"Payment for Ecosystem Services" (PES): Feasibility and Implementation in the Maloti-Drakensberg Transfrontier Project Area.

Steve McKean, Myles Mander

Talk Outline

- Summarise PES feasibility study for Maloti-Drakensberg (upper uThukela area).
- Briefly discuss successes and challenges of 1st year of implementation.

Project aims

- Develop a “Payment for Ecosystem Services” (PES) system which will establish and develop markets for the ecosystem services provided by the region.
- Through this, develop the required incentive structures for landholders (private, state and communal) to:
  - Keep biodiversity intact or restore natural capital,
  - apply land use practices which promote conservation.

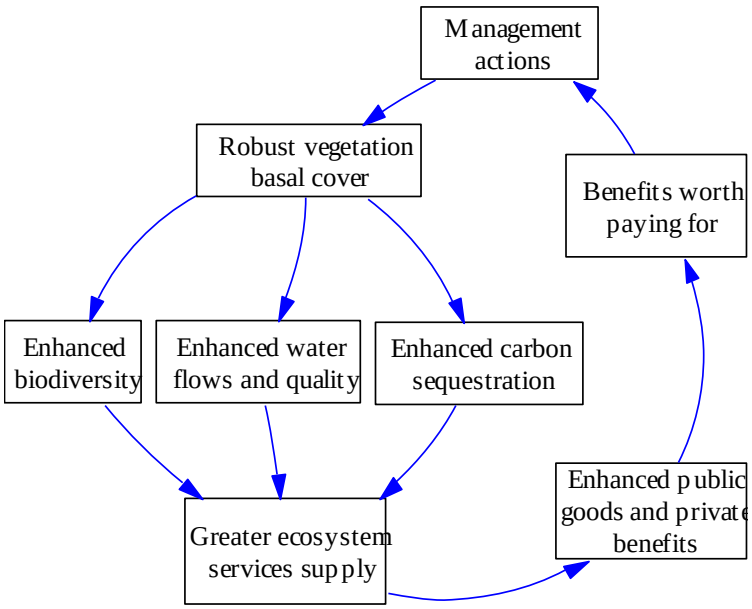
Project Area

Area size: Approx. 188 000ha

Key ecosystem services assessed

- Increased base flow in rivers.
- Reduced storm flow off the land.
- Reduced sediment yields in runoff.
- Increased Carbon sequestration in grasslands.

The PES system

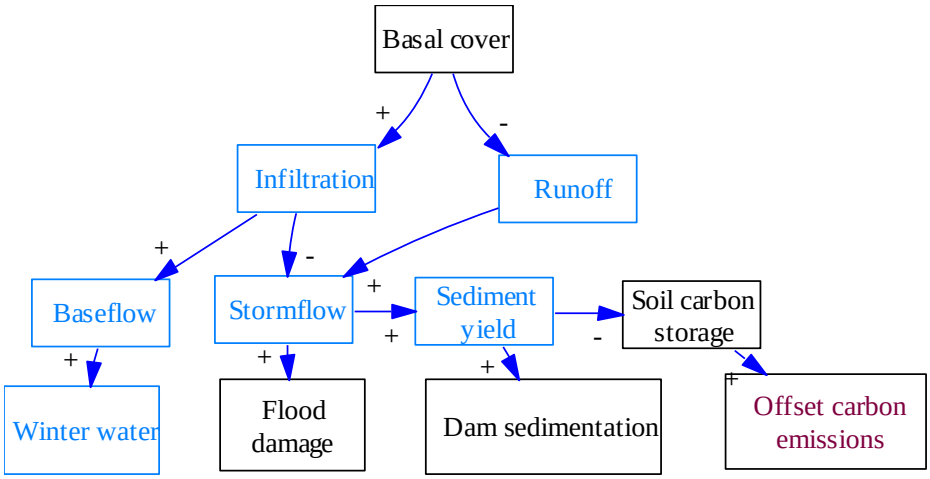


Key to trade in watershed services

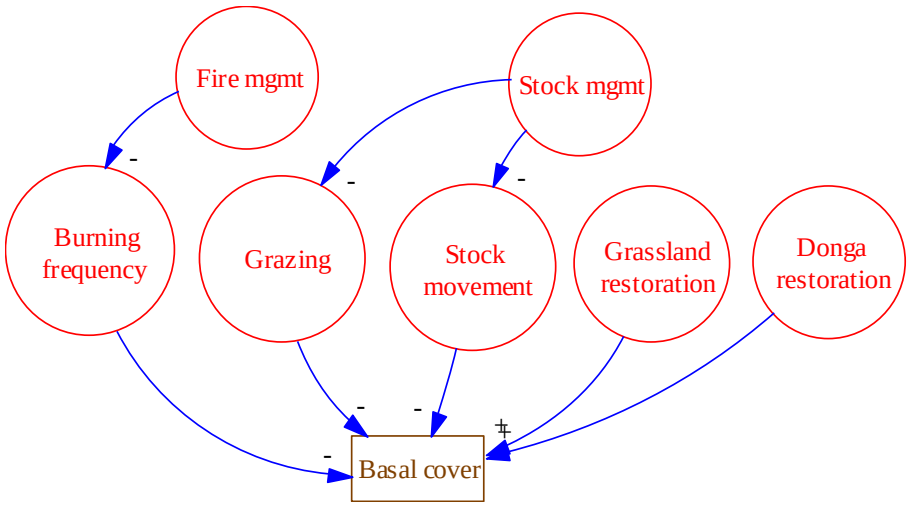
Basal cover

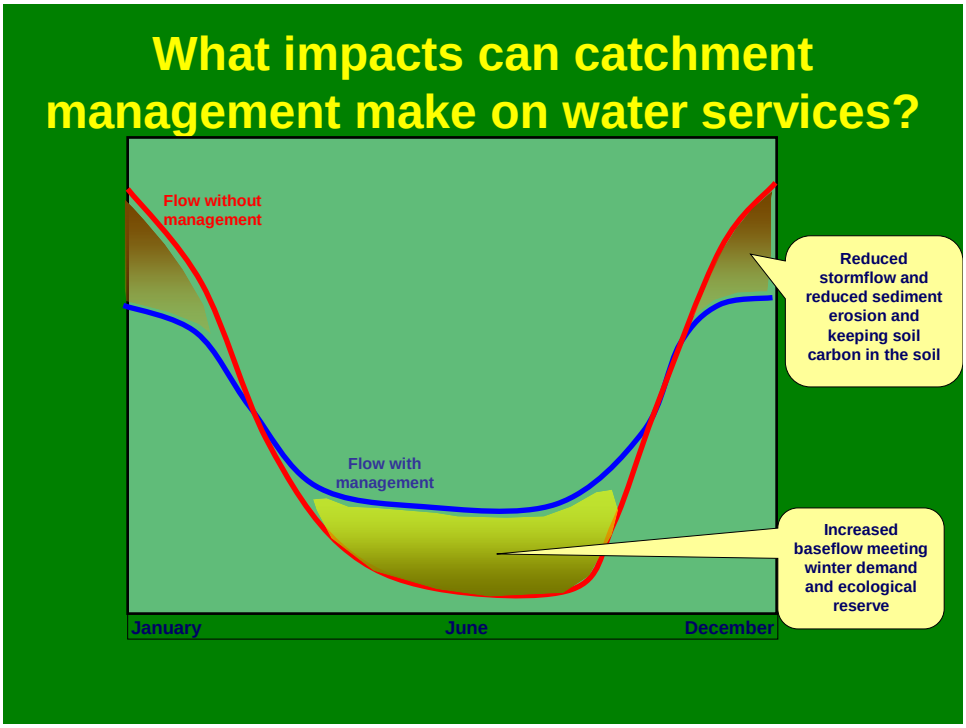
- Easily measurable.
- Less susceptible to annual climate fluctuations.
- Tracks history of management.
- Has a known relationship with run-off.
- Greater vegetation cover – greater soil C content.

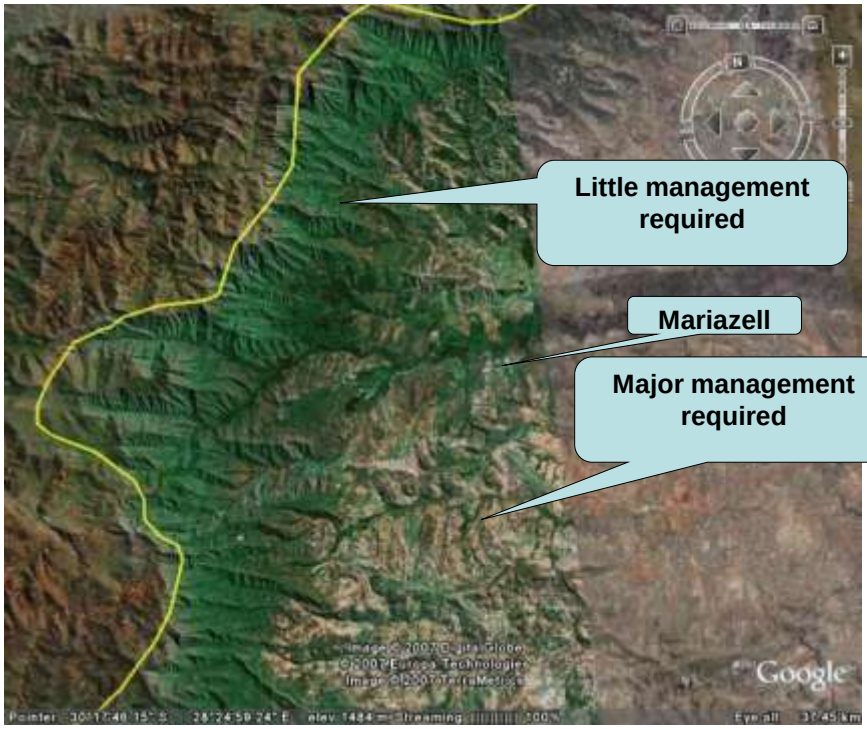
Basal cover delivers services



Management for Basal cover







The strongly flowing Little Thukela river benefiting from good management in the catchment

The silted, slow-flowing Umzimvubu river that is being degraded by poor land use practices in the catchment

Value of improved land management

1) From hydrological modeling:

Thukela: 12,8 mil m^3 of baseflow during winter months.

2) Sediment reduction:

Thukela: 1,9 million tons p.a.

Summary of key results

Quantities of services supplied

Total additional baseflow: m^3 /year	**12 869 204**
Sediment reduction: tons/year	**1 884 379**
Carbon sequestration: t/y	**134 352**

Summary of Key Results

Economic feasibility for the upper-Thukela	
Value of water sales: R/ha/y	R20.12
Value of all benefits: R/ha/y	R97.57
Restoration cost: Total cost over 7 years/ha	R170.27
Management cost: R/ha/y for 50 years	R20.23
Net present value of all benefits: R/ha/y	R1 035.50
Number of jobs: During restoration	279
Number of jobs: During maintenance	127

Summary of Key Results

Economic feasibility for the upper-Thukela	
Total Management Costs: R/y	R3 795 061
Total Restoration Costs over seven years (R)	R31 945 410
Total Water Sales R/y (year 5 and onward)	R3 860 761
Economic Value of Water (Low) R/y	R18 016 886
Economic Value of Water (Medium) R/y	R42 339 681
Economic Value of Water (High) R/y	R88 797 508
Percentage of Feasible Sub-catchments to intervene in	55.56%

Key findings –upper uThukela

- With only 4 million m^3 water surplus in the Upper uThukela (DWA 2004), the 12 million m^3 additional water implies a 320% increase in allocable water.
- For the Thukela basin – with a surplus of 38 million m^3 - the additional water represents a 23% increase in allocable water with a price tag of only R3.8 million.

Political support??

Support from DWA

– Water resources planning, options analysis and water pricing directorates fully supportive.

– Working for Water is mandated to include payment for ecosystem services in the National Water Pricing strategy.

– Attractive from job creation point of view.

Conclusions of Feasibility study

- Improved management can shift destructive summer flows in periods of water abundance or excess, to the winter months when water is scarce and when value can be added
- Management results in significant reductions in soil erosion, reducing the sedimentation of water infrastructure, improving productivity and increasing carbon sequestration.
- Watershed management may be one of the cheapest and socially equitable water augmentation options available to South Africa.
- Management costs vary - some catchments showing that restoration and management is financially feasible with only baseflow enhancement being marketed, while other catchments require 3 services to be traded before management is financially feasible.
- Catchment management becomes increasingly feasible when more than one of the services is traded.
- Rural people can farm water, carbon sequestration and sediment yield reduction as complementary services to sound cattle farming.

Implementation

- First SA “pilot” PES implementation.
- “Working for Water” in partnership with KZN Wildlife.
- Funding from WfW (R3.3 million for 2010/11).
- Initially only soil erosion/degradation addressed.

PES implementation progress - Summary of Key Results	
Total Funding obtained (2010/11)	R3.3 million
Number of people employed	546
Area of degraded land rehabilitated	15ha
Area of alien plant clearing	15ha

Co-operation of all role players in the project area i.e. Traditional Authorities, DWA, KZN Wildlife, NGOs, University of KZN.

Challenges encountered

- Approx 40% less funding obtained than required.
- Administrative delays with obtaining funding, signing agreements and administering the project – hence delayed start.
- Only degraded land rehabilitation and alien plant clearing were initiated during 2010/11. Grazing and fire management could not be addressed.
- Local political and “vested interest” issues interfering with progress.
- Co-ordination of project and implementing monitoring.
- Capacity at community level to manage a business relationship, contracts etc.

Way forward

- Essential that monitoring of results is implemented.
- Budgets and business plan 2011/12 developed and submitted to Working for Water.
- Implementation plan 2011/12 includes budget for grazing and fire management, aims to begin to develop the framework necessary to establish a market (beyond payment for labour) for the sale of ecosystem services from these catchments for the benefit of the upper uThukela communities.
- Continue and expand rehabilitation, alien plant eradication work already in progress.
- Continue to build community capacity and develop required institutions.