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# Perspectives from the Science-Policy Nexus

23.05.2022

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# Experience with the science-policy interface: How to support fire managers in Australia with EO data

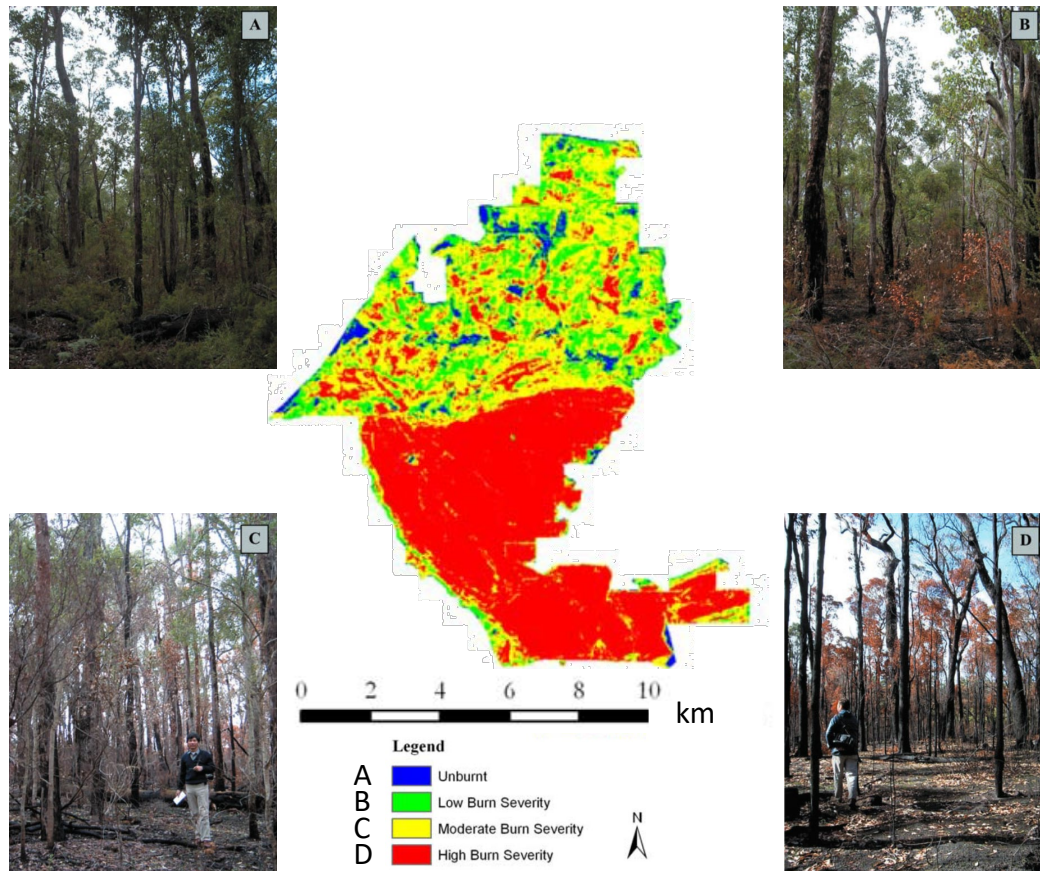


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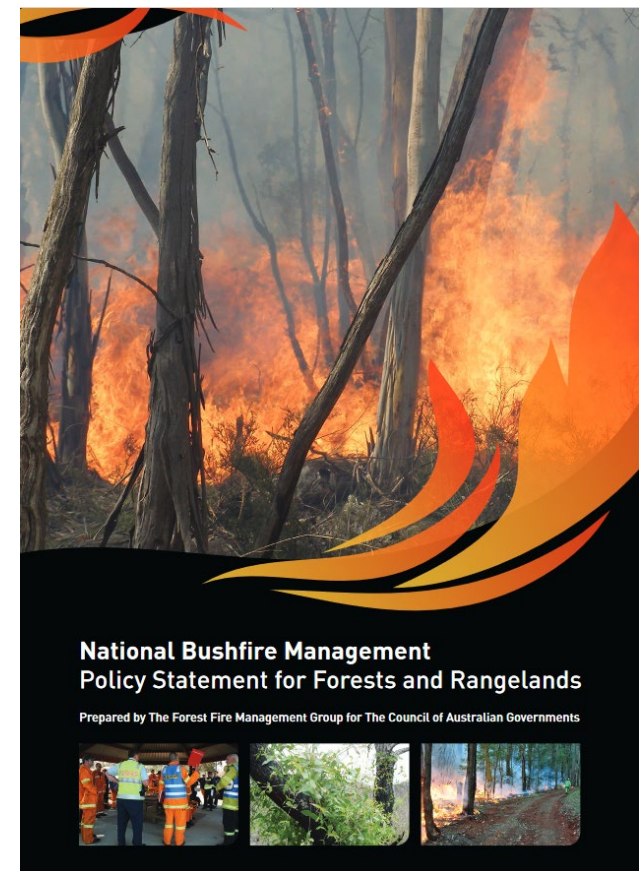
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## Science-based output: Measuring burn severity



## Motivation to support policy- relevant decision making



# Experience with the science-policy interface: How to support disease control in West Africa with EO data



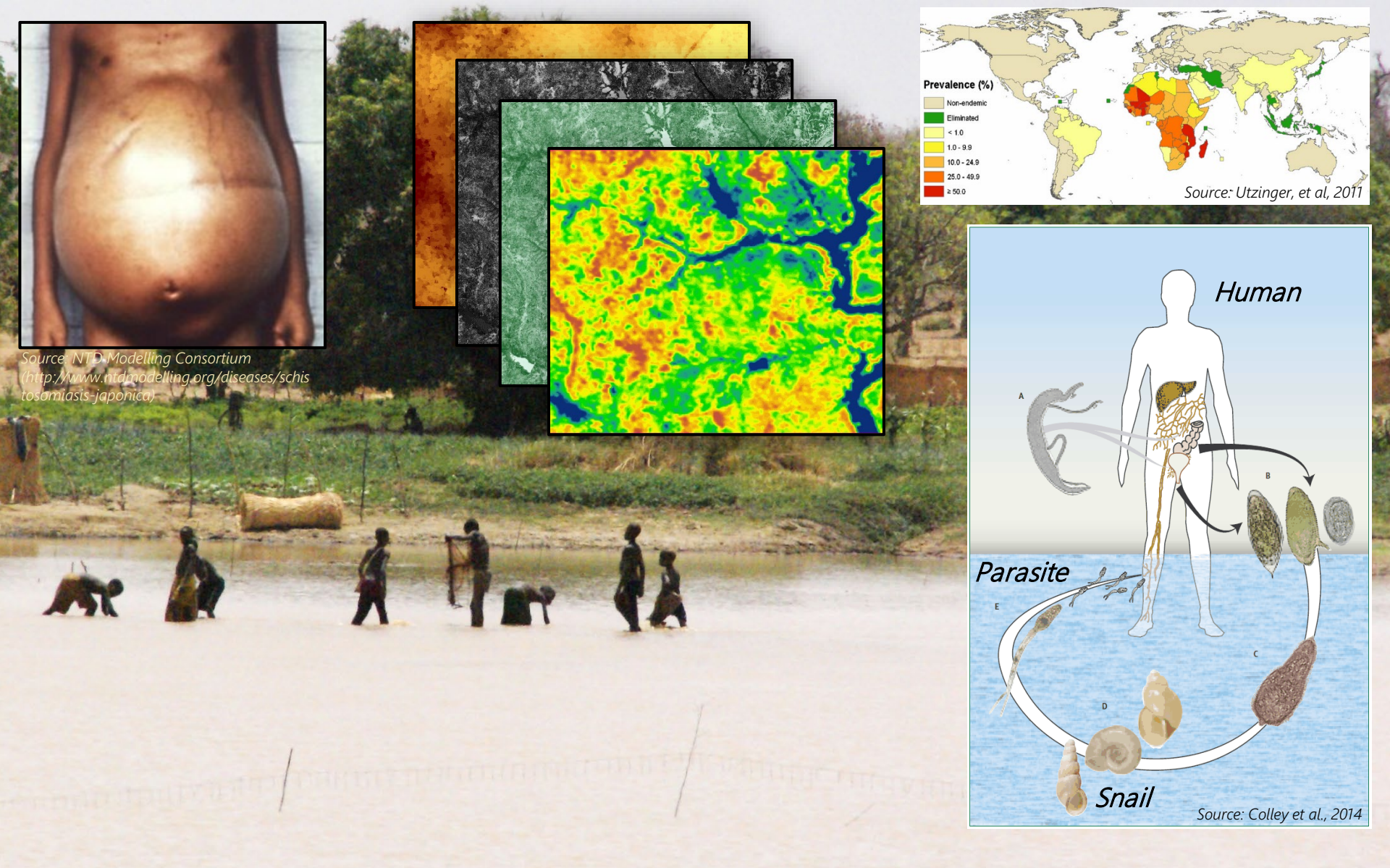
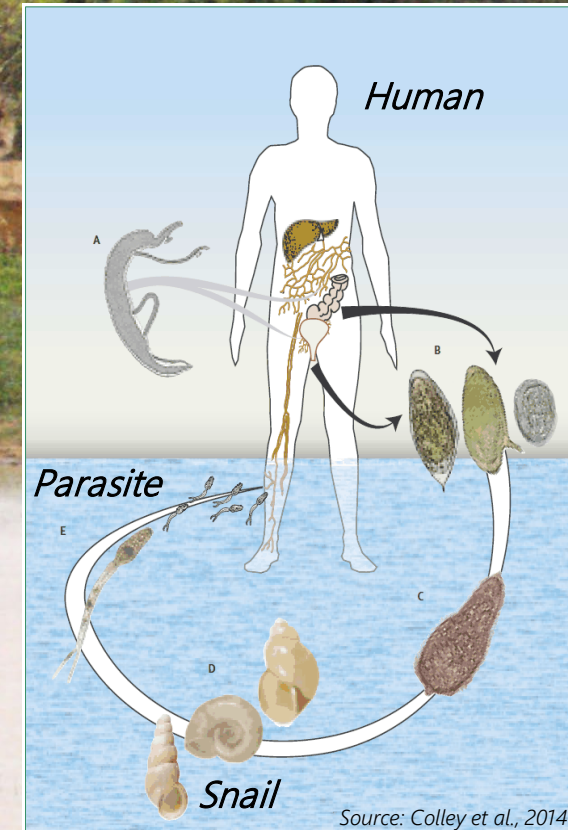
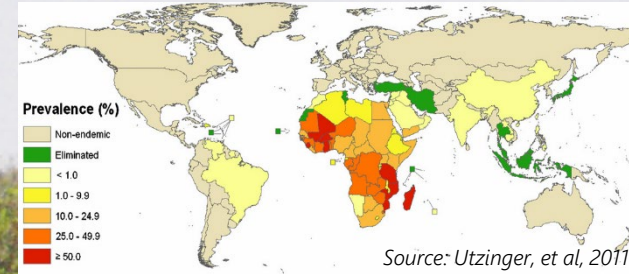
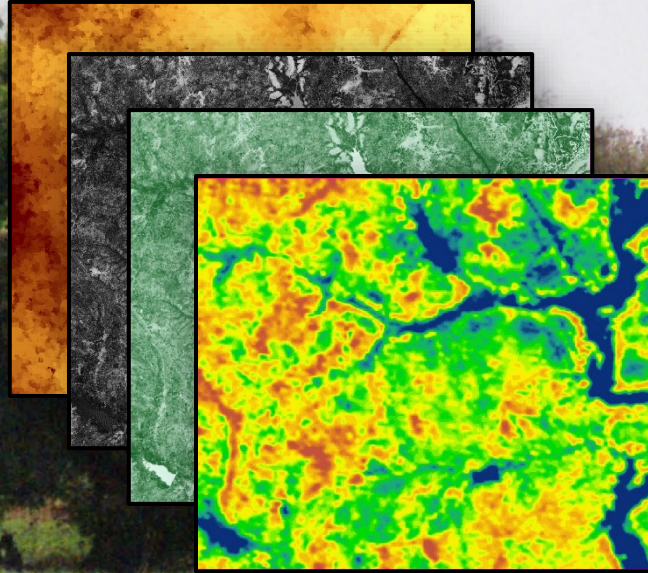
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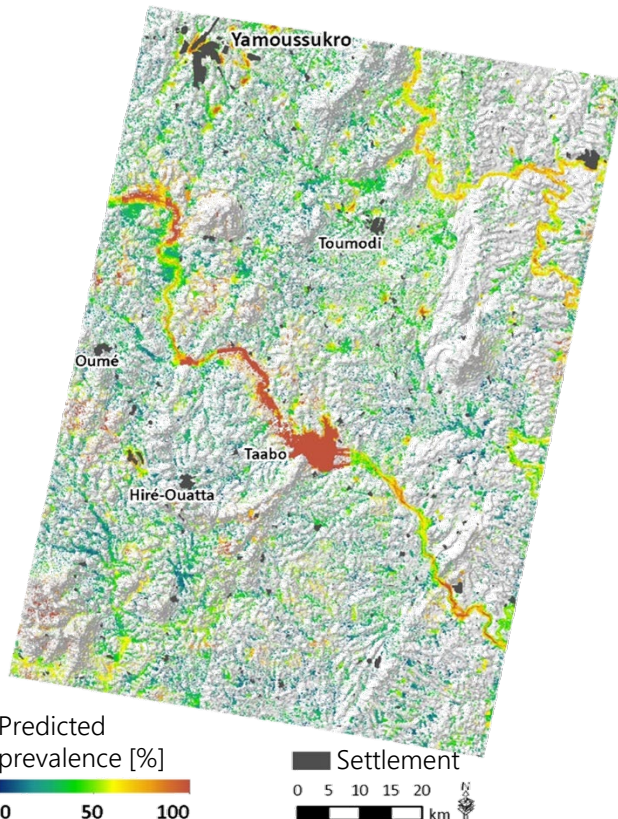
Source: NTD Modelling Consortium  
(<http://www.ntdmodelling.org/diseases/schistosomiasis-japonica>)



# Experience with the science-policy interface: How to support disease control in West Africa with EO data



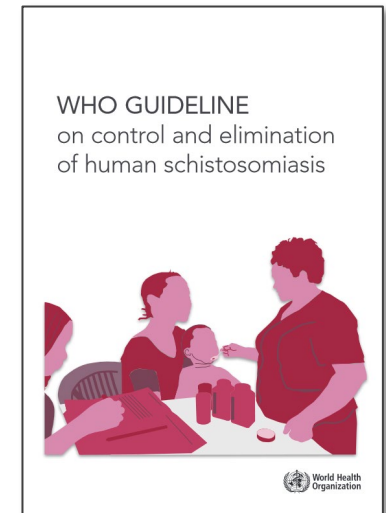
## Science-based output: Predicted schistosomiasis prevalence at potential disease transmission sites in Cote d'Ivoire



## Motivation to support policy- relevant decision making

Entry points for intervention:

- 1.) Mass drug administration to reduce prevalence at schools/communities
- 2.) Prevent transmission and re-infection



Walz, Yvonne, Wegmann, Martin, Leutner, Benjamin, Dech, Stefan W, Vounatsou, Penelope, N',Goran, Eliézer K, Raso, Giovanna and Utzinger, Jürg (2015). Use of an ecologically relevant modelling approach to improve remote sensing-based schistosomiasis risk profiling. *Geospatial Health*, 10(2), 271-279

Walz, Yvonne, Wegmann, Martin, Dech, Stefan, Vounatsou, Penelope, Poda, Jean-Noël, N',Goran, Eliézer K, Utzinger, Jürg and Raso, Giovanna (2015). Modeling and validation of environmental suitability for schistosomiasis transmission using remote sensing. *PLOS Neglected Tropical Diseases*, 9(11), 1-22

# living planet symposium

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TAKING THE PULSE  
OF OUR PLANET FROM SPACE

## Understanding the Earth System

How satellite data and science contribute to our understanding of the different Earth Systems, climate and their interactions

## Advance future technology for EO missions

Demonstrate new EO instruments and technologies for existing and future missions

## Nurture public and private sector partnerships

Highlight the importance of existing and new partnerships, expand the EO user base, increase access to capital and commercialization

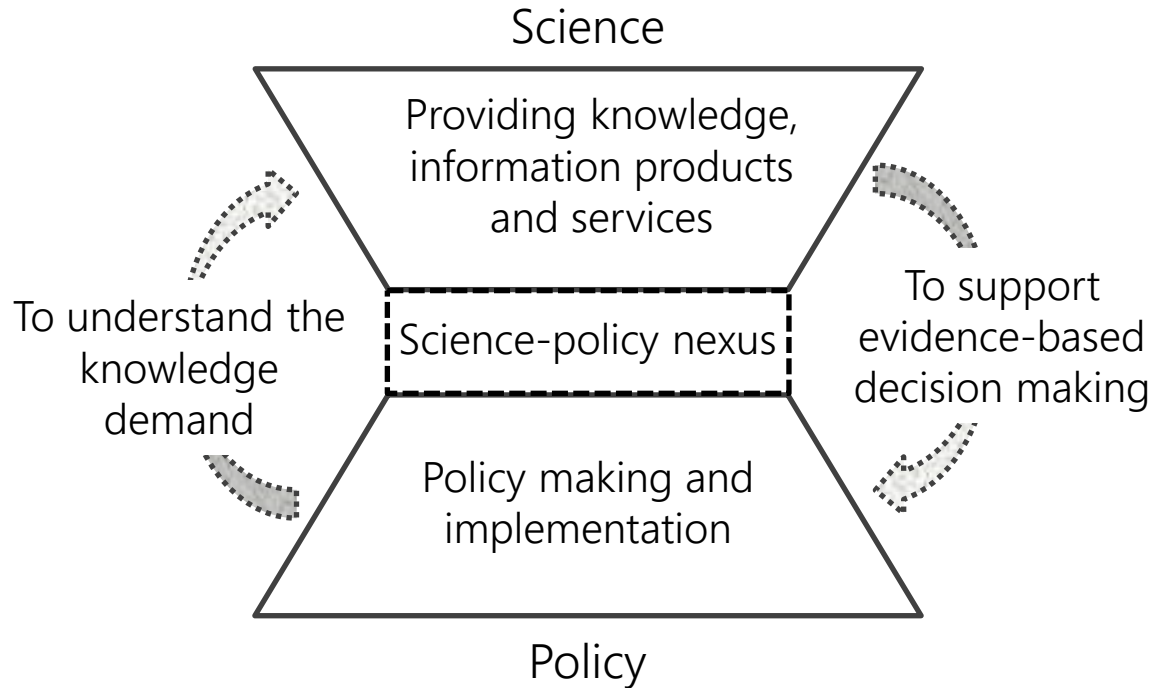
## Enable the EO digital transformation

Demonstrate how next generation technologies will create new opportunities for EO including data collection, processing, distribution and analysis

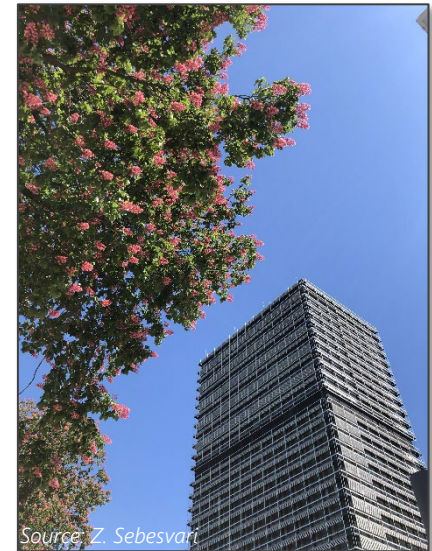
## Empower the green transition

Confirm how EO services can be integrated with local, national and global policies to drive socio-economic sustainable development, security, and resilience

How satellite data and science contribute to our understanding of the different Earth Systems, climate and their interactions



Perspective from UNU



Confirm how EO services can be integrated with local, national and global policies to drive socio-economic sustainable development, security, and resilience

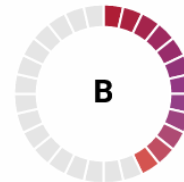
# Understanding the knowledge demand that EO data can be integrated with local, national and global policies



## Chart of the Sendai Framework for Disaster Risk Reduction 2015-2030

Prevent new and inclusive economic, technological, political and vulnerability

Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015



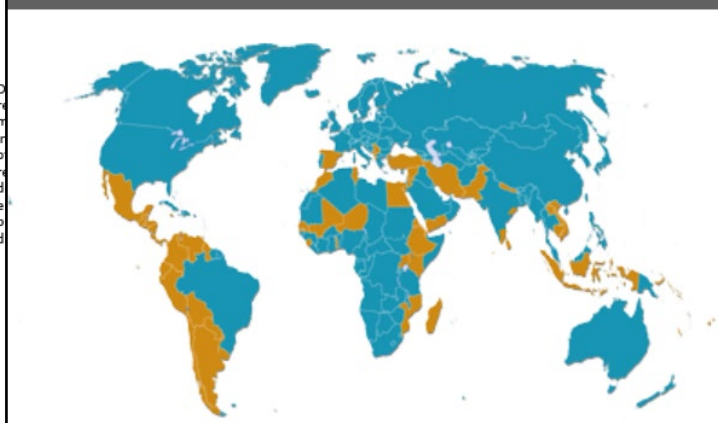
People affected

105 Not started  
43 in progress  
11 ready for validation  
36 validated

Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030



### Disaster loss data for Sustainable Development Goals and Sendai Framework Monitoring System



<https://sendaimonitor.undrr.org/>

There is a need for focused action with

#### Priority 1

Understanding disaster risk

Disaster risk management needs to be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment

Following four priority areas.

#### Priority 4

Disaster preparedness for response, and to «Build Back Better», rehabilitation and reconstruction. States that disaster response needs to be strengthened and that response and recovery are in place for recovery. Disasters have led that the recovery, reconstruction phase, be prepared ahead of the opportunity to «Build Back Better» integrating disaster risk reduction. Women and persons should publicly lead and equitable and universally reaches during the response and reconstruction phases.

# Quantifying indicator B-5:

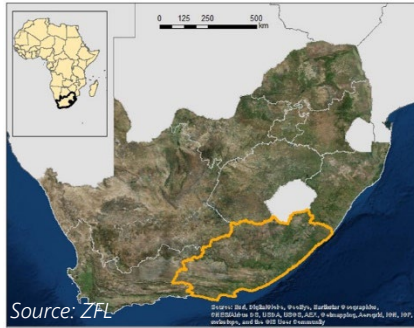
## Number of people whose livelihoods were disrupted or destroyed, attributed to droughts in South Africa



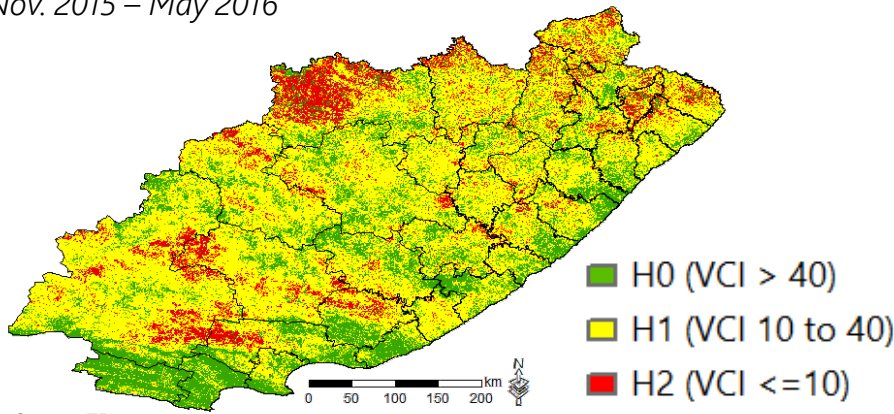
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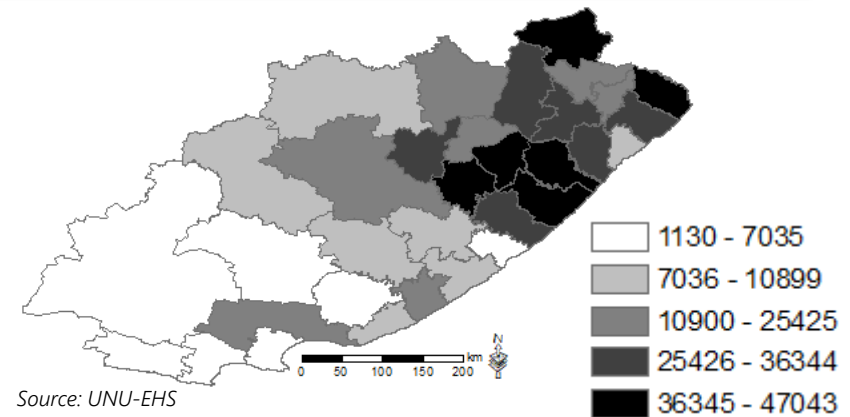
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### Median VCI Nov. 2015 – May 2016



### Number of hectares of crops damaged or destroyed due to agricultural drought

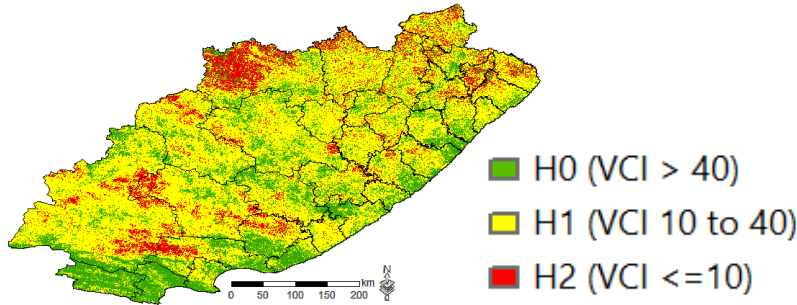




# Target B: Provide data and information on loss and damage



## B-5a: Number of workers in agriculture with crops damaged or destroyed



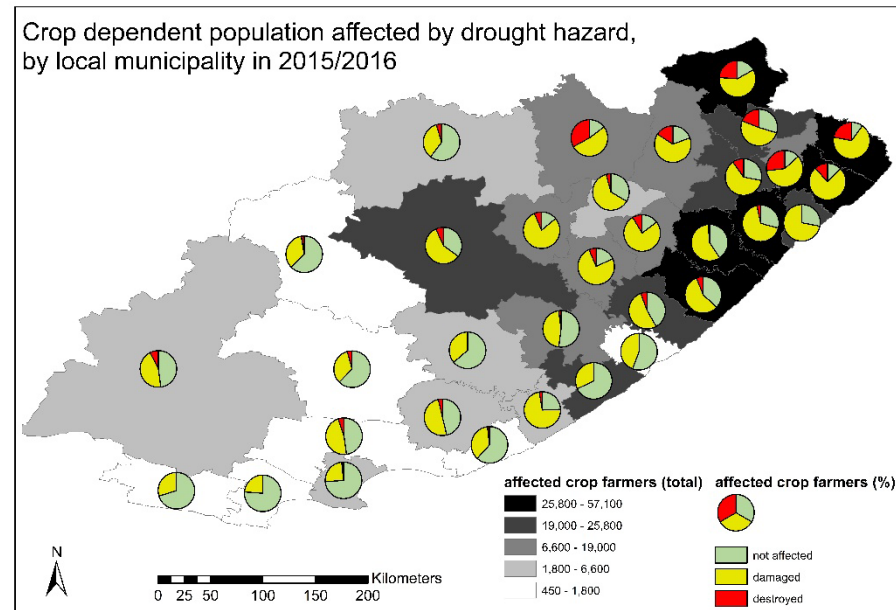
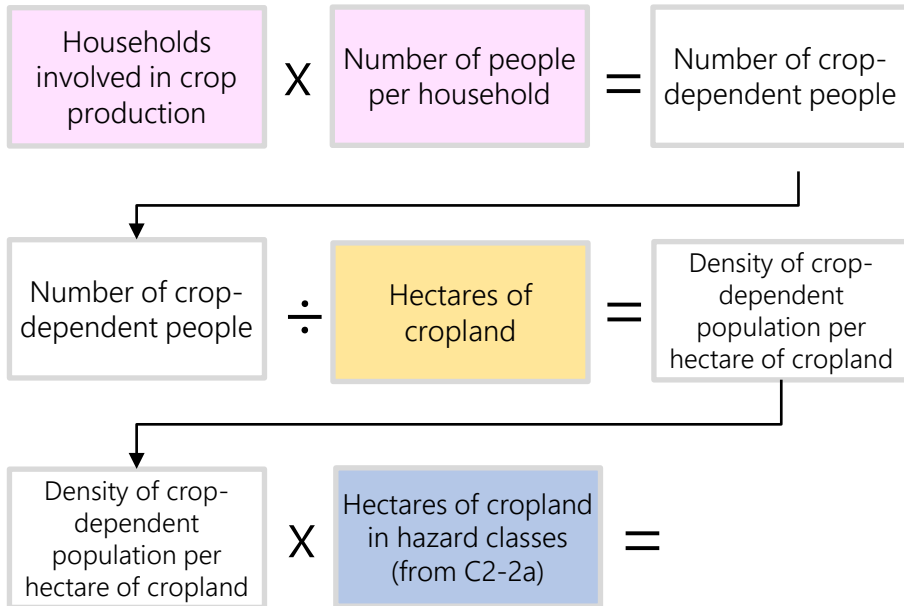
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Source: Walz, Y., Min, A., Dall, K., Duguru, M., Villagrán de León, J.C., Graw, V., Dubovyk, O., Sebesvari, Z., Jordaan, A. and Post, J. (2020). Monitoring progress of the Sendai Framework using a geospatial model: The example of people affected by agricultural droughts in Eastern Cape, South Africa. *Progress in Disaster Science*, 5, 1-12





# Next steps towards policy implementation

## Development and Validation of Earth Observation-Based Indicators for the Monitoring of the Sendai Framework Using the Example of Flooding in Ecuador (VALE)

- Scientific validation of the methodological approach
- Collaboration with the national Sendai focal point in Ecuador
- Collaboration with UNDRR → Midterm Review of SFDRR
- Capacity building and dissemination at multiple levels

→ More info in Sessions D2.15.1 and D1.05.1



Supported by:



Federal Ministry  
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by the German Bundestag



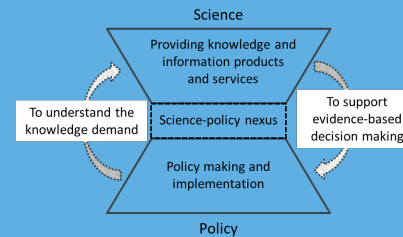
DLR

Space Administration



Urrutia, I., J. M., Riembaauer, G., Scheffczyk, K., Huerta, B., Neteler, M., & Walz, Y. (2022). A quantitative EO-based assessment of the number of workers in agriculture with crops damaged or destroyed (SFDRR indicator B-5a). GEO Knowledge Hub. <https://doi.org/10.5072/4sj8k-5z391>





## How satellite data and science contribute to our understanding of the different Earth Systems, climate and their interactions

- Satellites provide a unique data source and technology to address many challenges we face from the local to the global level.
- To support evidence-based decision making it is essential to understand the local context.
- Need for interdisciplinarity: Satellite data and information products need to be coupled with data and information from other disciplines.

## Confirm how EO services can be integrated with local, national and global policies to drive socio-economic sustainable development, security, and resilience

- Invest time to understand the knowledge demand.
- Collaborate with policy makers from the moment of initiating projects to understand their way of working and decision-making.

# Thank you for your attention!



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