



**Using Evaluation to Enhance the
Rural Development Value of Agri-
environmental Measures,
Pärnu, Estonia, 17 – 19 June 2008**



Payment Calculations and Biodiversity Targets in Agri-environment Measures: Experiences from Scotland



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Introduction (1/2)

- Biodiversity one of the key objectives of the Scottish Rural Development Programme and are integrated at various levels
- At programme level, biodiversity objectives include:
 - to halt the loss of biodiversity
 - to continue to reverse previous losses through targeted action for species and habitats
 - to protect and enhance current habitats, species and areas afforded protection under international, national and local designations
 - to reduce habitat fragmentation and enhance habitat connectivity; and to reduce the spread of invasive species in Scotland.
- Biodiversity priorities for agri-environment support target high nature value farming, environmentally friendly land use practices, habitat networks and threats to biodiversity from climate change and invasive non-native species.
- Implemented through 11 main agri-environment measures including payments for wildlife on farmland and management of species rich areas

Introduction (2/2)

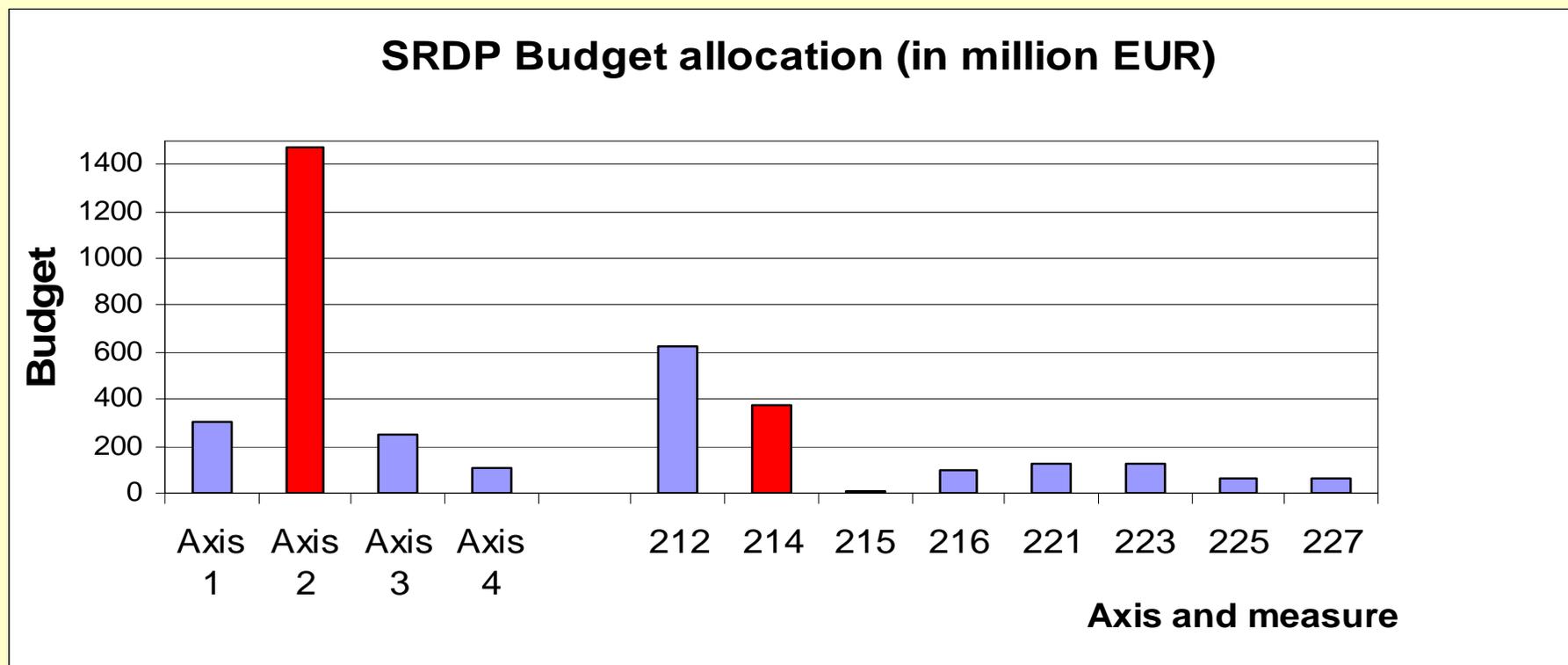
- However, evidence on the impact of agri-environment measures on biodiversity delivers contrasting results
- Identified key problems include:
 - Lack of targeting
 - Farm scale versus landscape scale
 - Long term security and changes in farmers' attitudes towards biodiversity
- On the other hand, economic incentives are a key factor for farmer participation in agri-environment schemes
- Dependence of the successful delivery of biodiversity benefits of agri-environment measures on economic incentives
- ⇒ How do agri-environment payments in Scotland address biodiversity targets?
- ⇒ How to effectively link the design of economic incentives with biodiversity targets?

Objectives

- To review payment calculations in Scottish agri-environment measures and the extent to which payments are linked with biodiversity targets
- To review outcome-based payments and identify “lessons learnt” to integrate biodiversity targets in future payment calculations and designs



Agri-environment measures in Scotland



Source: Based on figures from Scottish Rural Development Plan (Scottish Executive, 2008)

- Agri-environment budget: 17% of total budget and 25% of axis 2
- Wildlife on farmland, **management of species rich areas**, wetland features, moorlands, field margins, arable fields, woodland and scrub, water quality, small units and planning

Payment calculations: Example ^(1/3)

Creation, restoration and management of species-rich grassland

- Objective → to increase the diversity of flowering plants and other species and to create a habitat and feeding area for a variety of invertebrates, birds and mammals by converting arable or restore improved or semi-improved grassland to species diverse grassland.
- Shift from intensive to extensive farming / land use systems
- Based on average gross margins

Payment calculations: Example (2/3)

Process of payment calculation for creation, restoration and management of species-rich grassland

	£ per ha (non-NVZ)	£ per ha (NVZ)	Reference period
i)			
Gross margin – arable/intensive grassland			
Winter barley	385	385	2005/2006
Spring barley	282	282	2005/2006
Livestock gross margin (average) – intensive grassland	494.23	469.47	2005/2006
Gross margin average	387.08	375.75	
6.3% interest on tenant's capital saved	35.53	35.53	2005/2006
Average gross margin (net of savings)	351.54	340.22	
ii)			
Gross margin – extensive unimproved grassland			
Livestock gross margin (average) – non-intensive grassland	177.98	168.71	2005/2006
75% 'beef suckler, sheep and dairy followers' production	133.48	126.53	2005/2006
Adjusted gross margin	133.48	126.53	
Income foregone i) – ii)	218.06	213.69	
Costs for weed control at £49.4/ha spread over five years	9.88	9.88	2005/2006
Total additional costs	9.88	9.88	
Income foregone + additional costs	227.94	223.57	

Source: Based on Scottish Rural Development Plan (Scottish Executive, 2008)

Payment calculations: Example ^(3/3)

- Payment depends on the compliance with certain management practices such as using low productivity grass → prescription based
- Agricultural opportunity costs based on simple averages of income foregone and additional costs → standard costs based
- The payment is not conditional to specific environmental outcome-based indicators such as threshold of number of indicators species.
- Conversion from arable or intensive grassland to extensive grassland can be expected to bring biodiversity benefits, but no direct linkages between the payment calculation and levels of biodiversity benefits exist.
- ☞ Payment calculations do not take into account different environmental qualities
- ☞ Do provide outcome-based payments an alternative to improve the linkages with biodiversity benefits?

Alternative approaches (1/3)

- Payments based on agricultural opportunity and compliance costs have limited ability to directly target (different levels of) biodiversity outcomes
- What shall payments reward: Efforts or outcomes or a combination of both?
- Outcome → Linking payments to specific biodiversity targets

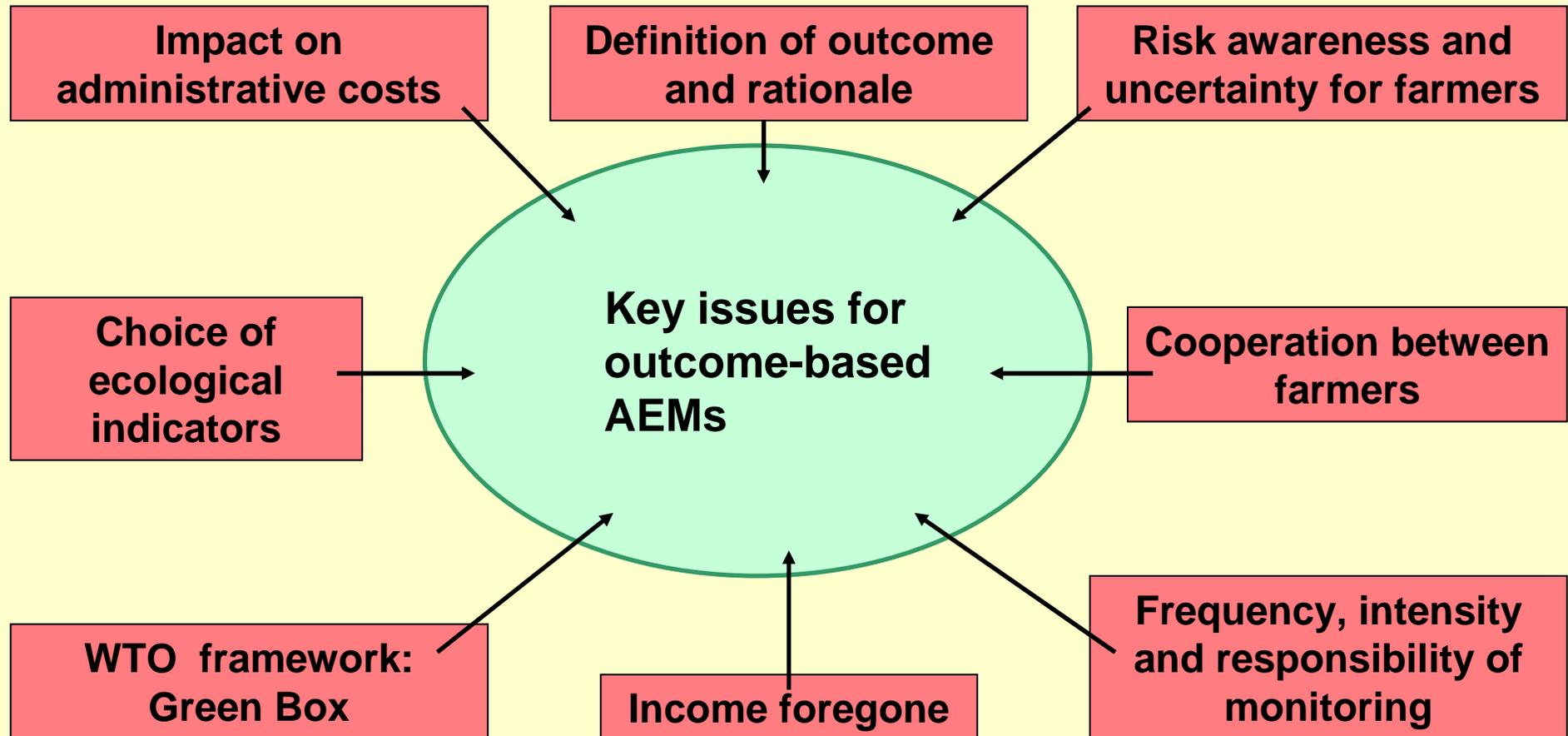
Advantages:

- Improved targeting
- Promotion of self-interest and entrepreneurship of farmers
- Flexibility to allow farmers to use their knowledge about local environmental conditions to increase the environmental benefits

Alternative approaches (2/3)

- A range of key issues make the practical implementation of outcome-based payments a rather complicated task
- Review of 16 examples of outcome-based AEMs from 10 countries, but:
 - Often prototypes or still in experimental stage
 - A large number of examples are rather result-oriented or action-based schemes with outcome-related elements
 - True outcome-based schemes are difficult to find
- Payments are conditional to outcome-based indicators
- Payments take into account different ecological qualities...
- ...but are still calculated based on income foregone and additional costs.

Alternative approaches (3/3)



 “Lessons learnt” for practical implementation of AEMs?

Conclusions

- ☞ Lack of direct biodiversity targeting through existing payment mechanisms
- ☞ Outcome-based approach improves environmental targeting, but more work required on actual benefits and practical implementation

☞ A pragmatic compromise: Combining action-based and outcome-based incentive elements in AEMs?

- ☞ Integration of elements from the outcome-based approach:
 - ☞ Differentiation of environmental qualities
 - ☞ Outcome-based indicators
 - ☞ Bonus payments or similar incentive payments
 - ☞ Compliance and outcome monitoring

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Payment calculations: Example 1 (1/2)

Management of species-rich grassland

- Objective → to encourage the growth and spread of flowering plants and other species in natural grassland, which act as a food supply for insects and a seed source to ensure the continuation of the species.
- Grazing plan for livestock management and grazing regime
- Reduction of stocking density

Process of payment calculation for management of species-rich grassland

	£ per ha	Reference period
Additional costs		
Rented grazing of 0.267ha at £200/ha	53.33	2005/2006
Supervision of 0.267ha at £7.82 per hour and week and ha for 26 weeks	54.22	2005/2006
Wormer and haulage for 2 ewes at £2 per ewe	4.00	2005/2006
Total additional costs	111.55	
Payment	111.00	

Source: Based on Scottish Rural Development Plan (Scottish Executive, 2008)

Payment calculations: Example 1 (2/2)

- Targets biodiversity through the creation of a sward at a range of heights
- The sward should be at its longest in the summer and should be shorter in the spring and autumn when most grassland species germinate.
- Sward height is a often used indicator for ecological outcomes, other examples include the East Scotland Grassland Management Scheme
- However, payments are based on standard costs resulting from farmers' actions, in other words average costs resulting from the required changes in grazing regimes and management.
- Payment calculations do not take into account different environmental qualities
- ☞ There are no direct linkages between the payment calculation and design and the targeted biodiversity outcome