Sustainable Asset Valuation (SAVi)

Delivering insight for investing in sustainable infrastructure

IISD
International Institute for Sustainable Development

MAVA
FONDATION POUR LA NATURE

The **IISD Public Procurement and Infrastructure Finance Program** is a multidisciplinary team of experts on procurement, public-private partnerships, project finance, laws and policies, infrastructure finance, tender cycle advisory, project preparation, environmental and social safeguards, among others. Our core focus is to increase value for money for the public purse in procurement of goods, services and infrastructure. SAVi was developed with the financial support of the MAVA Foundation.

For more information on the SAVi tool please visit:
http://www.iisd.org/project/SAVi-sustainable-asset-valuation-tool

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The Case for Sustainable Infrastructure

Infrastructure investment is a powerful driver of economic activity. Done right, it holds enormous potential for alleviating poverty, improving access to basic services, creating employment and business, and ultimately contributing to the well-being of people and the planet.

Emerging markets and developing economies need vast investments for new infrastructure to spur growth. At the same time, advanced economies need equally large amounts of investment to replace or upgrade aging public assets. The global infrastructure investment need is estimated at USD 6.3 trillion per year between 2016 and 2030, according to the Organisation for Economic Cooperation and Development.[1]

Yet more investment is not all that is needed. When funding the roads, bridges, power plants, water supplies and ports that power economic growth, investors must also consider carbon and environmental footprints, social cohesion, stewardship of natural ecosystems and the financial viability of projects. In short, they must plan and build infrastructure that is sustainable.

Sustainable infrastructure is critical if the world is going to meet the goals, targets and recommendations set out in the Paris Agreement, the 17 UN Sustainable Development Goals and the Financial Stability Board's Task Force on Climate-related Financial Disclosures. Set against this imperative, investors and governments need highly sophisticated instruments to enable better decision making, mitigate risks, generate returns and optimize value for money across the life cycle of an asset.

IISD's Sustainable Asset Valuation (SAVi) tool was created to address this challenge. SAVi is a simulation-based methodology that calculates the costs of environmental, social, and economic risks and externalities affecting the financial performance of infrastructure assets. These risks are ignored in traditional financial valuations. SAVi also calculates the societal and economic benefits of sustainable infrastructure, such as employment, productivity, income and contributions to GDP.

[1] Organisation for Economic Cooperation and Development. (2017, July). *Technical note on estimates of infrastructure investment needs: Background note to the report* Investing in Climate, Investing in Growth. Retrieved from https://www.oecd.org/env/cc/g20-climate/Technical-note-estimates-of-infrastructure-investment-needs.pdf

How SAVi Works

SAVi combines robust science, systems thinking and financial valuation. Its three features—simulation, valuation and customization—are inherently interlinked.

Simulation: SAVi combines the outputs of system dynamics simulation and project finance models. It can currently be applied to several asset types: energy, roads, buildings, irrigation, sewerage treatment and nature-based infrastructure

Valuation: SAVi puts a financial value on risks and externalities that are not well understood and therefore ignored in traditional investment assessments. These can include legal and environmental risks, resource and revenue risks, and climate-change-related risks. SAVi assesses the impact of these risks on the financial performance of an infrastructure project or portfolio.

Customization: We customize SAVi to the needs of governments and investors, whether they are looking at a single project, a portfolio of projects, or an economic or industrial policy. We identify externalities and risks on a case-by-case basis in a collaborative way.

Sustainable infrastructure is critical if the world is going to meet the Sustainable Development Goals.

Examples of Potential Risks and Externalities

Economic

interest rate fluctuations, currency devaluation, unexpected changes in feed-in tariffs

Revenue

reduced demand due to changing consumer preferences or stagnant wages

Climate risks

lower cash flow due to carbon taxes, write-offs and impaired assets caused by freak weather events and natural catastrophes

Environmental

reduced revenue due to polluted water and land

Social

impacts on cashflow caused by industrial action and civil disturbances

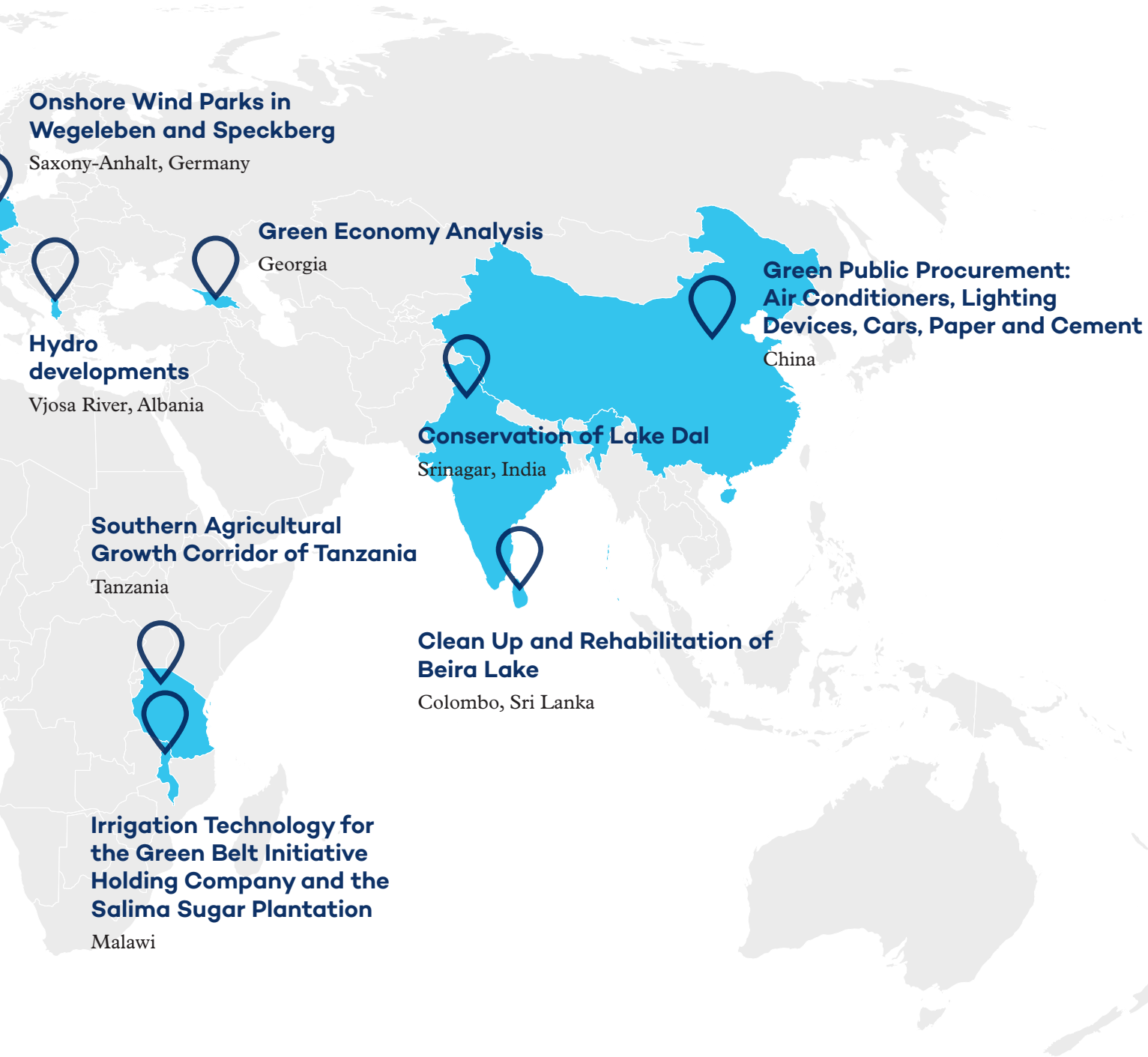
Legal

disruptions in construction and operation resulting from poorly executed environmental and social impact assessments

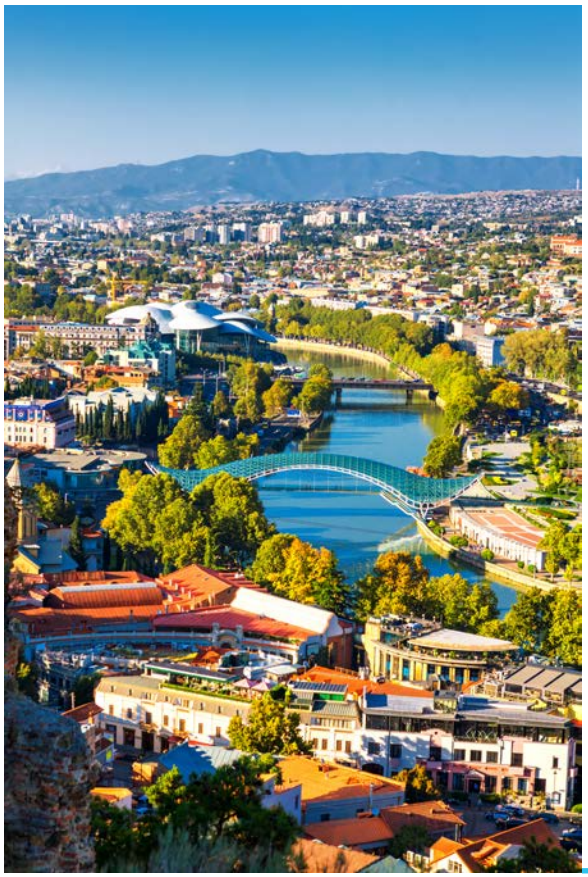
Reputational

allegations of human rights abuses and subsequent divesting

SAVi's Global Impact


Onshore Wind Parks in Wegeleben and Speckberg
Saxony-Anhalt, Germany
Green Economy Analysis
Georgia
Hydro developments
Vjosa River, Albania
Green Public Procurement: Air Conditioners, Lighting Devices, Cars, Paper and Cement
China
Conservation of Lake Dal
Srinagar, India
Southern Agricultural Growth Corridor of Tanzania
Tanzania
Clean Up and Rehabilitation of Beira Lake
Colombo, Sri Lanka
Irrigation Technology for the Green Belt Initiative Holding Company and the Salima Sugar Plantation
Malawi

The Findings



Georgia's Green Economy

Investments for greening Georgia's housing, tourism and agricultural sectors would lead to 0.2 per cent higher annual GDP growth between 2017 and 2040.

Modelling Transportation Infrastructure in Morocco

The cost of climate-risk-related road disruptions for the Rabat bypass road amounts to EUR 7.3 million in additional expenditures for reparations over the road's lifetime.

Our other projects are underway, and the findings will be published on iisd.org/savi in the months to come.

Sustainable Wetland Conservation in India

Solar-powered sewage treatment, combined with an artificial wetland, is the optimal clean-up solution for the Dal Lake in Srinagar, India, resulting in economic gains of INR 377 billion between 2019 and 2060.

Energy Infrastructure in Senegal

When accounting for externalities and climate-related risks, the N'Diaye wind project has an internal rate of return of 14 per cent, while the internal rate of return for diesel-generated power is negative.

Southern Agricultural Growth Corridor of Tanzania

Drip irrigation for Tanzania's growing agricultural sector leads to 8 per cent higher employment, 8 per cent more agricultural production and 14 per cent less water usage over the project's lifetime compared to floor irrigation technology.

Typical Workflow for a SAVi Assessment

STEP 1:
Engage with partner to understand and record asset or project characteristics.

STEP 2:
Discuss material project risks. Determine risk scenarios. Identify externalities that are most material to asset owners and their stakeholders.

STEP 3:
Create a causal loop diagram to determine model boundaries, data needs and emerging dynamics triggered by the project.

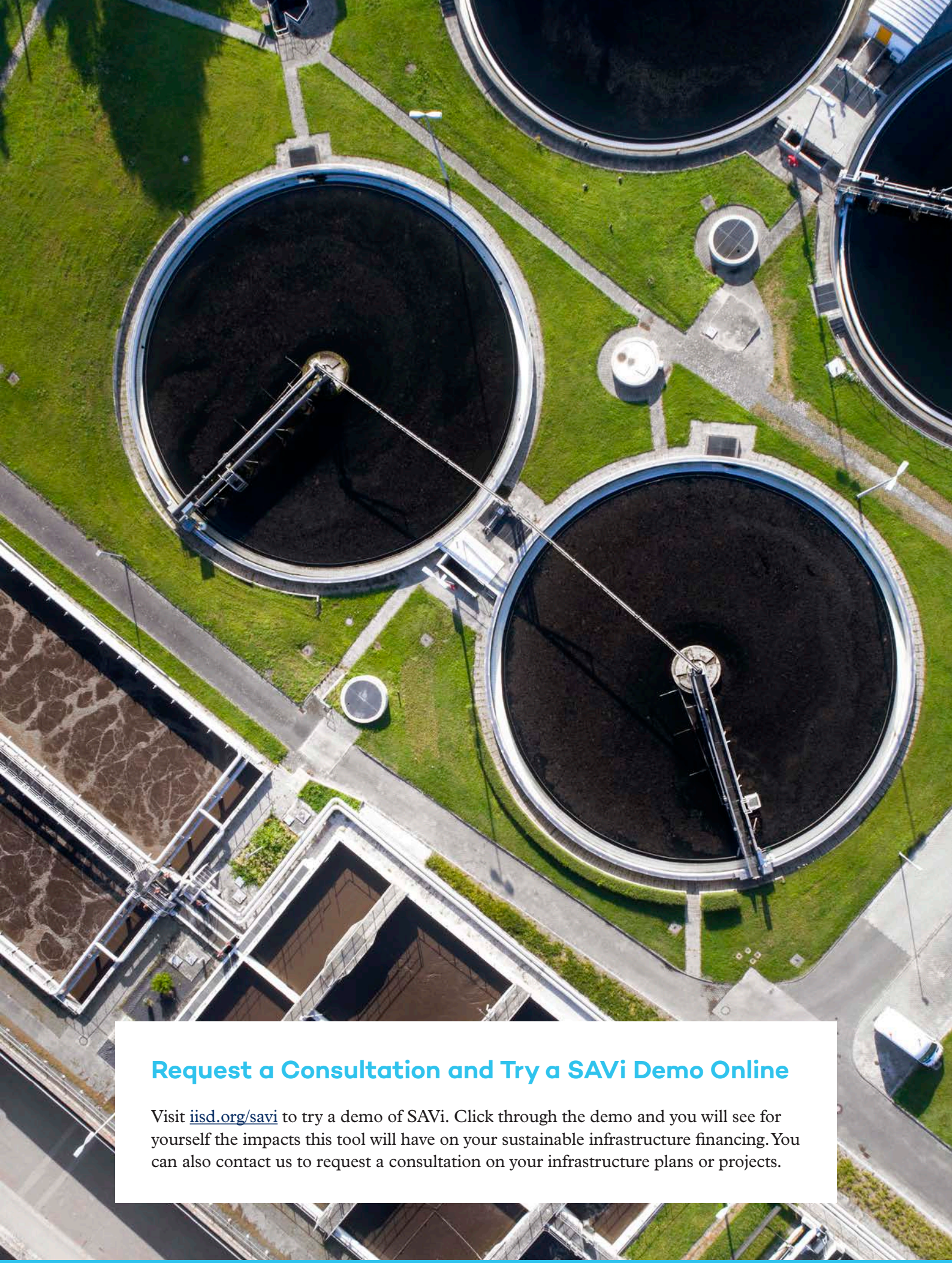
STEP 4:
Create the custom SAVi simulation model. Obtain and verify project-specific data. Complement with internationally recognized data sets. Determine model assumptions and verify data and assumptions with partner.

STEP 5:
Run the simulation. Validate the model and results following best practices in system dynamics and project finance modelling. Simulate alternative scenarios to test model sensitivity.

STEP 6:
Analyze the results. When required, prepare an interpretation of model outcomes for multiple stakeholder perspectives.

STEP 7:
Engage with partners on results. Run simulations in real time. Verify interpretation of model outcomes. Assess how to present results to facilitate decision making.

STEP 8:
Finalize results and reports. Support the partner with decision making and dissemination.



Request a Consultation and Try a SAVi Demo Online

Visit iisd.org/savi to try a demo of SAVi. Click through the demo and you will see for yourself the impacts this tool will have on your sustainable infrastructure financing. You can also contact us to request a consultation on your infrastructure plans or projects.

INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT

The International Institute for Sustainable Development (IISD) is an independent think tank championing sustainable solutions to 21st–century problems. Our mission is to promote human development and environmental sustainability. We do this through research, analysis and knowledge products that support sound policy-making. Our big-picture view allows us to address the root causes of some of the greatest challenges facing our planet today: ecological destruction, social exclusion, unfair laws and economic rules, a changing climate. IISD's staff of over 120 people, plus over 50 associates and 100 consultants, come from across the globe and from many disciplines. Our work affects lives in nearly 100 countries. Part scientist, part strategist—IISD delivers the knowledge to act.

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