

**Post** SPECIAL REPORT

ARDNACRUSHA

# Keeping our head

It was the flagship project for the Irish Free State. When it went into action and...  
Such was the precision and quality of the engineering that the Ardnacrusha hydro...  
**Bernie English** took a tour of

"FEW people realise what would happen if Ardnacrusha wasn't here when the Shannon floods. In 2009, at the height of the flooding, we were discharging 400 tonnes of water a second in the canal, diverting it away from the river.

"Can you imagine what that amount of water could have done if it had just flown on down the river?"

"400 tonnes. Every second."

Civil engineering manager at Ardnacrusha hydroelectric power station, Tom Hayes, is explaining how the station took every damage limitation measure to reduce the catastrophe that was the 2009 flood.

We're walking across the main building which spans the canal.

Between us and the power of all that water are metal grills. Beneath our feet, an elemental power is roaring past at an unimaginable rate.

The noise and the primeval smell of

for the 1,500 people who were evacuated from their homes and the countless business owners who opened shop to find their stock floating in floodwater.

"We've been making presentations to the local authorities and the media – we felt we needed to communicate and liaise with the stakeholders," Tom Hayes explains.

Sometimes, experts in their field try to illustrate things to the uninitiated in the language written for that field and that field only. Not Tom Hayes.

He patiently explains why the Shannon floods in terms that even us eejits in the me-jah can understand.

The River Shannon is largely flat. When a few thousand tonnes of rain comes thundering down and into the river, it has nowhere to go but sideways.

In a disaster, people naturally need someone to blame. Many, in 2009, blamed the ESB for letting the excess water down through the weir, submerging homes, farms and businesses.

Tom Hayes explains why there was no choice in the matter.

"The Shannon has a very small fall from its origin down to Lough Derg. When there is rainfall, we have to wait for the water to get to us before we can deal with it and that takes several days. When high water comes, we only have control over the water levels in Lough Derg.

"When the levels rise there and we have to let water out, we can deal with up to 400 tonnes and allow the maximum possible amount of water down through the headrace. Any more than that has to be released through Parteen Weir back into the river."

There are other lakes and several rivers feeding into the Shannon and Lough Derg, over which the Ardnacrusha station has no control when water gets high. The same force that once produced more than 90 per cent of the country's electrical power answers to no man when it comes to flooding.

On November 26, 2009, Lough Ree – one of the two lakes above Lough Derg on the Shannon system – recorded water levels of 39.25 meters, the highest on record.

In the same period, Lough Allen was measured at heights of 50.77 meters. The previous highest water levels were recorded on 1925 at 50.98.

Feeding into the Shannon closer to home were the Mulkear, the Groody river, the Blackwater and the Black River. All of them swollen with rainwater.

When the deluge came, the bulk of that water was headed down the river to Limerick and Clare.

Ardnacrusha was faced with the perfect storm and communities along the riverbank suffered the consequences.

The River Shannon is largely flat. When a few thousand tonnes of rain comes thundering down and into the river, it has nowhere to go but sideways.

wet weed and river water rising up through the grills stirs a deeply unsettling fear, which defies the logic that says the power has not yet burst through the floors and claimed victims.

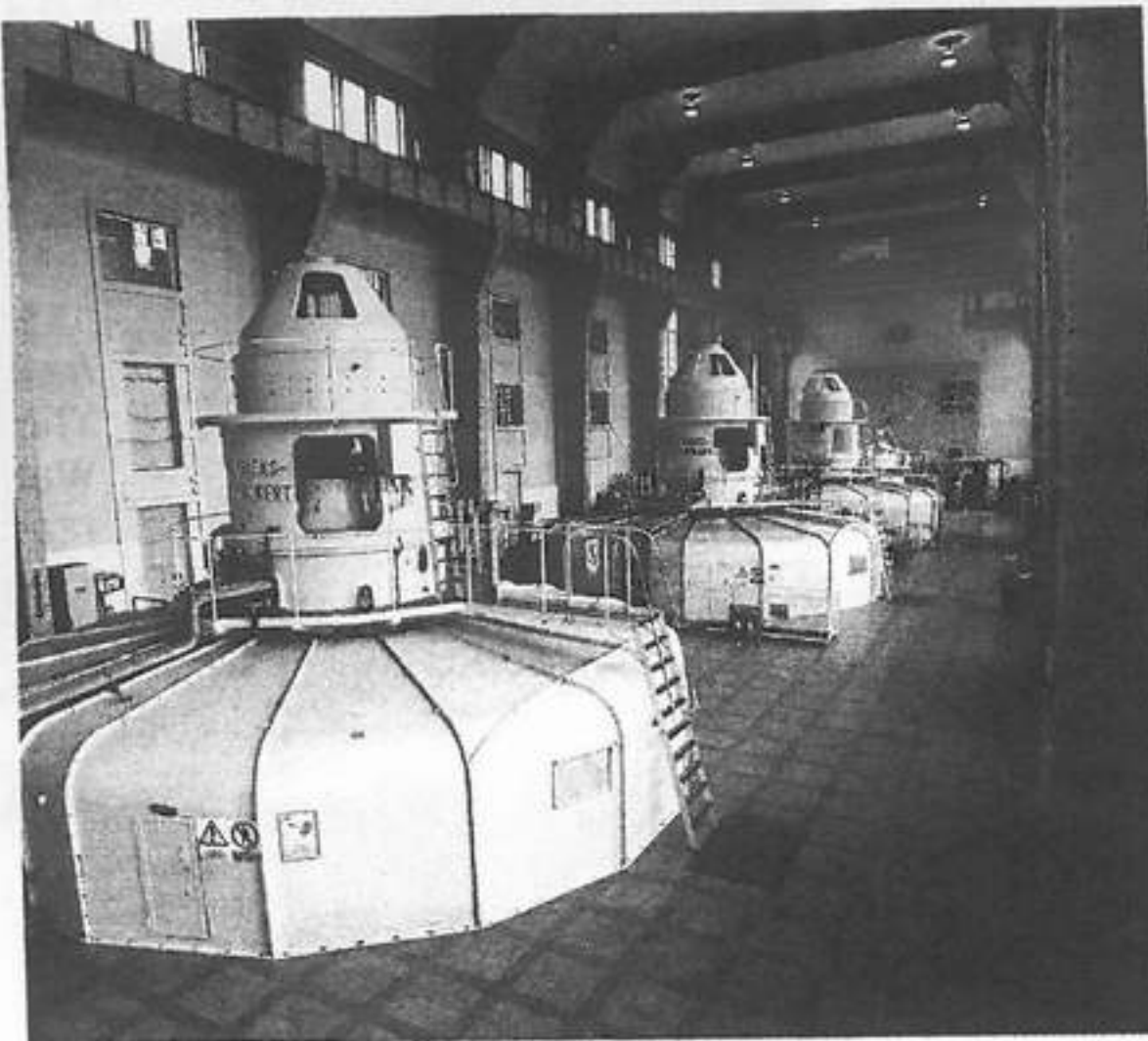
Still, it's a bit like being dangled over a pit full of tigers and I'm glad when we're outside again.

Safety regulations dictate that we wear hard hats. Strikes me, the last thing we're in danger from is an object falling on our heads. I think I would have preferred a life jacket.

Safety notices are everywhere and two people are employed to do nothing else except walk the banks of the canal that feeds the power station, checking for the slightest incursion or breach.

The connection between the amount of water that the power station keeps out of harm's way on a daily basis and the floods, is that this invite to the media to visit Ardnacrusha is as a direct result of the terrible 2009 flooding.

That, and the general need for answers

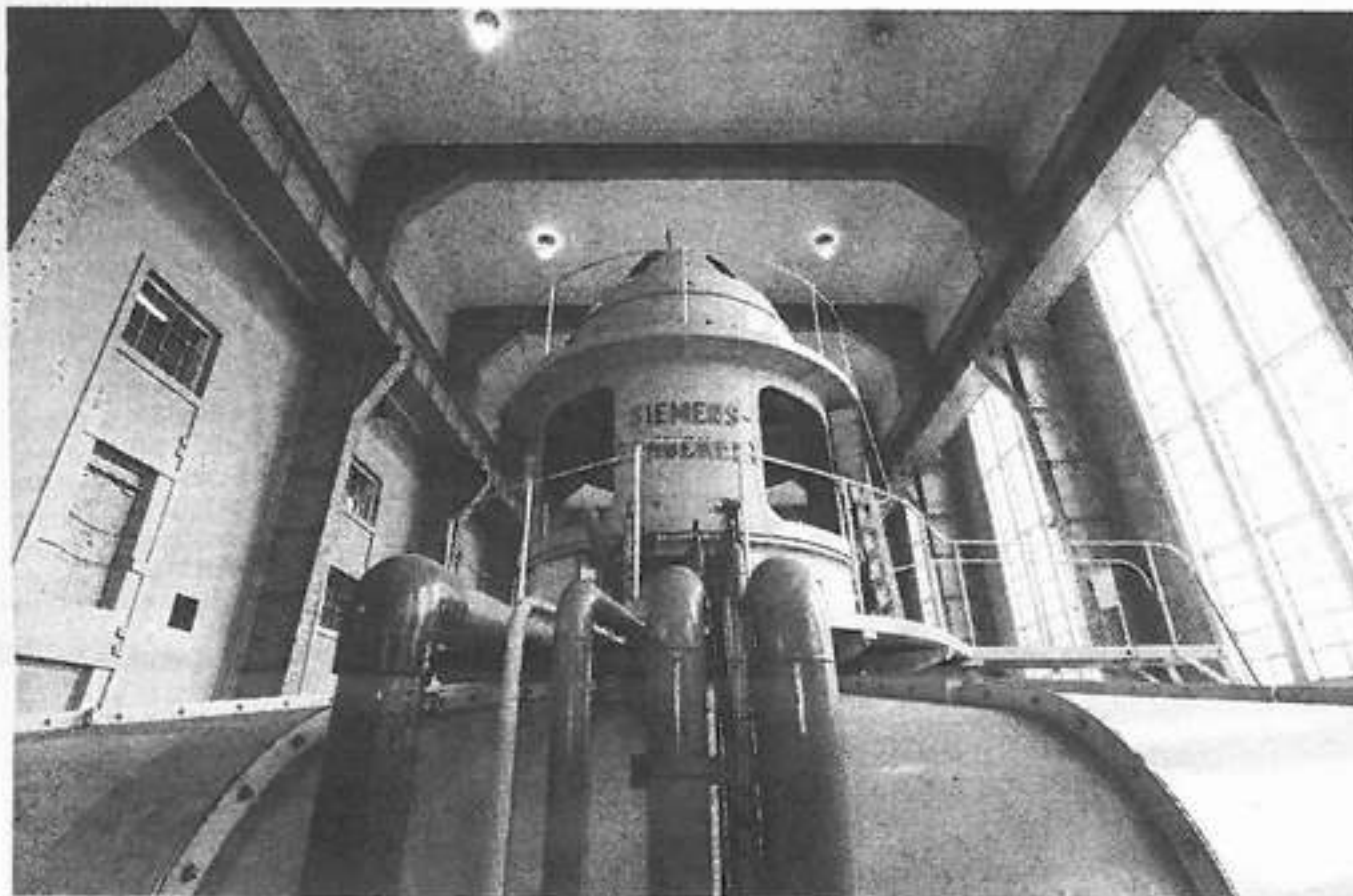


Tom Hayes is the civil engineering manager at Ardnacrusha hydroelectric power station.



# ads above water

Started pumping water in and electricity out, it changed the face of rural Ireland. Electric power is still a major player in renewable energy amidst a sea of windmills. of the plant for the Limerick Post.



## Let there be light

IT'S been harnessing the potential of the mighty Shannon river for 85 years, and the hydroelectric power station at Ardnacrusha is still the largest provider of energy from renewable resources in the Mid West.

It was seen as a brave move for the newly-founded Free State to invest so heavily in a feat of engineering that took four years to complete before it opened in 1929.

But the decision paid dividends and made rural electrification possible, bringing the country, quite literally, out of the dark ages.

Work on Ardnacrusha, which formed part of the Shannon hydroelectric scheme, started in 1925. The German company Siemens was behind the build and around 1,000 German and 4,000 Irish workers were involved in the construction phase between 1925 and 1929.

Ardnacrusha cost more than five million old Irish pounds to construct – almost one fifth of the entire annual budget that had been available to the then government, led by William T Cosgrave.

As well as the power station itself, canals had to be constructed along the River Shannon, spanned by four new bridges. A system of culverts and sluices were also constructed to increase the fall in water levels between Lough Derg and the Shannon.

The river waters were harnessed by mighty turbines at the Ardnacrusha dam.

In tandem with the Ardnacrusha project, the Electricity Supply Board (ESB) was set up in 1927 as the first of Ireland's semi-state bodies and it has managed the power station ever since.

Although eight and a half decades may have passed since its opening, Ardnacrusha is still regarded as a major civil engineering achievement, winning the 'International Landmark' prize in 2002 from the American Society of Civil Engineers. Other recipients of the prize have included the Eiffel Tower, San Francisco's Golden Gate Bridge and the Panama Canal. The power station has also won an 'International Milestone' award that was presented by the Institute of Electrical and Electronic Engineers.

## Keating in the picture

THE construction of the Ardnacrusha power station was captured in the paintings of Seán Keating, the romantic-realist artist who painted some iconic images of the Irish War of Independence.

Keating, who studied drawing at the Limerick Technical School, would turn up on site and sketch or paint the workers and the growing structure.

A scholarship arranged by William Orpen allowed him to study at the Metropolitan School of Art in Dublin and he was elected an Associate of the RHA (Royal Hibernian Academy) in 1918 before becoming a full member in 1923.

The ESB retained quite a number of his pictures and some are exhibited at the power station.

Among the many works he produced of his own volition, some also hang in the Limerick Gallery of Art.

