

Sustainable Asset Valuation Model (SAVi): Transparency for Decision-Makers and Investors

Method and Insights

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Infrastructure projects must consider carbon and environmental footprints, social cohesion, stewardship of natural ecosystems and the financial viability of projects.

Infrastructure is an enabler, and hence it has to be **sustainable**.

The Sustainable Asset Valuation (SAVi) tool assesses:

- environmental, social and economic risks and externalities.
- socio-economic benefits, such as employment, income generation and contributions to GDP.



Investors use a SAVi analysis to assess the impacts of improved sustainability on **future cash flows** and **financial returns**.

Disclosure
statements
(e.g. carbon)

Environmental, social and
economic co-benefits.

CSR, impact
investing

Governments use a SAVi analysis to assess **value for money for public investments**, and determine changes in **government revenues** and **expenditure**.

Can sustainable infrastructure
increase fiscal sustainability?

How does ESG
performance increase value
for money for tax payers?

Do sustainable assets trigger positive
externalities? (e.g. higher GDP)



SAVi puts a financial value on risks and externalities that are not well understood and therefore ignored in traditional investment assessments.

SAVi calculates the impacts of various risks and externalities on levelized costs, gross margins, net present value, internal rates of return and credit risk ratios.

Potential risks and externalities



Physical/Environmental

Higher global temperatures, rising sea levels, water shortages, water and air pollution, land degradation, extreme weather, biodiversity.



Social/Political

Currency inconvertibility, wage fluctuations, industrial action, war, terrorism, civil disturbance.



Technological/Legal

Environmental and social safeguards, troubleshooting experimental or emerging technologies.



Consumer/Reputational

Changing public opinion, industrial action, environmental disasters, human rights abuses.



Economic

Contribution to GDP, household incomes, carbon taxes, changes in feed-in tariffs, fluctuations in resources, access to land.



SAVi infrastructure asset types



SAVi can currently be applied to **energy, roads, buildings, water infrastructure, nature-based infrastructure.** Waste infrastructure will be developed in 2019.





We customize SAVi to our clients' needs

Each analysis is custom tailored, whether clients are looking at a single project, a portfolio of projects, or an economic or industrial policy.

Together with the client, we identify externalities and risks on a case-by-case basis.

Current applications



Clients include:

The Ministry of Infrastructure and Water Management of the Netherlands, the Directorate of Tourism of Jammu & Kashmir in India, UN Environment, WWF, the Moroccan Road Agency, and the Senegalese Government Agency for the Implementation of the Plan for an Emerging Senegal.



SAVi application to natural infrastructure

Method: integrated cost benefit analysis

We assess impacts across:

- Dimensions of development
- Sectors
- Economic actors
- Over time
- In space

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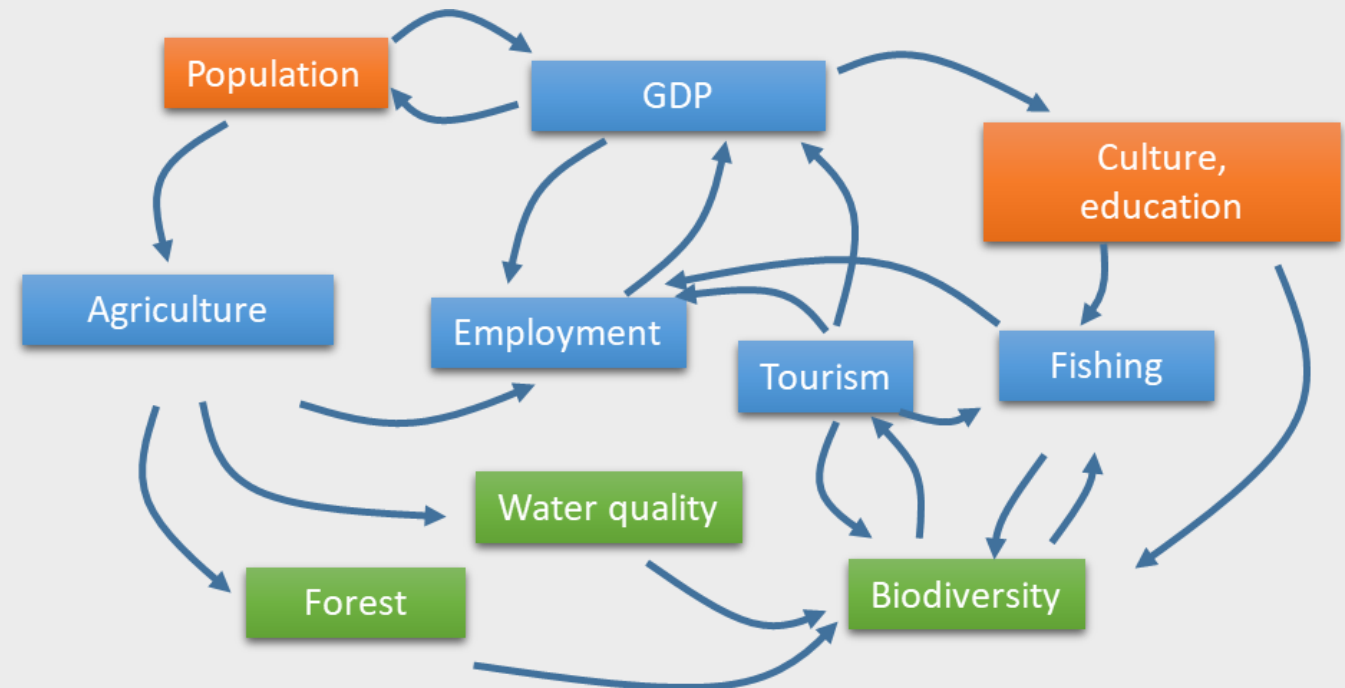


SAVi application to natural infrastructure

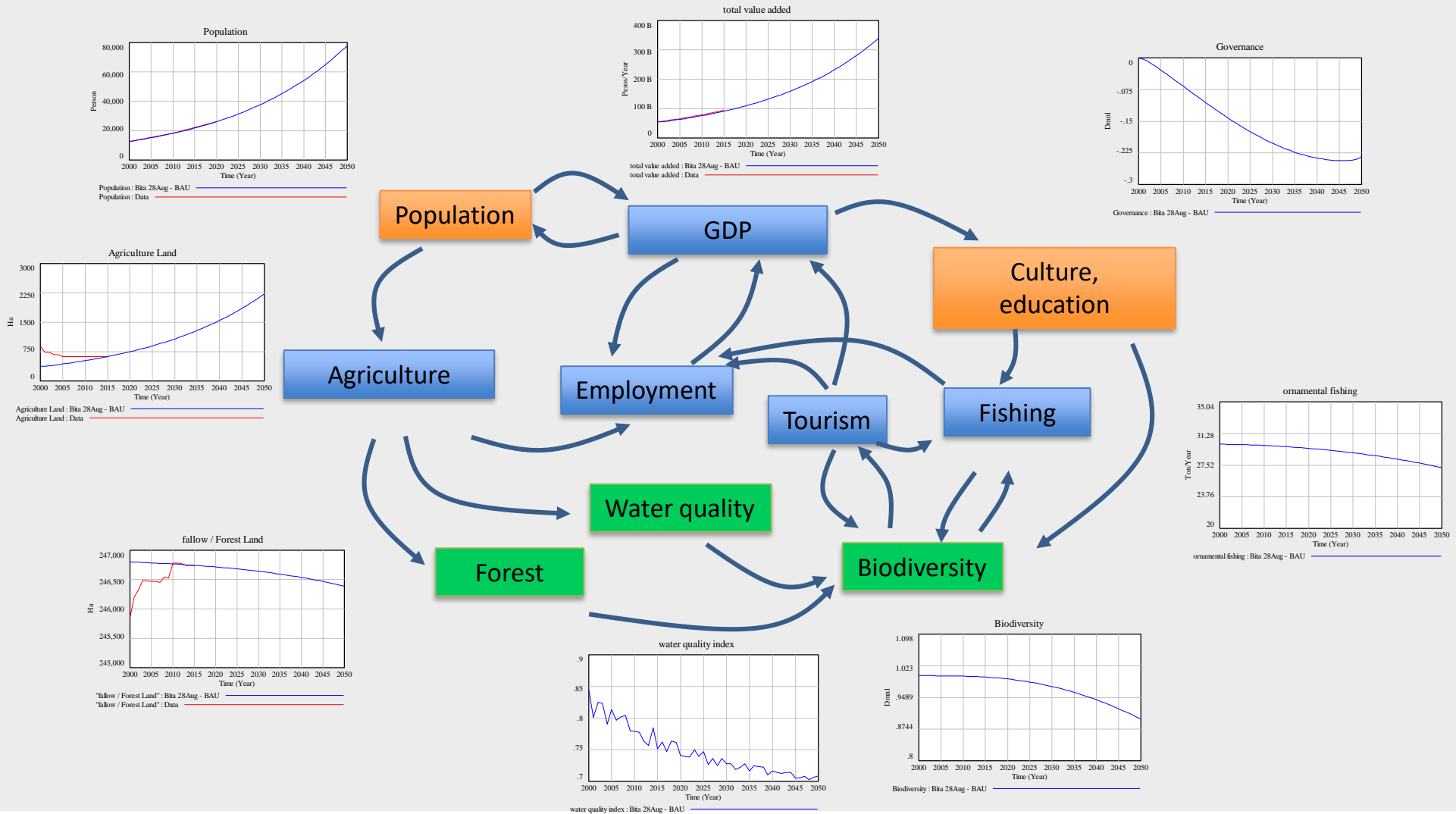
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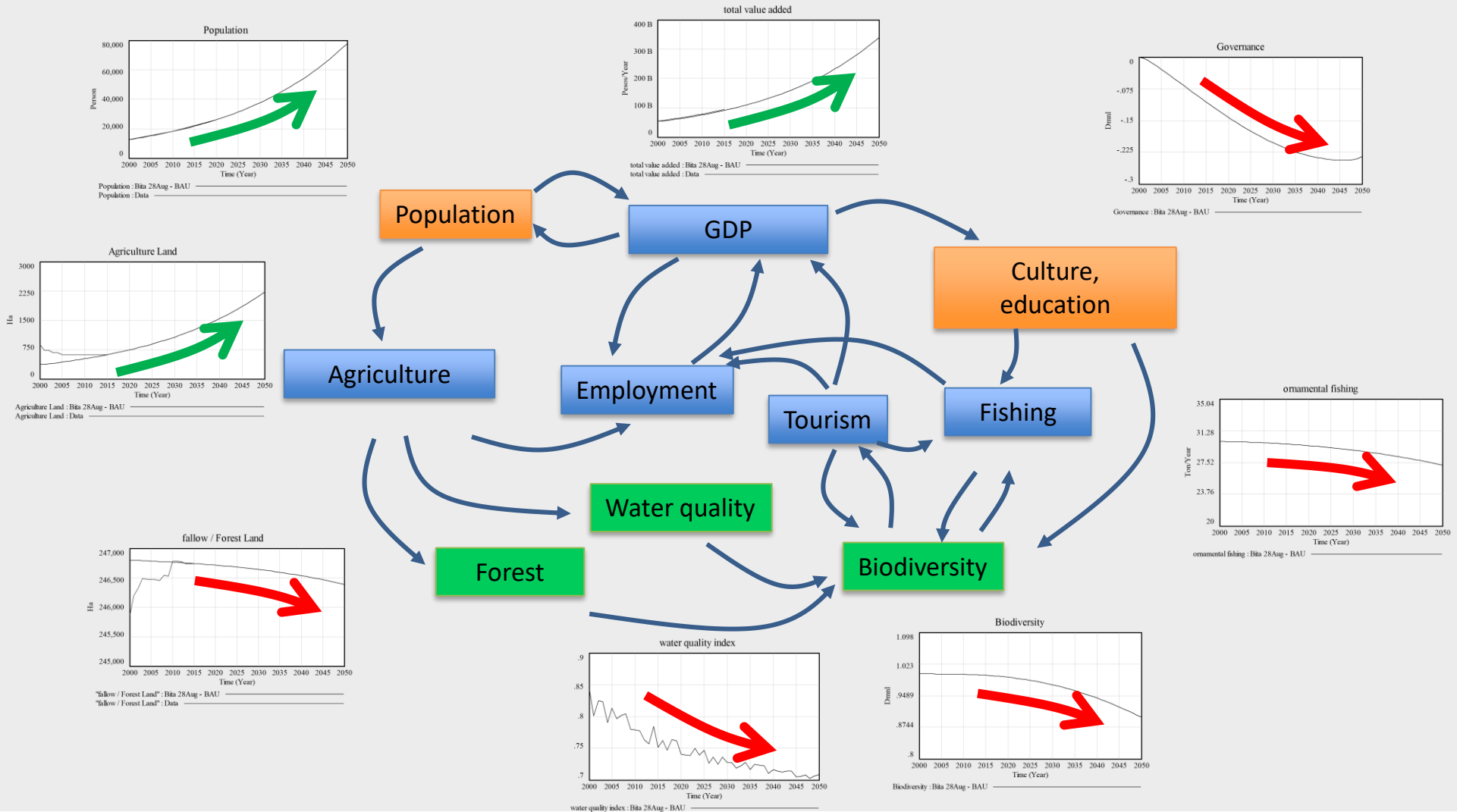
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SAVi application to natural infrastructure



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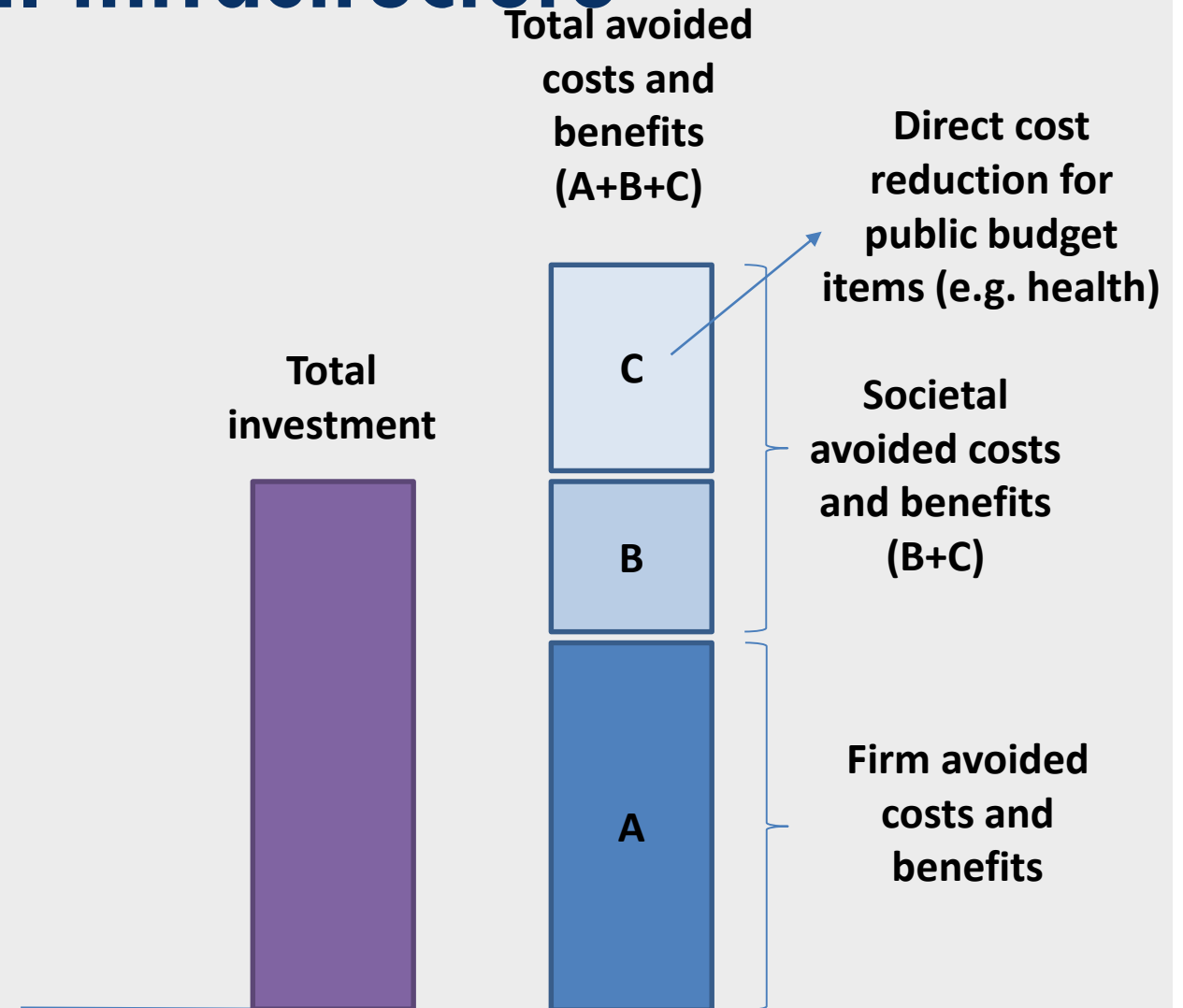
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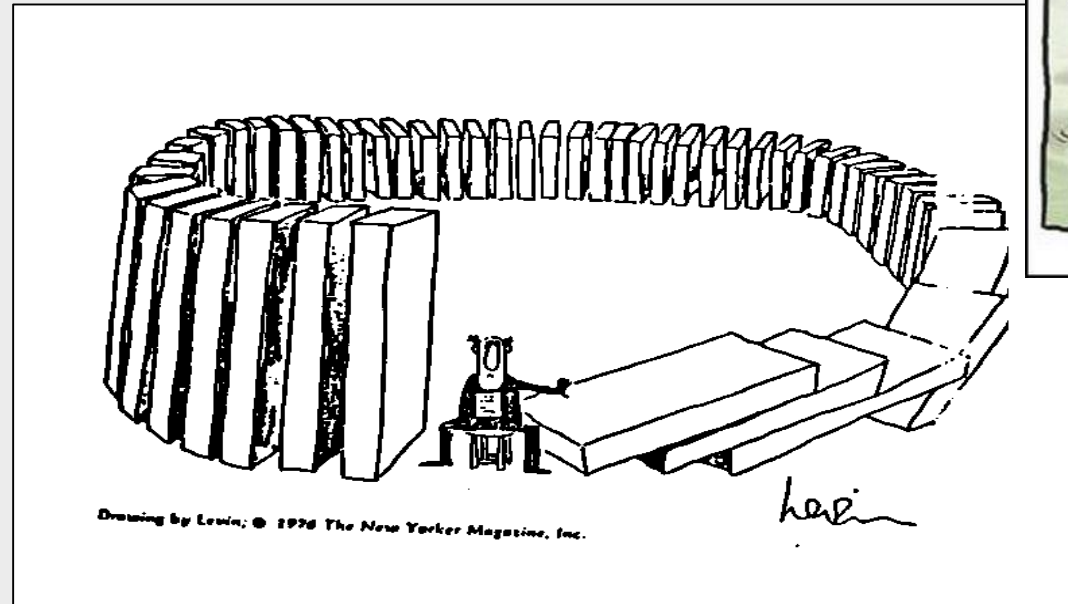
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SAVi application to Canada

Stephenfield Reservoir and Pelly's Lake

There are growing concerns over irregular rainfall patterns and floods, water quality, irrigation and water needs.

We use SAVi to:

- Identify, quantify and carry out an economic valuation of the assets and the services provided by natural infrastructure.
- Estimate the potential cost of generating these same services with new, built infrastructure.
 - How much savings has natural infrastructure allowed to accrue?
 - Is it worth conserving, restoring natural infrastructure or building new infrastructure?



Scope of the analysis



Stephenfield Reservoir and Pelly's lake

1

What are the services provided?

1. Water supply
2. Scenic beauty
3. Nitrogen and Phosphorous uptake
4. Carbon sequestration
5. Economic activity

2

What is the cost of providing these services?

1. Maintenance
2. Water provisioning
3. Cattail production

What is the cost of building alternative (built) infrastructure to provide the same services?

1. Water supply
2. Irrigation
3. Water (nutrient) treatment
4. Carbon sequestration

4

What are the revenues generated from the provision of these services?

3

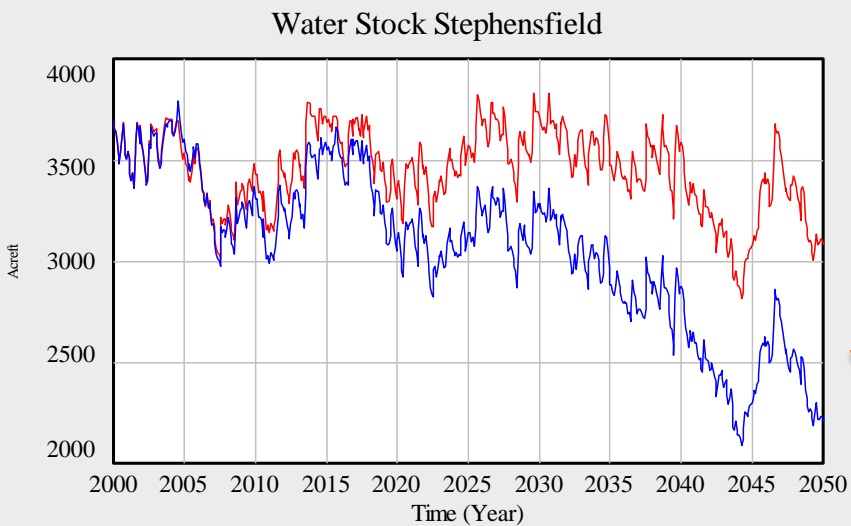
1. Water provisioning
2. Tourism

Results of the analysis

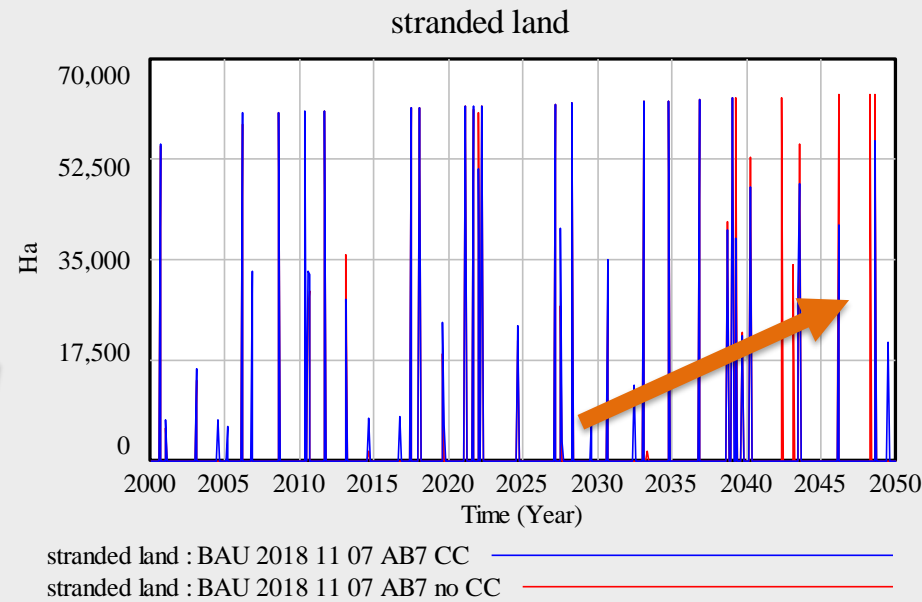
– Stephenfield Reservoir



Services provided



Water Stock Stephensfield : BAU 2018 11 07 AB7 CC
Water Stock Stephensfield : BAU 2018 11 07 AB7 no CC

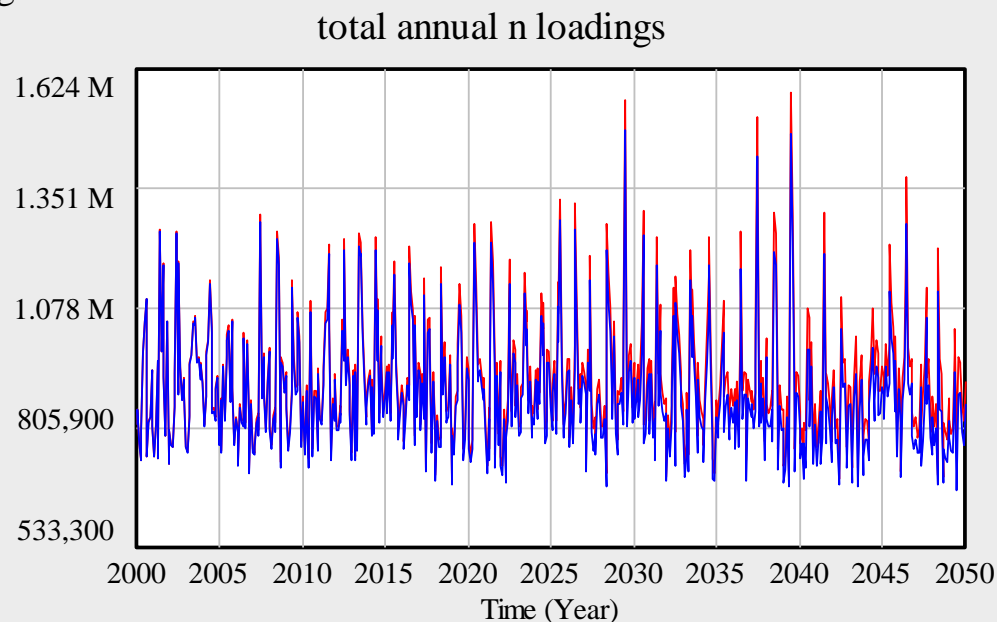
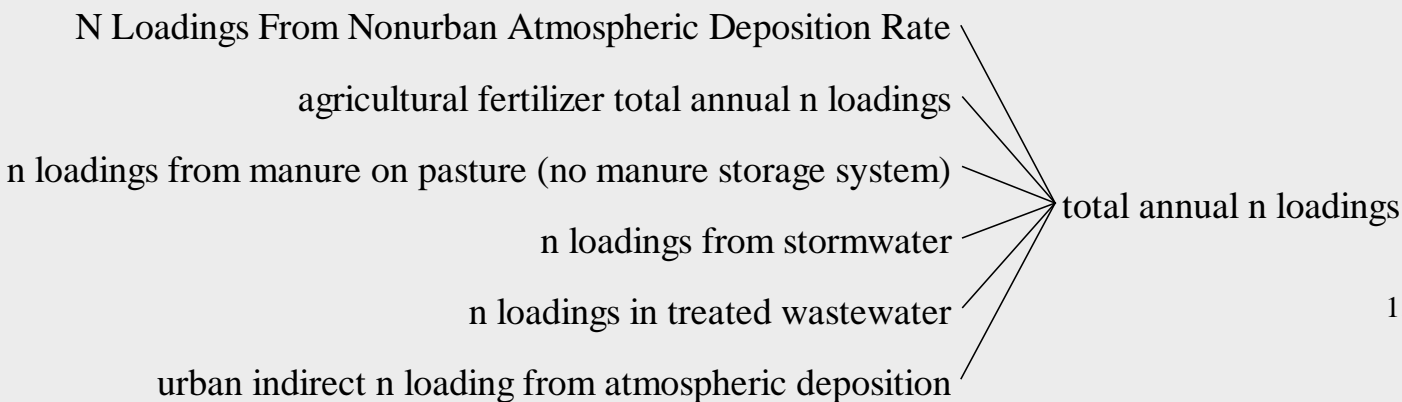


Results of the analysis

– Stephenfield Reservoir



Services provided



total annual n loadings : BAU 2018 11 07 AB7 CC

total annual n loadings : BAU 2018 11 07 AB7 no CC

Results of the analysis – Pelly's Lake

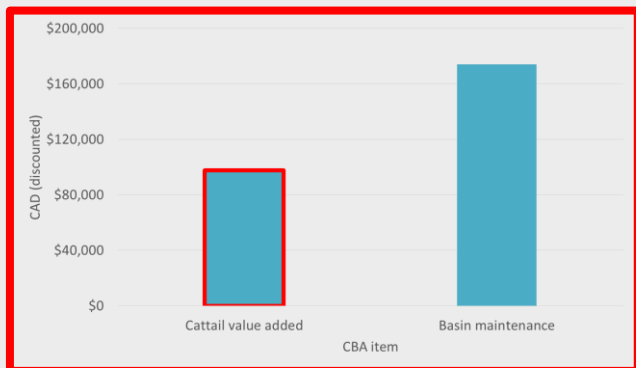
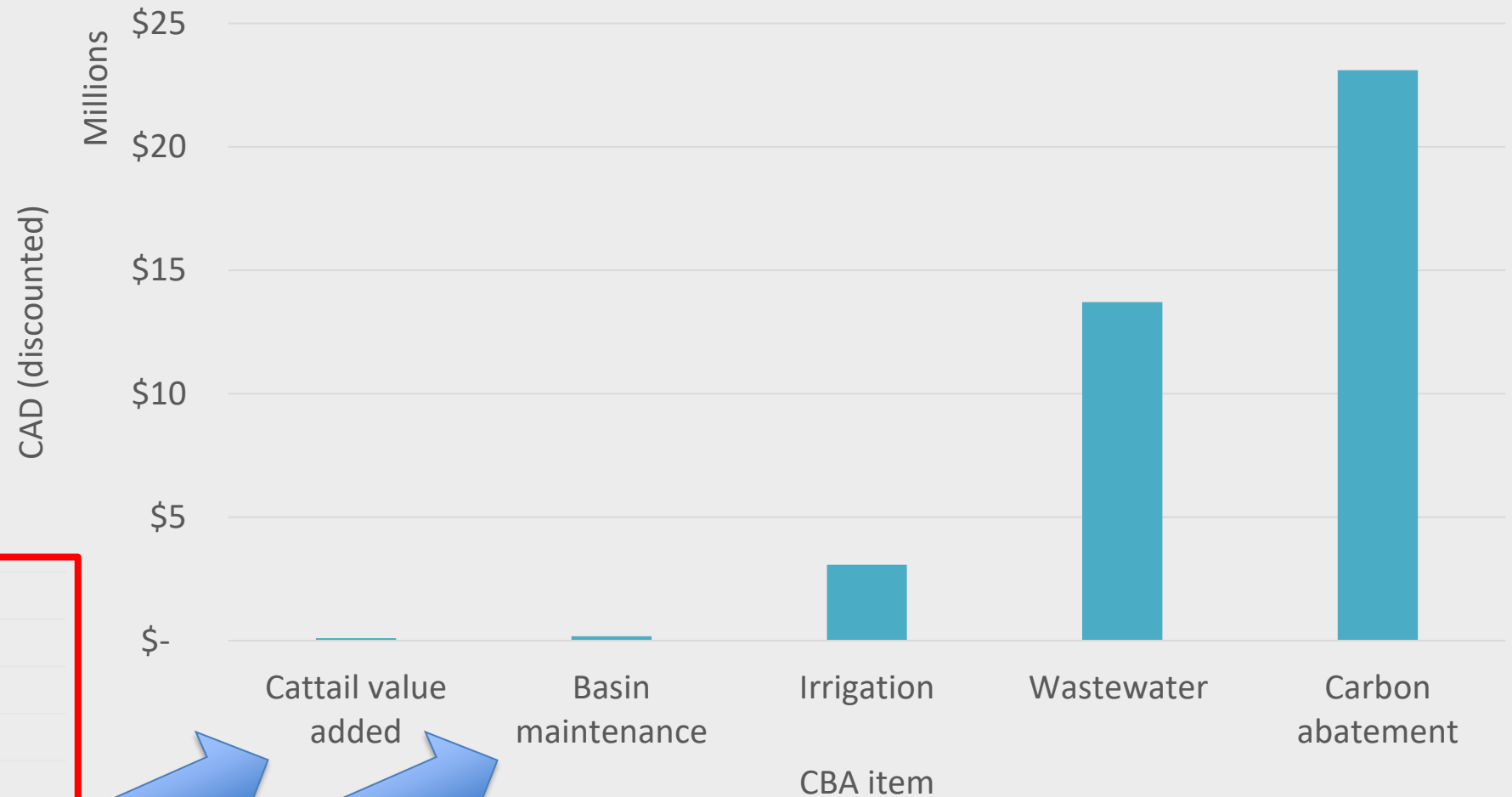
Economic assessment



Results of the analysis – Pelly's Lake



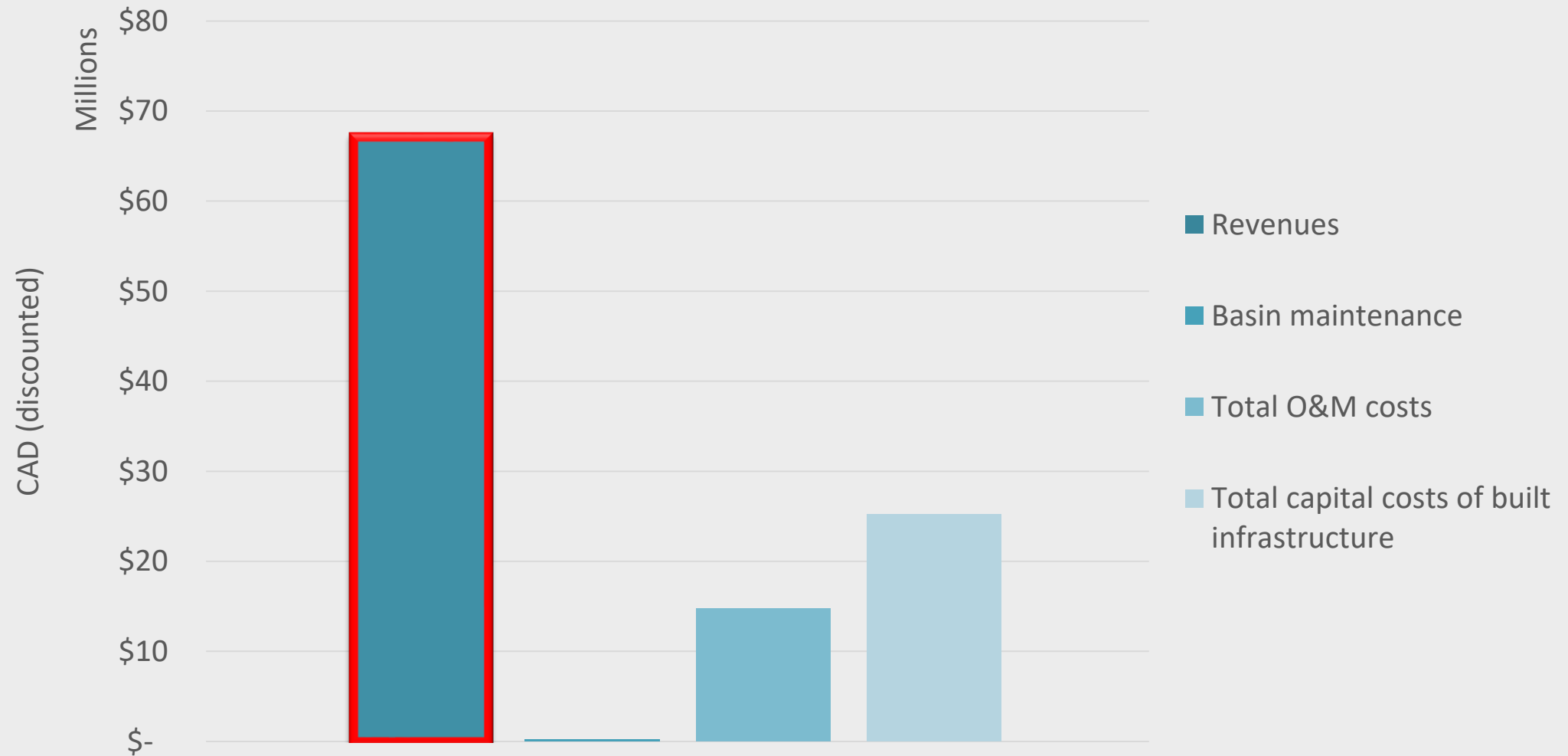
Economic assessment



Results of the analysis – Pelly's Lake



Economic assessment

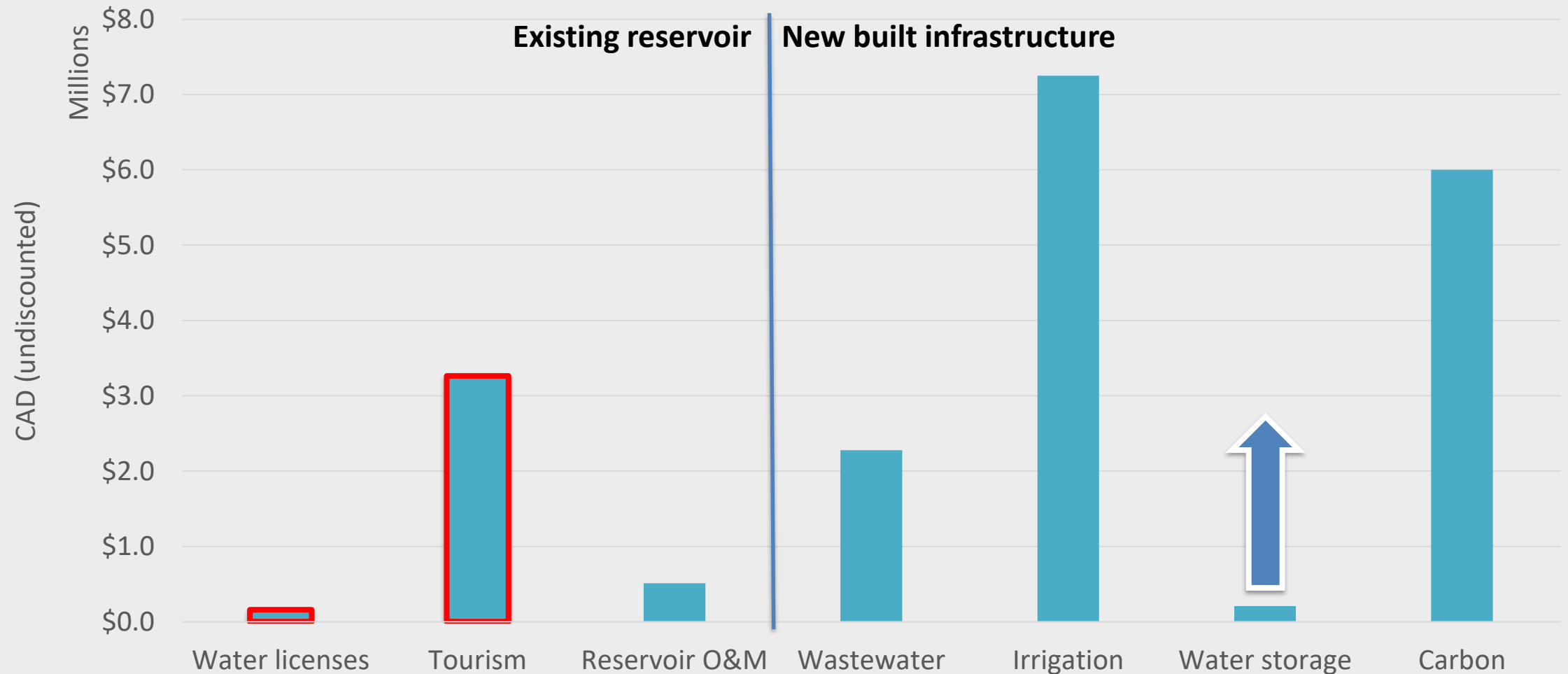


Results of the analysis

– Stephenfield Reservoir

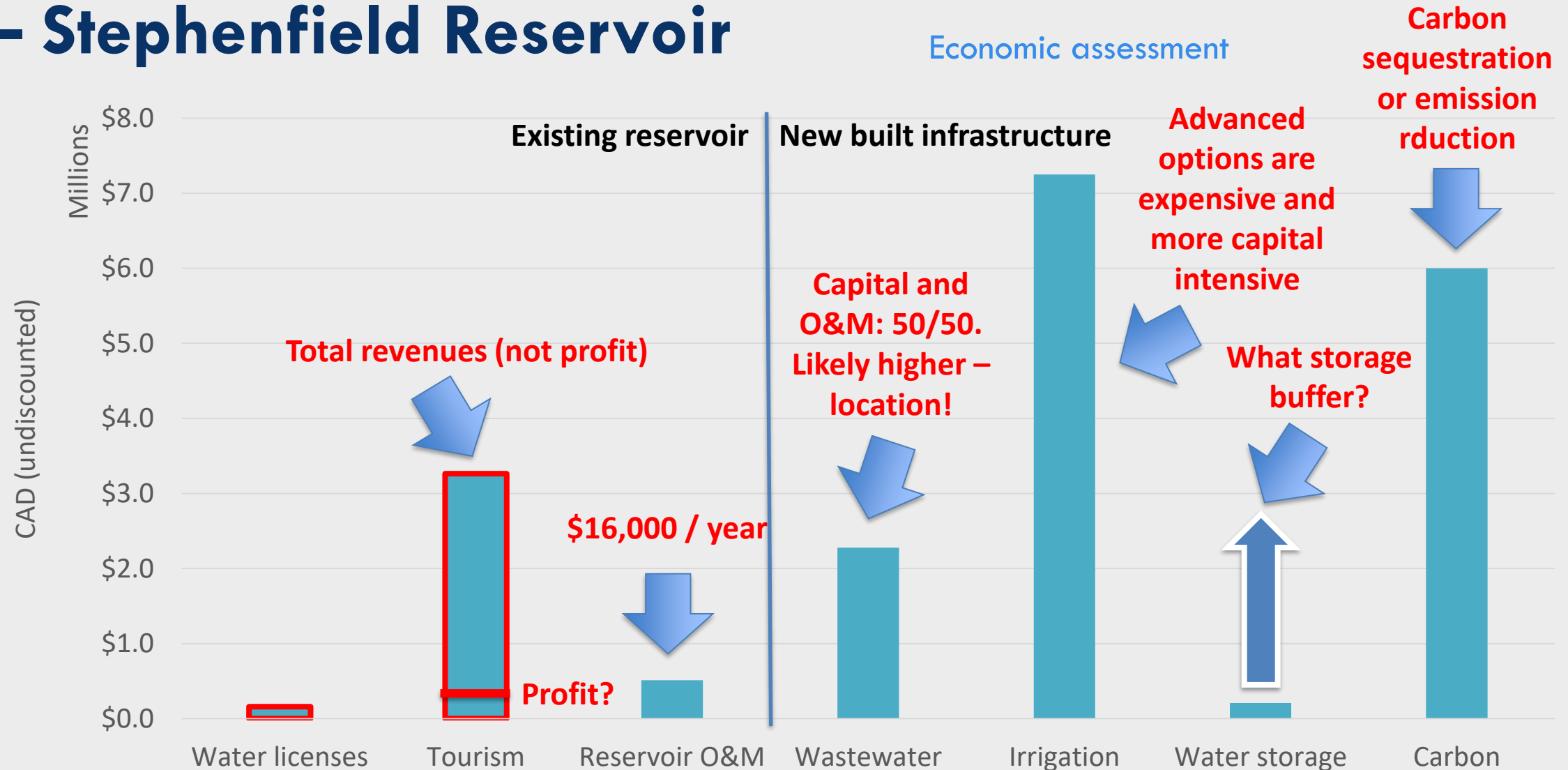


Economic assessment



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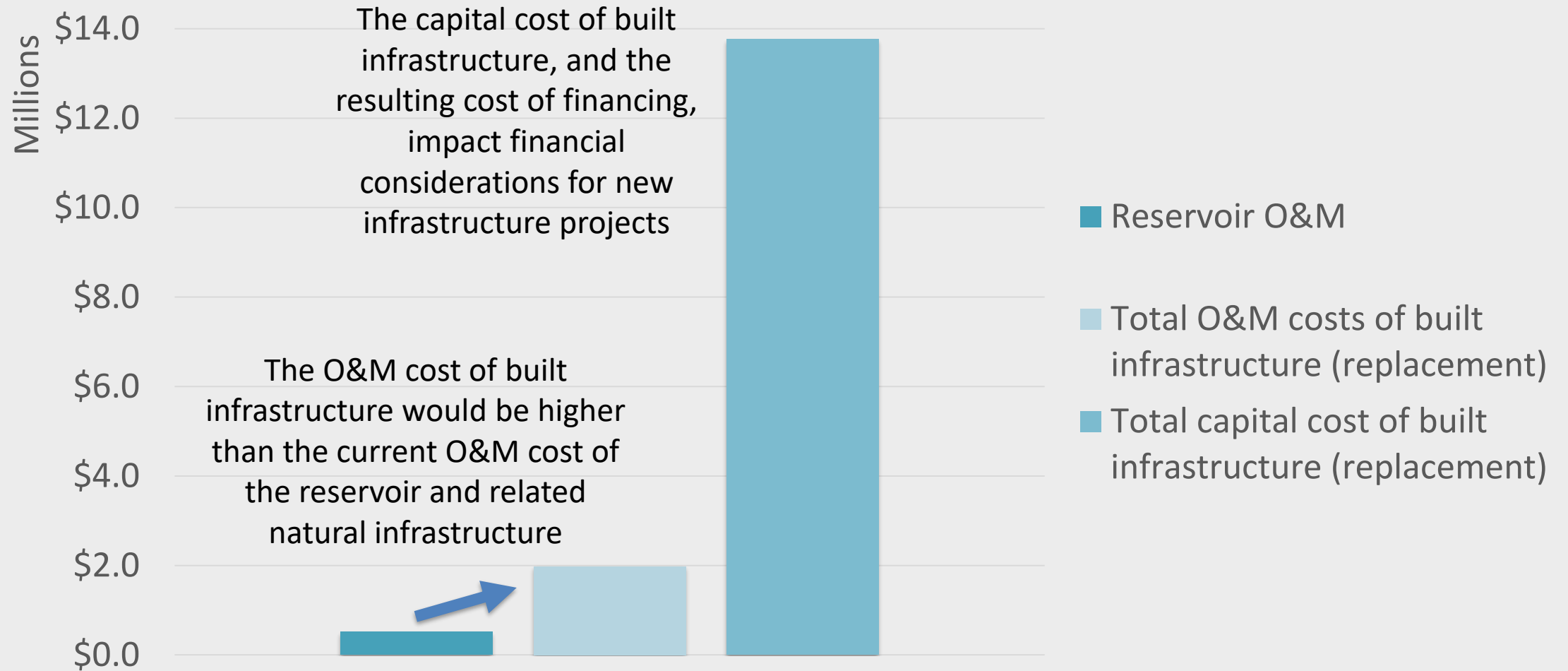


Results of the analysis

– Stephenfield Reservoir



Economic assessment



Interested in alternative scenario?



SAVi in Action

This simulation shows you how SAVi works.

First select an asset type below. On the next step, determine the scenarios and see how financial indicators, such as levelized costs, net present value, internal rates of return and credit ratios, vary when material externalities and risks are included.



ENERGY



BUILDINGS



ROADS



WATER



NATURAL
INFRASTRUCTURE

More
information
on SAVi

Interested in alternative scenario?



SAVi in Action: Calculate the Levelized Cost of Electricity under different scenarios

See how adding externalities and risks into the project costing influences the costs and returns of infrastructure investment: move the slider to calculate the individual impact of each cost item

Project costs



- ☒ Capital and O&M cost
- ☒ Fuel cost
- ☒ Financing cost

Externalities



- ☒ Income spending from additional employment created
- ☒ Opportunity cost of land used for power generation
- ☒ Opportunity cost of sea-related activities (e.g. fishing, sandmining)
- ☒ Valuation of emissions based on health impacts

Climate-related Risks



- ☐ Temperature increase by 1.5°C
- ☐ Carbon tax EUR 16.27/MWh

Simulate

Results

LCOE
(EUR/MWh)

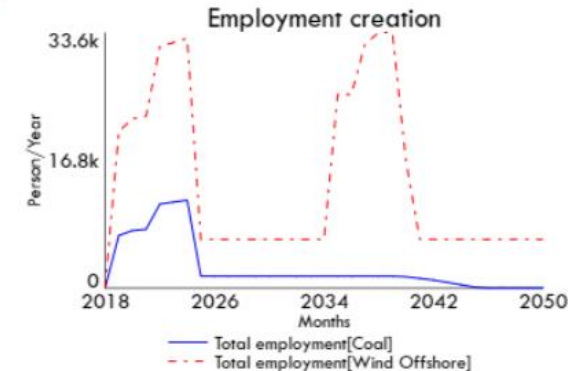
Wind

88.1

Coal

186.6

The Levelized Cost of Electricity (LCOE) is a measure of the overall competitiveness of an asset -- the unit costs of building and operating an asset over its lifetime.



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Conclusions



- Should we use the results presented, as is?
- Are the models, and results perfect?
- Does the approach support changing perspective?
- Does it stimulate more discussion?
- Does it help ask the right questions?

At this stage we aim at being “somewhat right” and inform the debate than “being wrong with a high degree of precision”!



**Contact us
today to find
out more about
how SAVi can
help you**

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