Drainage

The drainage presented in the EIAR is understated and gives the impression of well defined, narrow trains. In 11.3.2.3.1, 11-59 the report states

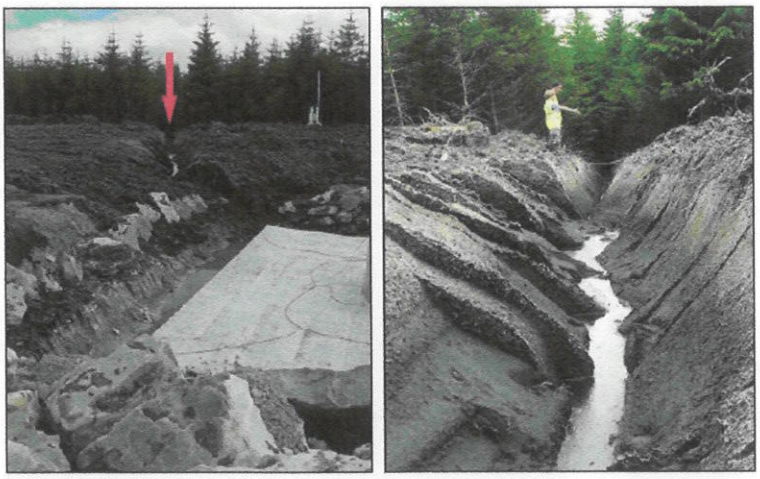
"**All of the constructed channels are narrow open drains** (Plate 11.6), typically 0.5 to 1.5 m deep, with culverts under the site access tracks"

Plate 11.6 Typical drain installed during wind farm construction

This is not true, many of the drains dug from each Turbine Base are substantially bigger than this and remain so today and from the to Lindsay/Bragg, Wind farms and blanket peat report, 2005, we see evidence of much larger drains of several metres wide and deep.

Figure 4 :A typical drain presented in this EIAR

Plate 7.2: A drain dug to release water from the base of turbine T2. Note the rock reinforcement required to stabilise the sides of the excavation.



A typical drain captured in Lindsay's/Bragg Report

The EIAR states "The drainage network on the wind farm has to date demonstrated sufficient capacity to convey heavy flows without excessive flooding of access tracks and turbine bases or erosion of drainage channels. Similarly, the drainage network associated with both substations have no record of flooding issues since commissioning (14 years)"

While this is undoubtedly true, the concern is that the combined drainage network of 37km of drains would have significant impact on the site.

"The natural runoff characteristics of this upland site prior to the project would be classified as a high flood runoff site (SOIL index 0.45)."

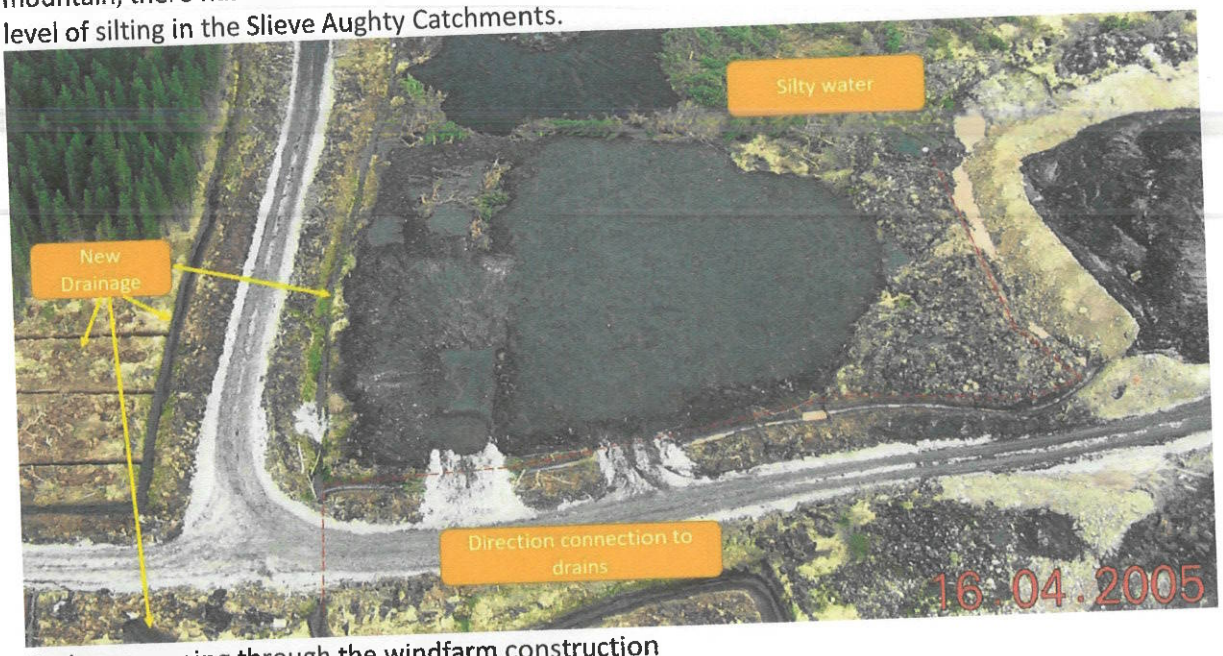
With 27km of drains already in place on the peak of a mountain we think this already constituted a very high flood runoff site (SOIL index 0.05) and subsequent drainage should infer a lower number

The natural runoff characteristics of this upland site prior to the project would be classified as a high flood runoff site (SOIL index 0.45).

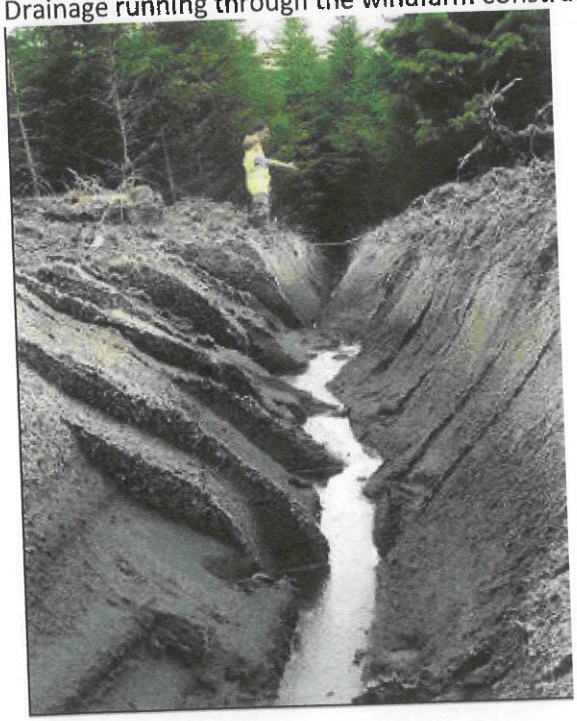
Silting

As part of the NIC, section 4.5.14 Coole-Garryland Complex SAC (000252) concludes with "*It is considered that the Project has not had nor is likely to have any significant effect on this SAC.* "

Due to the massive network of roads, drains and a significant construction site on the top of the mountain, there has been an unprecedented amount of exposed soil which has lead to an increasing level of silting in the Slieve Aughty Catchments.



Drainage running through the windfarm construction



In the years after construction there has been several levels of silting in the Kiltartan River and Coole River and Coole Lake

The following diagram shows the severe silting after the 2009 floods. There is a log of concern locally that there is sever silting of the underground passages and diminished connectivity leading to several flooding levels in the south Galway Area.

Therefore until we get proper analysis of the affects of silting on the underground networks and with the precautionary principle in effect we cannot consider that this project has not no significant effect on this downstream SACs

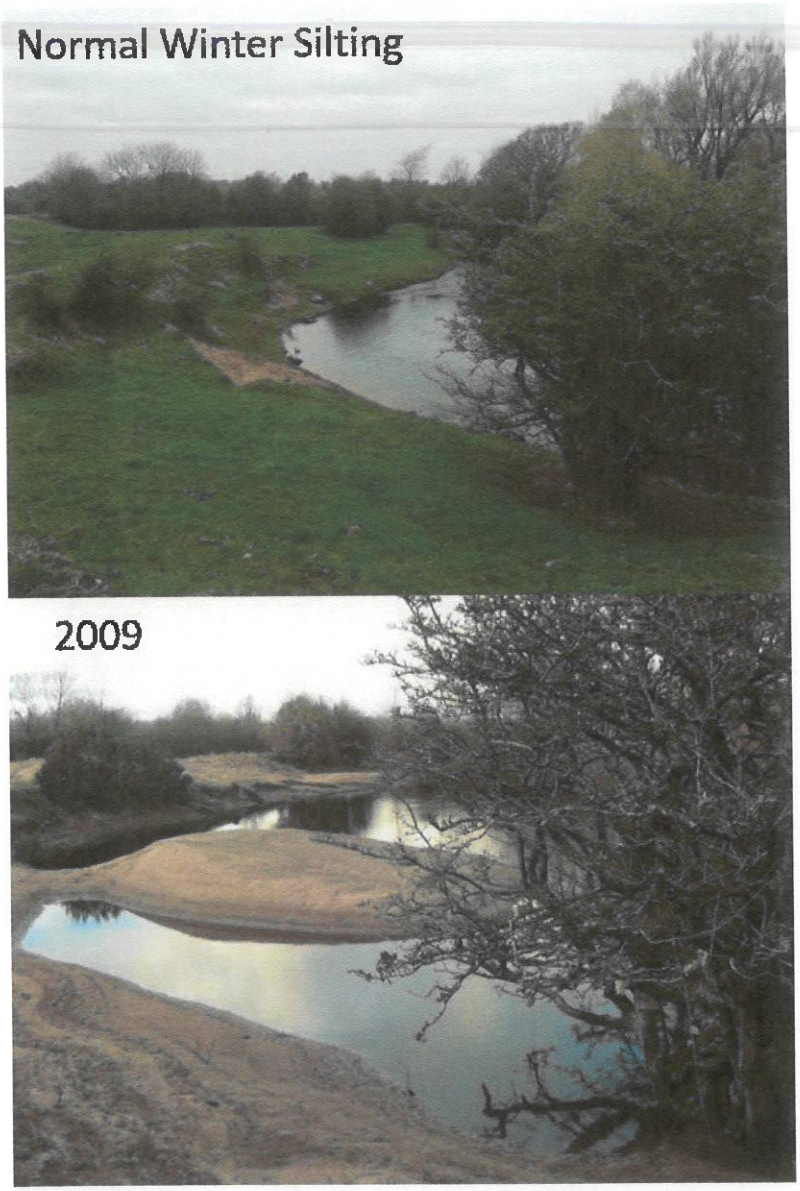


Figure 8 :

Lack of Relevant Remedial Mitigation Measures

NTS-3 states that "*Any mitigation measures that were put in place to ensure that the environment was protected are also discussed, and further mitigation measures are identified where required.*"

The rNIS concludes "that the Project with the implementation of the prescribed mitigation measures will not adversely affect the integrity of any European site."

The report mentions what it must do to adhere to European regulations.

- *The Report then must set out details of any appropriate mitigation in terms of remedial measures that have been carried out – or are proposed to be carried out, to address any significant adverse effects on the environment; and when those measures will be taken.*

- *The Report sets out the significance of any identified impacts and effects. It also identifies any measures that have been taken – or are proposed, to avoid, reduce, remedy or offset the impacts of any significant adverse effects on the environment (these are called 'mitigation measures') and any measures that have been taken – or are proposed, to remedy any such effects (these are called 'remedial measures').*

Even though this report concludes that "overall it is considered that the Project has increased the flood runoff rate over its former forestry and turbary uses from a high runoff category to a very high runoff category.", it could with other cumulative effects be responsible for a significant impact and flooding of Derreen, Beagh and Gort and yet **there are no mitigation measure presented for the increased runoff** (as we have seen on subsequent windfarm developments)

The NIS concludes on Flood Risk Assessment – *"Based on the assessment of impacts on Hydrology and Hydrogeology, it was concluded that the Derrybrien Wind Farm Project has not and is not anticipated to give rise to any significant impacts related to the hydrological or hydrogeological regime or result in any unacceptable downstream hydrological impacts. "*

Given the incomplete historic flooding data, the lack of consideration of cumulative impacts or historic and future forestry operations and the incorrect assumption that an increase in run-off will have **Slight to Moderate impacts** and the lack of proposal for any best-practice mitigation measure – we disagree completely with the NIS conclusion – and EU legalisation (Habitats Directive) will also counter this.

The EU Intention was not for the developers to produce a retrospective EIA but to also proposes relevant retrospective mitigation which this report fails to do. It indicates remedial measures in response to the Landslide, but does nothing to address increased runoff of the windfarm site.

Consultation

In Section 1.5.5. of the EIA (NTS-5) it states "*Gort Wind Farms Limited has engaged with the general public in relation to the Derrybrien Wind Farm Project throughout the development and operation of the Project.*"

This statement is untrue. This report says:

- The report says that it has engaged Galway County Council, the Environmental Protection Agency (EPA), Inland Fisheries Ireland (IFI) (Shannon Region) and Coillte, NPWS etc
- It states that in advance of the application being lodged, it provided a plain-English sheet to people within 10km. This was done in early August, a few weeks before the application.
- It also states that it put up the required notices.

This is not *engagement* – this is simply issuing notices. There is no opportunity for any individual or any interested group to express any views or be listened to. This does not constitute consultation.

At a meeting with the EC Environment in Brussels, on 8th February 2017 I as part of a delegation of the South Galway Flood Relief Committee (SGFRC) to discuss flooding impact assessments in South Galway was advised to detail our concerns (in document format) and meet with Windfarm developers (ESB) as it should then be considered as part of a Retrospective EIA. In April 17th , we sent in a letter (Appendix 1) and arranged several meetings in 2017, but the SGFRC effectively got no engagement or input in this process. In fact, the only contact that ESB made to the SGFRC in the past 3 years was a phone call on 2nd September, notifying us that the Derrybrien windfarm EIA report had been submitted into on Bord Pleanala. Again, lack of engagement and notifications only. The same also for other stakeholders including the Derrybrien Community.

This lack of consultation was a strong point that concern raised by the Irish Supreme court. (see Irish Times : *Supreme Court rules 'substitute consent' inconsistent with EU environmental law*, July 1st, 2020. (https://www.irishtimes.com/business/construction/supreme-court-rules-substitute-consent-inconsistent-with-eu-environmental-law-1.4293618)
On 1st July 2020, The Irish Supreme Court has declared "substitute consent", a form of retention permission in Irish planning law, inconsistent with the Environmental Impact Assessment (EIA) Directive on 2 counts:

1. It does not provide for public participation at the stage of leave to apply for substitute consent
2. It does not provide for an "exceptionality" test for substitute consent as demanded by the Court of Justice of the EU (ECJ).

Inconsistent (1) indicates a concern over a potential lack of public participation. This report exacerbates this by not allowing the public any engagement whatsoever in the process.

The quality of this EIA has been fundamentally reduced by this lack of engagement and justifies the courts decision. The EIA has produced an incomplete flood risk assessment even though areas like flooding Beagh have been pointed out in the Letter of Concern (Appendix 1) and on public available blog site (South Galway Flood Blog) - also other concerns, like the exclusion of cumulative effects of forestry operations external to the Windfarm Site, would have been expressed
Because of this, I feel that this embodies the Supreme Court ruling that this particular '*substitute consent*' EIA is inconsistent European law and therefore this application should be rejected.

Conclusion

Given all factors presented, we feel that this EIA to be incomplete and of poor quality, with incorrect conclusions, in particular in the area of Flood Risk Assessment and public consultation and we implore the Bord to reject this application.

Appendix 1 : Letter to ESB 7th April 2017

Windfarm Impacts on South Galway Flooding

Letter of Complaint to ESB

7th April 2017

South Galway Flood Relief Committee

Overview

South Galway over the past 20 years has suffered a number of severe flooding events that have brought many communities into severe crisis. The area of South Galway has unique hydrological characteristics in that waters draining from the Slieve Aughty Mountains must travel several times underground on the journey to the sea. These underground channels are fixed capacity so any changes to natural hydrology that increase peak flows can cause severe flooding in the Slieve Aughty lower catchment.

There are several key stakeholders in the Slieve Aughty mountain land management and there are key concerns that past and current land management practices have affected the mountain hydrology substantially and water is flowing off the mountain much quicker than before.

South Galway with its unique geology and drainage has many Special Areas of Conservation (SACs) and Specially Protected Areas (SPAs) that are protected by the EU Habitats directive. There are also Water Framework Directives and EU Flood Directives which aim to ensure that Water quality and quantity is managed and controlled through river basin management.

It is our understanding that the European Court of Justice issued a ruling against Ireland in 2008 regarding on the Derrybrien windfarm construction as relevant Environmental Impact Assessments had not being carried out prior to construction. While we have seen the devastation caused by heavy rain and landslides in October 2003 and subsequent pollution of rivers and Lough Cutra, we feel that there have also been fundamental changes to the hydrology of the land occupied by the windfarm and that this has substantially increased flooding risk for the lower catchment.

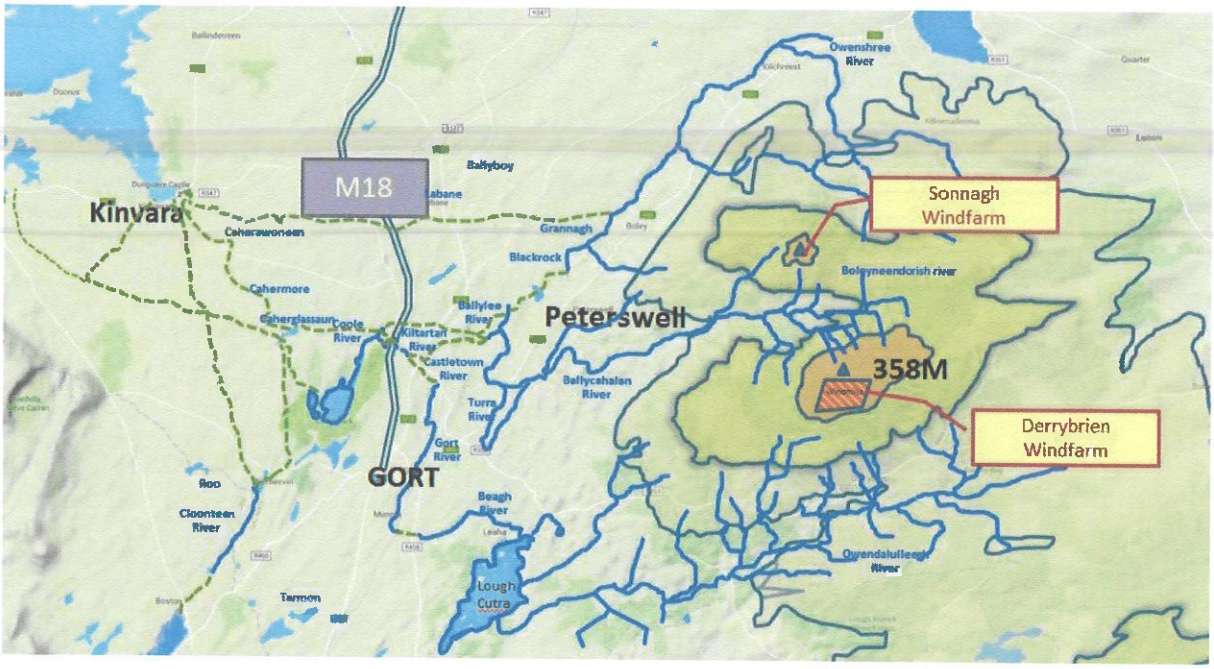
We are aware the current European Court of Justice ruling against Ireland in 2008, regarding the Derrybrien Windfarm and understand that the Irish authorities agreed to undertake an EIA to look in detail at further potential issues. We request as part of the addressing of this ruling that you include the longer term hydrology changes and impacts to the lower catchment as part of a retrospective EIA along with proposed mitigation measures. Note : Many of these areas are now designated SACs

We welcome more recent EIAs of windfarm developments such as the "Doughill Forest Property" that includes windfarm drainage management plans that included design and control elements to control flow velocities and peak flow volumes. We formally request that any future

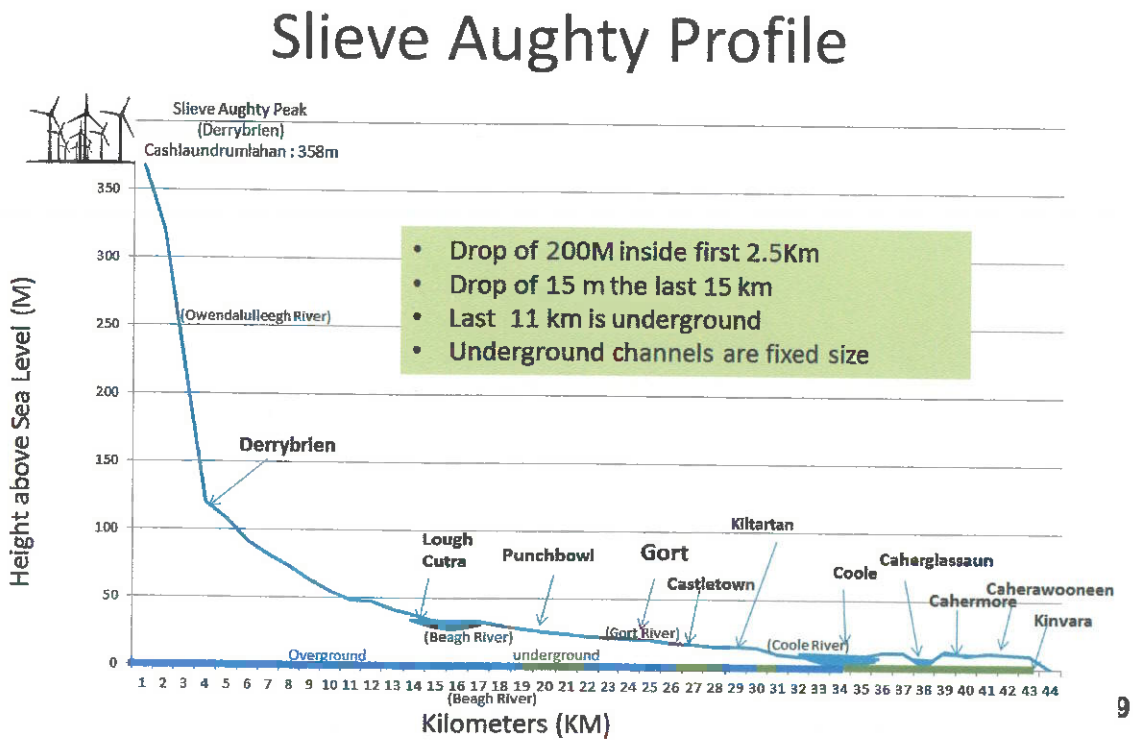
windfarm developments be suspended pending a full and inclusive environmental impact assessment on the relevant river basins and local communities.

South Galway Profile

From a South Galway perspective, the Slieve Aughty Mountains are the source of 3 primary rivers that flow westwards toward the sea at Kinvara. These are the Ownshree, Boleyneendorish and the Owendalulleegh rivers as shown in the diagram.



The most unique feature of this landscape is that the rock changes from sandstone to limestone and many of the rivers flow underground (highlighted in dotted green here) . Many of these areas have Turloughs (Most are SACs) that can swell in normal winters. The following diagram describes the profile of the Owenshree River to the sea – which may go underground 6 times during its course to the sea.



Obser
Form

There is one simple fact for the underground river channels - They have a limited capacity for water drainage. Some swallow holes (where water sinks) in the catchment are only 1 ft square and this can only sink water at a certain rate. Water flow rates also depend on Turlough levels as water pressures rises and drops across the underground network. This makes the whole South Galway area extremely sensitive to change in hydrological dynamics (Hydromorphological changes) of the Slieve Aughty Mountains.

There are many potential impacts:

- Increased rate of water of water coming off the mountains will causing flash flooding in areas around the immediate vicinity such as Castledaly, BlackRock, Skehana, Ballylee, Castletown and Beagh. The swallow-holes simply cannot manage large peak flows efficiently
- Any overall increase in volume of water descending the mountain due to changes in water storage capability in the Slieve Aughty Mountains.

Also, the impact of effects of climate change (e.g. increased rainfall) may be exacerbated by hydromorphological changes from poor land management associated with windfarm development.

While these impacts are felt keenly by the local communities being subject to severe flooding, the impacts will also threaten the conservation Objectives of a large number of SACs which are protected under the EU 'Habitats' directive.

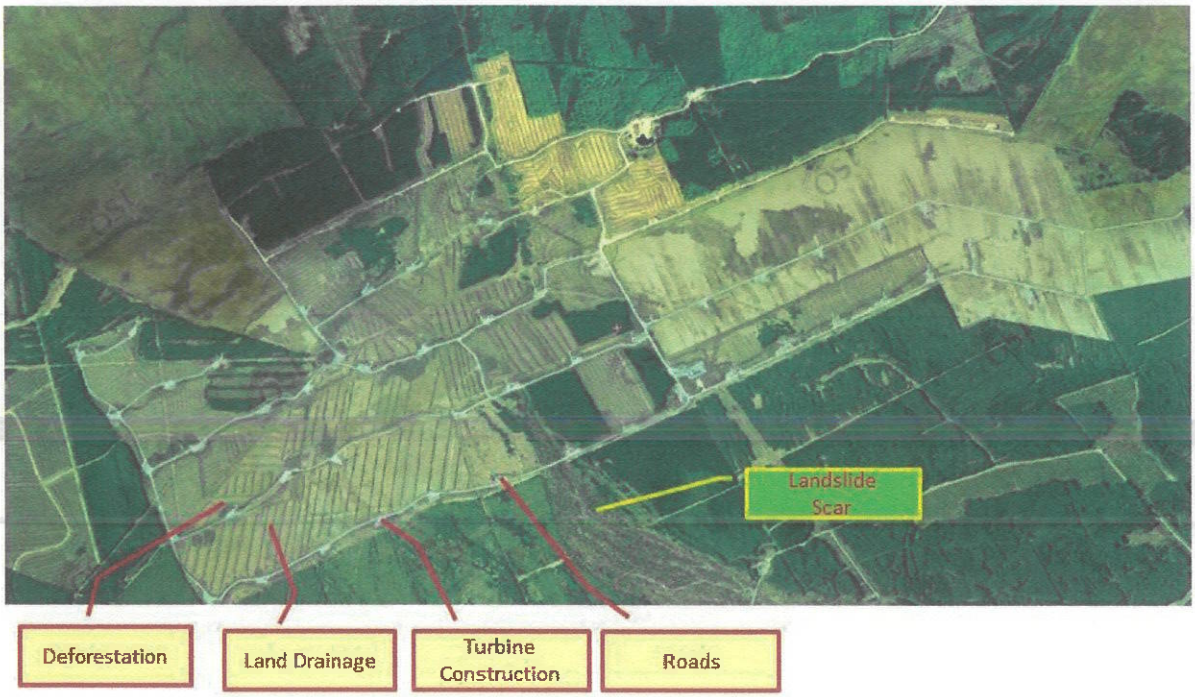
Water Directive Framework

The Irish *'Water Framework Directive, Western River Basin District, Programme of Measures and Standards For Forest and Water'* gives an overview of potential pressures on water from forests and forest activities together with the pathways and possible receptors involved. It highlights that forests may give rise to negative pressure on aquatic ecosystems but that proper forestry management can deliver programmes of measures with positive benefits. Section 4.7 introduces potential pressures from Hydromorphological Change. It states that;

> *Where forests are established in the catchment area of water abstractions or water dependent habitats and species potential impacts on the water resource may occur both with reduced flow levels and reduced water table and also through washout with increased and more rapid flood peak height.*

It indicates that there may be hydrological changes due to site preparation, clear-felling. In particular to clear-felling it states that there can be substantial increases in hydraulic flow (e.g. 15%) which can give rise to can give rise to *"stream surge resulting in physical (hydro-morphological) impacts in receiving streams leading to bank erosion and stream widening. The pressure potential may be more pronounced for older forest stands which are clear-felled due to the absence of buffer zones and drainage networks extending into the aquatic zone."*

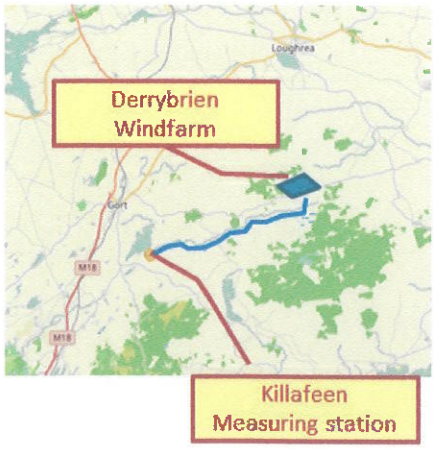
There are similar pressures from windfarm developments which include the above deforestation but also include wind turbine base construction, land drainage and roads.

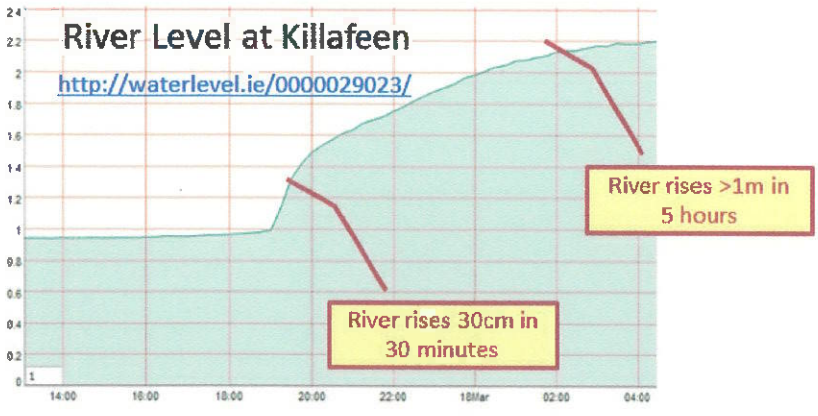


It is estimated that during the Derrybrien windfarm development

- 200 Hectares of forest was clear-felled
- Over 17km of roads were contsrtructed
- 71 turbine bases were constructed
- Over 30 km of drains were dug

It is clearly obvious that the Derrybrien windfarm construction had a massive affect on the hydrology as after heavy rains in 2003, a significant landslide occured in the area. This significant hydromorphological change to the land however not just a short-term issue but to this day it remains a key concern for the local communities. The changes in the Slieve Aughty mountain hydrology has been highlighted by local communities as rapidly changing over the past 20 years. The impact that this has on an area with unique karst geology with multiple underground rivers has never been researched or studied and therefore it is impossible to state that there is no impact of these hydromorphological changes.





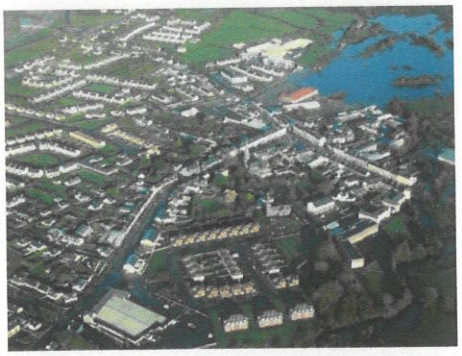
South Galway Situation

South Galway over the past number of years has suffered a number of severe flooding events that have brought many communities into severe crisis. Winter 2009, Spring 2014, and Winter 2015 were the more recent flooding events.

Flooding 2009

Areas all the way from Beagh to Kinvara suffered severe flooding.

Farmer in Beagh, downstream from the windfarm. He claims the water is coming off 'straight' off the mountains, compared to what happened in the past.

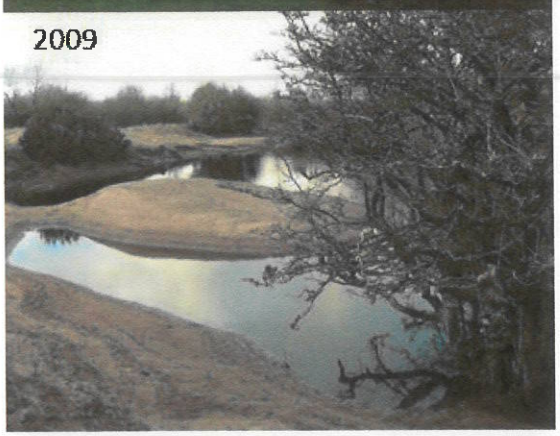


In 2009, Gort river could not sink enough water through the swallow hole at Castletown and this backed-up into Gort causing severe flooding.

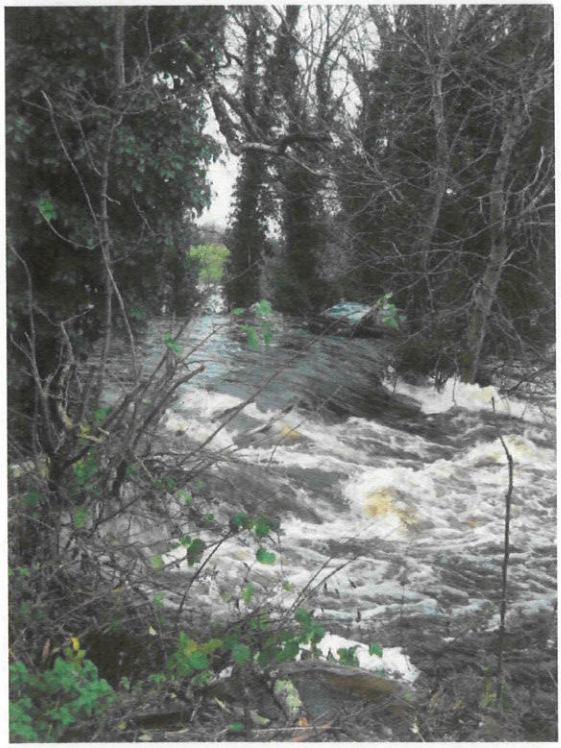
The source of this rivers is the Owendallaugh river that flows into Beagh and Gort is sourced in the Slieve Aughty mountains.

Flooding in Crowe St, Gort Town

Flooding across the N18 close to Kiltartan, downstream of Gort. This is not a river path, this is a flooding overflow.



The heavy silting of a Kiltartan River after 2009 flooding. There is normally no visible silting in this river but post-flooding there was 5m high mounds of silt



Lives put in danger in Corker, downstream of Kiltartan and Gort

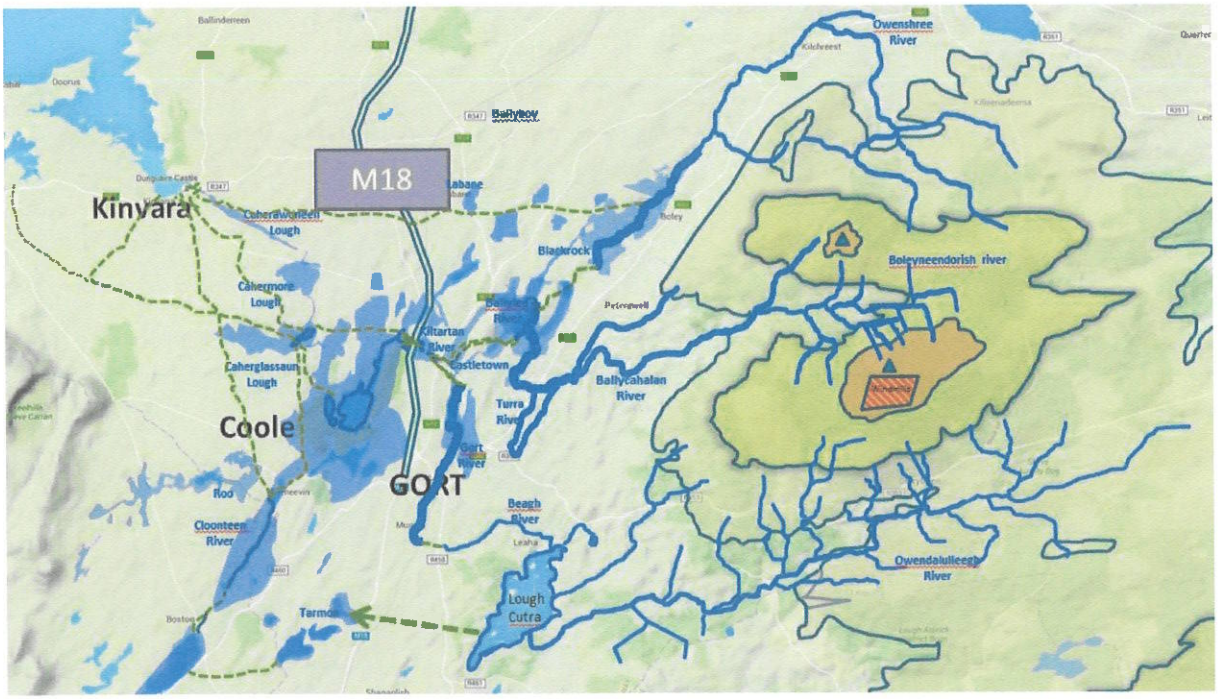
Flooding Spring 2014
http://connachttribune.ie/gardai-called-in-to-south-galway-flooding-disaster/

Gardai called in to South Galway flooding disaster

By **Declan Tierney** - February 20, 2014

Share on Facebook | Tweet on Twitter | G+ | P

Flooding Winter 2015
In winter 2015, over 35 homes were flooded, over 25 farm buildings flooded, over 200 farms were flooded and over 22 roads closed for a combined total of 1733 days.



There is no doubt that there is a serious increase in how fast and how much water is coming off the mountain during heavy rainfall. There is measureable correlation between heavy rainfall and an immediate increase in river water levels.

- Within 4 hours, some of the small Slieve Aughty Rivers can rise over 1 metre.

The flooding of these communities also has a direct impact on the many SACs, habitats and protected species e.g. In the picture here we see Coole Lake, within an SAC overflowing into a farmyard in Tierneevin and becoming polluted – this situation breaks the Coole-Garryland SAC's Conservation Objective and this is just one SAC of 21 in the area.

Snapshot of flooding in Tierneevin (Courtesy of Sean Brady Aerial Photography)


Grannagh, Blackrock
1
Blackrock
SAC
2
Skehanna
3
Ballylee/Castletown
SAC
4
Kiltartan, Corker
SAC
5
Glenbrack
SAC
6
Tierneevin
SAC
7
Roo
SAC
8
Caherglassaun/Killamoran
SAC
9
Cahermore (North)
SAC
10
Cahermore (North)
SAC
11
Cahermore (South)
SAC
12

Clarifications/Actions

The South Galway Flood Relief Committee, on behalf of the many communities between Slieve Aughty and the Sea, are seeking clarifications and actions from the Windfarms owners/operators and developers

Construction/Operations

Please provide the following information relating to Derrybrien Windfarm and operations.

1. Windfarm construction
    1. How many HA of forestry was felled during construction. Was felling only associated with Windfarm or was felling required outside boundary of windfarm?
    2. What was the total length of roads constructed?
    3. What was the total area of the concrete bases for each/all turbines?
2. What is the revenue + cost of the windfarm PA?

Environment Impact Assessments/Best Practice

1. What is the latest best practice strategy w.r.t windfarms and windfarm drainage management? Have you examples of this?
2. Have any assessments been carried out regarding the impact of hydromorphological changes of the Slieve Aughty mountains due to Windfarm construction and operation (deforestation, draining, turbine construction, road building) and their effect on the lower catchment area. (not just local to Lough Cutra) , but through Gort, Castletown, Kiltaran, Coole Lake, Tierneevin, Caherglassaun., Cahermore, Kinvara and Galway bay.
3. Has the windfarm drainage ever been assessed recently?
4. Has the windfarm drainage ever been maintained?

EU Case

In 2010, The European Commission issued a final warning over breaches of environmental law.

".. the case refers to a Court ruling in July 2008 concerning Ireland's failure to ensure that work on projects that might require an environmental impact assessment (EIA) does not start before the necessary checks or studies are carried out. The Court found that Ireland's use of a system of retention permission to retrospectively approve such work was contrary to the EIA Directive. The Court also found that there had been a failure to undertake a proper prior impact assessment of a wind farm at Derrybrien, County Galway, which caused a major peat slide. No legislation has been adopted to address the issue of retrospective permission identified in the judgment. In ***the Derrybrien case, the Irish authorities agreed to undertake an EIA to look in detail at further potential issues, however, to date none has been made due to delays in proposed new legislation."***

1. What is the current plan w.r.t. the judgement from the European Court of Justice?

Water Framework Directive

The European Commission's Water Framework Directive (WFD) directs responsible authorities, to implement via the River basin Management Planning process, 'measures' which both prevent deterioration and promote improvements in the quality of the water environment. This includes influencing the location and design of new development, for example minimising diffuse pollutants in water runoff during the construction phase. Engineering works associated with construction of turbines, site access roads, ancillary buildings and transmission infrastructure will impact on the quality of the water environment. Developers should demonstrate these have been properly assessed and put forward suitable mitigation measures to minimise adverse effects.

1. How does current Windfarm development implement the Water Framework directive?
    a. Does ESB windfarm development have a set of best-practice development methods ensure cross referencing, reflection of developments in legislation, policy, environmental objectives and environmental findings as appropriate?
    b. In relation to Derrybrien Windfarm, have ESB audited existing drainage network
    c. In relation to Derrybrien Windfarm, have ESB redesigned the drainage network to minimise contribution to peak flow and increase time period to peak flow?
    d. In relation to Derrybrien Windfarm, have ESB researched control of flow regime changes from windfarm for sensitive receptors to limit impact on water balance which could affect habitats, species or uses associated with protected areas?

Going Forward

1. What are the current/future plans (ESB or related) for windfarms on the Slieve Aughty?
2. What is the expected life of the current Windfarm? What happens to the land then?
3. How are ESB intending to meet Water Framework Objectives and develop a Program of Measures and Standards to deal with pressure from windfarms?
4. What is the timeframe for developing a Program of Measures and Standards to deal with pressure from windfarms?

The SGFRC supports windfarm operations in Ireland. However, if windfarm development and operations create hydromorphological changes that could result in the rapid run-off or diminish the natural storage of water on the Slieve Aughty Mountains then windfarm owners should either invest in solutions that will transport this water safely to the sea or incorporate mitigation measure to attenuate and restore water on the mountain.

It is our understanding that mandatory guidelines on both EIAs and WFD will need to be fully implemented by ESB or subsidiaries. However, if any aspect of relevant EIAs, or the WFD have not been dealt with sufficiently by the ESB or subsidiaries, then we demand that windfarm operations and developments that have a hydromorphological impact cease until proper hydrological studies, informed Environmental Impact Assessments and WFD measures can be completed and fully implemented.

The SGFRC would like to meet up with the ESB as soon as possible to discuss these topics.

Yours Sincerely,

-David Murray,
Chair, South Galway Flood Relief Committee (SGFRC) :
Murrcoole@gmail.com
086-8097223

Appendix 2 : South Galway Floods Blog : The flooding of Beagh and Gort

January 29th, 2020

https://southgalwayfloods.wordpress.com/2020/01/19/the-flooding-of-beagh-and-gort/

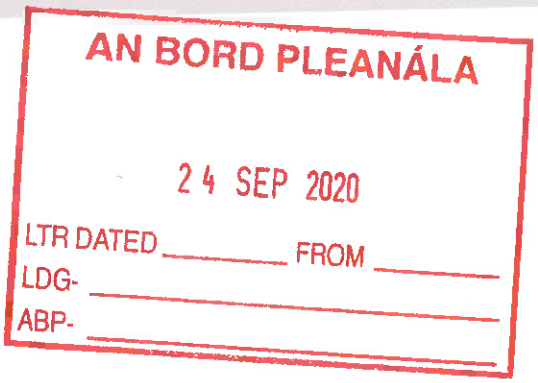
Supporting material

6. If you wish, you can include supporting materials with your observation. Supporting materials include:

- photographs,
- plans,
- surveys,
- drawings,
- digital videos or DVDs,
- technical guidance, or
- other supporting materials.

Fee

7. You **must** make sure that the correct fee is included with your observation. You can find out the correct fee to include in our Fees and Charges Guide on our website.



NALA has awarded this document its Plain English Mark

Last updated: April 2019.

Plain English
Approved by NALA