

USING COMMUNITY DATA AND ANALYTICS TO BUILD RESILIENCE TO FLOODING PROFESSOR JOÃO PORTO DE ALBUQUERQUE

TO MAKE THE MOST OUT OF THIS SCRIPT, YOU COULD:

- Stick it in your book as a record of watching João's animation
- Pause the animation and make notes as you go
- Add your own illustrations to the sheet
- Create your own animation to accompany it
- Add notes from classroom discussions
- Make notes of areas you will investigate further
- Make notes of key words and definitions
- Add questions you would like answered – you can message João through the comments box at the bottom of his article: www.futurumcareers.com/using-community-data-and-analytics-to-build-resilience-to-flooding

SCRIPT:

Climate change is causing extreme weather events to become more frequent and more severe.

Professor João Porto de Albuquerque, an urban analyst at the University of Glasgow in the UK, is leading the Waterproofing Data project. This project involves an international team with partners at Getulio Vargas Foundation and the National Centre for Disaster Monitoring and Early Warning (CEMADEN), in Brazil, as well as at Heidelberg University in Germany.

They are exploring how to increase communities' resilience to flooding, by engaging them in the process of generating the data used to predict when floods will occur.

The team is working with communities that are vulnerable to flooding in Brazilian cities. Rapid urbanisation has resulted in the expansion of deprived neighbourhoods, sometimes called favelas or slums. Housing in these neighbourhoods is often non-durable and so may collapse during floods.

Data about the risks and impacts of flooding are often missing from poor neighbourhoods. Social inequalities are reflected in varying data availability, with data gaps in impoverished urban areas.

If there are not sufficient data about rainfall and flooding in an area, it is very hard to predict when floods may occur. This increases the risk to these communities as they are less likely to have warning before flood events.

João and the Waterproofing Data team hope to fill these information gaps.

The team works in schools in these communities, teaching students concepts about flooding risk, vulnerability and resilience. Students also construct rain gauges which they use to record the daily rainfall in their neighbourhood.

The team has developed an app, which students use to send their rainfall measurements to Brazil's national agency for flood early-warning. They can also use the app to record flooding events and their impacts on the neighbourhood.

The flood monitoring agency uses these data to develop better flood models, thereby improving the accuracy of future flood warnings.

The Waterproofing Data team also engages with older members of the communities, who share their memories of past floods. These stories become crucial data for informing the flood resilience of the future.

The fact that these flood data are community-generated means they have greater impacts than just improving flood warnings. Students are empowered by acting as citizen scientists, contributing data to the national flood early-warning system. And by observing the correlations between rainfall intensity and flood events, they gain a deeper understanding of flood risk in their communities.

The team's research has shown that the act of generating data leads communities to think differently about rainfall, floods and how they relate to their neighbourhoods.

João believes this philosophy of citizen engagement in data generation could empower communities around the world to prepare and defend themselves against floods and other hazards that are increasing due to climate change.

How could you help communities through the power of data?

What could you achieve as an urban analyst?
