

## Preliminary summary of interviews about water management in the Lunan water catchment

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As of December 2017, 17 interviews have been carried out with 19 stakeholders in the Lunan Water catchment. Eight people in stakeholder organisations in the catchment, three farmers and eight residents have been interviewed. Members of stakeholder organisations were recruited through their involvement in the Lunan Water catchment management group. Farmers and residents were recruited through participating in a survey about the tilting weir scheme proposed by the James Hutton Institute. The interviews dealt with people's views on water issues in the Lunan Water catchment in general. They also dealt with different ways of managing these issues and their views on the desirability and feasibility of the tilting weir and penning structure scheme proposed by the James Hutton Institute at the outlet to Balgavies loch.

Themes that have emerged from the interviews include:

- The potential benefits and disbenefits of the proposed tilting weir and penning structure scheme.
- The feasibility of managing such a scheme.
- Gaps in the governance of water management in the Lunan Water catchment and more widely.
- The types of evidence that are necessary for approval of the scheme by stakeholders and in regulation and how this evidence is communicated.
- Farmer and land owners' rights and responsibilities as stewards of the land.
- The merits of different water management approaches such as engineering solutions or natural flood management.

In relation to evidence for the scheme several interviewees stated they would like more detailed and accessible information about how the scheme would work and what the likely impacts are.

Interviewees whose knowledge of the scheme was based on the survey they had responded to stated that they required more information to understand and assess the scheme for themselves. Others stated that more translation, either by the James Hutton Institute or other stakeholder organisations, of the technical and scientific information about the scheme into accessible, non-scientific language was desirable.

Interviewees identified institutional gaps in water management. For instance there is funding available for capital investment in water management infrastructure such as flood defences but there was a perception that there was less funding and institutional capacity for ongoing maintenance and management of this infrastructure. Some interviewees stated that this infrastructure was sometimes not effective without maintenance. There was also a clear regulatory process for installing capital infrastructure. The tilting weir scheme raised the issue of there being

little precedent for managing schemes that required ongoing management – adjusting the level of the tilting weir: of what kind of body would take responsibility for this, what the legal status would be and how decisions would be made.

There was also uncertainty about the status and management of structures such as weirs which had been installed before current legislation was in place. What was the status of these structures? Were they not technically legal but were not being actively challenged? How was the management of these structures, such as opening and closing sluice gates governed?

Interviewees expressed the view that landowners' and farmers' autonomy in water management had been reduced in recent decades. Landowners had less freedom to clear waterways and carry out other maintenance. For some this conflicted with farmers' identity as stewards of the land who had rights and responsibilities to maintain waterways. Here farmers' private interest was seen as largely compatible with the public good both because farmers produced food and because farmers and land owners were responsible agents who understood the consequences of their actions and had the local and technical expertise to carry out water management for the public good. For some this loss of autonomy meant a lack of maintenance of water ways, which was the cause of some of the flooding issues in the Lunan Water catchment.

For others, the current governance structure for clearing waterways and dredging prevented landowners acting in their own interests while causing water problems on other people's land, such as flooding downstream caused by dredging upstream, or damage to water quality. Here private interests were not necessarily seen as compatible with the public good in relation to water management and regulation was needed to manage this dynamic.

Some interviewees expressed the view that natural flood management was preferable to engineering solutions in the Lunan Water catchment because it may require less ongoing management. "Nature" was seen as a force that would continue to shape water flows in the catchment and engineering solutions would be difficult to maintain if they did not accommodate this force. An engineering solution which required ongoing management was seen as susceptible to difficulties in relationships within the catchment: assembling people with enough time and energy to dedicate to managing a structure; accommodating conflicting views about how the structure should be managed; and finding people or an organisation willing to take responsibility for any negative impacts of the structure. In contrast natural solutions were seen by some as more autonomous and self-regulating and so requiring less energy from stakeholders and dispersing of responsibility for ongoing management.

In contrast, some framed the Lunan Water as a catchment which could not be considered "natural" as the waterways had undergone a lot of work such as straightening. In such a system natural management could require a change which might lead to some people losing out through for example land being reconverted to flood plains. In an already artificial system, engineering systems and ongoing management may be required to maintain people's existing interests and assets.

Interviews with farmers and people in stakeholder organisations will continue. Interviews will be transcribed and analysed and findings will be disseminated in presentations, reports and an academic paper.