Living with Strange Weather: Ireland in 2050

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Strange Weather: Present

Scientists Create 52 Artificial Rain Storms in Abu Dhabi Desert

Hall, lightning and gales came through the state’s eastern region this summer thanks to scientists experimenting with cloud seeding.

As part of a secret program to control the weather in the Middle East, scientists working for the United Arab Emirates government artificially created rain where rain is generally found to be found. The $1 million project, which began in July, put steel lampshades looking at an ionizer in the desert to produce charged particles. The negatively charged ions rose with the hot air, attracting dust. Moisture then condensed around the dust and eventually produced a rain cloud. A bunch of rain clouds.

Storm Warnings: Extreme Weather Is a Product of Climate Change

More violent and frequent storms, once merely a prediction of climate models, are now a matter of observation. Part 1 of a three-part series

In North Dakota the waters kept rising. Swollen by more than a month of record rains in The Souris River topped its all-time record high, set back in 1981. The floodwaters poured into Minot, North Dakota’s fourth-largest city, and spread across thousands of acres of farms and forests. More than 13,000 people were forced to evacuate. Many lost their homes to the floodwaters.
Strange Weather: Future

Here is the weather for 2080: floods, droughts and heatwaves
The UK government today issued the most detailed assessment yet of how global warming will unfold across the nation

David Adam, environment correspondent
theguardian.com, Thursday 18 June 2009 18.10 BST

And now for the weather. The 2020s are looking warm and dry, with occasional heavy winter showers. The 2050s should be sunny and warm, with scattered deaths due to heatwaves across London and the south-east. And looking ahead to the 2080s, temperatures could reach 41°C, so be sure to pack the sunscreen for your picnic. And watch out for those great white sharks!

Scientists today issued the most detailed assessment yet of how global warming will unfold across Britain. In a range of possible scenarios published by the government, the experts painted a picture of a very different UK, with soaring summertime temperatures and dwindling rainfall.

Water in 2050
The Future of Water Requires a Sustainable, Blue Path
To be able to adequately feed and support the world’s growing population, our global economy needs to continue to grow. Water is critical to future growth but it can also become the major limiting factor to growth. For instance, businesses in water-scarce areas are already at risk, and so investors are increasingly taking water supply into consideration during their decision-making processes.

Given today's approach to water management, there is only so much growth that can be sustained. Gains in efficiency and productivity in water management and utilization can reduce these risks and enable higher levels of sustainable growth, but how much higher? How far-reaching do those gains have to be? And can we make a difference in a timely enough manner by understanding that the path for sustainable growth requires more than green solutions – but also requires blue ones?

Future Weather- Future Farming: A Conference on Agriculture and Future Weather Patterns

Date: Thursday 05th December 2013

Venue: Teagasc Food Research Centre, Ashtown, Dublin

Conference
Food Harvest 2020 has set ambitious targets for Irish Agriculture with a 50% increase in milk production targeted along with an increase in the output value of beef by 40% and sheep by 20% by 2020. Irish livestock production is pasture-based and grazing systems will play a major role in meeting these targets.
Strange Weather & Consumption

Perfect Storm

- "Can we cope with the demands in the future on water? Can we provide enough energy? Can we do it, all that, while mitigating and adapting to climate change? And can we do all that in 21 years' time?"

John Beddington – UK Chief Scientific advisor 2009

Factor change required

- Developed world needs to achieve Factor 10 – 20 reduction in material consumption by 2050

Schmidt-Bleek (2007); Jansen & Vergragt (1992)

System innovation essential for sustainable consumption

- Daily consumption is comprised of a set of social practices situated within socio-technical systems; a cluster of elements, including technology, regulations, user-practices and markets, cultural meanings, infrastructure, maintenance and supply networks.

Elzen et al. (2004, 3)
Reacting to strange weather of the future: “What if experiments”
Geoengineering for less ‘strange weather’?

- Solar radiation
- Carbon sequestration
- But costs, benefits & risks are not well understood
Geoengineering: a moral hazard?

• “There may be a pressure for 'panic measures'… being fatalistic about continuing dependence on fossil fuels, but combating its effects by some form of geoengineering” Lord Rees, Ex-President the Royal Society, 11th Sept. 2013

• “The recurrent mirage of a silver bullet solution to climate change is often a sign of despair at world leaders' unwillingness to seriously tackle CO2 emissions” Doug Parr, Chief Scientist of Greenpeace, 11th September 2013

• Geoengineering is not just “a thing to be responded to and governed, but an opportunity for collective reflection on climate change, [science and technology] and, ultimately, how we as a society chose our problems and solutions.”
Governing Geoengineering: The Oxford Principles

- Principle 1: Geoengineering to be regulated as a public good.
- Principle 2: Public participation in geoengineering decision-making
- Principle 3: Disclosure of geoengineering research and open publication of results
- Principle 4: Independent assessment of impacts
- Principle 5: Governance before deployment

See: http://www.geoengineering.ox.ac.uk/oxford-principles/principles/

The Oxford Martin School at Oxford University
How might the needs of home heating, eating and washing be delivered more sustainably in the face of “strange weather” 2050?
CONSENSUS Backcasting Approach

1. Begin with the end in mind
2. Look backwards from the vision to the present
3. Move step by step towards the vision
DE-WATERISE - WASHING WITHOUT WATER

SET YOUR REVITE-ALARM

Set your revite-alarm

This will leave you refreshed in the morning

No need for a shower to wake up

CHECK YOUR ‘SMELL-STATUS’

Relieves anxiety over body odor
AQUA-ADAPT - WASHING IN TUNE WITH RAINFALL

CHECK YOUR RAINWATER LEVELS

Rain is the only source for washing

LOW RAINWATER LEVELS

It's o.k not to wash today

Visit the Waterfall Salon
WATER CONTROL - WASHING WITHIN LIMITS

CHECK YOUR WATER ALLOWANCE
Activate with fingerprint
Record and review your use
Have a ‘Smart Shower’

MULTIPLE RE-USE OF WATER
Nothing wasted, water is cleaned and re-used for other washing needs.

NEIGHBOURHOOD WATER WATCH
If you exceed your allowance
How do you compare?
If you’re under your limit
Public Engagement

Consensus participatory backcasting process

Visioning Workshop → Scenario Elaboration → Scenario Sustainability Evaluation → Transition Workshop → Transition Framework

Visioning Phase

Citizen-Consumer workshops

Transition Phase

Key: Stakeholder engagement Back-office

www.consensus.ie
## Transition Framework

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<tr>
<td>🛓 Campaign for adaptive washing strategies &amp; targeted cleaning</td>
<td>🛓 Regulation on advertising promoting excessive hygiene</td>
<td>🛓 Regulation &amp; controlled messaging</td>
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<tr>
<td>🛓 School campaigns on efficient washing practices (in syllabus)</td>
<td>🛓 Deodorising clothing uniforms &amp; ‘Wash in Work’ campaigns</td>
<td>🛓 Dirt &amp; odor monitor mainstreamed</td>
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<td>🛓 Sports centres and clubs healthy washing initiatives</td>
<td>🛓 Adaptive and low / waterless cleaning solutions</td>
<td>🛓 Fully conscious &amp; adaptive washing practices</td>
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<td>🛓 Research healthy washing levels (for different lifestyles)</td>
<td>🛓 R&amp;D dirt &amp; odor monitor</td>
<td>🛓 Deodorising wear widespread especially for sport and workwear</td>
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<td>🛓 Myth busting about cleanliness &amp; hygiene requirements</td>
<td>🛓 New national water authority - ‘Iris Water’ established (existing policy)</td>
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<td>🛓 R&amp;D deodorising clothing &amp; causes of sweat</td>
<td>🛓 Sustainable Water Consumption Agency</td>
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<td>🛓 R&amp;D waterless, gel-based cleaning agents</td>
<td>🛓 Water metering by 2035 (existing policy)</td>
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<td>🛓 Efficiency improvements for water fixtures at the time of metering</td>
<td>🛓 R&amp;D ‘home water monitor’ and water calculator</td>
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<td>🛓 Building regulations for enhanced efficiency of water using fixtures</td>
<td>🛓 Communications supporting the need for water charging</td>
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<td>🛓 Water Efficiency Rating (WER) for homes &amp; products</td>
<td>🛓 Education on the value of water, the water cycle &amp; supply system</td>
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<td>🛓 R&amp;D systems for re-use of greywater between water appliances</td>
<td>🛓 Holistic water management integrated into professional training</td>
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<td>🛓 R&amp;D for shower improvements (flow variations, live feedback)</td>
<td>🛓 ‘Home water monitor’ systems rolled out (link with energy)</td>
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<td>🛓 Research rainwater harvesting RWH* &amp; GWH** potential</td>
<td>🛓 Household benchmarking, eco-rewards and ‘Tidy Towns’ competitions</td>
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<td>🛓 Pilot retrofit for RWH &amp; GWH - link with energy retrofit programmes</td>
<td>🛓 Tax breaks and in-store promotions for efficient devices</td>
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<td>🛓 Build skills &amp; accreditation for water retrofit programmes</td>
<td>🛓 Water calculator apps for water using devices</td>
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<td>🛓 R&amp;D for rainwater monitor, advanced filters for RWH and GWH</td>
<td>🛓 R&amp;D waterless showers, nano-particle cleaners</td>
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<td>🛓 Myth busting on greywater &amp; rainwater &amp; health risks</td>
<td>🛓 Ban on water inefficient products</td>
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<tr>
<td>🛓 Business support &amp; investment in ‘Hydro-nation’ economy</td>
<td>🛓 Building regulations maximum 70 litres per person per day</td>
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<td>🛓 BT Young Scientist - water theme</td>
<td>🛓 Nationwide water retrofit - GWH, RWH, rainwater monitors</td>
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<td>🛓 ROI Universal water metering (commences 2012)</td>
<td>🛓 Retrofitters to provide education on water efficiency</td>
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<td>🛓 Irish Water estd. 2013. NI Water Tax 2014</td>
<td>🛓 Building regulations for RWH &amp; GWH systems - individual &amp; communal</td>
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<td>🛓 Public buildings and schools water programme, develop Aqua Park</td>
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<td>🛓 R&amp;D ‘dual water systems’ infrastructure - match water quality with use</td>
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<td>🛓 R&amp;D for ‘Smart water grid’</td>
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**Legend**:
- Policy
- Education & Community
- Research & Business
- Existing policy milestones

* GWH = Grey Water Harvesting
** RWH = Rain Water Harvesting

'Blueprint to Safeguard Europe’s Water' - EU policy, sets targets for water efficiency to 2050
CONSENSUS 2009 - 2013

FOUNDED RESEARCH
- Lifestyle survey
- Governing tools

EXPLORATORY RESEARCH
- Backcasting research
  - Energy
    - Heating
  - Water
  - Washing
  - Food
    - Purchasing
    - Cooking
    - Wasting
- Mobility
  - Workplace
  - Mobility
  - Teleworking practices

CONSENSUS 2014 - 2015

LIFESTYLE SEGMENTATION
- Lifestyle profiling
  - (based on survey findings)

SUSTAINABLE EVERYDAY PRACTICES
- In-Home Living Labs
  - Personal washing
  - Eating
- Mobility Practices
  - Mobility Biography
  - Mapping

HomeLab
EXPERIMENTS IN SUSTAINABLE LIVING
Selected publications:


Thanks to EPA, Consensus research team & all research participants

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