# Spatio-Temporal Flood Analysis along the Indus River, Sindh, Punjab, KPK and Balochistan Provinces, Pakistan

21 August 2010
FL-2010-000141-PAK
Version 1.0

**Index map**

This map shows daily variation in flood water extent along the Indus rivers in Sindh, Punjab, Balochistan and KPK provinces based on time-series MODIS Terra and Aqua datasets from August 17 to August 21, 2010.

Result show that the flood extent is continously increasing during the last 5 days as observed in Shahdad Kot Tehsil of Sindh and Balochistan provinces covering villages of Shahdad, Jamali, Rahoja, Silra. In the Punjab provinces flood has partially increased further in Shujabad Tehsil villages of Bajuwala Tibba, Faizpur, Isanwali, Mulana)as. Over 1000 villages and 100 towns were identified as severly affected by flood waters and analysis was performed using geospatial database received from University of Georgia, google earth and GIS data of NIMA (USGS). Approx. 800 kilometres stretch of national highway and link roads are submerged or partially inundated by flood water.

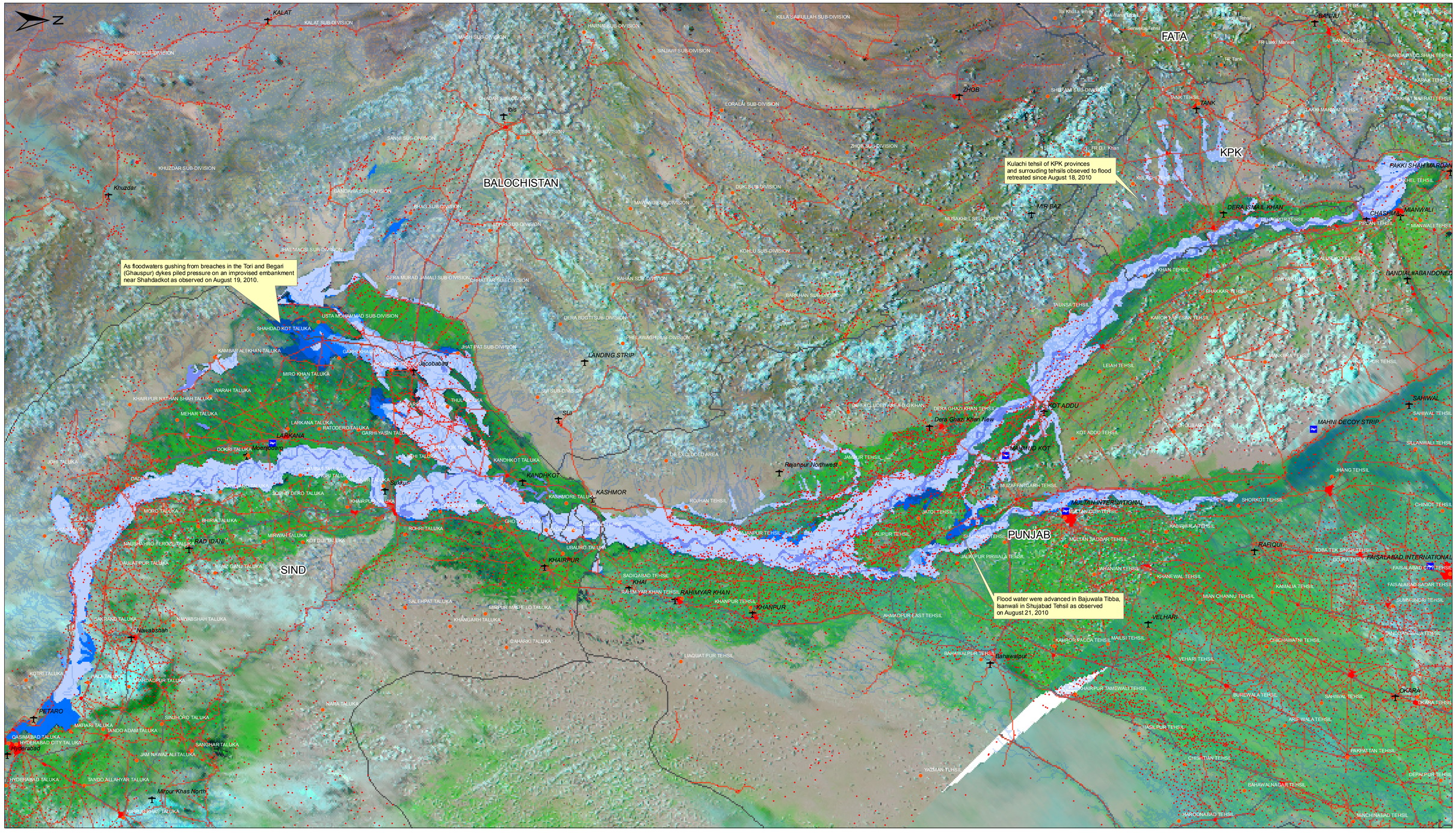
This analysis also used Pre river line MODIS data for September 19, 2009 to show identify flood water only.
Please note that water bodies likely reflect an underestimation of all flood-affected areas within the map extent due to cloud, atmospheric variations and other reasons. This analysis has not yet been validated in the field. Please send ground feedback to ICIMOD / MENRIS.

| | |
|---|---|
| Crisis Satellite data | : MODIS Terra / Aqua |
| Resolution | : 250m |
| Image date | : August 17-21, 2010 |
| Source | : NASA |
| Pre-flood Image | : MODIS Terra / Aqua |
| Resolution | : 250m |
| Image date | : September 19, 2009 |
| Source | : NASA |
| Baseline Imagery | : MODIS Aqua Aug 19, 2010 |
| Source | : NASA |
| GIS Data | : Universiyt of Georgia, USA |
| Flood Analysis | : ICIMOD |
| Projection | : Geographic, WGS84 |

**Legend**

- Pre-Flood River Line (2009)
- Flood Water extent (Aug 17)
- Flood Water extent (Aug 18)
- Flood Water extent (Aug 19)
- Flood Water extent (Aug 20)
- Flood Water extent (Aug 21)
- Airport
- Heliport
- Major airfield
- Minor airport
- Division / Tehsil
- Villages/towns
- Rivers
- Rural road
- Urban road
- Railways
- Urbanized area
- Administration boundary

Map Scale for 1:1,000,000
0 25 50 100
Kilometres
Map layout designed for A1 Printing (36 x 24 inch)

Map prepared by: ICIMOD, SERVIR Himalaya
Supported by: USAID, NASA

The depiction and use of boundaries, geographic names and related data shown here are not warranted to be error-free nor do they imply official endorsement or acceptance by the ICIMOD.