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# How can the benefits of bioenergy be delivered?

## Issues to consider



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**Bioenergy-Water Workshop**  
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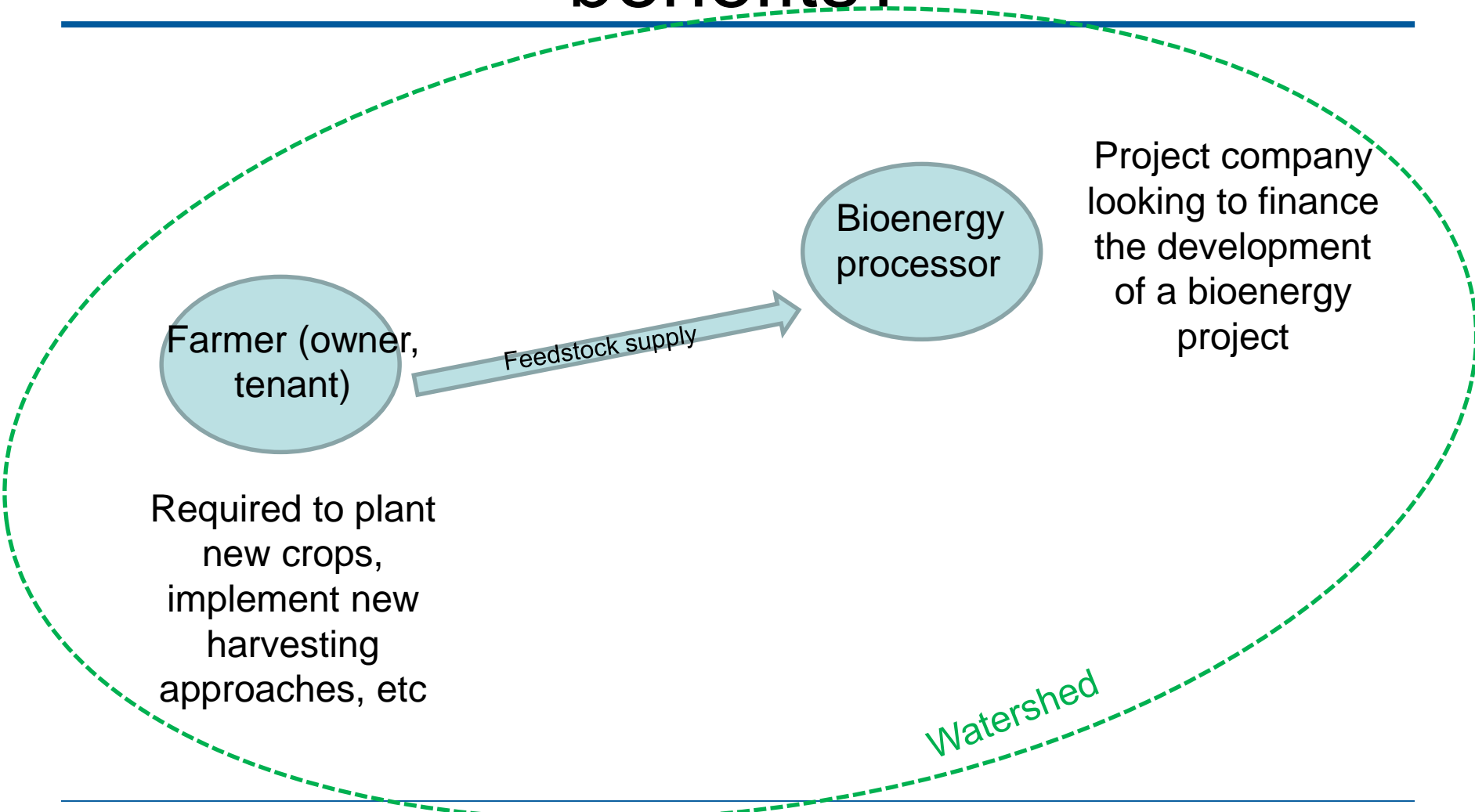


# Reflections on the options for bioenergy-water synergies...

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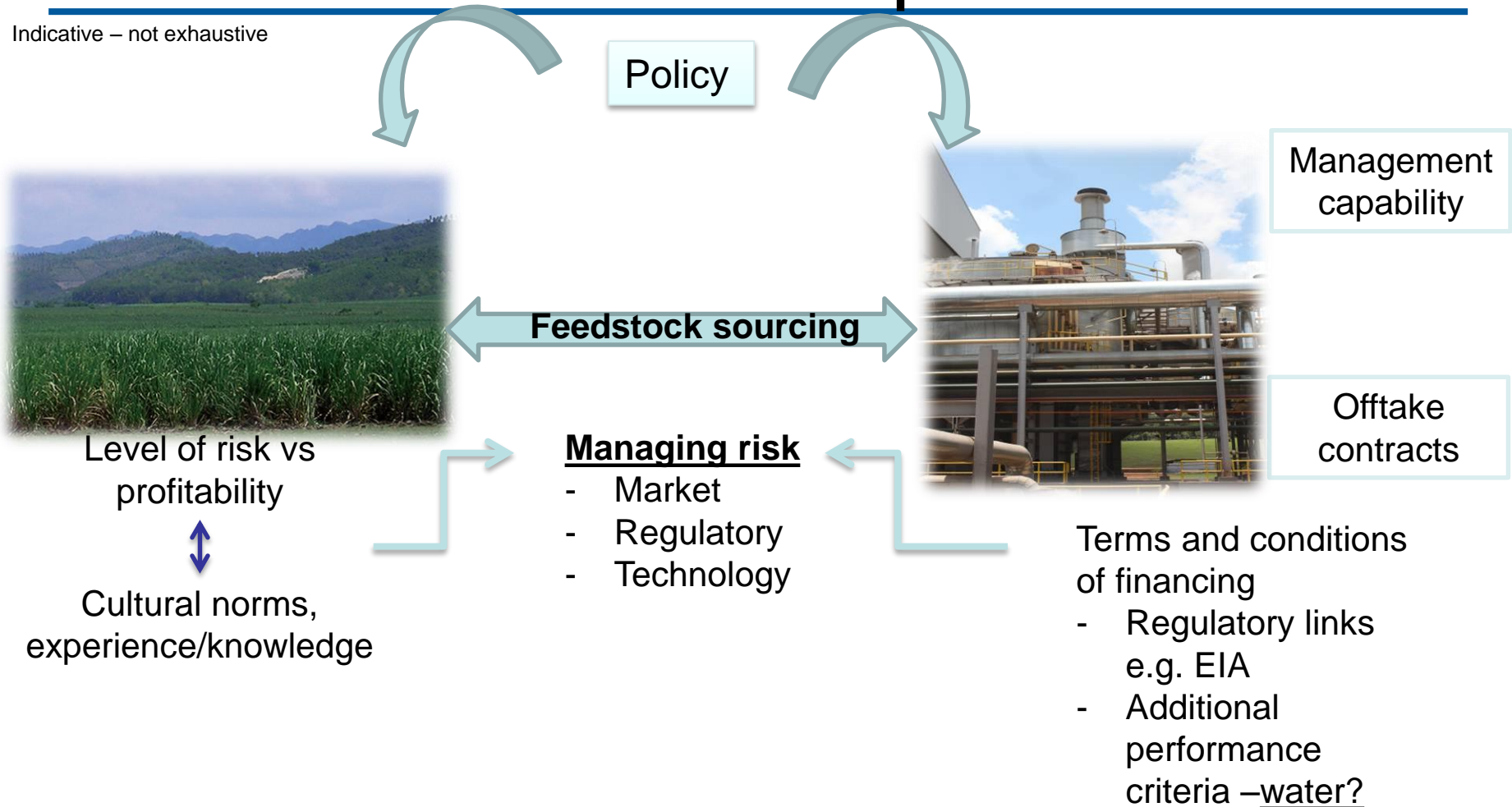
- Integrate specific crops in key regions or landscapes and/or choose siting
  - Soil stabilisation, flood control, water filtration, stabilise hydrology, vapour shift (non-beneficial to evapotranspiration)
- Modify existing practices – cultivation and harvest
  - Mixed crop and livestock (agriculture-based)
  - Streamside Management Zones (forestry-based)

# Who is delivering the water-related benefits?



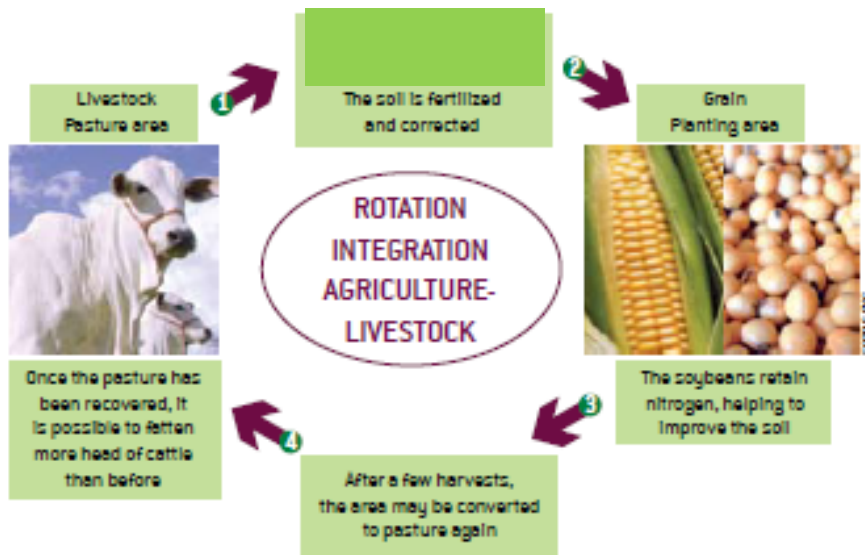
# Farmer-bioenergy processor relationships

Indicative – not exhaustive



# Example of risk for integrating crops and livestock

## Integrated crop livestock with zero tillage

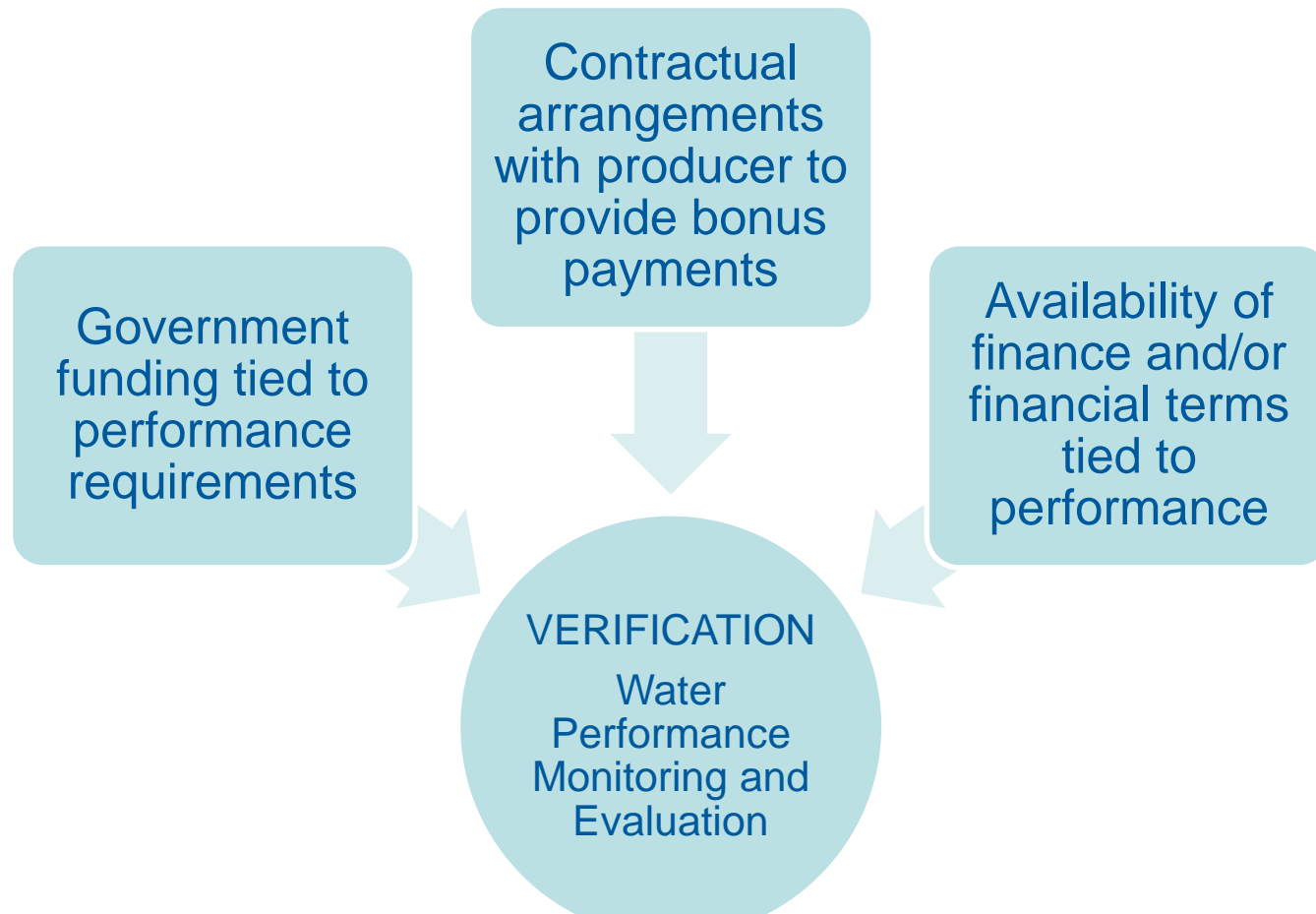


## Business risk

- Possibility of lower yields in the first year(s).
- Arable farmers do not 'know' livestock farming skills and vice versa
- Need access to technical information e.g., suitable grasses for livestock-crop rotations
- investment costs are most significant for ICLZT compared to an alternative of extensive cattle farming on a 10-year clearing cycle

# Incentives: Payments for Ecosystem / Watershed Services is based on the ability to monitor and validate performance

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- Scientifically credible monitoring and evaluation
- Credible mechanism in place – if there is a risk that the benefits aren't realised the investment will not be made
- Need to develop and test payment mechanisms, and find better ways to evaluate their effectiveness

# Paying for watershed services

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In general, *“financing [these] schemes remains a challenge because the actual evidence for their effectiveness is still scanty — it is hard to prove that they actually work to benefit both livelihoods and environments. Getting more direct and concrete data on costs and benefits will be crucial to securing the long-term future of [such] schemes (IIED)*

# Thank you!

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# Carbon market has not been a universal success for supporting financing of bioenergy projects

## How low can you go? EU ETS carbon price, € per tonne



Sources: Thomson Reuters;  
European Energy Exchange

\*3pm

Source: The Economist

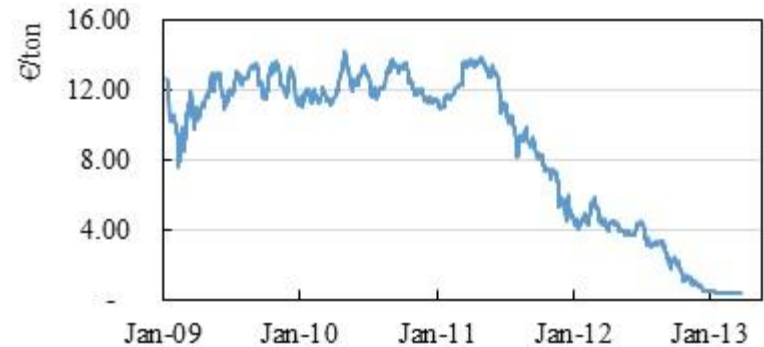


Figure 1. ICE CER Futures - Emissions CER Index  
Source: IntercontinentalExchange, Inc.

Source: Worldwatch Institute

NEXT GENERATION BIOFUEL IPOs – RECENT PRICE PERFORMANCES

	IPO date	IPO share price (US\$)	Share price 28 Feb 2012 (US\$)	% change since IPO	Funds raised (US\$m)	Market Cap (US\$m)
Codexis Inc. (CDXS:US)	Apr-10	13	3.91	-69.9	78	140.6
Amyris Inc. (AMRS:US)	Sep-10	16	6.44	-59.8	85	293.4
Gevo Inc. (GEVO:US)	Feb-11	15	9.27	-38.2	96	241.6
Solazyme Inc. (SZYM:US)	May-11	18	13.1	-27.2	198	784.2
KiOR Inc. (KIOR:US)	Jun-11	15	9.67	-35.5	150	986.9
Ceres Inc. (CERE:US)	Feb-12	13	15.08	16.0	65	354.0

Source: <http://www.cleantechinvestor.com/portal/bioenergy/10442-bioenergy-financing-round-up.html>