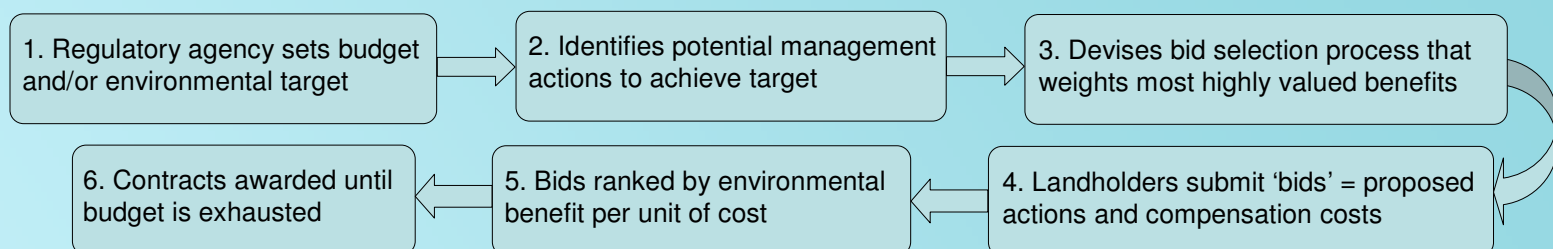


# The Feasibility of Auctions as a Method for Delivery of Agri-Environmental Measures in the Lough Melvin Catchment

## Introduction

This research reports on the feasibility of auctions as a more cost effective policy approach than agri-environment schemes to engage landholders in a program to reduce nutrient levels in Lough Melvin by modifying land use practice in the catchment. Whilst agri-environment schemes are well established in agricultural policy, some research has suggested that effectiveness can be limited (Latacz-Lohmann & Schilizzi, 2005). Auctions have been successfully adopted as a voluntary land management programme (Conservation Reserve Programme) in the USA since 1986 in part to improve water quality (Riechelderfer & Boggess, 1988). Lough Melvin is a cross border lake situated within the counties of Leitrim (ROI) and Fermanagh (NI). As a mesotrophic lake, the Lough and its catchment support unique fish species under threat from increasing nutrient levels (Barry et al, 2008).

## Auction Process



## Advantages

1. Awards contracts to farmers who can provide most environmental benefits for least cost.
2. Flexible approach to create incentives for voluntary participation.
3. Circumvents the information problem where regulatory agency does not know full costs of implementation of management actions.

## Research Methodology

- Investigation of alternative approaches including offsets and tradable permits
- Investigation of best practice examples of land use auctions, eg. in USA and Australia
- Investigation of the auction process and auction design
- Investigation of the feasibility of application to specific Lough Melvin characteristics

## Agriculture in Lough Melvin

- Agricultural land accounts for approximately 55% of land in catchment (13,576ha)
- Farm type is primarily extensive farming through suckler cow and sheep livestock
- Approximately 270 farms, of average size 40ha, are active within the catchment
- Approximately 40% of farms are engaged in agri-environment schemes
- Agriculture accounts for c.58% of total Phosphorus (P) load (Girvan & Foy, 2003)

## Implementation of Auctions in Lough Melvin

- Target reduction of 10µg/l in P load would ensure levels are within mesotrophic limits necessary to maintain environmental value
- Effective management actions identified by Byrne et al (2008) as suitable for inclusion in a Melvin auction scheme include:
  - Installing sedimentation barriers in drainage ditches to trap sediment and establish vegetation to retain runoff
  - Establishing wetlands at the base of slopes to retain nutrients
  - Reducing stocking density to reduce nutrient loading
- Costs of implementing actions will be known and homogenous BUT opportunity costs will differ creating gains from auction
- Contracts will be heterogeneous increasing complexity of bid assessment BUT complexity reduced by focussing on P reduction
- An auction scheme must be consistent with existing legislation and complementary to existing land or agri-environment schemes
- Establishing a Catchment Management Board may be necessary to manage the cross border location and shared responsibility

## Recommendations

- In order to proceed with implementation of auctions within the Lough Melvin Catchment, the following steps are recommended:
1. Conduct economic experiments to test auction design to remove uncertainty about costs and train prospective participants.
  2. Design an Environmental Benefits Index to assess bids based on information from previous Melvin research (Barry et al, 2008)
  3. Coordinate commitment of government departments and agencies; set up Catchment Management Board for local management
  4. Conduct trials and pilot tests to further test the auction process on a larger scale

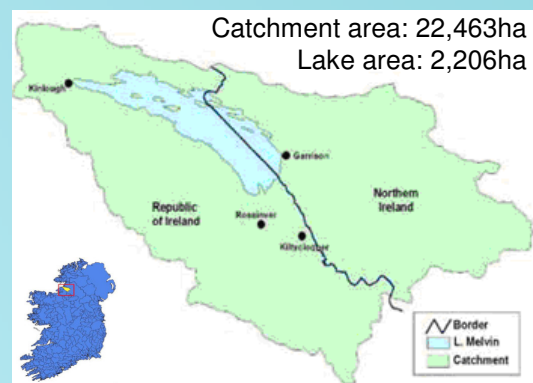
## Conclusion

Achieving this would establish Lough Melvin as an example of best practice which can be replicated across Ireland and provide a model for inclusion in catchment management in the future.

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## Challenges

1. Potentially high administration and transaction costs.
2. Potentially high costs and high level of input incurred by regulatory agency.
3. Success dependent on appropriately designed auction.



Lough Melvin Catchment (Barry et al, 2008)