

Farmers Workshop, Commercial Hotel Tarland

Tuesday 9th March 2010

Report by Flora Grigor-Taylor and Kirsty Blackstock.

Summary

An interactive workshop was held to exchange information between the project team (Aberdeenshire Council, Macaulay Land Use Research Institute and Landcare NorthEast) and interested farmers in the Tarland Catchment. The meeting presented the results from the farmers' questionnaire, the flood risk assessment and maps, climate change metrics and some examples of flood prevention measures on farmland from elsewhere in Europe and the UK. The farmers provided very useful local knowledge on the extent, frequency and possible causes of flooding and feedback on the issues relating to flood management in the catchment. There are a range of views as to the nature, extent and need for intervention. The project will now gather more information about design of measures, financial incentives, and legal conditions before exploring whether a demonstration site could be constructed in the catchment during 2010-2011.

Introduction

The workshop involved seven local farmers, a representative of the NFUS and eight members of the Aquarius project team in a round table discussion using a workbook that covered farmers' views on the water environment; flood risk in the Tarland catchment; potential climate change impacts; and opportunities for natural flood management (see <http://www.macaulay.ac.uk/aquarius/documents.html> for the materials).

The objectives of the workshop were:

- To get important information about working with farmers from farmers themselves, in relation to farmers as water managers;
- To get feedback on the draft flood risk maps used to assess possible natural flood management options; and
- To update local stakeholders on the 'Aquarius: Farmers as Water Managers' project

The workshop started with a brief introduction to the concept of Interreg projects; the transnational Aquarius project; and the Scottish case study (Tarland). Linda Mathieson of Aberdeenshire Council drew attention to the roles of both the project team who should:

- Share information and ideas
- Listen to your views
- Feedback to Scottish & European policymakers

And the key stakeholders – the farmers in the Tarland catchment, who should:

- Feed in information and opinions
- Tell others about what we are learning
- Tell us what they need to know in future

Existing Views from the Questionnaire

A short presentation was given on the results from the farmers' questionnaire by Kirsty Blackstock of Macaulay Institute. The main findings were:

- 83% of respondents thought farmers have an important role as water managers
- 44% of respondents had had crops washed out by heavy rain
- The most popular measure that respondents intended to put in place were buffer strips
- 72% thought climate change had not affected their farming business
- Most people don't know what will happen to rainfall, floods and droughts over the next 10 years; although 33% think flooding will increase.

One participant noted the questionnaire was carried out at the end of a particularly wet summer; this may have influenced/skewed the responses given. A summary of the questionnaire results will be available on the website shortly:

<http://www.macaulay.ac.uk/aquarius/documents.html>

Please contact Kirsty (k.blackstock@macaulay.ac.uk) if you would like a paper copy.

Flood Risk Model & Maps

Steve MacFarland from Aberdeenshire Council explained what the term flooding covered; the work that was ongoing to support the Tarland Flood Prevention Scheme; the development of flood risk maps; and the initial predictions of the cost-benefit results based on flood protection. He noted that the new Flooding Act extends the responsibility of the council. The flood risk maps show flood from the burn (and tributaries) itself but not from rainfall; and cover 1:5 (20% chance of occurring any year); 1:25 and 1: 200 (once in a lifetime) type events. To put this in context, the floods in Tarland during 2002 were between 1:50 – 1:100 year events, and the 2009 flooding in Stonehaven was a 1:200 year event. The following issues were raised:

Q: 200 year flood event predicts only 30 properties will be affected in Tarland – is this worth worrying about? Of those 30 houses identified, how many are new i.e. 10-15 years old or less?

A: Properties are a range of ages.

Q: Is there a list of these properties in existence?

A: Yes

Q: Why were houses allowed to be built in areas that flood?

A: Since 2003/04, Flood Prevention Team are increasingly asked by Planning Dept to consider flood risk and report back to planners as part of the planning assessment process (using SEPA flood map initially). In general, proposals on the floodplain will be carefully scrutinised or rejected but in other situations where sites are wet e.g. hollows holding water, these may get permission to go ahead. Occasionally, high risk sites are unchecked due to flood maps not being fully accurate or planners not picking up on the fact that flooding may be an issue and so not consulting with flood team.

Q: How does the Flood Team influence which new developments are granted consent?

A: Sometimes developers are asked to provide a detailed study of flood risk but floodplain is still not protected regardless of flood protection. Installation of flood defences/protection measures does not render a site suitable for development as far as planning consent is concerned. Where an

application is to convert an existing building on the floodplain (e.g. a disused mill), consent may be granted, but

often with modifications stipulated. The Tarland Flood Prevention Scheme (TFPS) will not alter development rights or open up building on the flood plain.

Q: How many planning applications have been turned down due to flood risk?

A: Not known

Q: SUDS systems – where are these required? Is the increased development in Tarland and Aboyne responsible for the increase in burn flows (increase in paved areas)?

A: Developments of over 5 units – here water should be attenuated to ensure that rate of flow is no greater than it was prior to development. Developments over 10 units – plans need to incorporate and show drainage systems such as soak aways, attenuation ponds, etc

Q: Can developers sometimes get round these conditions?

A: General view is that this is unlikely; for example, if ground were deemed unsuitable for a soakaway then a pond or tank would be required. Scottish Water gives technical approval as part of planning consent.

Comment: in the past when buildings were more than 10 years old, developers were getting around these conditions.

Q: Ponds can pose a danger to children.

A: there are design modifications which can be incorporated to make the pond system safe.

The Aquarius Baseline study looked at the number of potential new developments identified in the local plan – not a large number for the area.

Commentary on Flood Risk Maps

The farmers and project team members divided into three subgroups to comment on the flood risk maps. The notes focus on where the local knowledge disagreed with the map content.

Overall summary:

- Some new areas of flooding identified
- Some areas where extent not big enough
- History of burn management and changes in management/morphology
- Some contributing factors noted (Sewage Treatment Plant, sediment, watering, drains, bridges, planning permission)
- Residual risk in Tarland (if gets behind flood wall or garden walls)
- Some potential areas of restoration noted
- Some comments on washing out crops; impact on germination
- Limited commentary below Coull – almost nothing on Aboyne

4. Climate Change in the Area

Keith Matthews, from the Macaulay Institute, introduced some climate metrics for the Tarland catchment, comparing past data with projections for 2070-2100 (Infrastructure uses a 100 year timeframe for investment).

The overall patterns are to have wetter springs and warmer drier autumns, with more access problems in the spring but more potential for grazing stock into the autumn, if late summer drought does not impact on grass production. Extreme events could be more severe and more frequent.

Q: What is causing the projected spike in rainfall in the spring?

A: Mainly as a result in changes in depressions moving through the weather systems; this spring peak has been predicted across all locations sampled on east coast of Scotland

Q: Do predictions take into account government targets for reducing carbon emissions and renewable energy generation?

A: Yes, this medium/high model assumes global carbon emissions are stabilised.

Q: As graphs show average trends, should we expect some years to be far worse in future?

A: Yes, some events will be far greater than the maximums shown; models generally better at looking at averages and not forecasting extremes

Q: Does anyone believe this predicted change to increased rainfall in spring and less in autumn is already happening?

A: Not from what we experienced last spring 2009 (lack of water). The changes may already be occurring but very gradual so difficult to detect

Q: Is the climate data used particular to the Tarland Catchment?

A: Yes

Q: Are there particular combinations of events which culminate to cause particular problems in farming? For example, frozen ground followed by wet weather? If so, are these causing farmers to make changes to land management practices?

A: Local observations suggest it may be getting wetter in the late summer/autumn, causing increased run-off which can sometimes cause erosion

Q: What causes climate change predictions to vary in different parts of Scotland, e.g. Perthshire?

A: There is a handout available which shows comparisons with other areas. There will be differences due to macro climates. The east coast is inherently different to the west coast of Scotland; there is more moisture as you move west. Also Perthshire rivers are more regulated and installed hydro dams severely affect flows. Tarland is particularly interesting and shows greater predicted change in rainfall due to the relief effect, for example an annual increase of 127mm compared to only 100mm in Dumfries.

Q: Will weather systems still predominantly prevail from the west?

A: It is expected that balance of rainfall will continue to be mainly from west-to-east but storm events from the east could become more severe and frequent. This could be investigated in more detail

5. Natural Flood Management

Kirsty Blackstock presented some photographs of existing natural flood management measures, outlined the policy questions that our project is working on and some data from the questionnaire on attitudes to NFM.

Q: Will potential storage sites in Tarland catchment be restricted to flat ground?

A: Not necessarily; there are a number of sites in the valley where, for example, the ground dips allowing water to sit, thus providing storage but it will be more difficult to find large storage sites in the upper catchment and where gradients are steeper. 101 sites were identified by Aberdeenshire Council following a basic walkover survey of the catchment in 2004. In practice, these are not all potential water storage sites, as identification was based on topography alone and didn't take into account scale, soil type, land use, designations etc. Potential for trade-off land may have to be investigated in order to consider impact on loss of productive land.

In order to hold sufficient water to alleviate flooding (particularly in the case of 1:200 yr event); a single flood retention basin would have to be very large. Therefore a combination of measures, not just flood storage, may be the answer. A smaller scheme may well be the solution which would not necessarily be able to cope with the 1:200 yr event but can deal with smaller returns.

One of the biggest issues on the River Dee is the westerly wind in combination with melting snow which can cause the river to rise 6-8 feet very quickly. A suggestion would be to control waters leaving Loch Muick to help to lower capacity downstream and so assist the Tarland Burn (holds 3-5% of the water in the Dee). Widening channel of the Tarland Burn where it meets the Dee in Aboyne may help, as it is currently losing 60-70% of natural flow due to vegetation. Shingle and other sediments have moved down the burn into the river over the years. The shingle used to be regularly removed (through gravel and sand abstraction business) but is now left to build up, thus reducing flow capacity. A house at the Golf Course in Aboyne was demolished due to increased flooding from these shingle banks. Meanders undercut banks, making fences collapse and creating stock problems. A balance has to be met as removing deposits may relieve flooding in Aboyne but would likely just shift the problem downstream e.g. to Banchory.

Q: in the past, land managers each used to clear out their drains, remove sediment to widen and deepen the rivers/burns to lower water table. It was common sense. Why can't there be a derogation to allow this to continue as this action, little and often, controlled the problem.

A: Dredging of ditches could be investigated in order to understand more about the effect this would have on flooding. Experience from Aberdeenshire Council's work on Fettercairn scheme shows that the cost of clearing out whole sections to prevent sediment build up can be too restrictive and not effective in the longer term, as the natural processes just fill this in again. For example, lowering the stream bed in Fettercairn would only change a 1:5 flood to a 1:10 flood, not stop the problem. Better to let the stream bed reach a stable level as temporary removal is not cost-effective.

Q: Are problems as a result of over-regulation from agencies? With greater rainfall and more flooding predicted, are we being too restrictive?

A: The main issue relates not just to an increase in rainfall/water but to the fact that there has been a change in how man is moving water. The concern is less about volume but more the speed with which water is moving through catchments. Water is now increasingly channelled through polypropylene and alkathene pipes and drains rather than being allowed to filter more naturally and slowly through soil to the watercourse. We need to be able to adapt to this change in speed of water

in some way in order to avoid flooding. There is also a need to ensure that water from development is well regulated. Thus any solution should come from looking at how waters are managed across a catchment.

Feedback and Next steps

There were three evaluation sheets returned. All rated the venue at six (strongly like) whilst the format, content and quality of the presentations were rated five or six. All three had heard of Aquarius before. Although their prior knowledge varied from a little to a great deal, all felt they had learnt new information; and two out of three had changed their views on natural flood management (one had not thought about the speed of flow before, the other is more interested than they were before). No further comments were made. Informal contacts since the meeting have provided positive feedback.

We plan to run a similar process with the Factors or Estate Owners to get their views during April 2010.

We will then address the main questions arising from these meetings in our research. If possible, we will put the research into practice via a demonstration site in the catchment. We will feedback progress via newsletters and possibly another meeting, if there is sufficient interest, in winter 2010-2011.

Please contact Linda Mathieson on 01467 628380 or Keith Matthews on 01224 395271 for more information.