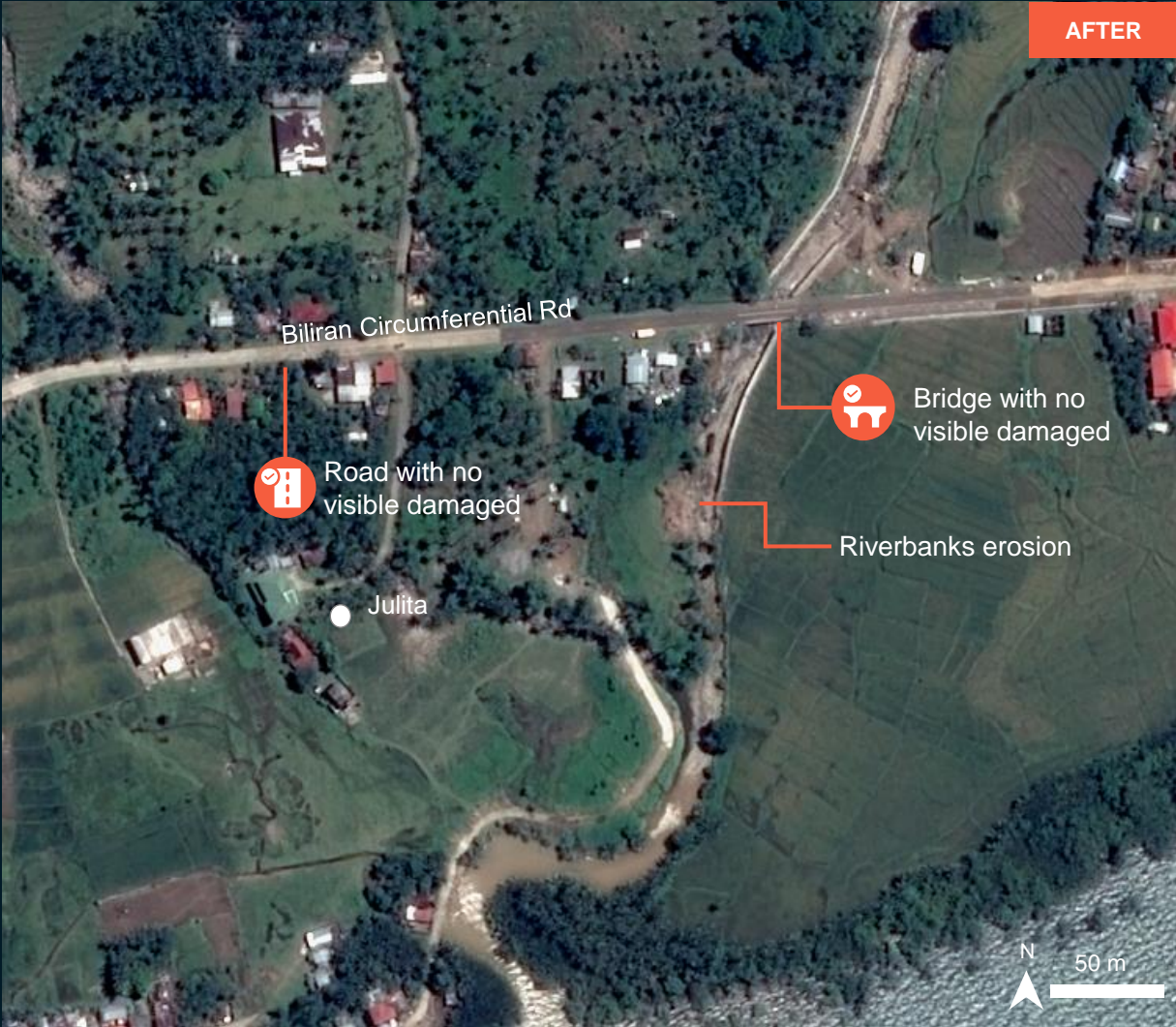


Biliran  
Province



BEFORE

ESRI Basemap/ WorldView-2/28 Mar. 2016



AFTER

Pléiades/ 20 Apr. 2022



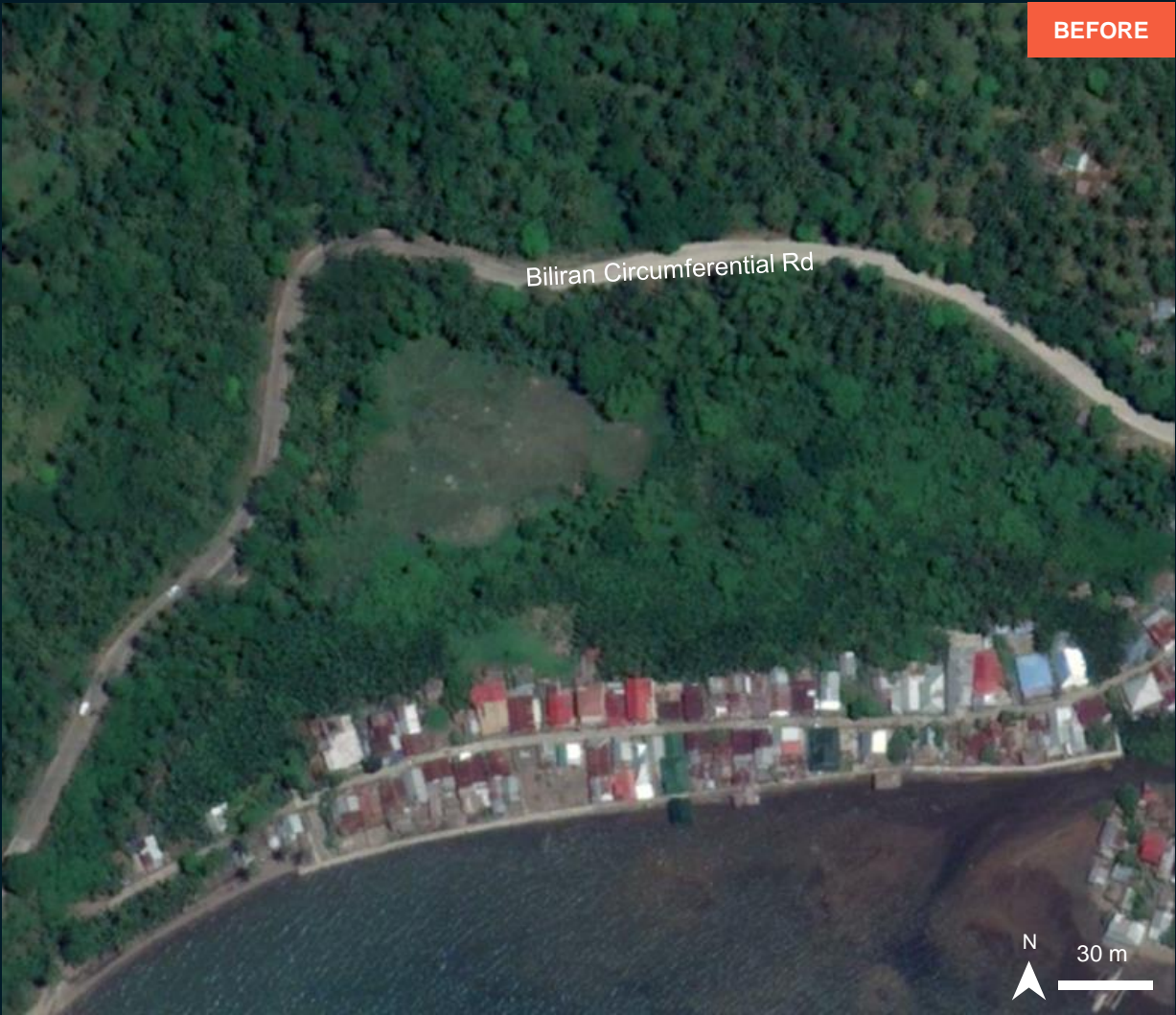
# AOI4-4 CABUCGAYAN MUNICIPALITY, BILIRAN PROVINCE, REGION VIII

Landslide and potentially affected road

Image center:  
124°33'12.805"E  
11°28'44.278"N

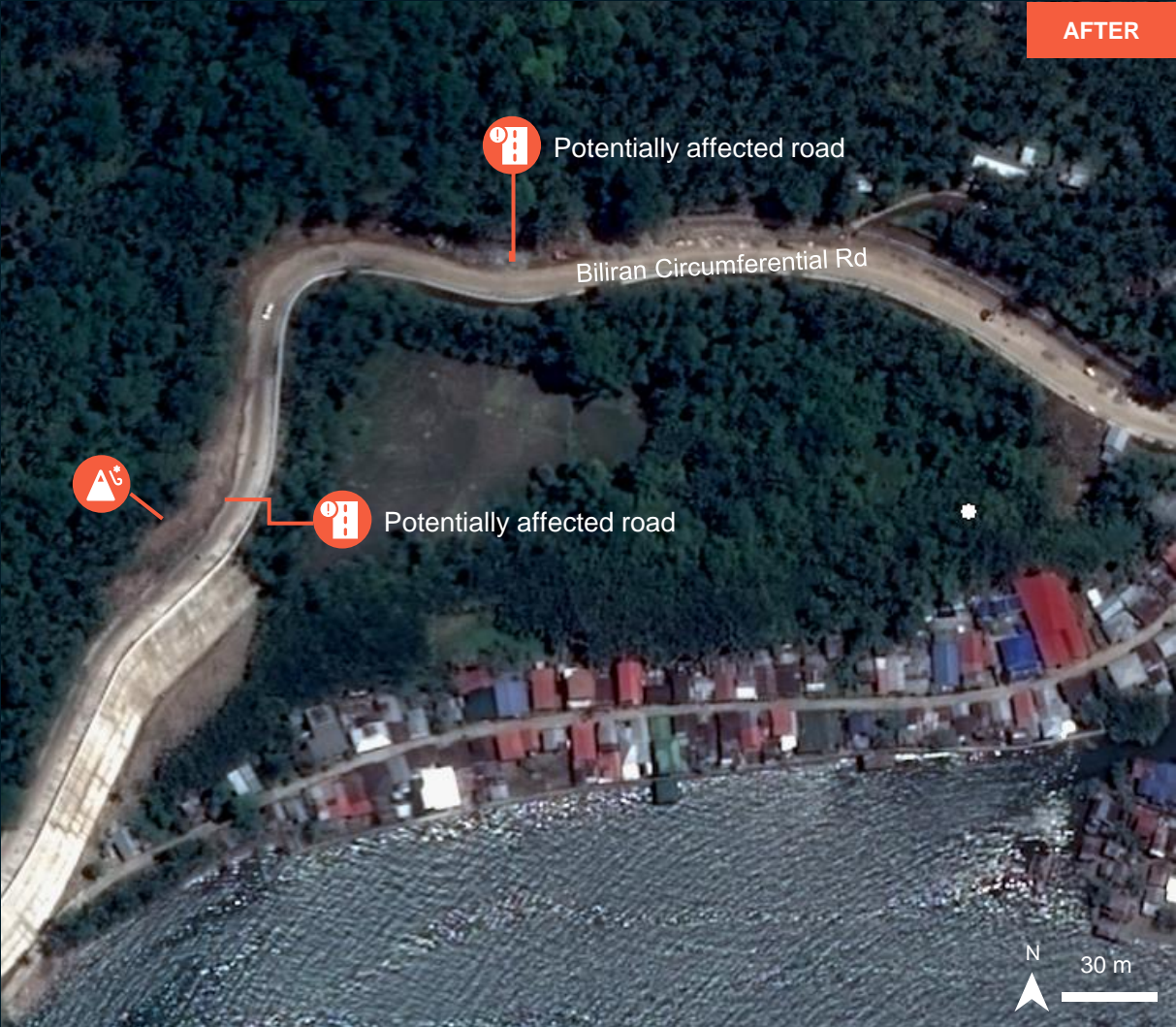


Biliran  
Province



BEFORE

ESRI Basemap/ WorldView-2/28 Mar. 2016



AFTER

Pléiades/ 20 Apr. 2022



# AOI4-5 CABUCGAYAN MUNICIPALITY, BILIRAN PROVINCE, REGION VIII

Mudslide/Landslide

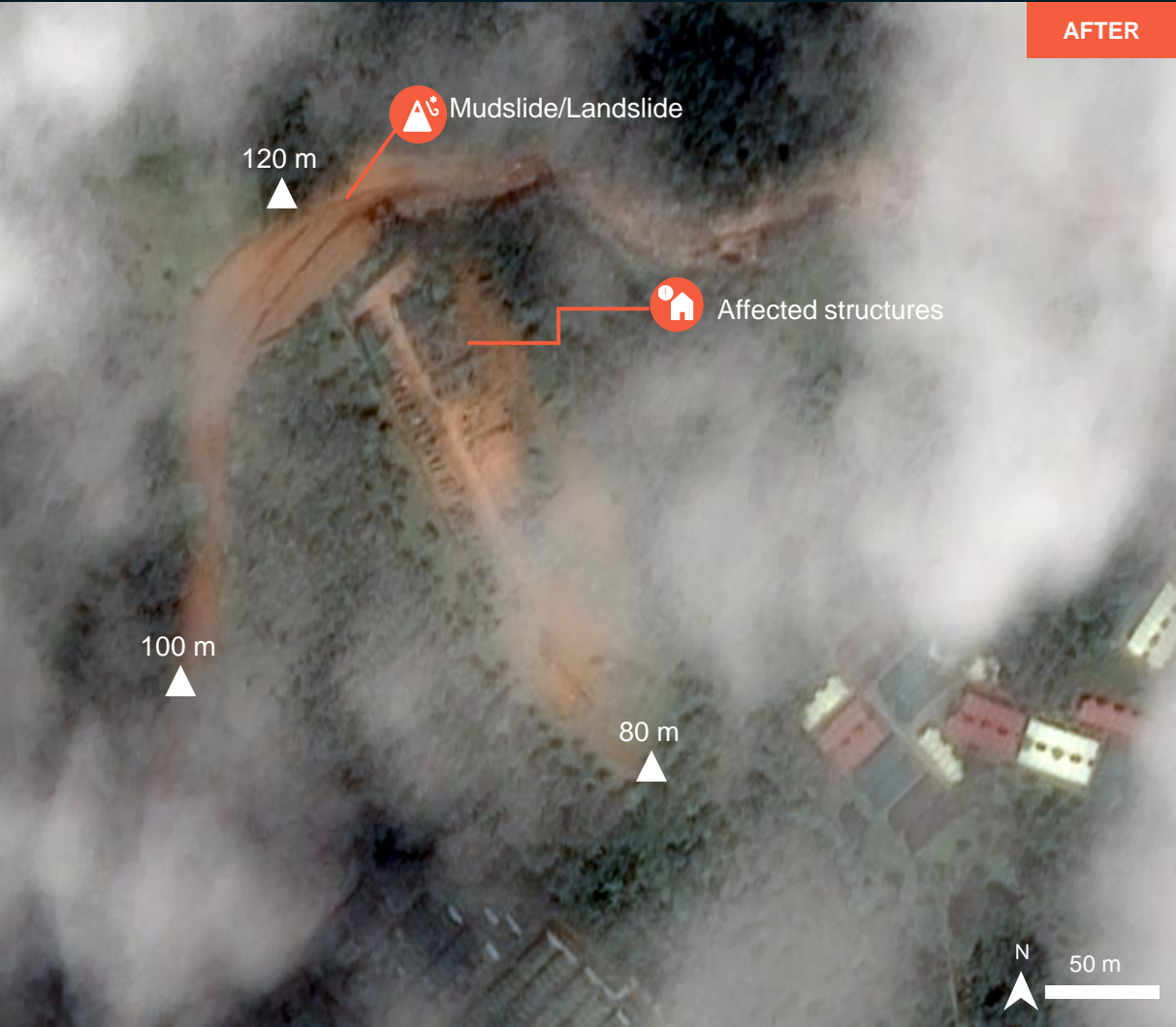
Image center:  
124°35'50.607"E  
11°29'48.238"N



Biliran  
Province



BEFORE



AFTER

Mudslide/Landslide

Affected structures

120 m

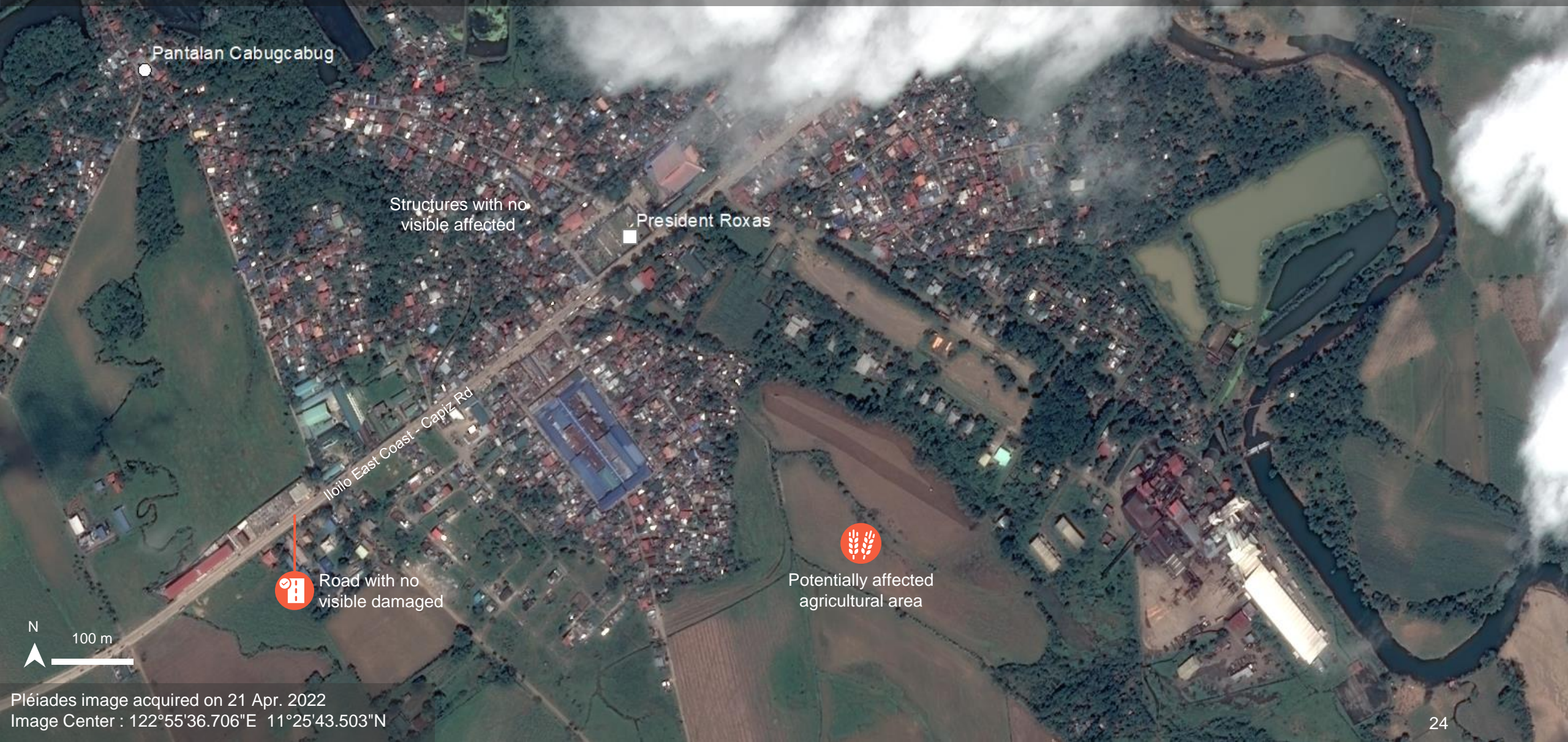
100 m

80 m



# AOI5-1-PRESIDENT ROXAS TOWN, PRESIDENT ROXAS MUNICIPALITY, CAPIZ PROVINCE, REGION VI

No visible affected structures, Potentially affected agricultural lands

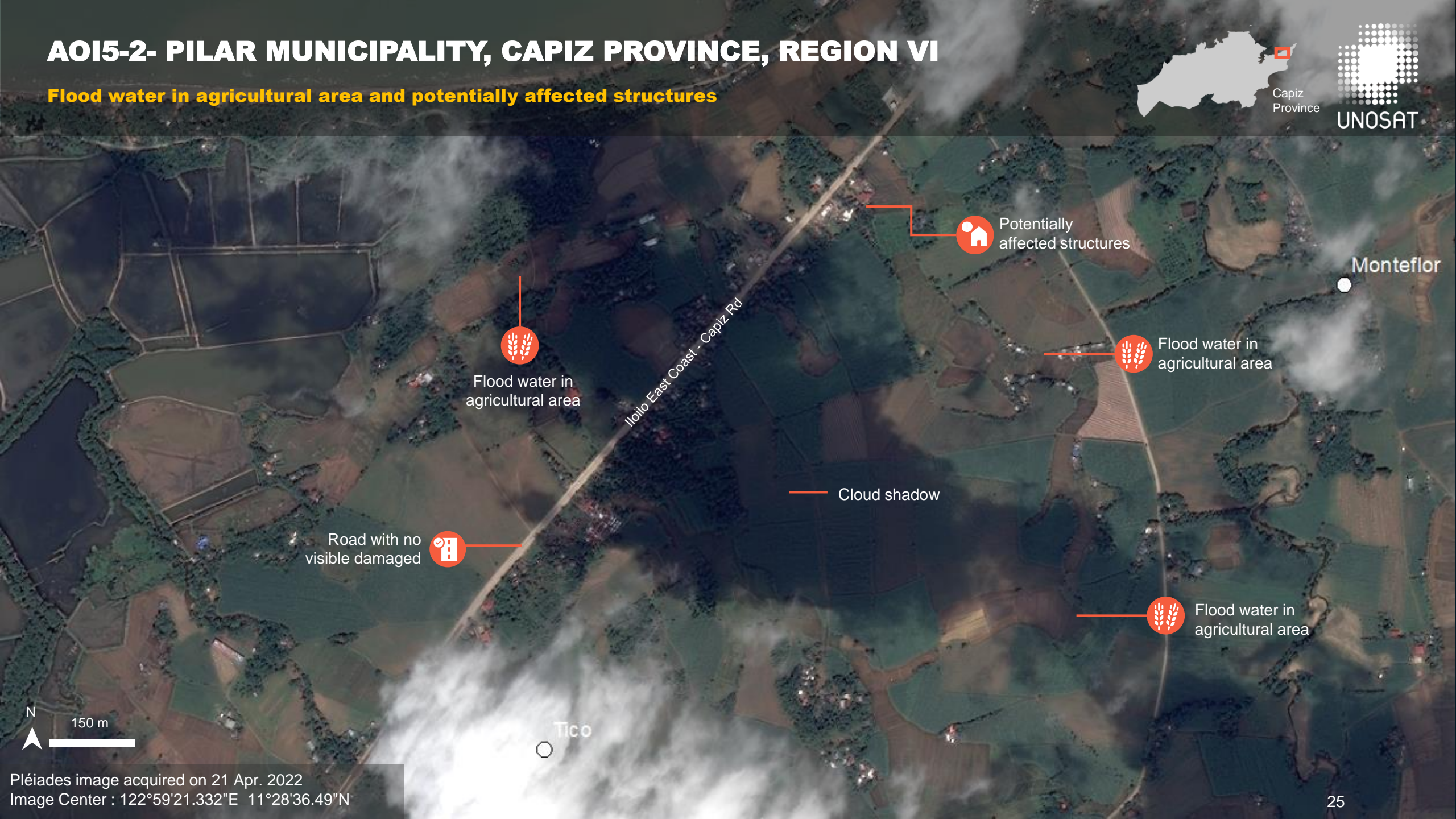


Pléiades image acquired on 21 Apr. 2022  
Image Center : 122°55'36.706"E 11°25'43.503"N



# AOI5-2- PILAR MUNICIPALITY, CAPIZ PROVINCE, REGION VI

Flood water in agricultural area and potentially affected structures



Flood water in agricultural area



Potentially affected structures



Flood water in agricultural area



Road with no visible damaged



Flood water in agricultural area

Cloud shadow

Iloilo East Coast - Capiz Rd

Monteflor

Tico



150 m

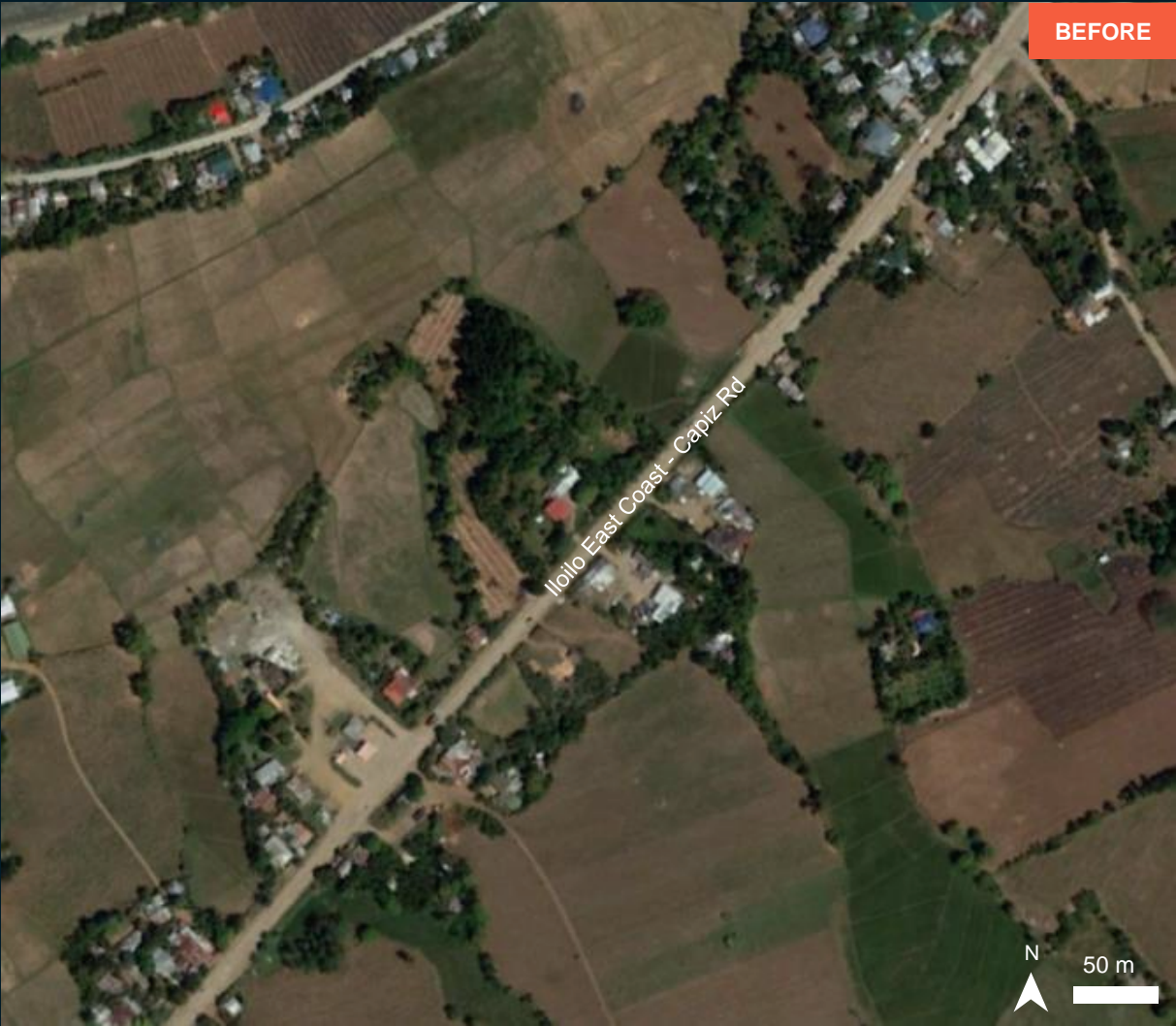
Pléiades image acquired on 21 Apr. 2022  
Image Center : 122°59'21.332"E 11°28'36.49"N



**AOI5-2 PILAR MUNICIPALITY,  
CAPIZ PROVINCE, REGION VI**

**Flood water in agricultural area and potentially affected structures**

Image center:  
122°59'27.914"E  
11°28'48.547"N



Google Earth/ 2 Mar. 2019



Pléiades/ 21 Apr. 2022



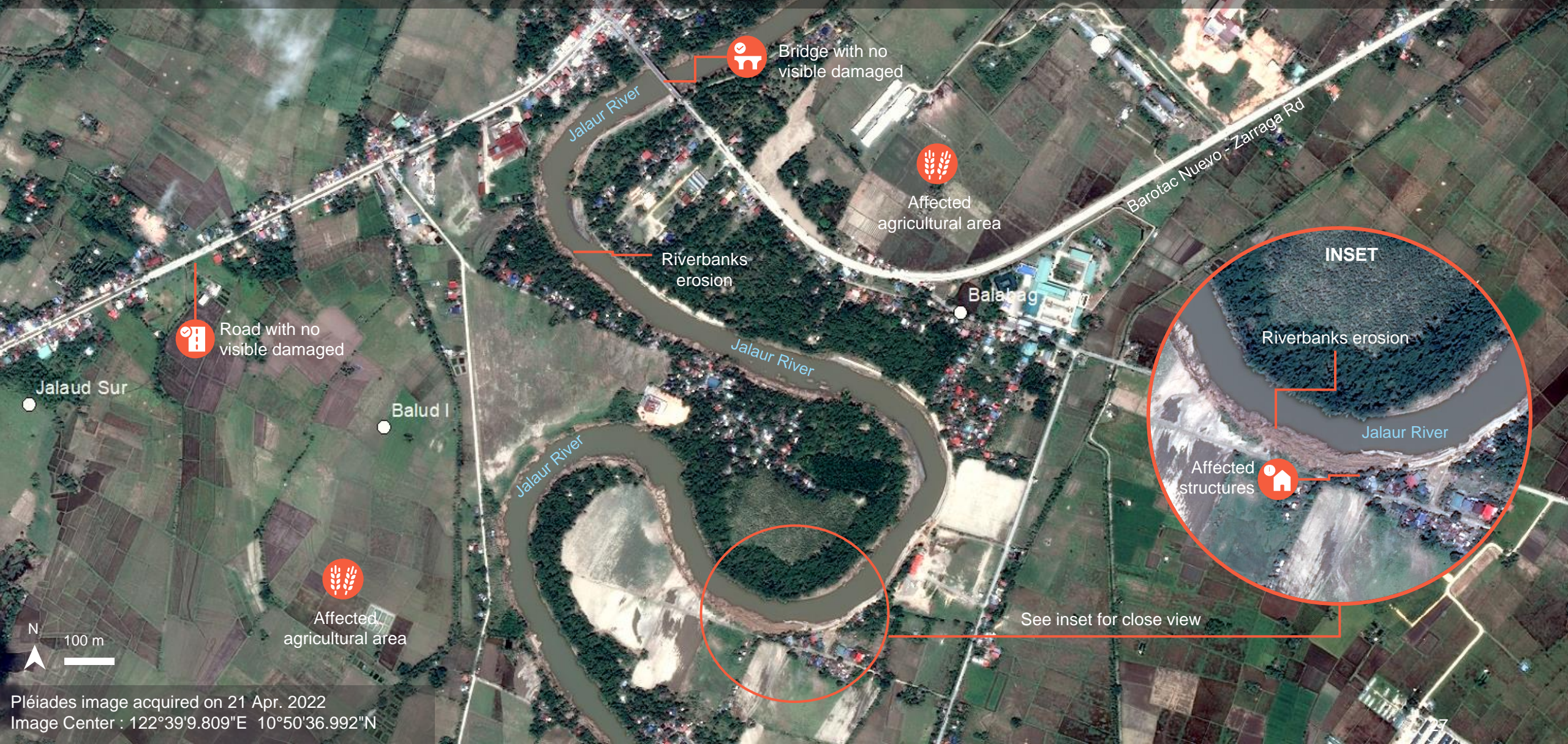
# AOI6-1-ZARRAGA AND DUMANGAS MUNICIPALITIES, ILOILO PROVINCE, REGION VI

Riverbanks erosion and affected structures along Jalaur River

Iloilo Province



UNOSAT



Bridge with no visible damaged



Affected agricultural area

Riverbanks erosion



Road with no visible damaged



Affected agricultural area

INSET

Riverbanks erosion



# AOI6-1 ZARRAGA AND DUMANGAS MUNICIPALITIES, ILOILO PROVINCE, REGION VI

## Riverbanks erosion and affected structures along Jalaur River

Image center:  
122°39'5.144"E  
10°50'21.014"N





# SUMMARY OF FINDINGS

## City of Baybay, Leyte Province

- Landslides widespread in Abuyog Municipality City of Baybay, Leyte Province, Region VIII observed as of 16 Apr. 2022;
- Affected agricultural land in Abuyog Municipality, City of Baybay, Leyte Province, Region VIII observed as of 16 Apr. 2022;
- Damaged roads in Abuyog Municipality, City of Baybay, Leyte Province, Region VIII observed as of 16 Apr. 2022;
- Extensive damage to structures and road in Pilar village, Abuyog Municipality, City of Baybay, Leyte Province, Region VIII observed as of 16 Apr. 2022;
- Affected structures and damaged road in Bahay village, Abuyog Municipality, City of Baybay, Leyte Province, Region VIII observed as of 16 Apr. 2022;
- Landslides along the road and affected structures in Buaya village, Abuyog Municipality, City of Baybay, Leyte Province, Region VIII observed as of 16 Apr. 2022;
- Damaged road near San Francisco village, Abuyog Municipality, City of Baybay, Leyte Province, Region VIII observed as of 16 Apr. 2022;
- Landslides and affected structures in Tib-O village, Abuyog Municipality, City of Baybay, Leyte Province, Region VIII observed as of 16 Apr. 2022;

## City of Maasin, Southern Leyte Province

- Riverbanks erosion and potentially affected structures along the river in City of Maasin, Southern Leyte Province Region VIII observed as of 20 Apr. 2022;
- Damaged bridges along the river in City of Maasin, Southern Leyte Province Region VIII observed as of 20 Apr. 2022;

## Matalom Municipality, Leyte Province

- Landslide in Matalom Municipality, Leyte Province, Region VIII observed as of 20 Apr. 2022;
- No visible major flood observed in Matalom Municipality, Leyte Province, Region VIII observed as of 20 Apr. 2022;

## Biliran, Noval and Cabucgayan Municipalities, Biliran Province

- No visible landslide and flood in Biliran Town, Biliran Municipality, Biliran Province, Region VIII observed as of 20 Apr. 2022;
- Potentially affected of Biliran Circumferential road in Noval and Cabucgayan Municipalities, Biliran Province, Region VIII observed as of 20 Apr. 2022;
- Mudslide/Landslide in Cabucgayan Municipality, Biliran Province, Region VIII observed as of 16 Apr. 2022;

## Capiz Province, Region VI

- Flood waters in agricultural area and potentially affected structures in Pilar Municipality, Capiz Province, Region VI observed as of 21 Apr 2022;

## Iloilo Province, Region VI

- Riverbanks erosion and affected structures along Jalaur River, Iloilo Province, Region VI observed as of 21 Apr 2022;
- Affected agricultural area in Iloilo Province, Region VI observed as of 21 Apr 2022;



# COPYRIGHTS AND SOURCES

## Data sources:

### (1) Satellite Image (Post-event)

Satellite : Pléiades

Imagery Date : 20 Apr. 2022 at 02:25 UTC and 21 Apr. 2022 at 02:16 UTC

Resolution : 50 cm

Copyright: © CNES (2022), Distribution Airbus DS.

Source: Airbus DS

Satellite : WorldView-2

Imagery Date : 16 Apr. 2022 at 02:05 UTC

Resolution : 50 cm

Copyright: © DigitalGlobe, Inc. (2022)

Source: USGS

### (2) Satellite Image (Pre-event)

Satellite : WorldView-2

Imagery Date : 29 Jul. 2021 at 02:19 UTC

Resolution : 50 cm

Copyright: © DigitalGlobe, Inc. (2021)

Source: USGS

ESRI Basemap

Google Earth

### (3) Ancillary data

Administrative boundaries: National Mapping and Resource Information Authority (NAMRIA), Philippines Statistics Authority (PSA)

Populate place: OSM

River data: OSM

Analysis: United Nations Satellite Centre (UNOSAT)

Production: United Nations Satellite Centre (UNOSAT)





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