Geospatial Information and Services for Disasters

Case study from South Africa

KwaZulu Natal Province deadly floods and mudslides

April 2022

agriculture, land reform & rural development

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

2030 NDP

Quick look at KZN Floods in 2022

- 443 people lost their lives,
- More than 40,000 people have been displaced,
- 4,000 houses were destroyed,
- 8,000 others were damaged,
- mostly across Durban City and its surrounding areas.
- National State of Disaster has been declared in response to the floods and landslides,
- rescue teams were deployed to the affected areas to provide humanitarian assistance

Minister **@DlaminiZuma** and High Commissior Paulino José Macaringue of Mozambique accompanied by **@kzncogta** MEC Sipho Hlomu DCoG Director-General Avril Williamson interac with members of the media during the arrival o humanitarian aid from the Republic of Mozamb



This evening, a cargo plane carrying humanitarian aid by the State of Qatar, which comprises foodstuff, clothing, and medical supplies arrived at King Shaka International Airport in **@eThekwiniM** received by Government leaders and the Ambassador to South Africa **#Flooods**


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The Working Group on Geospatial Information and Services for Disasters (WG-Disasters) of the UN-GGIM is guided by the vision of **quality geospatial information and services** being made **available** and **accessible** in a **timely and coordinated** way to support decision-making and operations within and across all sectors and phases of disaster risk management

Where is South Africa in terms of Geospatial Information and Services for Disasters?

The history of the KZN Floods

We have a history over KwaZulu-Natal of many worse floods than those we experienced in April 2022.

THE APRIL 2022 FLOOD PRODUCING RAINFALLS IN KWAZULU-NATAL IN PERSPECTIVE: A HISTORICAL REVIEW AND A COMPARATIVE OVERVIEW

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The history of the KZN Floods

1855 December Durban (Barnes, 1984; citing the *Natal Mercury* of 22 November 1880)

• 370.6 mm fell in Durban over a 3-day period.

1856 April 13-17 Flooding Durban

Rain began falling on Sunday afternoon the 13th at 14:00 and continued until Thursday morning 17th.

• Over the 5 days 707 mm fell in Durban (Van Bladeren and Burger, 1988).


The Natal Mercury

Special Souvenir of the Durban and Coast Floods: June, 1935

PRICE 3d.

PRICE 3d.

Great Rain That Flooded The Coast

Road, Rail and Air Hold-Up

1908, 1911, 1915, 1917, 1923,1925, 1926, 1932, 1935,1940, 1947, 1953, 1957, 1960,1063, 1971, 1976, 1978, 1980, 1984…

The history of the KZN Floods

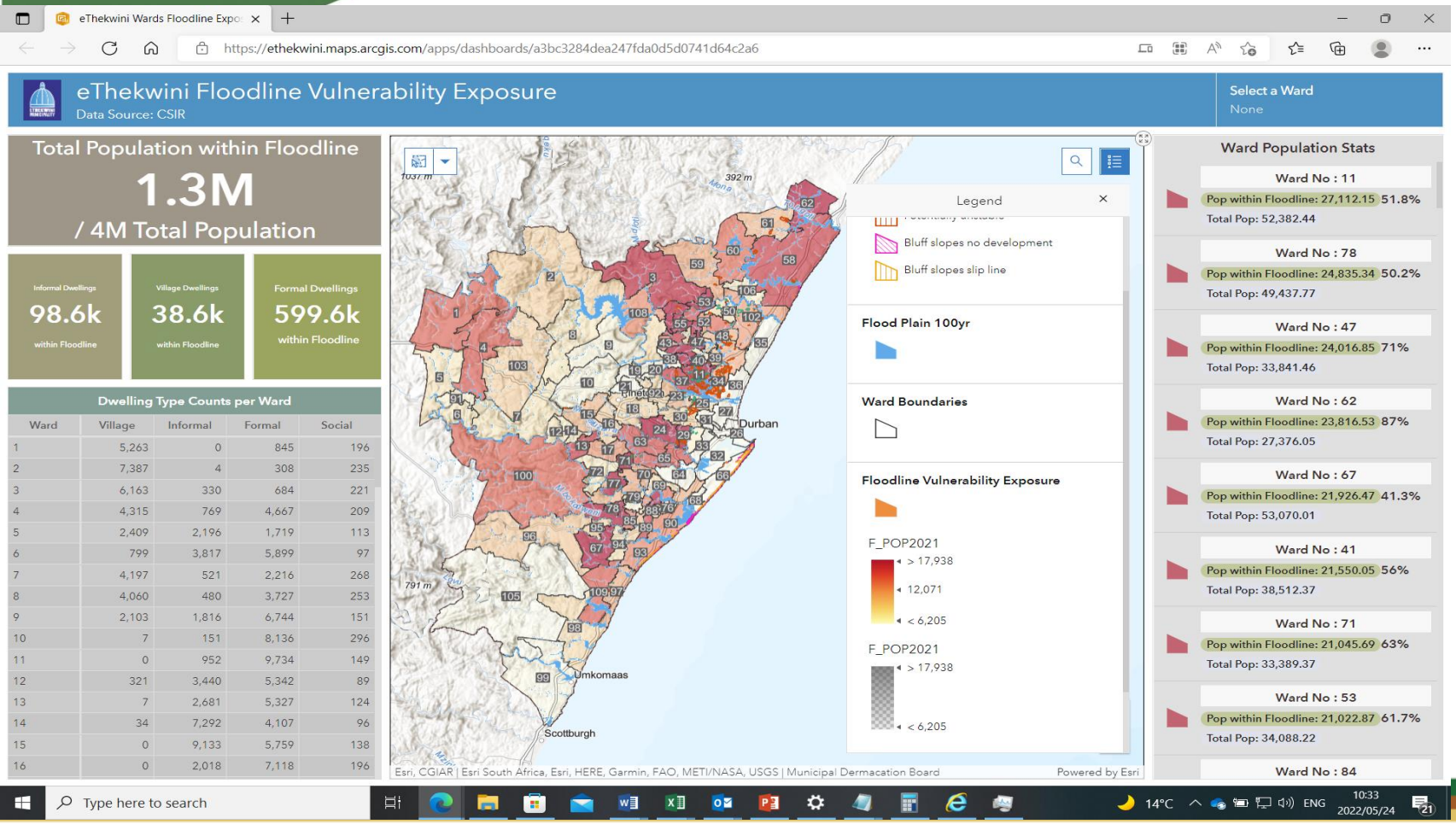
September 1987 Floods

Between 28 and 30 September 1987, the central and southern parts of KwaZulu-Natal were ravaged by floods that were amongst the most devastating to have occurred in South Africa. The destruction of property was catastrophic, nearly 400 people were killed and about 50 000 were left homeless. Damage to agriculture, communications, infrastructure and property amounted to R400 million (De Villiers et al, 1994).

Did we learn from previous floods?

20yrs, 50yrs and 100 yrs. flood line datasets from KZN Human Settlements (2014)

ETHEKWINI FLOOD VULNERABILITY EXPOSURE APP



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KwaZulu-Natal Flood Assessment Viewer (arcgis.com)

TOWARDS AN INTEGRATED PROVINCIAL FLOOD RISK & EARLY WARNING

DWELLINGS AND FLOODLINE GIS DATA FLOOD RISK ANALYSIS

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WORKSHOP OUTCOMES

1. Need for a more **recent** flood line **data** and dwelling frame .
2. Key facilities that are within flood lines must be also identified (Police stations; Community Halls; **Disaster centers; Fire stations; Clinics**; Hospitals)
3. There is need for **ground truthing** to verify results of geospatial analysis.
4. A meeting with Council for Geosciences will be scheduled to **source information on geo-hazardous areas**. Geology plays a major role in the failures that have been observed.
5. Informal settlements grow rapidly and might require a **focused study**.
6. Need to perform slope analysis or source an **existing data**. This will assist in identify dwellings that fall on unacceptably steep area.
7. All **disaster incidents must be mapped** to augments the information available disaster for risk analysis. Municipality need to capture the **exact coordinate of incidents**
8. Need **incorporate geospatial analysis** results into: **SDF; Land use schemes; Disaster Management plans (once verified)**

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The Availability, Accessibility and **Usability** of geospatial information and services for disaster response initiatives
Powered through the IGIF

Thank you