Monitoring the Adoption of Key Sustainable Climate Technologies in the Agri-food Sector

Integrating Policies

15-16 June 2015
Istanbul

Professor Ralph Sims
Massey University, New Zealand
Member, Scientific and Technical Advisory Panel of the Global Environmental Facility
**R.E.Sims@massey.ac.nz**

FAO-EBRD study outline

▸ A methodology has been developed to enable a country or funding agency to assess and monitor the market penetration of sustainable climate technologies and systems in agri-food chains.

▸ The draft report is to be discussed and amended if needs be. The methodology will then be tested using Morocco as a pilot case study.

▸ This presentation covers the Policies section – "Step 4" of the overall methodology that will be presented in a separate Session 6 of this meeting.

Different baseline conditions across countries

▶ Baseline conditions that impact on policies can vary substantially.

▶ Example: payback periods (years) when investing in solar water heating for SEMED countries (red) and ETC countries (blue) .
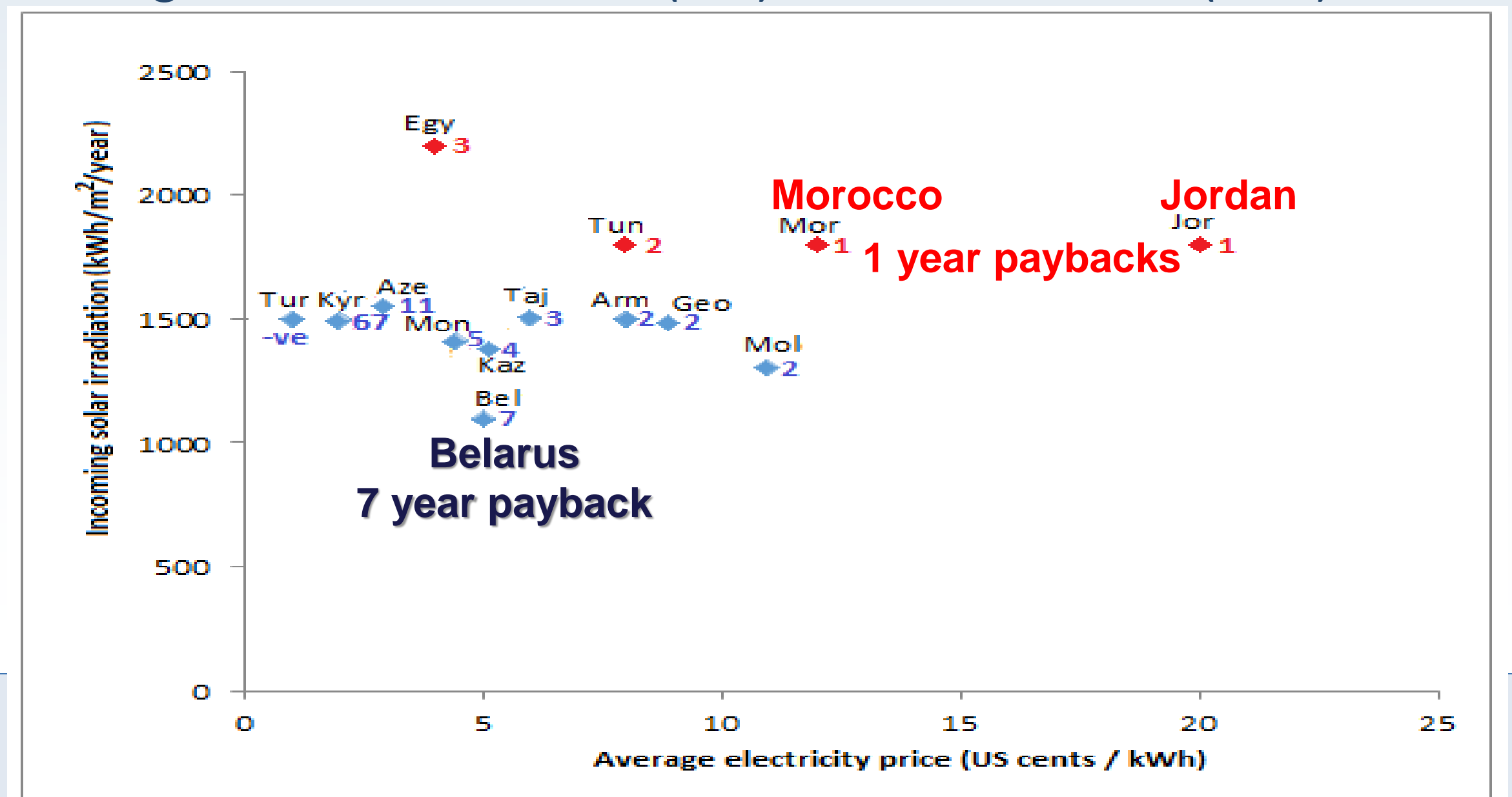
Important to address any barriers hindering uptake of technologies

▸ This key "Step 4" in the proposed methodology covers policy development, is non-prescriptive, and identifies broad policy areas.

▸ A government can undertake more detailed policy analysis and reform proposals based on the specific situation.

▸ Policy development should also consider environmental sustainability issues and social issues as well as economic viability.

▸ The appropriateness of policies involving setting targets, establishing regulations, providing fiscal incentives, offering guidance, and voluntary leadership, vary with the climate technology/system.

Selection of appropriate policies varies with the technology/system

Climate technology/systems	Setting targets		Regulations				Fiscal measures and other incentives							Guidance			Leading by example		
	Overall target	Sector specific target	Codes of practice	Mandates	Tax impositions	Health and safety	Capital grants and rebates	Operating grants	Investment in the private sector	Soft loans and guarantees	Tax credits and/or carbon pricing	Tax reduction/exemption	Standards –national/international	Education/promotion	Specialist training	Technology transfer	Demonstration by governments	Procurement by governments	Support for early adoptors
Conservation agriculture	X	X					X	X	X			X	X	X	X	X			X
Tractor performance		X	X									X			X	X			
Drip irrigation systems		X	X				X	X	X			X		X	X		X		
Solar/ wind water pumping	X	X		X				X	X	X		X		X	X				
Greenhouse technologies		X				X			X	X		X				X			X
Livestock production	X	X	X	X			X			X				X		X	X		
Decentralised waste-water and water recycling	X	X			X	X	X					X	X		X		X		
Crop and fruit drying	X	X	X	X	X		X	X				X	X	X	X	X	X		
Cold storage and cool chain	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
Biogas from animals, crops, processing residues	X	X				X	X	X	X	X	X	X	X						
Renewable and bioenergy heat and power	X	X		X			X	X	X	X	X	X	X	X	X	X	X	X	X

Conservation Agriculture example: possible choice of policies

Setting targets		Regulations				Fiscal measures and other incentives							Guidance			Lead by example		
Overall target	Sector specific target	Codes of practice	Mandates	Tax impositions	Health and safety	Capital grants and rebates	Operating grants	Investment in the private sector	Soft loans and guarantees	Tax credits and/or carbon pricing	Tax reduction/exemption	Standards –national/international	Education/promotion	Specialist training	Technology transfer	Demonstration by governments	Procurement by governments	Support for early adoptors
X	X					X	X	X		X		X	X	X	X			X

Conservation Agriculture example (cont.)
Targets

▸ **An overall target can help promote the system.** For example: *x % of total cropping land to be brought under CA in the next 5 to 10 years from the present baseline*.

▸ **Sector specific targets can also be useful to monitor intermediate progress.** For example:

   ▸ *number of hectares of the total cropping land cultivated using reduced tillage methods;*

   ▸ *local manufacture of suitable seed-drills could be a useful proxy*.

   Data collection may have to be through surveys or added to regular agricultural monitoring activities.

▸ **Regulations** are for the most part not so relevant for CA.

Conservation Agriculture example (cont.)
Fiscal incentives

- **Capital grants for reducing information asymmetries:**
  - can be used for early adopting farmers and agricultural contractors to help test and develop the CA system
  - can encourage rapid uptake such as a subsidy per hectare but needs to be carefully thought through (for example by limiting to maximum annual areas and for a restricted time period).
- **Tax credits** and import duty relief are feasible on equipment such as no-tillage seed-drills.
- **Soil carbon pricing** based on increased content may have a future value.
- A **national standard** could be developed to encourage the deployment of minimum tillage equipment and reduce the import and sales of less suitable conventional cultivation equipment.

Conservation Agriculture example (final)
Guidance

- ▸ **Promotion campaigns** could focus on the benefits of no-till and other CA activities.

- ▸ **Training** on CA management techniques and field operations can be undertaken at agricultural colleges.

- ▸ **Technology transfer** enables local research institutions to develop and adapt CA technologies and systems to better suit local conditions.

Policies to encourage renewable energy
These depend on local resources but can also stimulate local business development and employment.

Key factors that can affect enabling policies for technology/system deployment

▸ **National context** varies in terms of the business environment.

▸ **Overall policy framework in place** and also the awareness and capacity of practitioners and administrators.

▸ **Market development** that is already happening in the relevant energy and food markets and how rapidly.

▸ **Investment framework** determines whether investors would be able to make a reasonable return on their investment.

▸ **Availability, accessibility and cost of finance.**

▸ **Measures taken to remove non-economic barriers,** include:

- putting clear, quick and transparent permitting procedures in place; and

- ensuring that the right skills, expertise and technologies are available to expand the deployment.

In Summary

▸ **Guidelines have been developed** to assist a country or funding agency identify the climate technologies/systems in the agri-food chain that are most relevant to the specific context.

▸ **The methodology has been kept broad and flexible** since every economy is unique, having different priorities, climate, agricultural systems, soils, present status of development, and analytical capacity.

▸ **The most appropriate policies to encourage market penetration** have been identified to:

    - quickly assess the existing policy environment;

    - to target new specific supporting measures that could be introduced to facilitate more rapid deployment of each promising technology/system.