SPECIAL FOCUS – May 2020

Heavy floods cause loss of life and damage to crops across East Africa

Since mid-April heavy rains triggered floods, mudslides, flashfloods and river overflows in parts of East Africa, leading to casualties, displacement of people, destruction of infrastructure and loss of standing crops. Significantly above average rains since the beginning of the season in February/March affected west, central and south-east **Kenya,** parts of Ethiopia and parts of **Uganda** where they lead to the burst of the Lake Victoria shoreline (Figure 1). According to ERCC, exceptionally heavy rain since 24th April have affected central and south **Ethiopia**, north **Tanzania**, particularly Arusha and Kilimanjaro Regions. Moreover, since the 20th April heavy rain has been reported in most of **Somalia** States and territories. The exceptional rainfall conditions do also create favourable conditions for desert locusts development (GEOGLAM), adding pressure to the multiple crisis caused by COVID-19 containment measures, pests and previous drought seasons.

According to government officials nearly 200 people have lost their lives in floods and landslides in **Kenya** since April and 100,000 have been displaced (Reliefweb). Especially affected is western Kenya, with Kisumu county and Homa Bay being the hardest hit. Moreover, according to the Kenya Red Cross Society, the Nzoia and Tana river have burst their banks, destroying farms and displacing families (as many as 40,000 people displaced) (Floodlist).

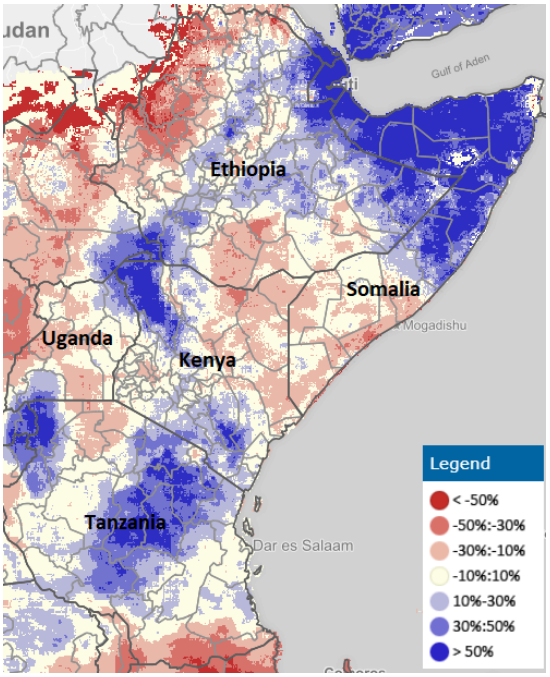

Figure 1. 90-day rainfall anomaly map showing above-average rainfall received between February to April 2020 in Ethiopia, Somalia, Kenya and Tanzania (Source: CHIRPS, data mapped by JRC).

High water levels at two dams, Masinga and Turkwel are reported by officials and evacuation orders have been issued to high-risk areas (Figure 2).

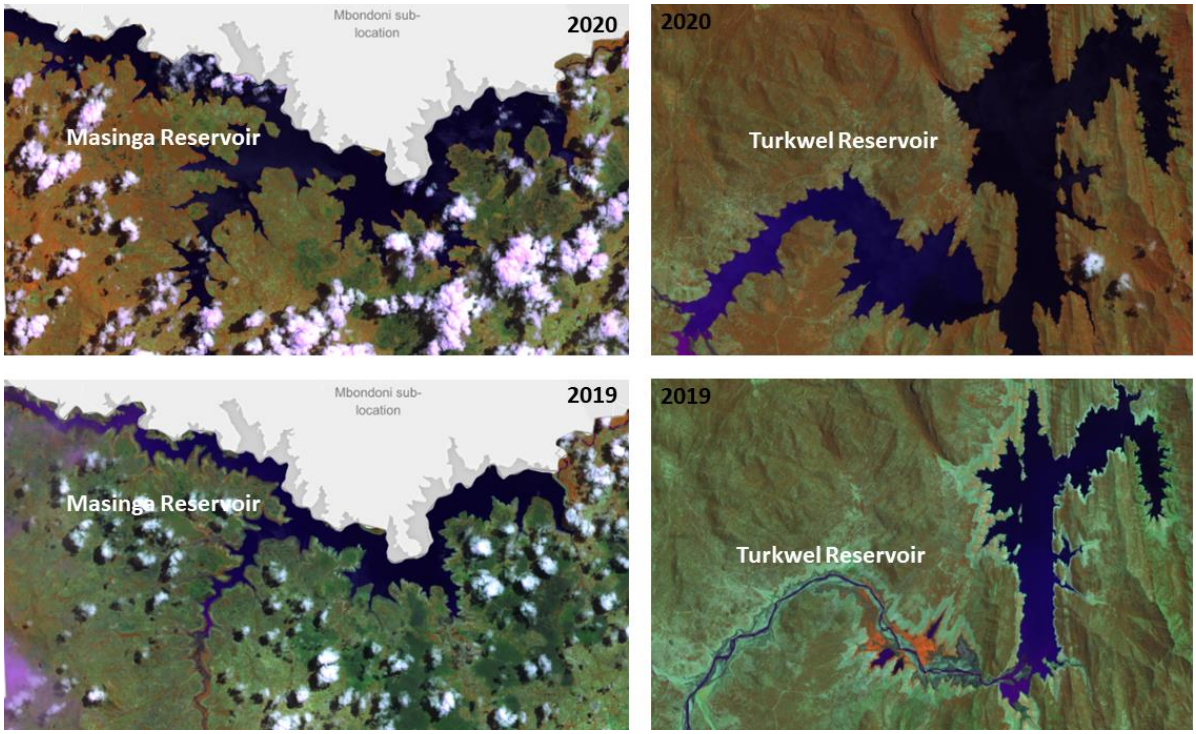

Figure 2. Sentinel 2 imagery of Masinga (left) and Turkwel (right) reservoirs in 2020 (top) and in 2019 (bottom) depicting the surface water extent of the reservoirs (Source: ASAP-HR Viewer-Masinga, ASAP-HR Viewer-Turkwel).

According to ERCC updates, 200 people were displaced in **Uganda** and 140,000 people exposed to severe flood risk due to the raising water levels in Lake Kyoga.

In **Somalia**, 10 fatalities occurred and 83,000 people have been displaced due floods along the Juba and to a lower extent the Shabelle river and to flash floods that occurred in dry Waadis for example in Puntland (Qardo and Bosasso towns) and in Bay and Bakool (especially in Baidoa town) in South West. In **Ethiopia**, 4 fatalities and 2,400 people affected. Damages to houses and infrastructure are reported for both countries.

Above-average rainfall is expected to continue across most parts of the region according to forecasts for May, with average to above-average rains concentrating in northeastern Tanzania, Kenya, eastern Ethiopia, and Somalia (GEOGLAM).

Figure 3 shows the location of selected areas for which flood extent mapping was performed based on SENTINEL2 imagery. Surface water extent was mapped by applying a threshold to the Normalized Difference Water Index (NDWI) for the period from 25th April to 04th May 2020. This is a rapid preliminary analysis and has not been field validated. The area of flooded land reported in each figure caption refers only to the window shown in each map and not to entire administrative areas.

Figure 3. Overview map of Kenya, Ethiopia and Tanzania, where rectangles indicate areas with zoomed in maps included in this report.

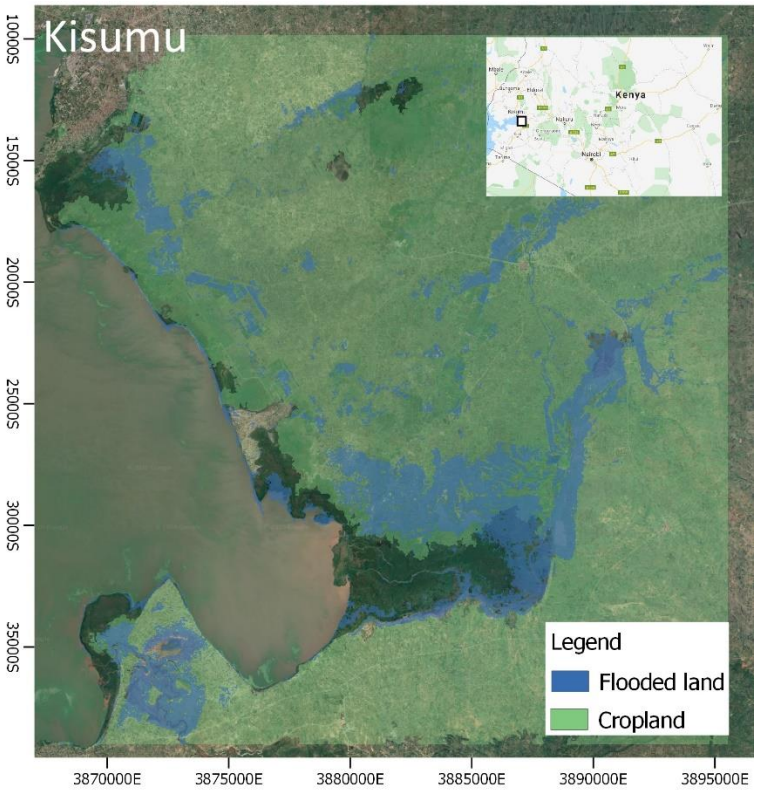

Figure 4. Flood water extent and cropland layers overlaid to a Google Satellite background layer close to Kisumu town, in Kisumu county, Kenya. Flooded land: 8,389 ha, flooded cropland: 6,399 ha. Sentinel2 satellite imagery for the map can be seen here: [ASAP-High Resolution Viewer]

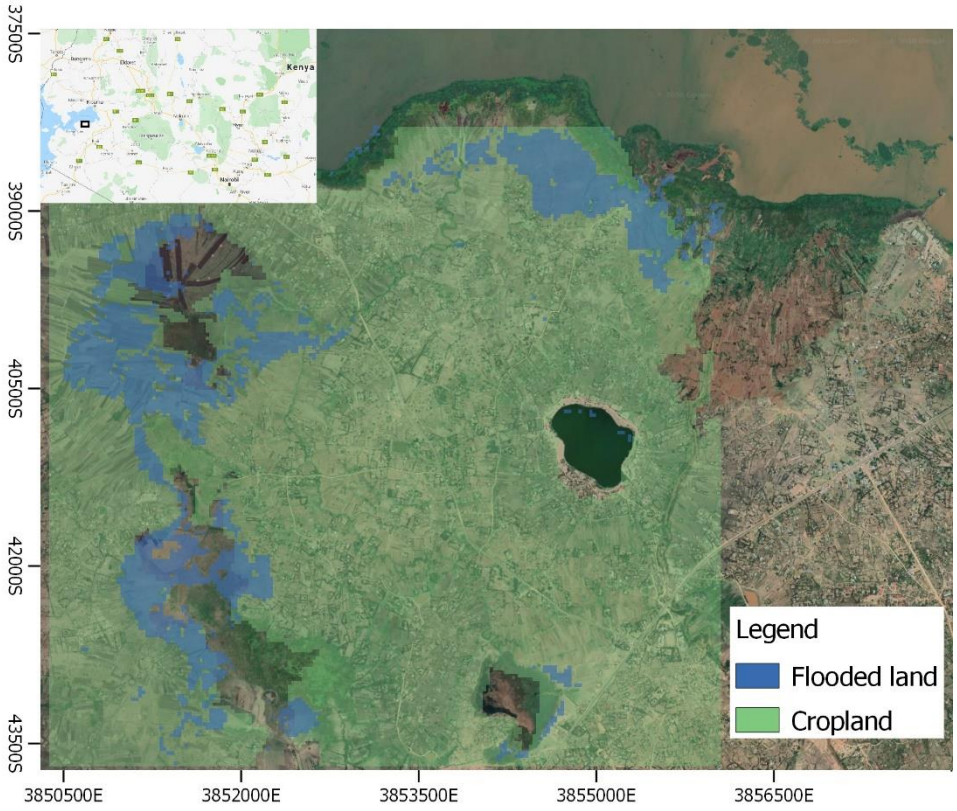

Figure 5. Flood water extent and cropland layers overlaid to a Google Satellite background layer *in Homa Bay county, Kenya*. *Flooded land: 331 ha, flooded cropland: 269 ha. Sentinel2 satellite imagery for the map can be seen here:* [ASAP-High Resolution Viewer]

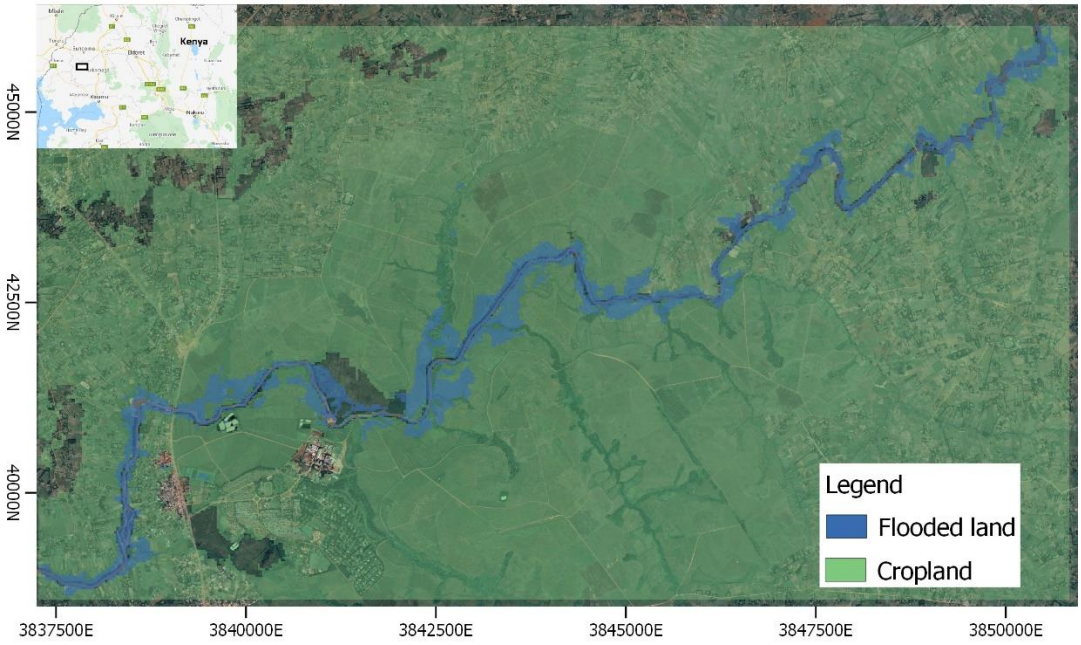

Figure 6. Flood water extent and cropland layers overlaid to a Google Satellite background layer *in Kakamega county, along Nzoia river, Kenya*. *Flooded land: 482 ha, flooded cropland: 332 ha. Sentinel2 satellite imagery for the map can be seen here:* [ASAP-High Resolution Viewer]

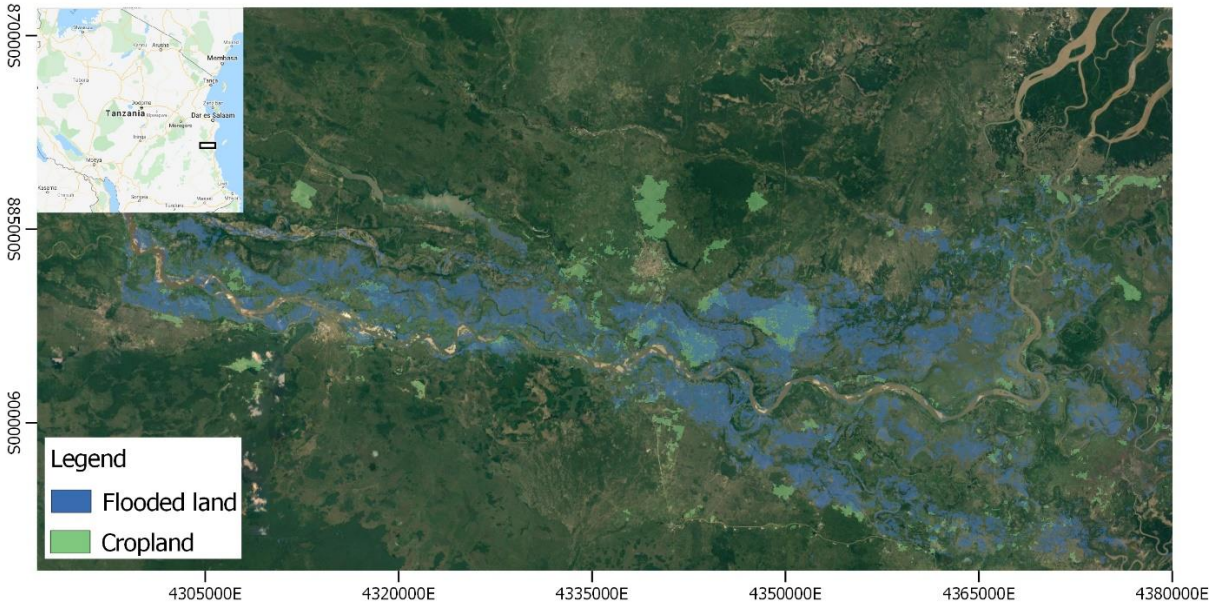

Figure 7. Flood water extent and cropland layers overlaid to a Google Satellite background layer *in Pwani county, along Rufiji river, Tanzania*. *Flooded land: 31,771 ha, flooded cropland: 2,508 ha. Sentinel2 satellite imagery for the map can be seen here:* [ASAP-High Resolution Viewer]

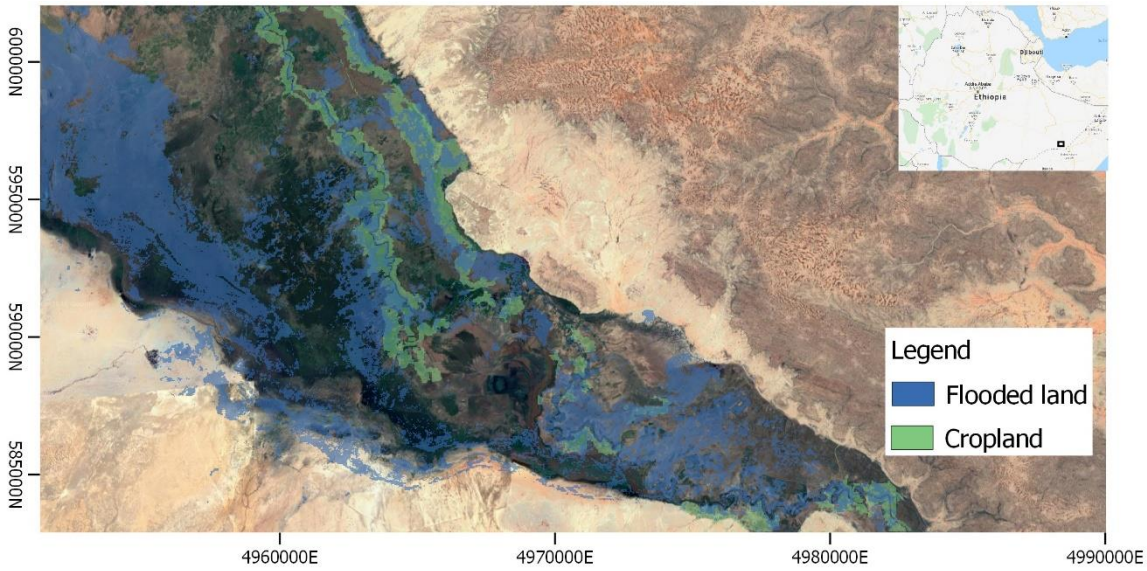

Figure 8. Flood water extent and cropland layers overlaid to a Google Satellite background layer *along the border between Shabelle and Afder counties in Ethiopia. Flooded land: 10,138 ha, flooded cropland: 988 ha. Sentinel2 satellite imagery for the map can be seen here:* [ASAP-High Resolution Viewer]

More information can be found here:

- https://erccportal.jrc.ec.europa.eu/ECHO-Flash
- http://floodlist.com/africa/kenya-floods-update-may-2020
- http://floodlist.com/africa/kenya-floods-kericho-samburu-kisumu-april-2020
- http://floodlist.com/africa/kenya-mudslides-elgeyomarakwet-westpokot-april-2020
- http://floodlist.com/africa/tanzania-floods-arusha-kilimanjaro-april-2020
- http://floodlist.com/africa/ethiopia-flash-floods-diredawa-april-2020
- http://floodlist.com/africa/somalia-flash-floods-gardo-bari-april-2020

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