

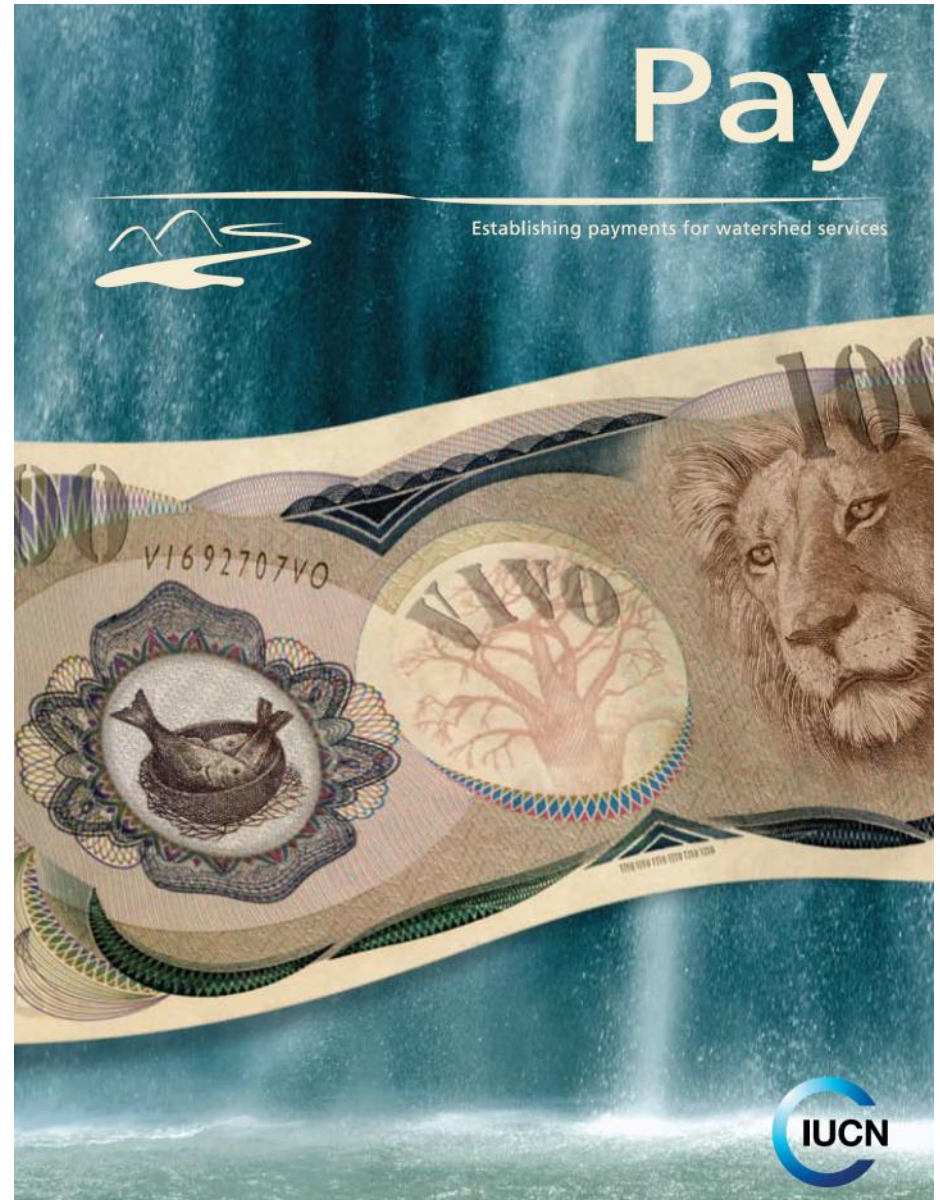
# Payments for Ecosystem Services – Concepts, Design & Process

*Dr Mark Smith*

IUCN Water Programme  
Gland, Switzerland



1. **Incentives** for water security
2. **Valuing** and managing watershed services
3. **Designing** a payment scheme
4. Roadmap towards an **agreement**
5. **Rules** at work
6. **Learning** from partner and experience





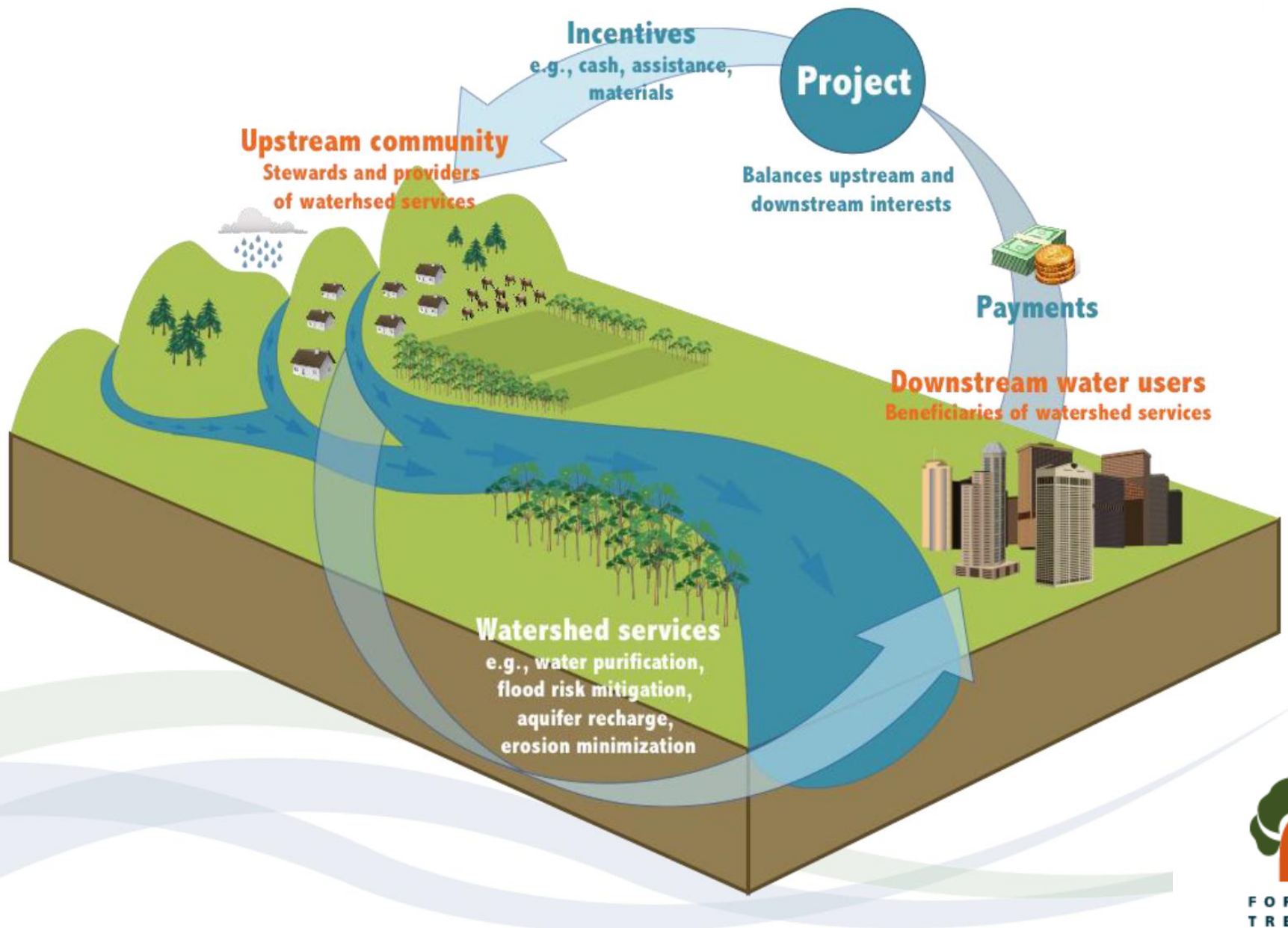
# Market-based incentives

- PWS use markets to create incentives for sustainable land and water management
- Buyers and sellers of services
  - upstream sellers exchange services for payment
  - downstream buyers make payments in return for services
- Market set up to reward sellers by “internalising externalities”
  - water quality
  - reliable water supply
  - flood control
  - soil conservation
- Alternative incentives
  - law, regulation



# Requirements for a marketplace

- recognition that watershed services can be traded
- prices can be agreed
- possible sellers exist
  - landowners, farmers, communities
- possible buyers exist
  - utilities, hydropower, municipalities, governments, farmers, industry
- brokers and facilitators
- property, access and use rights established
- transaction capacities: contracts and payment mechanisms





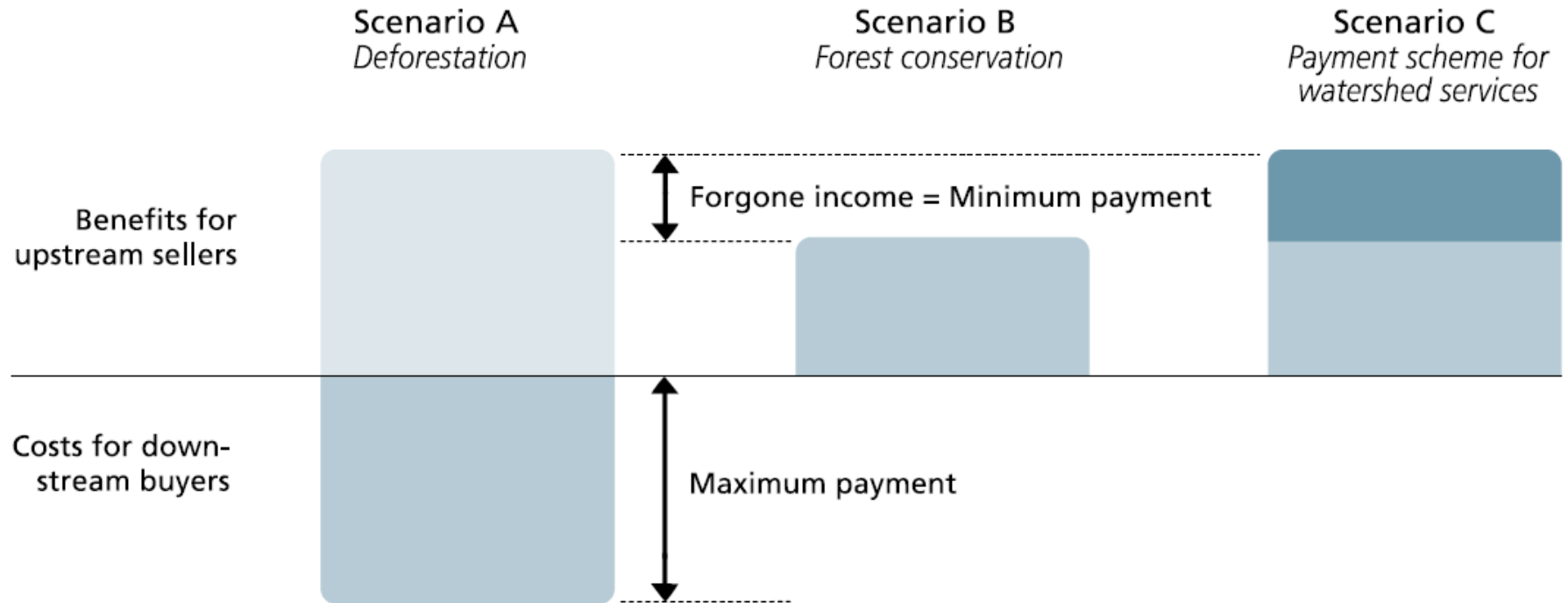


# How are valuations relevant?

- Valuations demonstrate benefits
- Comparison of PWS to alternatives - CBA
- Valuations  $\neq$  price
- Price depends on what it's worth paying



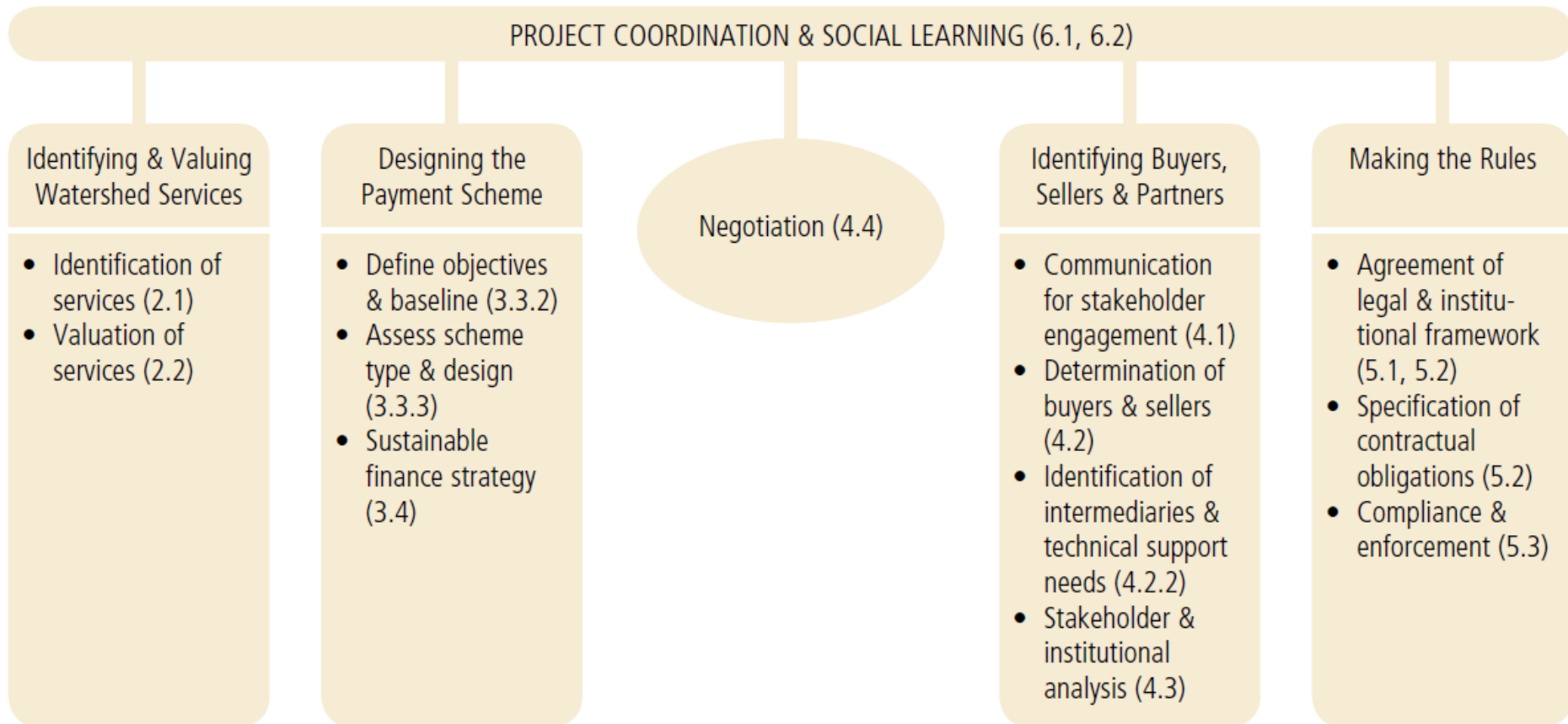
# Basic logic of PWS

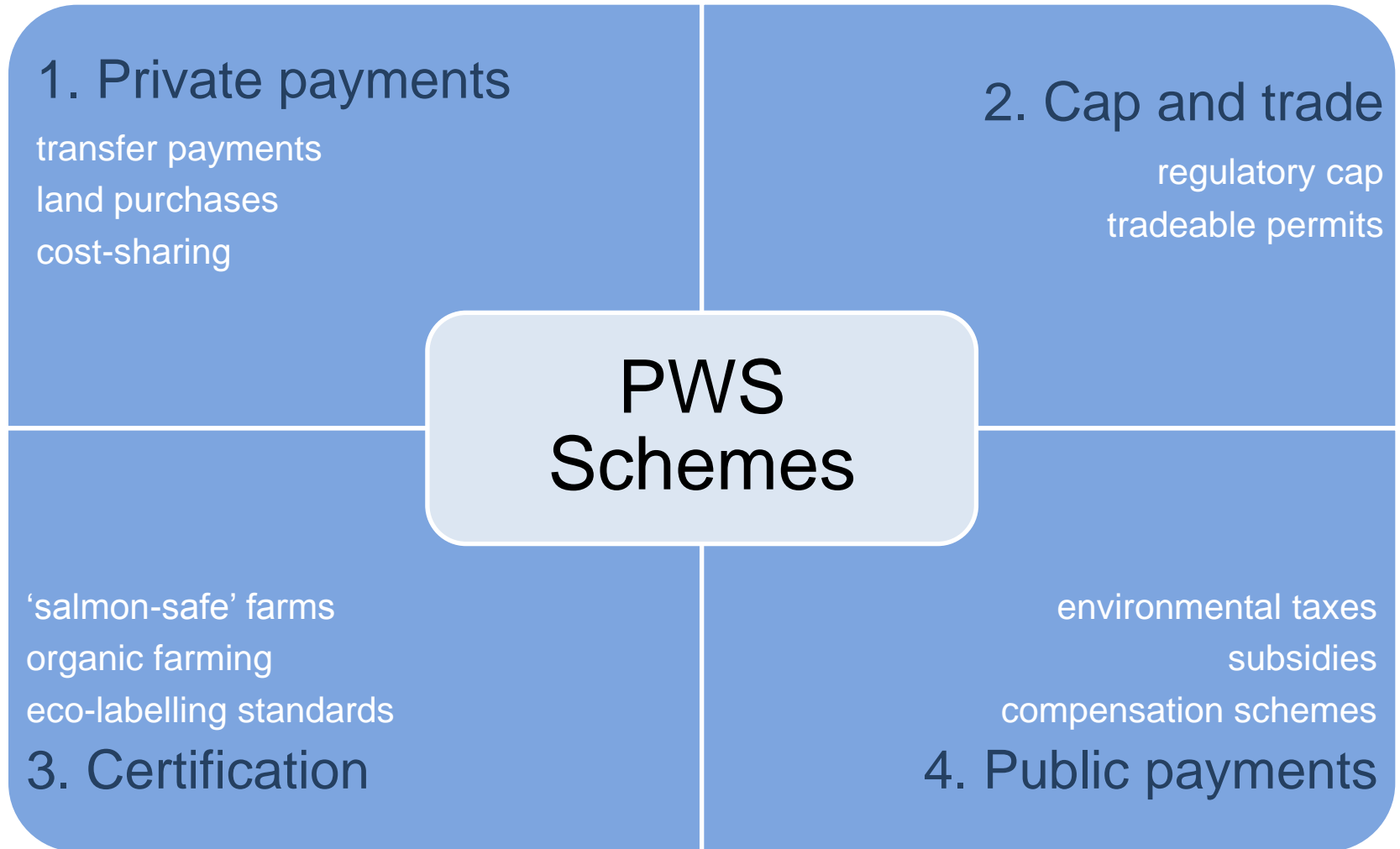


Price paid	Activities compensated	Watershed services provided	Service buyer	Service seller	Location
US\$ 45/ha/year	Reforestation	<ul style="list-style-type: none"> <li>• Salinity control</li> <li>• Freshwater supply</li> </ul>	Downstream farmers association	Government and upstream landowners	Murray Darling Basin, Australia
US\$ 230/ha/year	Reduced-input farm management	<ul style="list-style-type: none"> <li>• Water quality control</li> <li>• Freshwater supply</li> </ul>	Perrier Vittel (Private bottler of mineral water)	Upstream farmers	Rhine-Meuse Basin, France
US\$ 45 - 116/ha/year	Protecting, sustainably managing and replanting forests	<ul style="list-style-type: none"> <li>• Freshwater supply</li> <li>• Wildlife habitat</li> <li>• Cultural heritage and identity</li> </ul>	National Forest Office and National Fund for Forest Financing – FONAFIFO	Private upstream landowners	Costa Rica
US\$ 48/ha/year	Protecting, sustainably managing and replanting forests	<ul style="list-style-type: none"> <li>• Hydropower</li> <li>• Regulation of flows</li> <li>• Sedimentation control</li> </ul>	Energia Global (hydropower company) and FONAFIFO	Private upstream land owners	Sarapiquí watershed, Costa Rica
US\$125/ha/year	Soil conservation	<ul style="list-style-type: none"> <li>• Soil protection</li> <li>• Sedimentation control</li> <li>• Water quality control</li> <li>• Regulation of flow</li> </ul>	US Department of Agriculture (Government)	Farmers	United States
US\$ 170/ha/year	Watershed restoration	<ul style="list-style-type: none"> <li>• Freshwater supply</li> <li>• Wildlife habitat</li> </ul>	State of Parana (government)	Municipalities and private landowners	State of Parana, Brazil



# Developing PWS





# Some examples



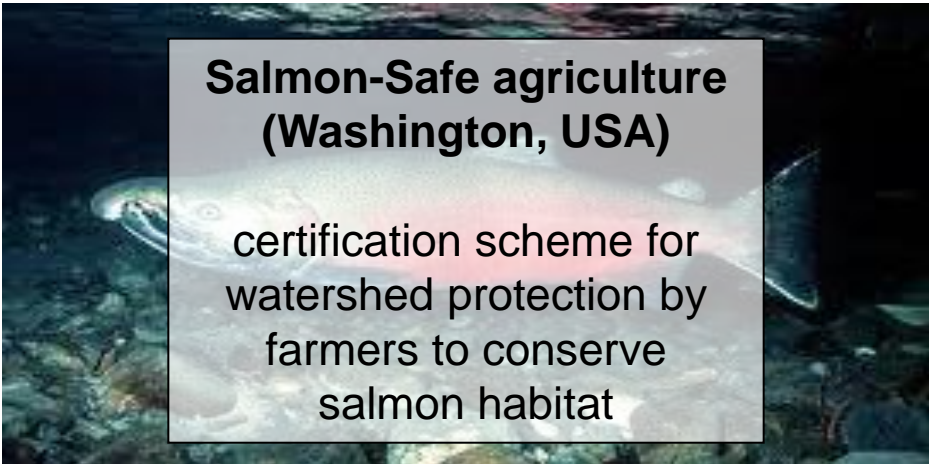
## **Energia Global (Costa Rica)**

compensation for watershed  
management to reduce  
sediment flux to hydropower



## **Nitrogen discharge control (Connecticut, USA)**

cap-and-trade scheme to  
cap point source pollution



## **Salmon-Safe agriculture (Washington, USA)**

certification scheme for  
watershed protection by  
farmers to conserve  
salmon habitat



## **Nitrate in drinking water (UK)**

compensation by  
government for adhering to  
land-use practices

# Financing mechanisms

Mechanism	Description
User fees	Fees for watershed management charged to consumers.
Private sector payments	Payments by business for watershed services needed to sustain their income, or as grants to build reputation.
Government bonds	Public borrowing to finance payment schemes, by institutions with the legal right to do so and which believes it can raise the funds to repay the money.
Water bank	Bank set up cooperatively by water boards to finance investments in water infrastructure.
Debt for nature swaps	Public debt is purchased at a discount by an outside agency – such as an NGO – in exchange for commitments to fund conservation activities.
Trust funds	Endowment funds held to finance investment in water infrastructure and watershed management.

Nº DE CLIENTE	00039835	Empresa de Servicios Públicos de Heredia S.A.
Nº DE MEDIDOR	269294	Rec. # 2488
LOCALIZACION	12-09-1790	AGUA



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STA CRUZ ESC 400 N

DESCRIPCION DE TARIFA	TARIFA ACTUAL	TARIFA ANTERIOR	CONSUMO DE AGUA M³	CONSUMO M³
DOMICILIARIA	700	684		16
<b>FACTURACION</b>				
CODIGO	IMP. ACUEDUCTO	IMPORTE	HISTORIAL DE CONSUMO M³	
09	TARIFA HIDRICA	30.40	MES	AÑO
			01	2002
			02	2002
			03	2002
			04	2002
			05	2002
			MES A PAGAR	
			06-2002	
MESES PENDIENTES		TOTAL A PAGAR	CARGO POR MORA	
15/07/2002		911.00	18.00	
FACTURACION ACTUAL		FACT. ANTERIOR	VENCE	
15/07/2002		15/07/2002	05/08/2002	
OBSERVACIONES				
PAGO EN CAJA EXTERNA HASTA EL 15-08-2002				

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Empresa de Servicios  
Públicos de Heredia S.A.  
AGUA

NUMERO DE CLIENTE	TARIFA	LOCALIZACION	IMPORTE A PAGAR
00039835	DOMICILIARIA	12-09-1790	911.00
NUMERO DE MEDIDOR	CONSUMO M³	PERIODO	MES
269294	16	06-2002	18.00
RECAUDACION EXTERNA AUTORIZADA AL		IMPORTE DESP. VENCIMIENTO	
15/08/2002		FECHA DE VENCIMIENTO	05/08/2002

RECIBO # 2488 CAJA





# Process: roadmap to agreement

## Engage stakeholders

- Communicate
- Common vision

## Convene the right parties

- involve potential buyers & sellers
- mobilise broker/intermediary
- specialist support & capacity building

## Information & analysis

- stakeholder analysis
- institutional analysis
- ecosystem service data & valuation

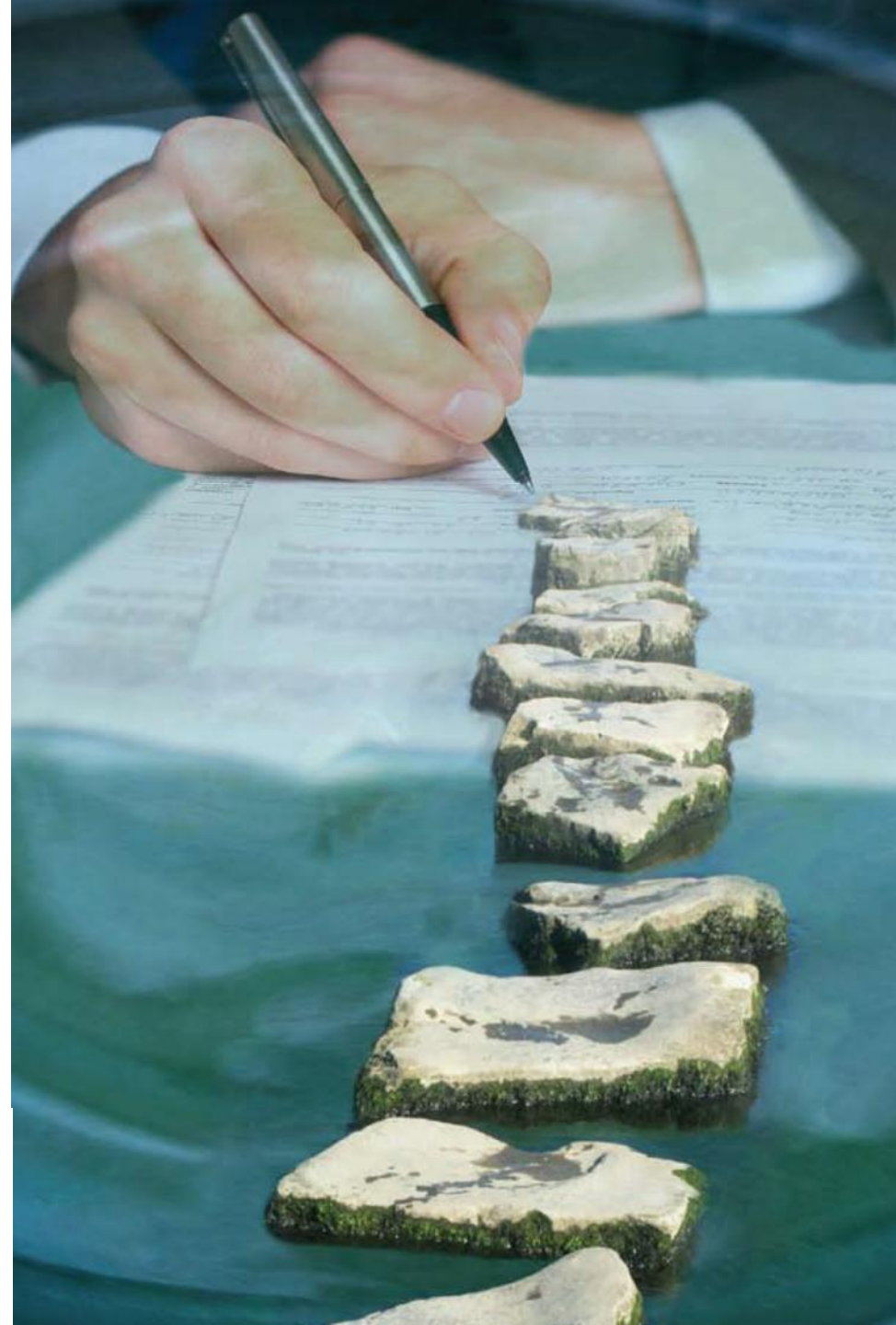
## Negotiation process

- collective learning
- consensus building
- agreement



# What's in the Agreement?

- services to be provided & how specified
- amount & form of compensation
- monitoring of implementation
- sanctions for non-compliance
- administration of scheme



# Making the rules



Institutional  
Framework



Clarify land  
& resource  
tenure



Enforceable  
rules &  
transaction  
mechanisms

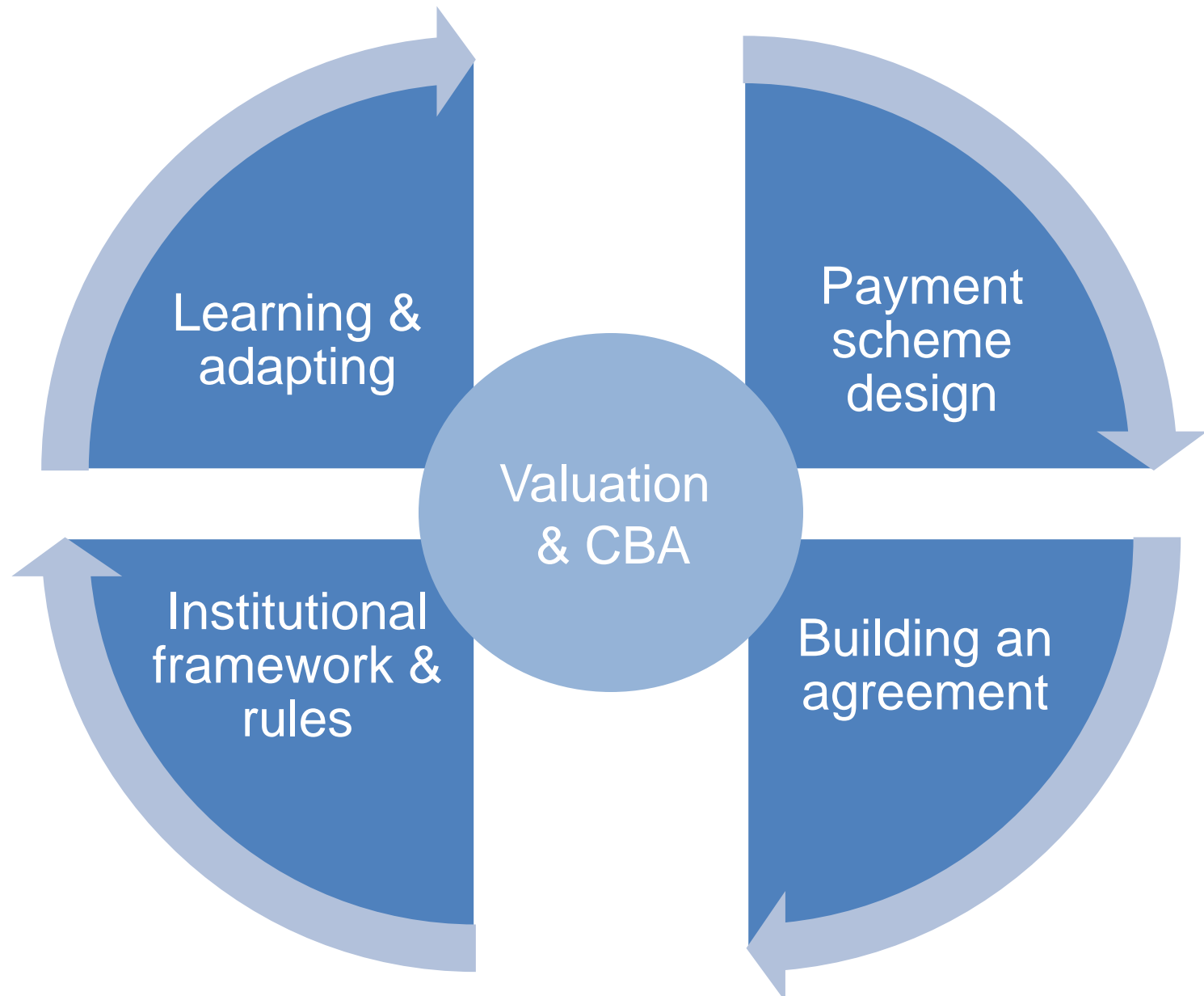


Compliance  
&  
enforcement

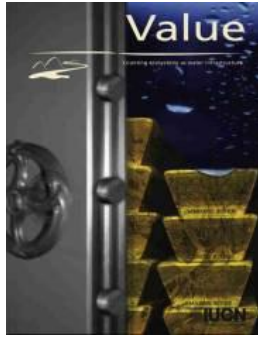




# Synthesis







[www.iucn.org/water/toolkits](http://www.iucn.org/water/toolkits)  
[www.waterandnature.org](http://www.waterandnature.org)



[www.teebweb.org](http://www.teebweb.org)

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Learning Resources

Brief 1- Economics of Ecosystem Services

1. How to identify suitable methods for economic valuation of ecosystems?

2. How to apply the results of valuations in decision making and communicate outcomes?

3. What are the principles of payments for ecosystem services (PES)?

4. How to enable design and implementation of valuation studies and PES schemes?

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## Brief 1- Economics of Ecosystem Services

The goal of this brief is to direct to learning resources that will enable transferring elements of economic valuations of ecosystem goods and services and financing of natural infrastructure to the TDA/SAP process typical of GEF IW Projects.

### 1. How to identify suitable methods for economic valuation of ecosystems?

Key concepts & skills: • ecosystem goods & services • full economic value & components • measuring economic values; market & non-market values • contributions of ecosystem goods & services to the economy • contributions of ecosystem goods & services to water-sector economics • linkages between ecosystem values, sustainable development & the MDGs • valuation as a tool for environmental management • methods & applications • criteria for choice of methods

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### 2. How to apply the results of valuations in decision making and communicate outcomes?

----- How to take action and use ecosystem values in river basin management and water decisions? ----- Key concepts & skills: • ecosystems as water infrastructure: benefits of ecosystems for water management • approaches to integrating ecosystems into river basin management • economic costs of ecosystem degradation; the need for investment in ecosystems & for allocation of water to ecosystems • integrating economic values for ecosystems into decision making • relevance of ecosystem values to GEF projects and processes • understanding and interpreting the valuation report • incorporating results into options assessments, environmental assessments, investment analysis, etc. • developing recommendations • communicating results and recommendations; using ecosystem valuations to change ways of thinking • making ecosystem valuation standard practice in planning and decision making for development and natural resource management

[Read More...](#)

### 3. What are the principles of payments for ecosystem services (PES)?





# Key questions

- Where will PWS work & where not?
- What are the options for terrestrial-marine PES?
- Can PWS work across national boundaries?
- What are alternative investment mechanisms?

