

British Section

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Norman Train hands over the presidency for 2023 to Lester Sonden

ARE WE ABOUT TO RUN OUT OF WATER?

President Lester Sonden gave his inaugural lecture on the topic "Are we about to run out of water?" - a challenging but important question given the significance of a dependable clean water supply to our health and welfare as well as economic growth. Indeed, the water industry has a vital role to play in the transition to a greener economy. Lester treated us to a masterclass, encompassing the organisation of the water supply industry, the regulatory frameworks within which it operates and the long-term business planning involved to tackle the many challenges it faces.

And the water industry faces some tough challenges. Climate change is bringing drier summers and wetter winters. Extreme periods of flood and drought are becoming

more common. At the same time, population growth is putting more pressure on our available water resources. Then there is the need to meet the demands of agriculture, industry and households while keeping our rivers, lakes and aquifers healthy.



Lester outlined the organisations responsible for supplying our water. Eleven regional "big boys" both supply water and treat wastewater, six companies supply water only and nine small undertakings exist, set up in response to the Government's desire to create competition. They in their turn are regulated by three other bodies - OFWAT (setting prices, agreeing investment and balancing the interests of customers and shareholders), the Drinking Water Inspectorate (monitoring water quality) and the Environment Agency (monitoring environmental performance, granting abstraction licences and overseeing Water Resource Management Plans).

Lester explained that there are other bodies with an interest in the water supply industry. CCW is an independent voice for consumers; Natural England advises government on ways to protect and restore the natural world; local authority Environmental Health officers enforce health policies and the UK Health

Security Agency gives leadership on a wide range of health threats.

The key to managing our water supply in this complex environment lies in water resource planning. Each water company is required to formulate a five year plan which sets out the company's capital and operating expenditure for the next five to twenty years and leads to a limit being set on customers' bills during the five year period. The plans are subject to consultation with the regulators, customers and other interested parties. Typical planning objectives are to provide a reliable and sufficient supply of safe, high quality drinking water, to offer good value for money, to reduce the impact (or indeed improve) the environment and increase the resilience of the network to drought, flooding and equipment failure.

As well as the complications of organisation and planning, the physical arrangements for water supply are themselves very diverse. There are more than 2,200 underground sources of water - for example, wells, springs and boreholes



Typical borehole headworks
Multi-stage borehole pump



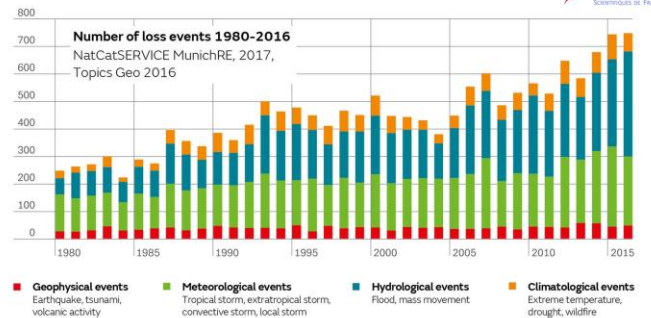
- and 474 lakes, reservoirs and rivers.



Bough Beech Reservoir - Kent

Lester illustrated the likely impact of climate change and the associated extreme weather events which challenge the best efforts to keep adequate supplies flowing.

Are extremes becoming more frequent?



In fifty years' time winters could well be 30% wetter and summers 60% drier. Population growth also seems destined to test our water supply efforts. The Office for National Statistics estimates that the UK population will reach 72 million by 2041 - an increase of 7.8% from 2019.

The demand forecasts demonstrate that unless we take action, we will not have enough water without further damaging the environment.

INCREASED DEMAND

Demand increases to improve the environment, meet climate change, population growth, and to improve drought resilience



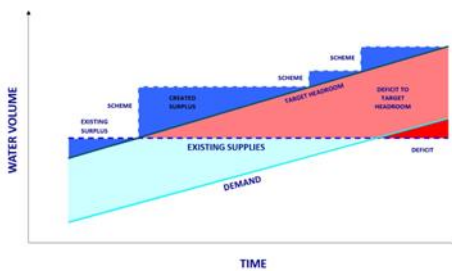
As an example, Thames Water calculates they will need an extra 1,086 million litres per day by 2075 to achieve all their objectives, or an increase of 40% on current supplies.

The South East of the country faces the biggest challenge since 50% of the national need is in that region.

The largest component in the need for more water is the requirement to make supplies more resilient to drought, although this is closely followed by population growth. In

In addition, water companies need to allow for the uncertainties of demand and supply by building in a "target headroom" of supply over predicted demand to manage the uncertainties in the forecasts. Capital schemes to increase supply levels tend to come as step changes and careful planning is needed to match these to the volume of water required over time.

WATER RESOURCES PLANNING
Supply / demand balance – concept (incl. headroom)



Should the supply fall short of demand in an area at any time a water company has a number of measures it can implement to manage such a situation. These range from media campaigns via hosepipe bans to the use of standpipes and pressure management. However, Water Resource Plans should proceed on the basis that the most extreme measures (e.g. drought orders) will not be needed more than once every 50 to 200 years on average.

Other initiatives can be taken to help match supply and demand. In the short to medium term, tackling water leakage can help on the supply side and an increased use of water meters can help reduce demand. Town planning regulations could help by requiring water efficient properties. In the longer term such initiatives as water recycling, the installation of water saving devices in large establishments, using "grey" water more widely and even the treatment of water in the home may have roles to play. Meanwhile companies can consider the construction of new reservoirs, groundwater storage,

desalination and water transfers between areas of abundance and areas of need.

But there are some things we can do as individuals too. We can use our water wisely, get a water meter if we don't have one already, water our gardens sparingly and utilise a water butt.

Ray Jefferson

IESF Ski Group

This year the ski group went to Les Menuires in the French Trois Vallées. Ten IESF members and partners travelled from Manchester and Gatwick for a week's skiing. The French Alps did not have good snow this year and on a single run down the mountain you could experience good snow, ice, manmade snow and spring snow. As was said - you must ski the conditions! Although the snow conditions could have been better, the weather was glorious, sunshine most days.



Mind the Gap!

Planning the Next Generation of Water Infrastructure by Trevor Bishop

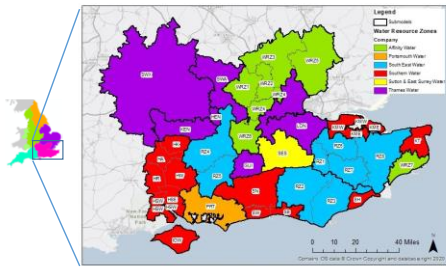
Trevor is the Organisational Director of Water Resources South East (WRSE) - an alliance of water companies, Regulators, Government and other key sectors, such as energy and agriculture, planning together for the secure and sustainable management of water resources over the coming decades.

Making a connection with French Engineering and Science

Water Resources South East (WRSE)

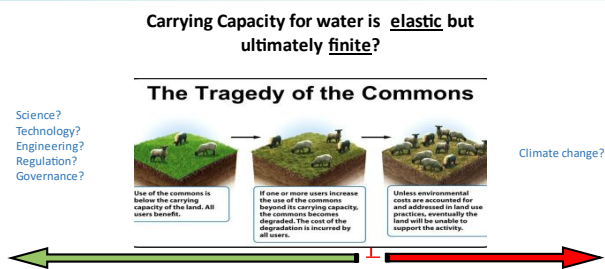
Who are we?

- Alliance of the six Water Companies working collaborative with government, regulators and stakeholders
- Supply water to almost 20 million people
- Supply supports some 40% of UK GDP



Trevor's lecture focused on the nature and scale of challenges ahead for secure and sustainable water supplies and also the changes in approach which will be required.

Carrying Capacity for water is elastic but ultimately finite?

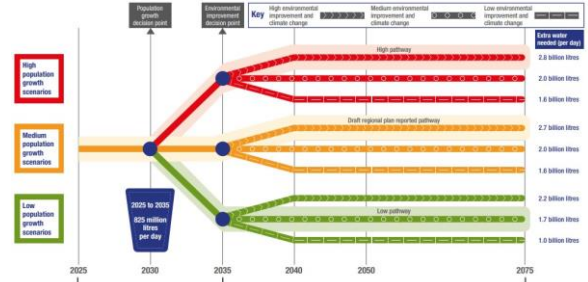


Trevor compared our water supply to Common Land which can sustain a finite number of sheep but if over grazed the Commons will deteriorate to the detriment of the land as well as the sheep. The current water availability will become unsustainable due to increase in population, particularly in the SE of England, as well as the effect of climate change - hotter summers and less rainfall.

WRSE's objective is to look at the options in order to present to the Government the facts to enable them to make the best political decisions not only on new infrastructure but also in ways of efficiently using the current water resources. - a water resources management plan.

As well as increased demand for water over the coming years, there is a requirement to reduce water extraction, a major source of supply in the SE. This is not only from an environmental concern but also because the levels in the aquifers are diminishing.

Planning for uncertainty



WRSE estimate that roughly 20% of the additional water demand will come from new reservoirs and desalination plants. The cost of providing this new infrastructure is approximately £15m for each million litres of water. Water from the wetter parts of the UK will account for 10%. The existing Grand Union Canal can be utilised to transport water from the Midlands, however water from the Severn catchment area will require substantial investment to get it over the Cotswolds and into The Thames Valley.

The plan – 2035 to 2075



Ironically, the major source for future water supply will come from the leakage reduction. All water companies will be tasked with reducing their leakage rates by up to 70%. Trevor concluded by saying that the water usage by the general public needs to be reduced from 140 litres/day to about 110 litres/day. A publicity campaign will be required to convince them that water is a finite resource and that those that are in the SE of the country are living in an drought susceptible area.

Voyage to Northern Ireland May '23

Our President's Spring Voyage was superbly organised by NI member Jim Workman in conjunction with Isobel Pollock-Hulf.

A Transport Interchange with a difference

Belfast Grand Central Station is the biggest public transport infrastructure project on the island of Ireland and represents one of the largest single investments in Northern Ireland. Our hosts were Louise Sterritt and Philip Brown who is Head of major projects at Translink. It is the umbrella organisation which covers all the transport operators in NI i.e. NI Railways, Enterprise, Metro and Ulster Bus. Using a magnificent 3D model and a powerpoint presentation, they described the complexities and challenges of this project before taking us out to the visitor viewing platform to get an overview of the site.



The new Belfast Grand Central Station (BGCS) at Weavers Cross is located close to the Europa Hotel at the heart of Belfast City Centre. The eight hectare site (20 acres) will be home to a modern high capacity transport hub (developed on the site of the existing Europa bus centre and Great Victoria Street train station), along with impressive mixed-use development proposals. This flagship project, is prioritised by the NI Executive, and has been developed in the context of the Department for Infrastructure (DfI)

Regional Development Strategy 2035 and the draft NI Executive Programme for Government. There is recognition that public transport has a key role to play in developing competitive cities and regions and is important for a successful economy, promoting social inclusion, health, education and improving the environment. BGCS will include a number of significant improvements designed to enhance all transport options. This will include a fully integrated bus and rail concourse with the capacity to accommodate increased passenger growth and improve customer experience. Bus, rail, cycle and road will be integrated into the new station giving a station concourse with 26 bus stands, 8 rail platforms, cycle and taxi provision, car parking and a new public square.



This transport led regeneration project requires significant civil engineering and construction intervention to build the state-of-the-art transport hub. However, not only is this a transport project but it is also working as a cross-community integration project. The residential areas neighbouring the Weavers Cross site, notably Sandy Row and Durham Street in South Belfast and Grosvenor Road in West Belfast, are particularly rich in history, culture and heritage.

Why is the project called Weavers Cross?

The name was developed in consultation with local communities and pays respect to the workers of the linen/textile industry that were employed and which brought industrial

significance to the local area. The name Cross refers to the action of the natural crossing of the waterway that still runs through the heart of the local area as it makes its way towards the River Lagan and the sea. As part of the development, Saltwater Square will be a new public space in the city and one of the major focal points of the development. This will be a lively, busy place providing opportunities for commuters, visitors, city residents and workers. Saltwater Square takes its name from that original stone bridge over the River Blackstaff and in doing so, creates a direct connection with that structure's considerable cultural significance. We were all invited to return in 2025 to see the completion of this project. Naturally there is a website where you can find more information:

<https://weaverscross.co.uk/belfast-transport-hub/bthunderconstruction/>

Isobel Pollock-Hulf

The Titanic Experience

The 'Jewel' of the Titanic Quarter in Belfast is a building called - 'The Titanic Experience' - and so it is!



The Experience Building from Titanic's Slipway
We entered and were given an audio-device to guide us. 'Any problems and sure your grandchild will sort it out!' I hurried off to look for the Back-story.

A visitor to Northern Ireland must be fearful in this land of Giants - and remember the Cattle raid of Cooley when Queen Medb tried to steal the Black Bull of Ulster. Her Connacht warriors failed because Cuchulain,

guarding the Gap of the North, became divine it was said when engaged in battle! Then there was the protestant work ethic!

The early exhibits showed that 'fin de siècle' Belfast was a boom town, exporting Linen, Tobacco, Heating systems, Rope and Whiskey. Harland & Wolff was the greatest shipbuilder in the world.

My backstory lay in a dry-dock across the road.



View from the bridge of Normadic

The restored 'Nomadic' worked in Cherbourg and had ferried First and Second Class passengers out to the Titanic for that fateful maiden voyage. Her sister ship SS 'Traffic' brought the Third class passengers and the Mail.



Noradic alongside Titanic in Cherbourg

An animated poster in the Exhibition had a butler explaining to a footman the White Star ambition - to carry the Gentry in the Largest and most Luxurious ship ever built! Nomadic retired in 1968. Much later, when moored opposite the Eiffel Tower, a survey judged her worth restoration. So, she came home by barge to Harland and Wolff!

The Titanic tour included a mechanical ride - no smells but a kind of Ghost-train ride

Making a connection with French Engineering and Science

through the cavernous void between the core exhibits and the outer shell of the building. It was very imaginative and captured the scale of a great ship! We passed pictures of 'Island-men' with the din of hammered rivets and the bending and shaping the great iron ribs. The foremen - 'the hats' - wore black bowlers just as modern-day Orangemen when they march!

The Queen with Prince Philip opened the Titanic Experience in 2012 on her Diamond Jubilee Visit to Northern Ireland and on the Centenary of the loss of the Titanic. The Exhibition is extremely well done but there is so much tragic irony built into this story that I doubt that I will come again.

David Hughes, 'Voyageur'

Visit to Bushmills Whiskey Distillery

Our coach journey took us north from Belfast through luscious green countryside, dappled with yellow gorse, mayflowers, white and pink hawthorn and blackthorn blossom, during which we were enlightened by Isobel on a short detour to inspect fir trees planted "in olden days" to stabilize the old A26 Ballymena - Ballymoney road and Jim's description of his amazing Ferguson and Continental tractor collection, including a 2 stroke reciprocating Japanese engine with a garden fork on the end of it!keen labour saving gardeners note!

With a promise from Isobel of "10p for who could see the sea first!" we arrived close to the Antrim coast at the famous distilling village of Bushmills.

The first licence in the world to distil was granted to the area of the River Bush in 1608 and the village of Bushmills grew through the 1700's. The distillery with it's chequered history of major fire and expansion to 34 warehouses over 64 acres in the 1880's grew to what it is today as a major centre of Irish whiskey production,

now owned and under expansion again by the Tequila group.

Nothing to do with the thought of the post tour tasting but with the gaining of technical understanding of course, a fascinating tour was well received! The reason for the "e" in the name, differentiating it from Scotch, is that "e" allegedly stands for excellence!

Joking aside, Irish whiskey is historically different from nearly all Scotch whiskies in that it is triple distilled, Scotch whisky being double distilled. Whiskey is made from only barley and water, with a big pinch of technical magic thrown in. Bushmills barley is malted in Dublin, and they get through 600tn/week! The wort, a mixture of malted grain and water, is mashed for over 5 hours at 65C and then fermented using yeast from the Kerry Group in Scotland. After fermentation, which creates an alcohol content of 8.4%, the liquor is distilled three times, first to 22%, second to 50% and the third to 85.3%. The final distillate is then reduced to 63% using water from the River Bush before filling into casks. The casks are stored outside "stored asleep whatever the weather" the whiskey spending years maturing and taking on the flavours of the preconditioned sherry, port or bourbon oak barrels and slow controlled oxidation. Each cask loses 2% whiskey a year by evaporation through the wood, "technically" known as the "angels' share". Each Bushmills cask is limited to 3 fills or a 30 year life.

The very generous post-tour tasting, included a whiskey with Christmas cake fruit notes which many ladies enjoyed, but overall I think most sips went to their 12 year old single malt, sadly only available at the distillery...ensuring multiple visits into the future!

Visit to Giant's Causeway

Onward to inspect the Causeway Coast and Glens area of outstanding natural beauty, past the Royal Portrush Golf Club where the open championship will be held again in 2025. A round of golf will set you back £340 at peak. A quick stop to see Dunluce Castle, the kitchen fell into the sea during dinner one night! Then a picnic lunch overlooking the Carrick-a-Rede rope bridge and onto the amazing World Heritage Site: the Giant's Causeway.



Allegedly comprising around 40,000 basalt columns, not all hexagonal, descending into the sea. Of much interest to some of our voyageurs was that the Tourist Centre turf roof has a water collection system for all its toilet flushing.

Visit to Altnahinch Dam

The final visit of the day was to the Altnahinch dam and reservoir, concluding a perfectly organised visit as the dam is constructed on the River Bush, beautifully completing the alchemists hydrological cycle dream of turning water into whiskey further downstream at Bushmills.

Altnahinch dam was one of the last dams to be constructed in Northern Ireland in the Antrim hills. It was completed in 1967 to supply around 40,000 people in local towns and villages with safe drinking water through a water treatment works a little downstream. The reservoir catchment covers 1025ha with conifer forests on underlying peaty soil on basalt bedrock. The

source of the River Bush is 3km upstream. The dam has a 137m long central concrete section 23.5m high forming a slip weir discharging into a downstream flume into the River Bush. There are overflow weirs either side of the main concrete spillway with adjacent earth embankment abutments. Jim Workman recounted interesting stories of the construction and surveillance of the dam and the quarrying of the rock from Corkey Quarry about 3 miles away. The central weirs when spilling must be a sight to be seen at the head of the valley. We noted that fishing for brown trout and rainbow trout is a key activity and main attraction at the reservoir. A perfect ending to our tour of North Antrim.

Richard Coackley

Mount Stewart & the Ulster Folk Museum

Our final day of the Voyage took us south to County Down to visit Mount Stewart, the Irish family home of the Marquesses of Londonderry. Protected by the warm water of Strangford Lough, the gardens were awash with plants from around the world; from formal gardens next to the house to woodland gardens surrounding the lake. After an excellent lunch in a converted stable we set off for the Ulster Folk Museum. Buildings from across Ulster have been brought together to form an Irish village and typical farming community. The immediate sense on arrival was the smell of coal-fire smoke. In the village the 170 yr old press was printing the recipe for soda bread which a housewife was baking on a griddle on an open fire nearby. Even the pub was open to enable us to have a glass of Guinness!

Our thanks are due to those who have contributed to this newsletter. The editor welcomes contributions on matters that relate to the objectives of the Société. Email: paulgerrard24@gmail.com