Stakeholders' norms and values about farming and the environment

Understanding the social norms and values of stakeholders in the Lunan catchment is an important part of the research project as they influence which solutions can be implemented to solve water issues. Stakeholders described the following norms and values concerning farming and the environment as part of their decision making.

Farming norms	Environmental norms
Production oriented. Changes to water management shouldn't conflict with farmers' right to make a living off the land.	**Polluter pays.** Those causing environmental problems should address them, such as farmers installing sediment fences.
Custodians of the land. Farmers have been taking care of the land for hundreds of years and should be allowed to do so.	**The environment needs spokespeople.** Environmental considerations and resources without economic benefits need to be represented in decision making.
Sovereignty. Farmers own the resources on their land and should be allowed to use them as is necessary for production.	**Farming and the environment not mutually exclusive.** Solutions to environmental issues need not impact farming.
Environmentally minded. Some farmers value the flora and fauna created by non-productive land for its own sake.	**Environmental issues and farming are compatible in the long run.** Farmers have an interest in protecting their environment such as stopping soil erosion.
Undervalued in society. Farming is little understood and undervalued by society. Food is cheap making it difficult for farmers to balance environmental and production aims.	**Access to resources does not mean ownership.** Water resources are part of a bigger system with wide impacts, meaning people cannot exploit resources on their land as they wish.
Intensification requires more oversight. Agriculture has intensified in recent decade with more environmentally disruptive practices. This requires more oversight.	

Stakeholder relationships and water management

Factors within stakeholder relationships which were seen as **preventing successful water management** included:

- Lack of communication on stakeholders' needs, problems, duties and the actions they will take which might affect others.
- Lack of resources to facilitate communication.
- Confusion over the water management actions land owners are and are not allowed to carry out.
- A perception of a power imbalance between stakeholders leading to lack of communication, unwillingness to engage and inaction.
- Lack of data about water management practices such as farmers' abstraction levels which would lead to a better understanding of the issues in the catchment.

Factors which were seen as **improving stakeholder relationship and successful water management** included:

- Effective communication between stakeholders about their needs, problems and responsibilities.
- A "softly softly" approach to management that would give land owners' sovereignty over their land and allow them solve problems collectively, while respecting certain rules.
- More accurate data which would allow for a better understanding of the current situation and what needs to change.
- Monetary incentives could bring about changes in some cases.
- Change would also require concessions to be made from several parties to fulfill the needs and priorities of those undertaking the change.

If you have any questions please do not hesitate to contact the researchers: Orla Shortall: orla.shortall@hutton.ac.uk, 01224395302; Andy Vinten: andy.vinten@hutton.ac.uk, 0844 928 5428; or Laure Kuhfuss laure.kuhfuss@hutton.ac.uk 01224 39 5404.

The James Hutton Institute

Water management issues in the Lunan water: *Results from 2014 stakeholder interviews*

Orla Shortall, Lindsay Rear, Andy Vinten, Paula Novo and Laure Kuhfuss
James Hutton Institute, Aberdeen.

The Lunan water catchment has faced flooding and water quality issues in recent years. Interviews were carried out in the summer of 2014 with 16 stakeholders as part of ongoing research at the James Hutton institute. Stakeholders included farmers, land owners, representatives from government and non-governmental organisations. Interviews explored views on water issues in the catchment, causes and potential solutions as well as the potential for a scheme to pay stakeholders for water benefits in the catchment.

Water management issues, causes and potential solutions according to stakeholders

Different problems with different causes and potential solutions were identified by stakeholders.

Water issue	Why is it a problem?	Cause 1	Cause 2	Cause 3	Cause 4	Desired solution 1	Desired solution 2
Flooding - farmland, houses, roads.	Damage to house, crops, farmland, infrastructure.	More rain and more extreme rain events, potentially due to climate change.	Waterways blocked by debris and silt. Less freedom for land managers to dredge and clear waterways than in the past.	Runoff from fields raising water levels.	Dredging can cause flooding downstream.	More freedom to dredge and clear water ways. **Or**, more holistic water management rather than piecemeal dredging.	Sediment fences and other measures on farms to reduce loss of sediment.
Loss of topsoil on farms.	Farmers lose a valuable resource – soil. Soil runoff into water courses causes pollution and exacerbates flooding problems.	Flooding washes soil away.	Potato farming – removal of stones from fields and creation of furrows leads to soil runoff.	Potato contracting means the people growing the potatoes have less of a long term interest in taking care of the land.		Careful potato cultivation practices – e.g. creating furrows at right angles to slopes to reduce runoff.	Installing sediment fences to minimise runoff.
Water shortages	Less water available for irrigation in the summer – likely to be a bigger problem in future. Damaging for the river ecology.	Weather variability – dry summers mean lower water levels and also more demand for irrigation.	Lack of holding ponds due to expense and lack of available land area.			Collective management - farmers decide among themselves how to allocate abstraction rights to limit stress on the river.	Creation of water storage ponds/damming water for retention.
Threats to catchment ecology.	The catchment has valuable wetland habitats such as Chapel Mires and Fonah bog. The Scottish Government is working to improve the ecological status of catchments. Recreational activities such as fishing are threatened by poor ecology.	Pollution –eutrophication is damaging to the flora and fauna in water courses and a real threat to valuable wetland habitats at Chapel Mires and Fonah Bog.	Heavy duty dredging and clearance of waterways damages river ecology.	Fluctuating water levels – flooding and water shortages, could damage the delicate ecology in wetlands.		Changes to farming practices. Installing sediment fences to minimise runoff and so eutrophication. And use of precision agriculture technologies so less fertiliser is applied.	Light touch, targeted and holistic waterway clearance and dredging. E.g. clearance by hand rather than with machines. Dredging smaller areas.
Not enough data on the catchment.	Makes management of the catchment more difficult. Reliable data is needed to make claims about the catchment and propose solutions.	Abstraction rates not being returned by farmers because they are difficult to calculate, seen as time consuming and unnecessary.				Farmers to return abstraction licences.	Provide farmers with water metres to monitor abstraction rates.

As you can see in the table, certain causes or solutions put forward by stakeholders were somewhat contradictory, particularly around the role of dredging in the catchment. The research did not aim to judge which perspectives were “right” but rather highlight and explore the complexity in how issues in the Lunan water catchment are viewed.