DEESIDE CLIMATE ACTION NETWORK



IMPROVING OUR RESILIENCE TO EXTREME WEATHER EVENTS EXACERBATED BY CLIMATE CHANGE

1 INTRODUCTION

What are the most significant risks posed by climate change to the communities on Deeside?

Although there are many short and long term risks that we all face due to the changes brought about by a changing climate, it could be argued that the most dramatic risks arise from ***extreme weather events and their effects.***

These would be ***floods, wildfires, extreme winds, and drought***

The risk to life and property could be very significant – and even if lives could be protected by adequate warnings etc- property damage could have very long-term and life-changing effects on livelihoods and wellbeing. These damages could be restricted to a few communities or spread across a valley or district, or even be widespread across the region.

We witnessed a significant flood event in 2014 with Storm Frank, which damaged much property and infrastructure. Such storms are likely to get more frequent and more severe.

Our region features many spate rivers, especially the Dee, and also a large number of hectares of forests.

With sea level rise, the communities on tidal reaches of the rivers will also be vulnerable.

Wildfire risk is growing, with the Grampian Fire and Rescue Service warning of 'high wildfire risk' in summer 2021.

Wind speeds are forecast to increase in the future, causing damage to houses and infrastructure.

Since 2021 is now likely to be the coolest year for now until the foreseeable future, these risks are going to increase inexorably- unless significant greenhouse gas reductions are achieved across the longer term. Even if this is the case, we are facing many years of increased extreme weather risk.

How well are we prepared for these increasing risks at present?



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WARNINGS…. BUT NOT A LOT OF DAMAGE MITIGATION

Although our councils and authorities have spent time and effort on understanding and consulting on these various risks, the influence of climate change is more often than not, considered in relation to the longer-term changes. The various efforts described in eg Adaptation Scotland', 'Climate Ready Scotland', 'Climate Ready Aberdeenshire', etc, and other such websites and documents are worthwhile for the identification of issues, including the wider aspects of climate change, and also highlighting the detailed changes we should expect, but do not properly address measures that government and community could undertake to mitigate the extreme events issues.

Furthermore, key information is out of date: the Aberdeenshire Strategic Flood Risk Assessment 2018, concedes that *'SEPA's Flood Risk Map, updated on 23 April 2018, currently does not factor in climate change.'*



Longer term, there is the need to consider carefully the land management impacts. So, such as tree cover; this can impact positively on flooding by slowing down water through the system; but negatively on wildfire if woodland is connected without firebreaks.

Most of the actions that the councils and other authorities currently plan to take in the event of such emergency occurrences relate to the provision of WARNINGS to seek to prevent loss of human life. This is of course the highest priority, but the resources available for mitigation of such damage to property, buildings and other life (livestock and wildlife) are apparently not



extensive and not ready for the frequency and severity of such events that climate change will increasingly bring.

It could be argued that protecting private property is a task for property and landowners to undertake; but ***surely our government or councils are much better placed to acquire and pre-position a set of better response tools to deploy in the event of localised extreme events anywhere across our region and Scotland as a whole?***

There is a cost implication of course, but a shared cost across the region; and the cost of not spending on such precautionary measures will inevitably be higher and more painful.

All these measures need suitable co-ordination between government and authorities and the providers of services and critical infrastructure.

2 FLOOD RESPONSE

The ever-increasing frequency of extreme flooding events over the past few years across Europe, North America and the rest of the world have highlighted the difference in damage experienced by the best and worst prepared communities.



Modern temporary flood barriers, if properly deployed in a timely manner, can significantly mitigate the worst damage over the typical period of hours or days until waters from flash flooding subside.

However, we are not so equipped as communities. We are still largely dependent on sandbags and similar primitive measures. (After Storm Frank, the local authority did help with provision of flood barriers, etc at a subsidised rate. Such assistance would of course be more appropriate as a preventative measure.)

Technology now offers much more effective and quickly deployable flood barriers, as have been seen in several of the flood events across the UK and Europe in recent years. Such solutions



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need to be ready for NE Scotland emergency services to deploy when needed. Some systems suit flat tarred or concrete surfaces, others are suitable for rough ground.

Examples are shown below: demountable, re-usable barriers that can protect communities and infrastructure quickly. Obtaining and pre-positioning a stock of such systems, and training in their use, should be a priority.









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3 WILDFIRE RESPONSE

Since 2018, three major wildfires have burned across the UK, at Saddleworth Moor, the FlowCountry, and in the Mourne Mountains- reportedly burning between 70-140km2, an area of a medium to large city. Wildfire is now recognised on the National (UK) Risk Register.



The Scottish Fire and Rescue service document contains a clear message that they do not possess ANY air assets to help deal with wildfire outbreaks. ("In contrast to the international capability, with very few exceptions, UK FRS' are unable to rely on any aerial support" (SFRS Wildfire Operational Guidance 2011)) It is acknowledged that individual land holdings/estates may have a commercial arrangement- if helicopter support is available, but these are not dedicated aircraft.

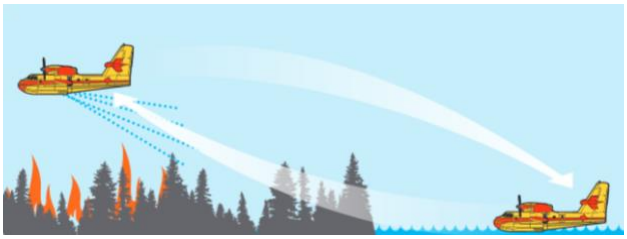
Unlike our European or other developed nations, the UK is sadly deficient in such effective dedicated resources. The use of water bombing aircraft is a key weapon to suppress wildfires, as has been shown in many wildfire outbreaks worldwide over 50 years of such operations. The aerial assets back up the conventional land-based fire-fighting assets. The speed of progression and intensity of the wildfires across the world over the past few years, including 2021 in western Canada, show that appropriately fast and large-scale responses are required.

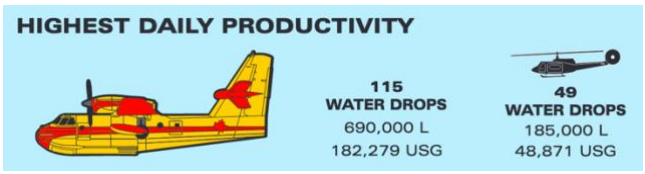


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It is surely time for Scotland and indeed the wider UK to acquire a suitable number of fire fighting aircraft, such as the industry-standard Canadair/Viking water bomber. We have a network of ideal lochs and estuaries that can be used by such aircraft for water loading. Appropriately stationed, the aircraft could reach any wildfire outbreak within one or two hours.







In parallel, we need to upgrade the terrestrial response assets available to the SFRS to provide a matching scale of response on the ground.

It is recognised that up to now, most wildfires in Scotland can and have been be fought using conventional kit. The Wildfire Groups have lists of kit, standard operating procedures, skills, etc. which can be used in support of the SFRS.

It is also recognised that there is also much that householders can do, if living adjacent to woodland and moorland: appropriate education and training should be developed and offered at community level.

However, events globally, such as in western Canada in 2021, show how the scale and severity of future climate change affected events merit a more capable set of resources.

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3 EXTREME WIND RESPONSE

As maximum windspeeds increase in storm conditions, so does the risk to damage to buildings and infrastructure. Therefore it is time that Scotland properly learned lessons from countries that are more used to extreme wind events, to better prepare our communities.

(Note: This document was originally drafted before Storm Arwen in late Nov 2021, but that event has only emphasised the importance of this issue).

The immediate risk is to the power and communications infrastructure, with lines being brought down or damaged by fallen trees etc; also the probable consequent loss of water supplies etc if relevant power is lost. (All these factors applied during Storm Arwen).



The loss of mobile phone networks and the broadband internet (as in Arwen) was a key attribute which has become more and more critical as landline provision is reduced. (In Arwen the emergency radio network was also affected).

Regulatory obligations to improve network resilience: more redundancy, more use of underground cables, and UPS systems and other backup power for eg 1 week for critical infrastructure are key requirements.

The next aspect is the physical damage to homes and businesses, with roof etc damage allowing water ingress and impeding habitability.



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Temporary and effective measures to enable continued use and occupancy of buildings will be a key factor in 'getting back to normal' after an extreme event.

Rapidly deployable, modern systems to protect buildings that have lost roofs etc are a key shortcoming in current tools available. Yet such systems would enable rapid weather protection of public and domestic buildings affected by extreme storm damage.







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4 DROUGHT RESPONSE

As our climate warms and rainfall patterns change, there may be increased competition for water between households, agriculture, industry and the needs of the natural environment.

Summer droughts are likely to become more frequent and more severe causing problems for water quality and supply.

And some of Scotland's rivers could become hotspots for water scarcity, due to abstraction.

Plans should be made now and appropriate resources acquired to move water between areas with suitable supply to the drought areas.







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4 WHAT ARE WE ASKING FOR?

As climate change progresses, extreme weather events are likely to be the most significant and dramatic results impacting the lives of the residents and visitors on Deeside and across NE Scotland.

The relevant authorities and service providers should be equipped to be ready with suitable and up-to-date tools to help mitigate the damage such events will cause.

What is needed:

- Better resourced emergency services in order to mitigate extreme weather events, with more capable and effective tools

- More resilient critical infrastructure, with obligations on service providers to establish such resilient networks

Investments in such improvements will no doubt provide reassurance and enhanced protection to our communities. We need action now – it is known what needs to be done.