The Mining Policy Framework

Assessing implementation readiness

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International Institute for Sustainable Development

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The **International Institute for Sustainable Development** is an independent policy research think tank. IISD's research focuses on a number of central challenges to sustainable development, including: economic law and policy; energy; resilience; water; mining; and knowledge management.

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In 2013, IISD initiated the project, *Promoting economic growth in the extractive sector through the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development*.

The project had two objectives:

1. Enhance the capacity of the members of the IGF to implement its **Mining Policy Framework** (MPF); and
2. Enhance the capacity of developing countries to plan mining projects in a manner that increases **water, energy and food security**.

Part 1: The Mining Policy Framework

The MPF is a comprehensive model that will allow mining to make its maximum contribution to the sustainable development of developing countries.

The framework is made up of 6 pillars:

1. Legal and Policy Framework
2. Financial benefit optimization
3. Socio-economic benefit optimization
4. Environmental management
5. Post-mining transition
6. Artisanal and small scale mining

Assessing national capacities to implement the MPF

IISD worked with select members of the IGF (Dominican Republic, Uganda and Madagascar) to help them operationalize practices consistent with the IGF's Mining Policy Framework (MPF).

Objectives of the assessment:

- Identify strengths and weakenesses in each of the six pillars
- Recommend areas for improving governance
- Address gaps and weaknesses through capacity building

Assessing national capacities to implement the MPF

Methodology:

1. Desk-based research
2. Field visits and stakeholder consultations
3. Preparation of the initial assessment
4. In-country validation meeting
5. Drafting, reviewing and finalizing the assessment report

Assessing national capacities to implement the MPF

2. Policy Recommendations on Financial Benefit Optimization

A. Revenue generation scheme	Score	0	1	2	Guidance
Revenue generation scheme optimizes return from mining activity and taxation agreements with foreign and domestic investors in a manner that reflects the different realities they face		Revenue generation scheme results in little to no returns from mining activity and related taxation agreements	Revenue generation scheme results in some, but not optimal, returns from mining activity and related taxation agreements	Revenue generation scheme results in optimal returns from mining activity and taxation agreements	Revenue generation schemes should result in a fair return from mining activity and taxation agreements, while not overburdening investors. Revenue generation schemes that are a "win/win" for the government and investors will benefit ongoing operations, while helping maintain a favorable climate for future investments.
Revenue generation scheme optimizes resource levy revenues returned to society during high price periods and minimizes need for entities to reduce or end production in low price periods, supporting a variety of sustainable development objectives		Revenue generation scheme does not optimize resource levy revenue returns to society in high periods, nor does it minimize need to reduce production in low periods	Revenue generation scheme promotes, but does not optimize, resource levy revenue returns to society in high periods and minimizing need to reduce production in low periods	Revenue generation scheme optimizes resource levy returns to society in high price periods and minimizes need for entities to reduce production in low periods	Revenue should be managed in a way that anticipates and manages mineral price volatility. Long-term strategic plans should include such management plans, e.g. through creation of a cash reserve/fund from high price periods to ease the strain of low price periods.

Assessing national capacities to implement the MPF

MINING POLICY FRAMEWORK RECOMMENDATION	LEVEL OF PROGRESS	IMPLEMENTATION	MAJOR OBSERVATIONS
1. Legal and Policy Environment			
The ongoing generation of and access to geological information.			
The generation of baseline geological, topographical and other information for national land-use planning, and making that information available to individuals, communities and other civil society actors with equal access to ensure that consultations between different parties can take place on an equal footing.	MEDIUM	Initial basic information (1:5000) covers 100% of the national territory. Companies provide the detailed information (on a scale of 1:50,000). Information is available by request.	There are efforts to improve the system with ongoing work on detailed provincial maps. Programs are offered to students studying geology at the local university.
The revision and periodic updating of mining codes and standards			
Mining codes and standards revised and updated to reflect changing knowledge and best practice. They should deal with all aspects of mining from exploration to closure and post-closure management. The data and reporting requirements by entities should be made explicit in exploration and operating licences so that authorities can make informed decisions.	MEDIUM	Mining Law No. 146 has not been updated. Mining Law No. 146 covers from exploration to closure and post-closure management. Technical, economic and other information requirements are provided in Art. 72 of the Mining Law; Art. 53 of the Environment Law and Art. 42 of Regulation No. 22 require companies to present a semi-annual environmental compliance reports (known as ICA), that follow the environmental management plan (known as PMMA), to the Ministry of Environment.	There have not been updates of the Mining Law since 1971. Two bills were prepared but were not considered by the Congress. Changing knowledge and best practices are included in special contracts. Closure and post-closure management are superficially covered by Mining Law and more developed in the Environmental Law.

Assessment findings

MPF Pillar	Implementation readiness
Legal and policy environment	Medium
Financial benefit optimization	Medium
Socio-economic benefit optimization	Low
Environmental management	Medium
Post-mining transition	Low
Artisanal and small-scale mining	Low

Legal and policy environment

Strengths:

- Improvement in the generation of and access to geological information
- Move toward regular revision of mining codes and standards
- Communities increasingly consulted during permit application process
- EIAs are required before permits are granted, and they are increasingly standardized
- Sustainable natural resource use enshrined in national constitutions

Weaknesses:

- Generation of geological data dependent on donor support
- Community consultations not required on an ongoing basis throughout the life of the mine
- Lack of coordination among government ministries on mining issues
- Lack of action addressing the impacts of mining on indigenous peoples, cultural heritage, resettlement, and community safety and security
- Use of special contracts alongside existing mining laws seen to create two parallel systems of accountability, with reduced transparency.

Financial benefit optimization

Strengths:

- Government revenues from mining generated from a mix of taxes, royalties and other revenue streams
- Increasing national capacities for negotiating mining contracts

Weaknesses:

- Need to better address the fungible nature of mining profits and transfer pricing
- Limited mechanisms to deal with commodity price volatility
- Continued lack of transparency with regards to the distribution of financial benefits
- Greater need to tie financial benefits of mining to local, regional and national development objectives
- Need to formalize ASM activities to generate greater government revenues

Socio-economic benefit optimization

Strengths:

- Occupational health and safety legislation in place
- Social impacts included in EIAs as part of permit application process

Weaknesses:

- Mining operations are not obliged to support short-term and long-term health and education initiatives
- Occupational health and safety legislation rarely monitored or enforced, and non-compliance not penalized
- Companies not required to support non-mine business development opportunities, long-term economic growth

Environmental management

Strengths:

- Good environmental legislation on managing water, mine wastes and effluent, biodiversity, etc. generally in place
- EIAs required as part of the permitting process, and include community consultations

Weaknesses:

- Emergency preparedness plans not required from mine operators
- Managing the transboundary impacts of mining not addressed in legislation

Post-mining transition

Strengths:

- Closure plans, developed with community input, are required as part of permit application
- Financial assurances and bonds technically required, though rarely implemented in practice

Weaknesses:

- Companies are not required to follow internationally accepted guidelines or best practice
- External experts not required in the development of closure plans
- No policies or legislation on orphaned or abandoned mines

Artisanal and small-scale mining

Strengths:

- Some minimal efforts to formalize ASM activities

Weaknesses:

- ASM remains overwhelmingly informal, with significant environmental and social impacts and implications for government revenues
- Child labour and unsafe working conditions remain pervasive
- No efforts to increase savings and investment in the ASM sector
- Environmental awareness among ASM miners is minimal

Priorities

1. Assessments: Further MPF assessments for other IGF member states
2. Capacity building: Country, regional or IGF-level training workshops to address key gaps and weaknesses
3. Implementation: Provide support for the development and implementation of action plans by national governments to address those key weaknesses and gaps identified in the assessments
4. Inspection, monitoring and enforcement: Examining new approaches to compliance with and enforcement of the obligations of mining companies under domestic law and mining contracts.

Becoming involved in the assessment process

No financial commitment is expected from a host country, but a substantial level of engagement is required to facilitate implementation of the planned assessment and capacity building activities:

1. Advance the project's agenda within the government;
2. Assign a focal point to work with the IISD assessment team;
3. Provide access to policy documents, administrative processes, laws and regulations;
4. Facilitate access to key government personnel;
5. Assist with the identification of appropriate stakeholders from the private sector, academia and civil society;
6. Help identify a suitable in-country implementation partner, where required;
7. Provide local logistical and organizational support; and
8. Provide feedback and comments on the draft assessment report prior to its publication.

Water-Energy-Food Security in Mining

A pilot study in Suriname

Dimple Roy

October 2015

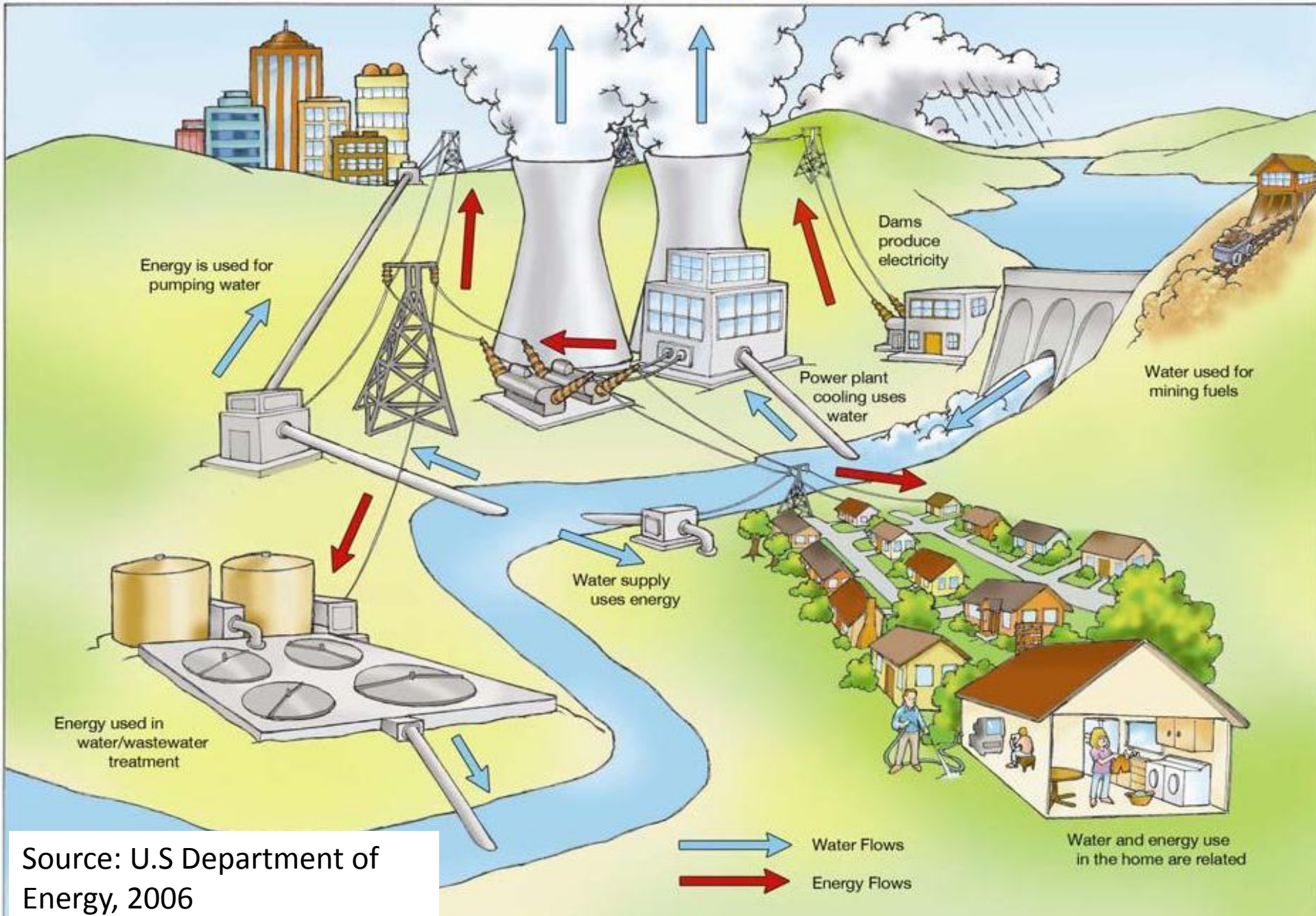
IISD
International Institute for Sustainable Development

Why Water-Energy-Food (WEF) Security?

Any strategy that focuses on one part of the water-food-energy nexus without considering its interconnections risks serious unintended consequences."

(Source: World Economic Forum, 2011)

The Water-Energy Nexus



Source: U.S Department of Energy, 2006

WEF and Mining in Suriname: Project Objectives

IISD worked with IGF member country Suriname to ensure that regional WEF security is maintained or enhanced with mining development.

Objectives of the project:

- Develop and test a methodology to assess regional WEF security and its interface with mining.
- Create a generalised and replicable tool for other IGF countries.
- Ensure and enable broader understanding of WEF and related issues within the country
- Provide recommendations for ensuring regional and national WEF security in the context of mining.

Assessing WEF Security

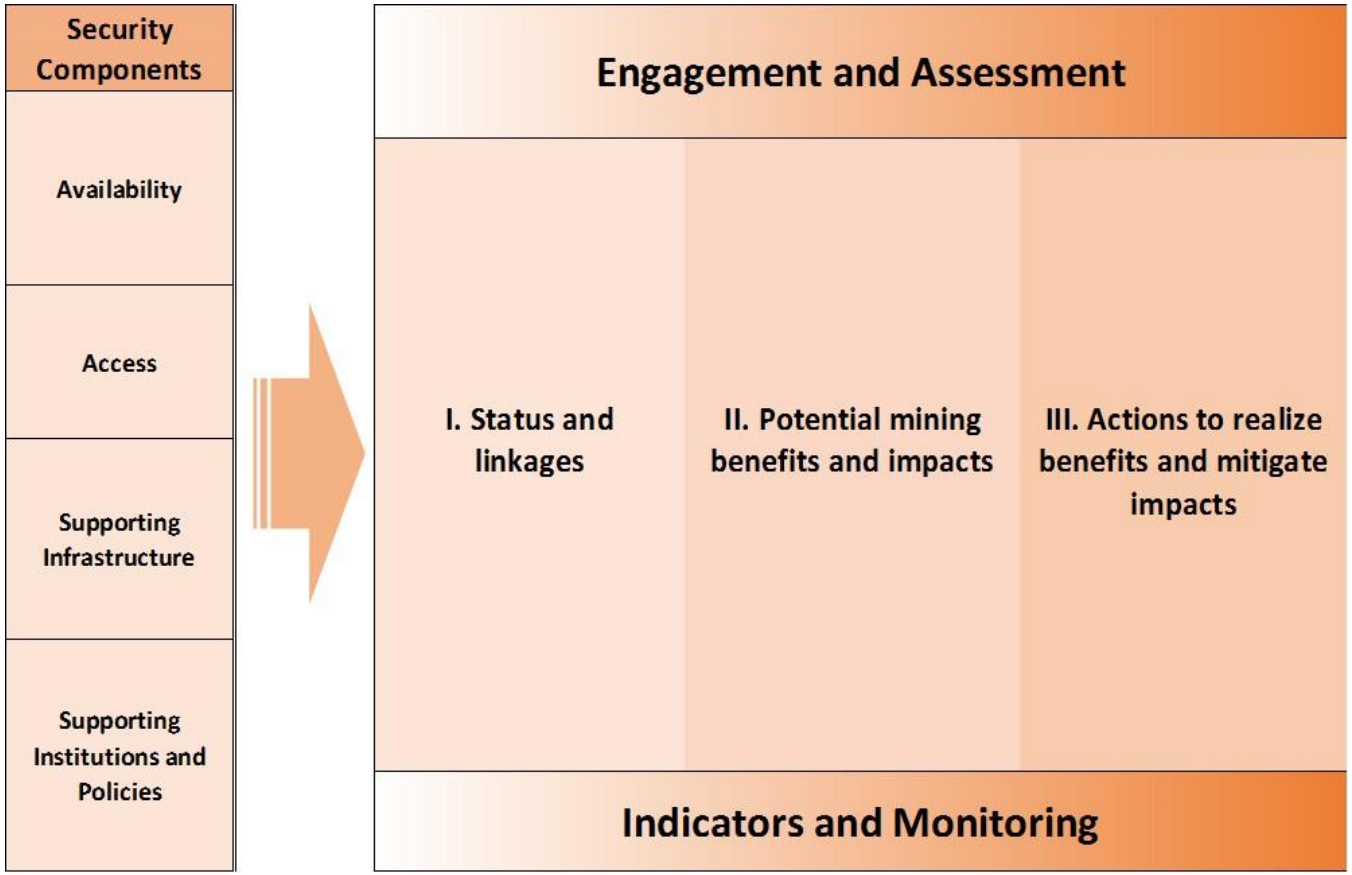
Methodology:

1. Desk-based research
2. Field visits and stakeholder consultations
3. Preparation of a WEF assessment tool
4. In-country validation meeting and training workshops
5. Drafting, reviewing and finalizing a summary report as well as a WEF resource book, WEF assessment tool and guidebook and hydrologic monitoring guidance for Suriname.

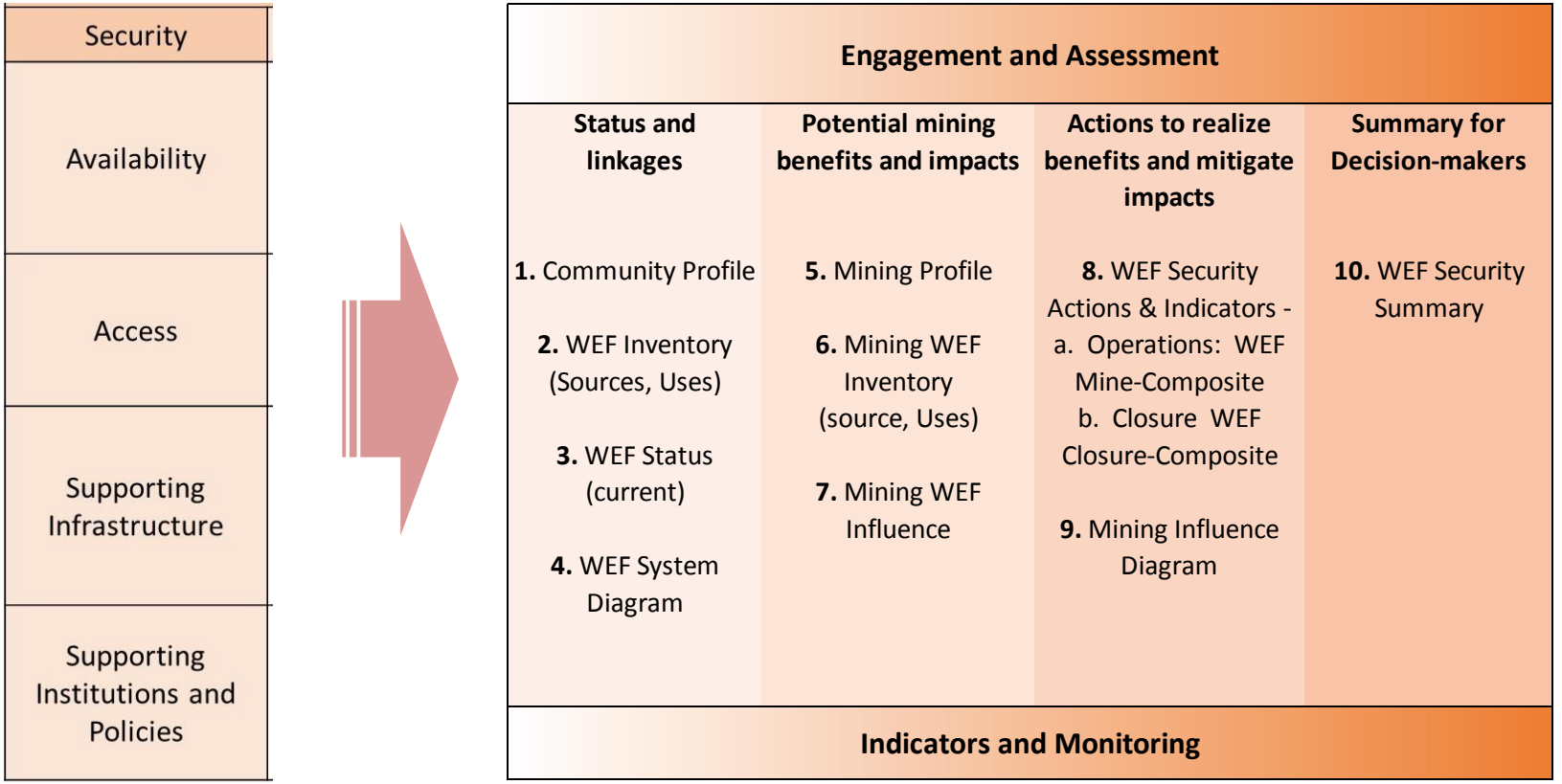
The WEF Framework

Framework for Water, Energy and Food Security			
Security	**Water Sources**	**Energy Sources**	**Food Sources**
Availability	**Use** **Processing** **Storage** **Distribution** **Markets**		
Access	**Purchasing Power** (livelihood income, remittances, credit) **Aid** (direct provision, saftey nets, subsidies) **Self-production** (water wells, off-grid power, individual/community gardens) **Barter**		
Supporting Infrastructure	**Built Infrastructure** (transportation, communication, waste removal) **Natural Infrastructure** (erosion control, storm protection, water purification, biological control, air quality maintenance, pollination)		
Supporting Institutions and Policies	**Institutions** (utility boards, user associations and resource co-ops, education and training, safety oversight, law enforcement and security) **Policies & Plans** (resource use, climate change adaptation, disaster recovery, risk management, R&D and innovation)		

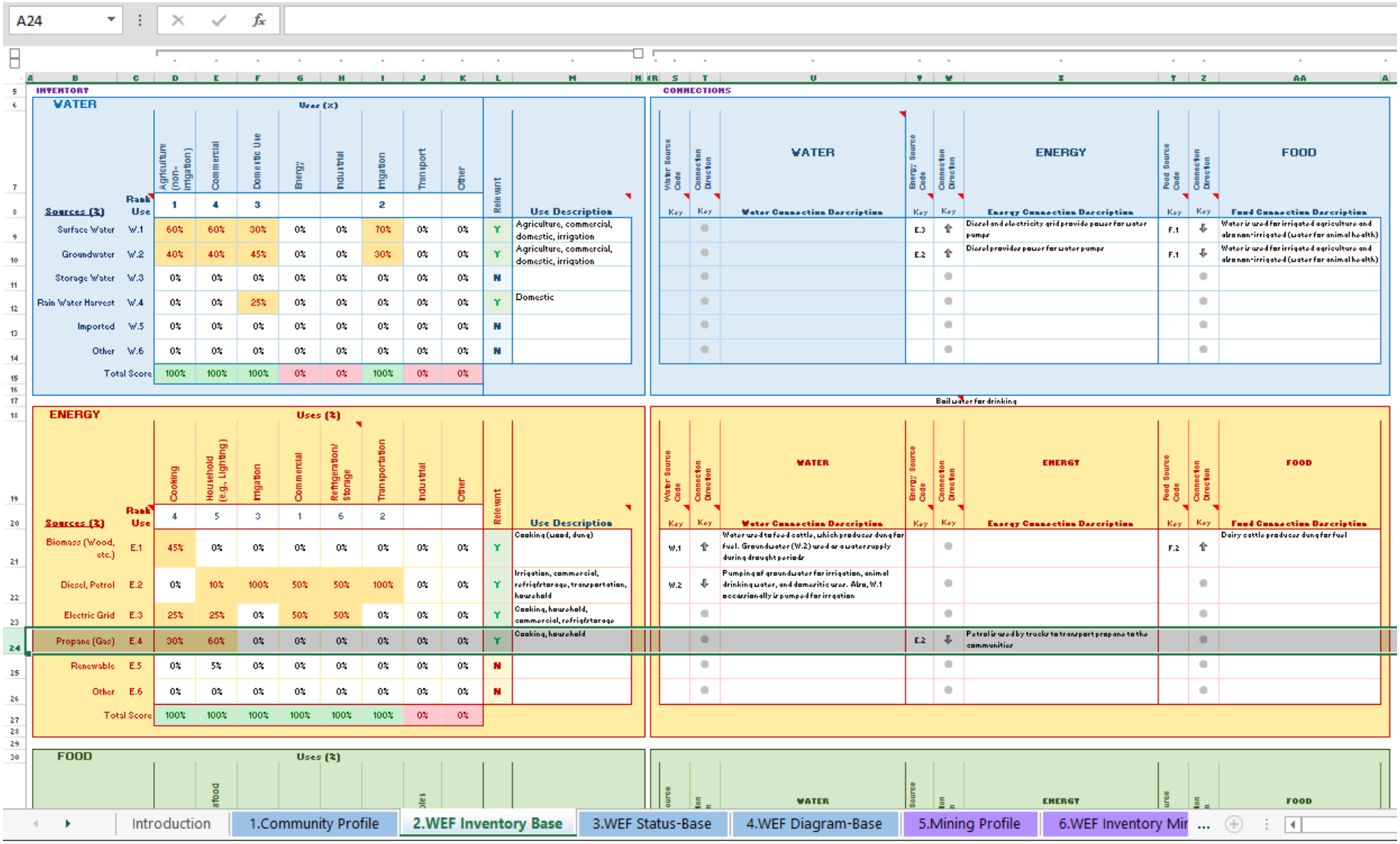
WEF System Management



WEF Security Assessment Steps



WEFsat-Mining Tool



INVENTORY

WATER

Sources (%)	Rank Use	Agriculture (non-irrigation)	Commercial	Domestic Use	Energy;	Industrial	Irrigation	Transport	Other	Relevant	Use Description
		1	4	3			2				
Surface Water	W.1	60%	60%	30%	0%	0%	70%	0%	0%	Y	Agriculture, commercial, domestic, irrigation
Groundwater	W.2	40%	40%	45%	0%	0%	30%	0%	0%	Y	Agriculture, commercial, domestic, irrigation
Storage Water	W.3	0%	0%	0%	0%	0%	0%	0%	0%	N	
Rain Water Harvest	W.4	0%	0%	25%	0%	0%	0%	0%	0%	Y	Domestic
Imported	W.5	0%	0%	0%	0%	0%	0%	0%	0%	N	
Other	W.6	0%	0%	0%	0%	0%	0%	0%	0%	N	
Total Score		100%	100%	100%	0%	0%	100%	0%	0%		

CONNECTIONS

Water Source Code Key	Connection Direction Key	WATER Connection Description	Energy; Source Code Key	Connection Direction Key	ENERGY Connection Description	Food Source Code Key	Connection Direction Key	FOOD Connection Description
			E.3	⇧	Diesel and electricity grid provide power for water pumps	F.1	⇩	Water is used for irrigated agriculture and also non-irrigated (water for animal health)
			E.2	⇧	Diesel provides power for water pumps	F.1	⇩	Water is used for irrigated agriculture and also non-irrigated (water for animal health)

ENERGY

Sources (%)	Rank Use	Cooking	Household (e.g., Lighting)	Irrigation	Commercial	Refrigeration/ storage	Transportation	Industrial	Other	Relevant	Use Description
		4	5	3	1	6	2				
Biomass (Wood, etc.)	E.1	45%	0%	0%	0%	0%	0%	0%	0%	Y	Cooking (wood, dung)
Diesel, Petrol	E.2	0%	10%	100%	50%	50%	100%	0%	0%	Y	Irrigation, commercial, refrigeration, transportation, household
Electric Grid	E.3	25%	25%	0%	50%	50%	0%	0%	0%	Y	Cooking, household, commercial, refrigeration
Propane (Gas)	E.4	30%	60%	0%	0%	0%	0%	0%	0%	Y	Cooking, household
Renewable	E.5	0%	5%	0%	0%	0%	0%	0%	0%	N	
Other	E.6	0%	0%	0%	0%	0%	0%	0%	0%	N	
Total Score		100%	100%	100%	100%	100%	100%	0%	0%		

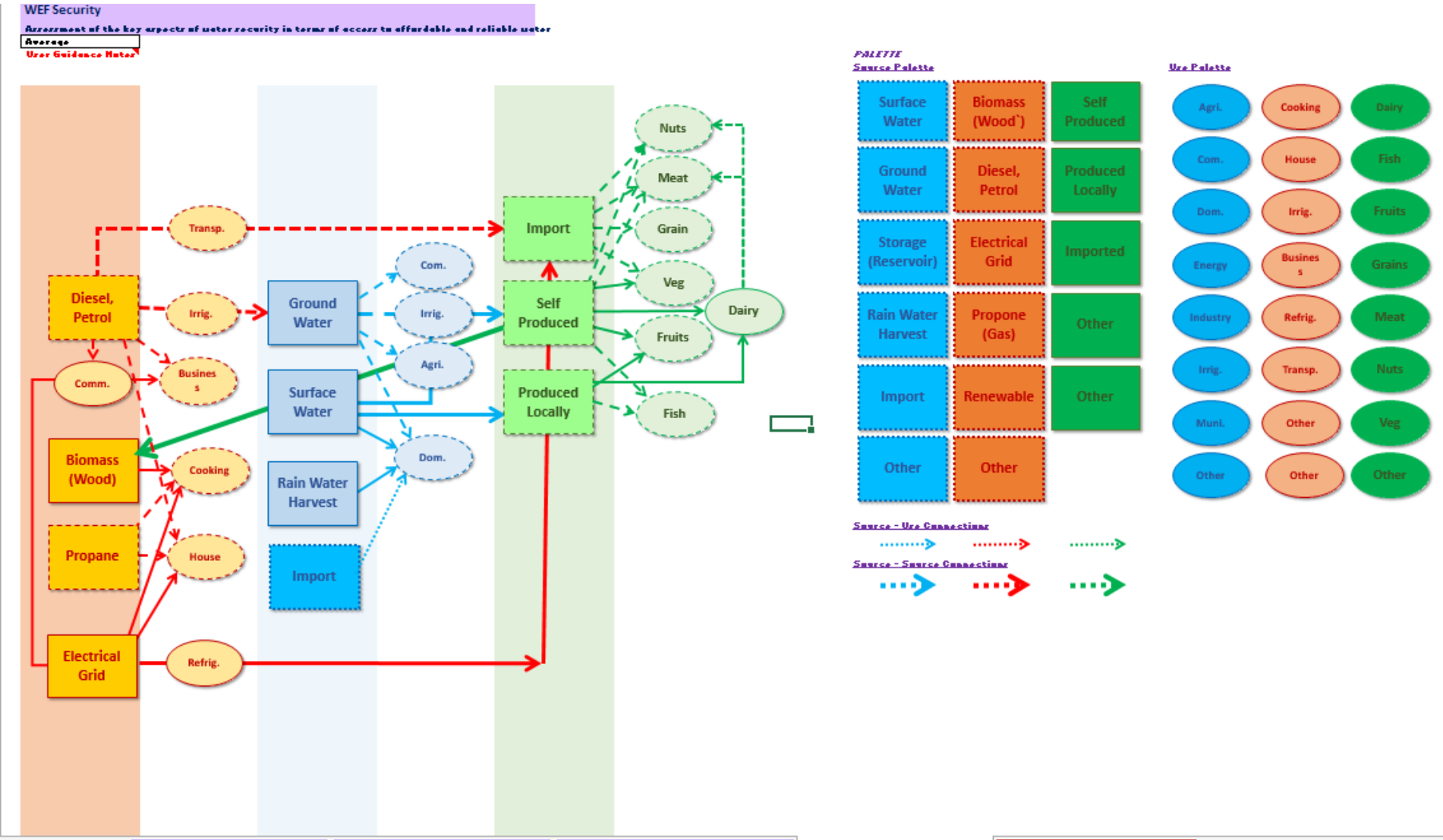
Boil water for drinking

Water Source Code Key	Connection Direction Key	WATER Connection Description	Energy; Source Code Key	Connection Direction Key	ENERGY Connection Description	Food Source Code Key	Connection Direction Key	FOOD Connection Description
W.1	⇧	Water used to feed cattle, which produce dung for fuel. Groundwater (W.2) used as a water supply during drought periods				F.2	⇧	Dairy cattle produce dung for fuel
W.2	⇩	Pumping of groundwater for irrigation, animal drinking water, and domestic use. Also, W.1 occasionally is pumped for irrigation						
			E.2	⇩	Petrol is used by trucks to transport propane to the communities			

FOOD

Uses (%)

WEFsat-Mining Tool



WEF Influences - Mine Benefit/Impact

Availability

- ↓ Water pollution (heavy metals, silt, ARD)
- ↑ Market value of food
- ↑ Energy (diesel) supply

Access

- ↑ Purchasing power
- ↑ Aid
- ↓ Self-production risk to resources
- ↓ Bartering of bushmeat

Supporting Infrastructure

- ↑ Roads and energy distribution
- ↑ Local market for food
- ↓ Quality of roads

Supporting institutions and Policies

- ↑ NGO actions on community food security
- ↑ Training for no-Mercury artisanal mining
- ↓ Illegal mining control regulation
- ↓ Bartering

WEF Actions and Indicators

Key Benefits and Impacts [& Indicators]: Mine development has brought increased connectivity to grid electricity.

Key Actions [& Indicators]: Establishment of closure fund for short-term investment in electricity grid following mine closure, combined with a corresponding increase in government investment in grid system maintenance locally. [annual investment in local grid maintenance].

Key Actions [& Indicators]: Mine to hire locally as much as possible and create a local employment policy. Mine to work with local government and banking institutions to develop savings mechanisms and encourage awareness of the importance of savings as a risk strategy. [Procedures for local hiring and proportion of senior management hired from the local community at locations of significant operation].

Key Actions [& Indicators]: Ensure water monitoring to improve overall water and food security through development of local monitoring capacity between mine-site and communities.

Outputs

http://www.iisd.org/media/water-e

Water-Energy-Food Security in the Context of Mining

Water-energy-food

Water, energy and food (WEF) security are critical to human well-being and include aspects of supply, deman components.

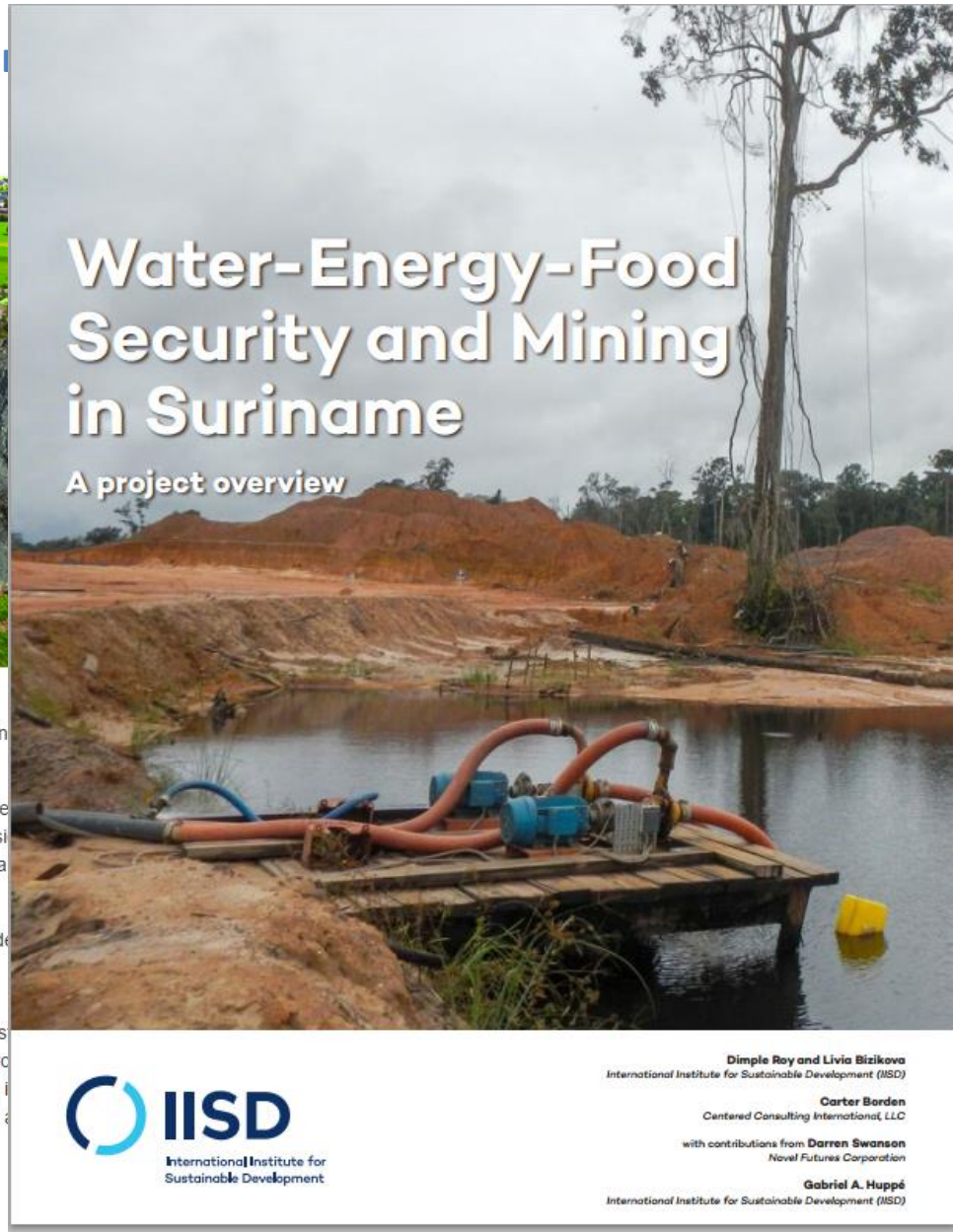
Large-scale development efforts such as mining, agriculture or industrial development affect people's WEF se developments often improve infrastructure, employment opportunities and food production and can provide si However, there are often negative, often unintended, consequences of such development, such as water qua opportunities, and these must be addressed for long-term sustainability.

This is why IISD has been focusing on integrating water-energy-food security in resource management and d

The case for exploring mining in Suriname

With the growing importance of mining as a major driver in economic development, there is increasing interes to the overall environmental and social conditions of the regions where these investments take place. This pro WEF security in communities in the vicinity of mining developments, with the aim to improve decision-making i sustainable development. We ultimately want to provide practical analysis and build capacity in WEF security

With these goals, the WEF project was made up of the following main components:



Outputs

WEFsat - Mining: The Water-Energy-Food security analysis tool for **Mining**
Assessing the benefits and impacts of mining on community-level water-energy-food security

Purpose: The purpose of *WEFsat-Mining* is to help identify the potential benefits and impacts of mining on community-level water, energy and food security. Users of the tool can then explore specific actions for realizing benefits and mitigating actions, as well as select and develop indicators for tracking the status of water-energy-food security and the progress of critical actions. Users familiar with environmental and social impact assessment methods will find *WEFsat-Mining* intuitive and a welcomed addition to their toolkit for understanding key relationships in achieving sustainable development.

Context: The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, a network of governments, industry and various interest groups in 48 countries, put forth its Mining Policy Framework (MPF) in 2014. The MPF calls for an optimal conversion of natural capital into human capital, the management of the natural resource base within ecosystem, and a continuous planning for the post-mining transition, among other aspects. Concurrently, the World Economic Forum has consistently ranked water, energy and food security issues among the top global risks facing governments and businesses around the world, noting that "any strategy that focuses on one part of the water food-energy nexus without considering its interconnections risks serious unintended consequences." *WEFsat-Mining* is designed to help advance the understanding of both risks and benefits of mining operations on the inter-related issue of water, energy and food security.

Concepts and Methodology: *WEFsat-Mining's* conceptual framework and methodology is outlined in the adjacent figure.

Engagement Considerations: *WEFsat-Mining* is designed for participatory settings in which a trained facilitator can engage individuals and groups in a cogent analysis of mining's influence on community water-energy-food security. For training opportunities, contact Dimple Roy, Director, Water Program with the International Institute for Sustainable Development at droy@iisd.ca.

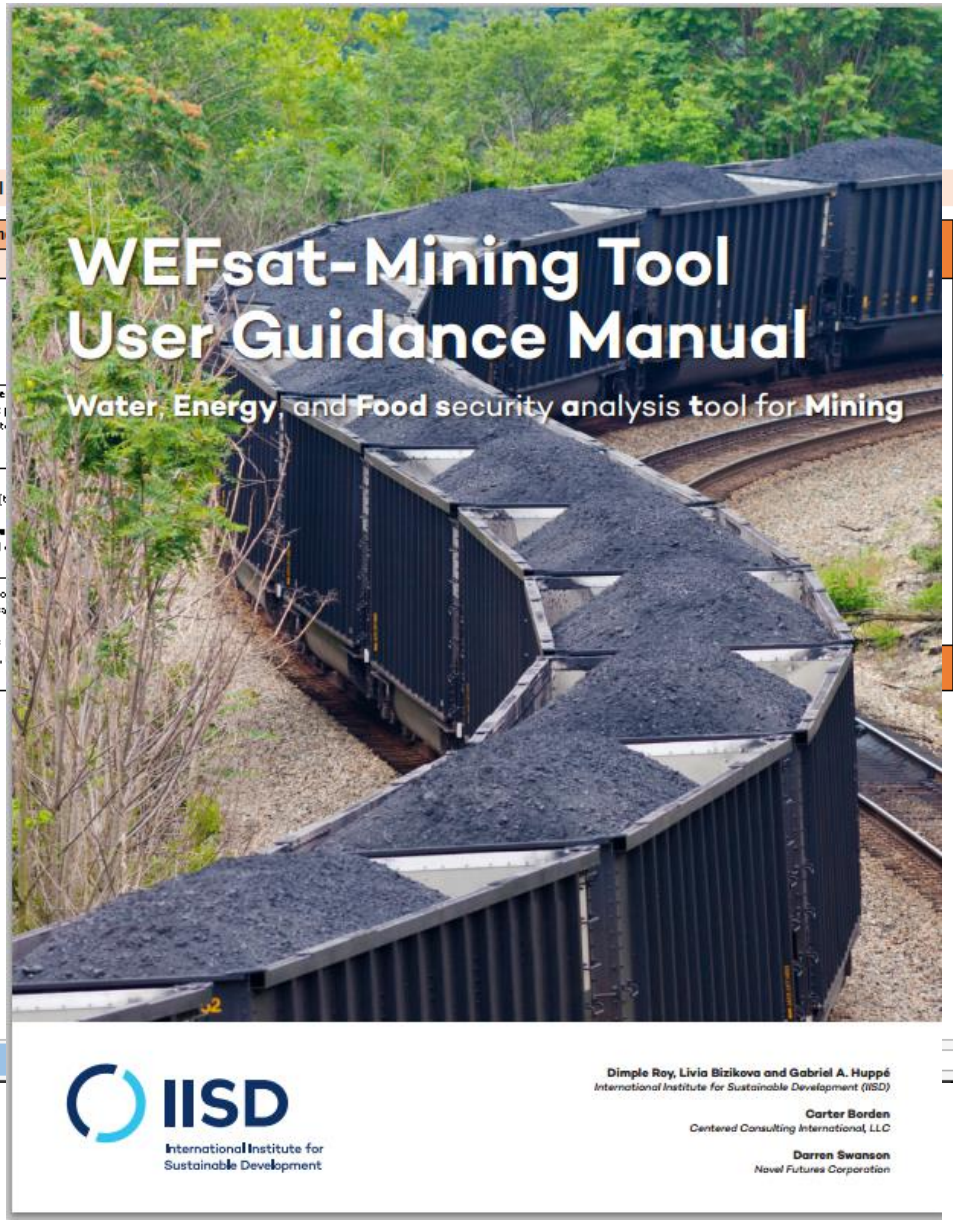
Acknowledgements: *WEFsat-Mining* was developed by the International Institute for Sustainable Development (IISD) with funding from Foreign Affairs, Trade and Development Canada. Technical support was provided by Centred Consulting International, LLC and Novel Futures Corporation.

Conceptual

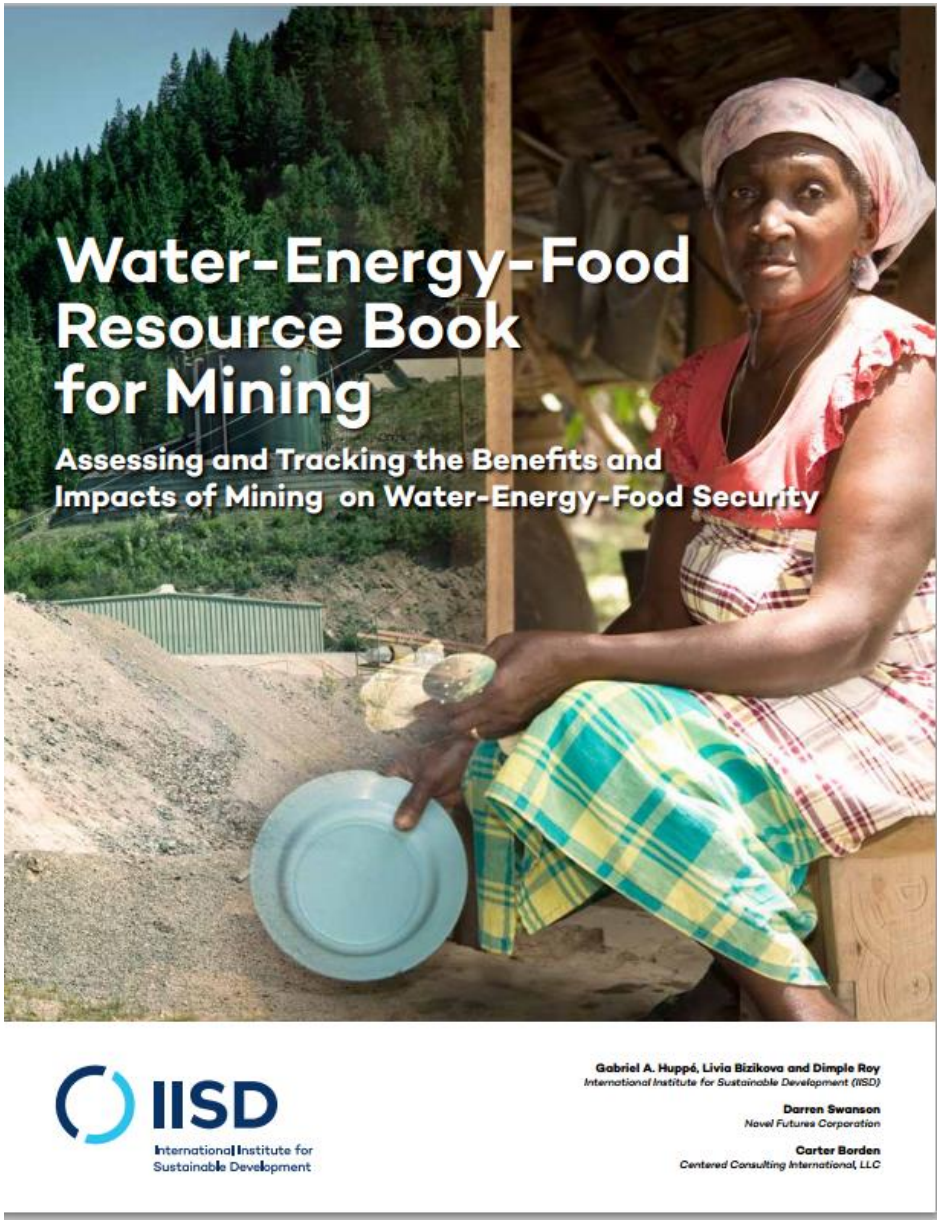
Framework for Water, En	
Security	Water Sources
Availability	
Access	**Purchasing Powe** **Aid** (direct **Self-production** (wat
Supporting Infrastructure	**Built Infrastructure** **Natural Infrastructu** purification, biological
Supporting Institutions and Policies	**Institutions** (utility bo education and training, **Policies & Plans** disaster recovery,

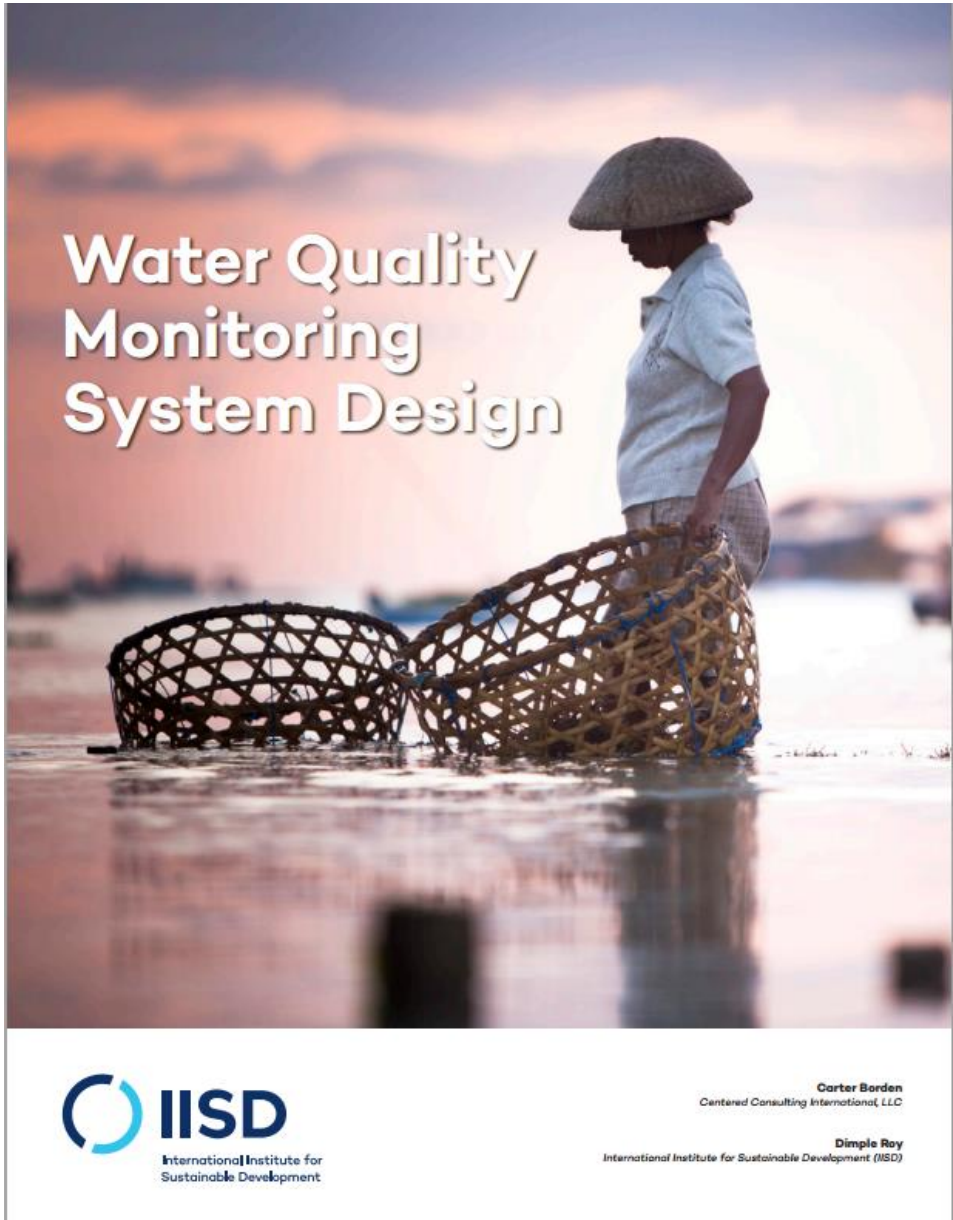
More information

Introduction | 1.Community Profile | 2.WEF Inventory Base | 3.WEF Status-Base



Outputs


Water-Energy-Food Resource Book for Mining
Assessing and Tracking the Benefits and Impacts of Mining on Water-Energy-Food Security
IISD
International Institute for Sustainable Development
Gabriel A. Huppé, Livia Bizikova and Dimple Roy
International Institute for Sustainable Development (IISD)
Darren Swanson
Novel Futures Corporation
Carter Borden
Centered Consulting International, LLC


Water Quality Monitoring System Design
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GRASSALCO
We bring prosperity to the surface

ANTON DE KOM UNIVERSITEIT VAN SURINAME

Thank you

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