

Digital tools for education

SmartWB

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Tools for digital interaction with
students

What students expect from our lectures?

- Knowledge transfer
 - Transportation engineering
 - practical (real life) examples
 - Visualisation
 - Interaction
 - Env protection
 - Facilitation of critical thinking
 - PBL
 - Help keeping focus and interest
 - Sites visits (3D, virtual reality)

Good interaction practices?

- Knowledge transfer
 - Transportation engineering
 - Practical (real life) examples – include in the lectures, written case studies
 - Visualisation – physical models, design software, videos, paper prototypes
 - Interaction – Q&A, workshopping, world cafe
 - Env protection
 - Facilitation of critical thinking – problem-centred discussion, debates – facilitation is very important (materials)
 - PBL – capstone project (term papers)
 - Help keeping focus and interest – interaction, emphasising importance, connection to real life, instructor guided attention
 - Sites visits (3D, virtual reality)

How to improve our interaction

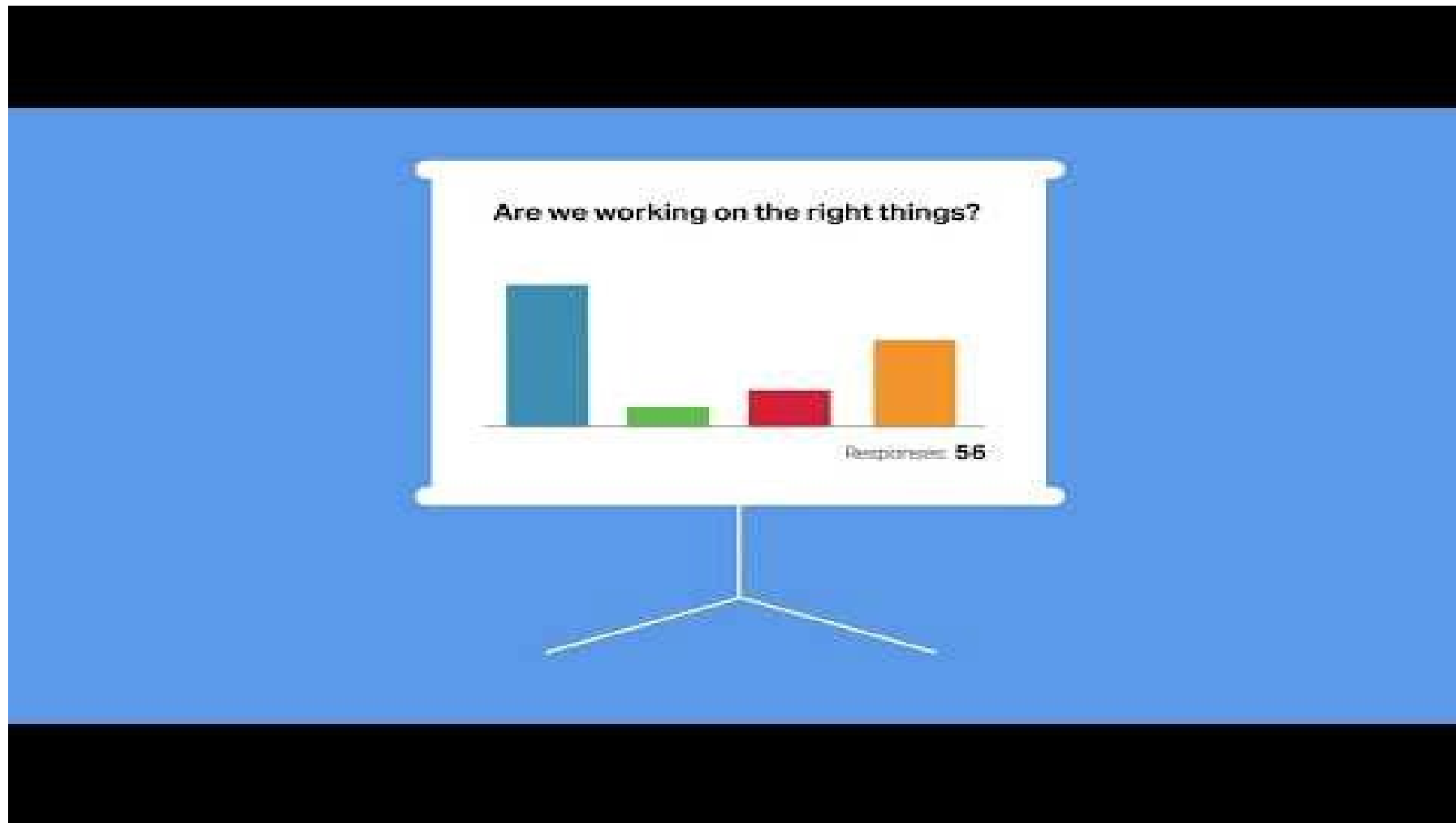
Surveys - Slido



Game-based learning - Kahoot



Surveys + game-based learning - Mentimeter

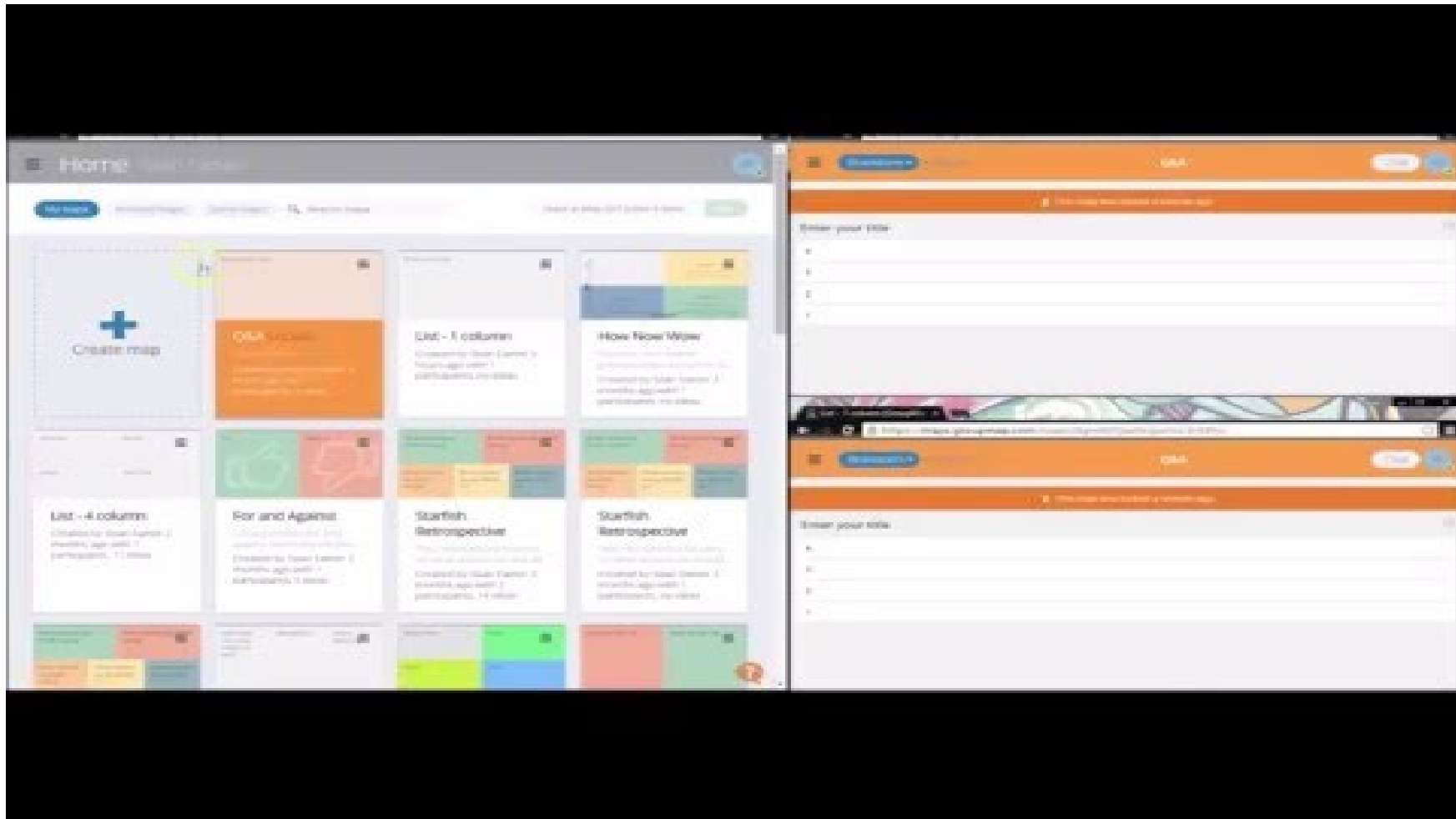


Examples from NMBU

(online demonstration)

Collaborative Brainstorming & Group Decision-Making

Groupmap



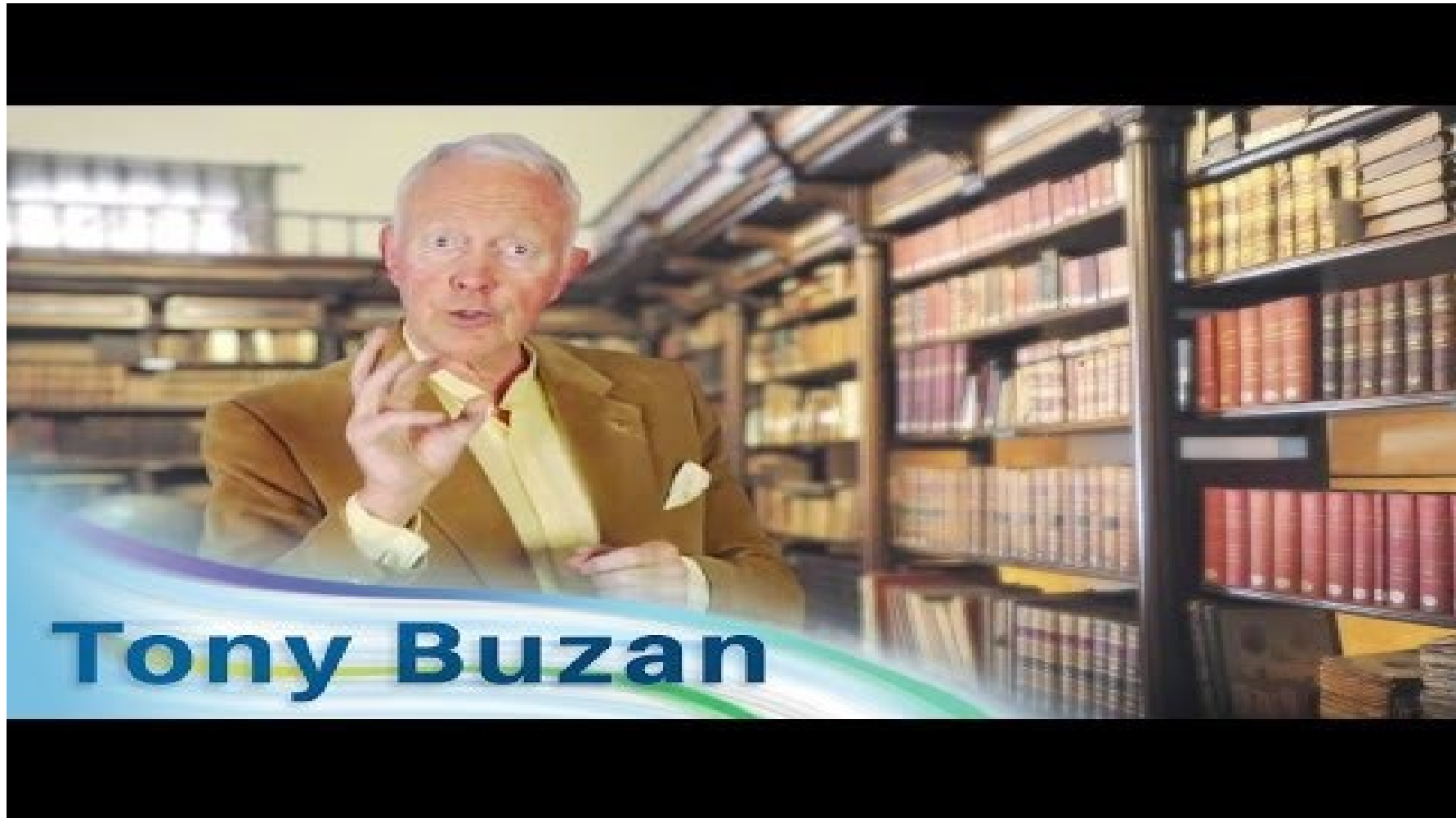
Padlet

padlet

How to Padlet

Introduction to Padlet

MindMap



Digital workshops

Designing, preparing and carrying out

Subject inputs

The
Economist

Climate of fear

How to think about global warming and war
They are linked—and that is worrying



[Print edition | Leaders](#)
May 23rd 2019

Did climate change cause the war in Syria? Or the genocide in Darfur? Obviously, that is not the whole story. Suppose Syria's despot, Bashar al-Assad, or Sudan's former tyrant, Omar al-Bashir, were to find themselves on trial in The Hague and tried to blame their country's carnage on global warming. Such a risible defence would flop. No conflict occurs without leaders to give orders and soldiers to pull

HEATING UP

HOW CLIMATE CHANGE CAN FUEL WARS

Droughts are already making conflict more likely. As the world gets hotter, mayhem could spread



[PRINT EDITION | INTERNATIONAL](#)

May 25th 2019 | BAGA SOLA, CHAD, BAMAKO, MALI AND THE HAGUE

On the outskirts of Baga Sola, a small town in Chad not far from the border with Nigeria, is a refugee camp called Dar es Salaam. The name means "haven of peace", but the surrounding area is an inferno of war, spilling across the borders of four countries: Chad, Nigeria, Niger and Cameroon. Some 2.4m people have been forced to flee the fighting.

The most obvious cause of their suffering is ideological. The jihadists of Boko Haram want to establish a caliphate, snuffing out such sins as Western-style education and imposing a harsh form of sharia (Islamic law) as the sole system of government. To this end, they torch villages, behead aid-workers and enslave or strap bombs to young girls.

NATIONAL
GEOGRAPHIC

<https://news.nationalgeographic.com/2018/03/world-water-day-water-crisis-explained.html>
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From Not Enough to Too Much, the World's Water Crisis Explained

Many more cities than Cape Town face an uncertain future over water. But there are emerging solutions.

BY STEPHEN LEAHY
PUBLISHED MARCH 22, 2018

"Day Zero," when at least a million homes in the city of Cape Town, South Africa, will no longer have any running water, was originally scheduled for April. It was recently moved to July. The three-year long drought hasn't ended, but severe water rationing—limiting people to a mere 13 gallons (50 litres) per person per day—has made a difference. (To put this into perspective, an average U.S. citizen uses 100 gallons (375 liters) per day.)

"No person in Cape Town should be flushing potable water down a toilet any more.... No one should be showering more than twice a weeknow," said Helen Zille, the premier of the Western Cape province, where Cape Town is located.

Like many places in the world, Cape Town and the surrounding region has likely reached "peak water," or the limit of how much water can be reasonably taken from the area, says water scientist Peter Gleick, president-emeritus of the Pacific Institute. Gleick, who has spent substantial time in South Africa, says the country generally has good water managers.

"Two years ago, I would not have predicted Cape Town would face day Zero," he said in an interview. However, climate change has disrupted the Earth's hydrological cycle (water cycle), changing when, where, and how much precipitation falls. That has made water management planning far more challenging, he said. Yet our water systems were largely built based on the more stable climate of the past.

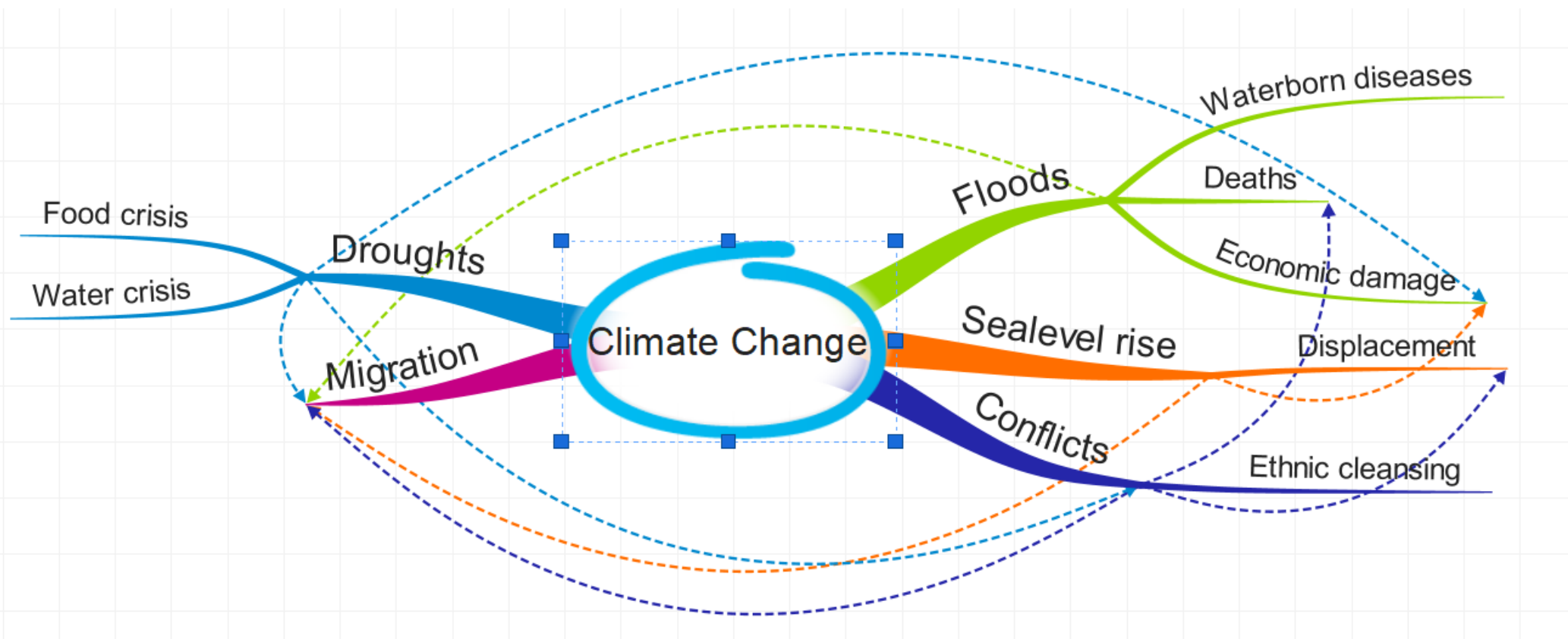
"What's happening in Cape Town could happen anywhere," says Gleick.

Subject inputs



The Leaders of These Sinking Countries Are Fighting to Stop Climate Change. Here's What the Rest of the World Can Learn

By [Justin Worland](#) | Photographs by Christopher Gregory for TIME
June 13, 2019

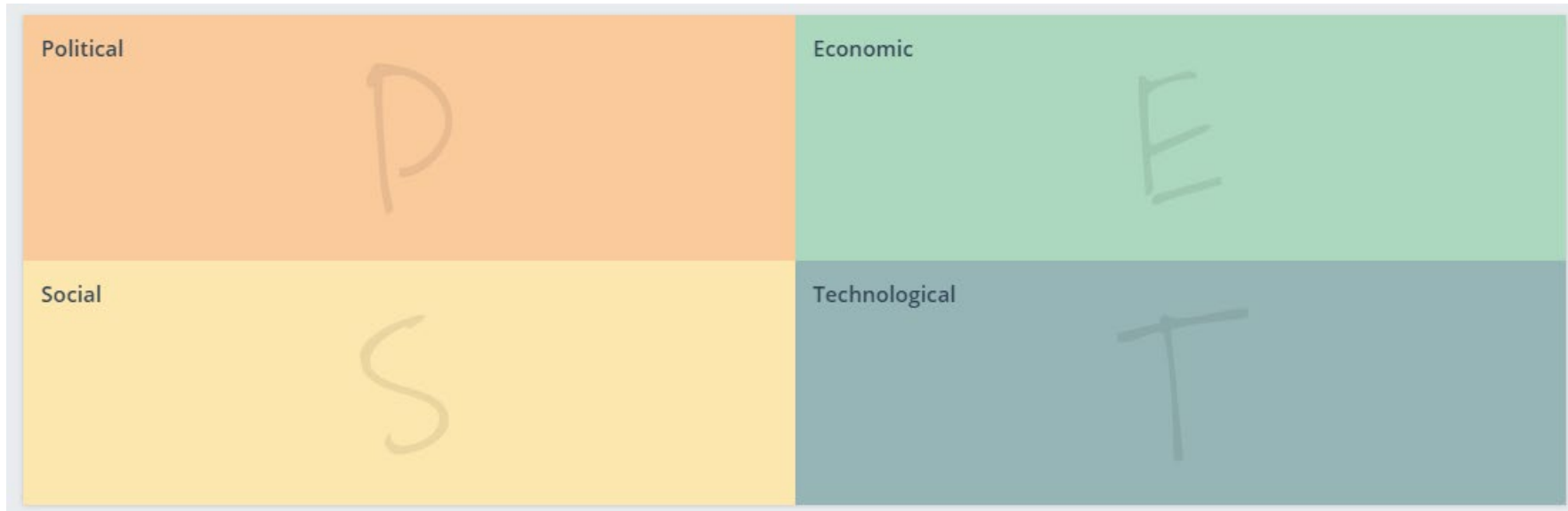


Tool structure

- How many and which factors to include?



PEST Analysis



PESTL Analysis

