The Risks and Options Assessment for Decision-Making (ROAD) process enables decision-makers to understand and manage complex risks across connected food-energy-environment-water systems.

1. Define Scope & Causal model

2. Evaluate risks and options + Document Decisions

3. Implement and evaluate decisions + Document results
Drivers and Outcomes

Drivers of change:
- Indirect
  - Demographics
  - Economic Growth
  - Technology
  - Urbanisation
  - Globalisation
- Direct
  - Climate change
  - Demand & consumption
  - Natural resources

Sustainability outcomes:
- Food security and nutrition
- Enhanced livelihoods
- Environmental quality
- Equity and social sustainability
- Development resilience

Pathways
1. Define Scope of Decision-Making & Assessment

- Who are the decision-makers?
  - Who are the stakeholders?
  - What are their objectives?

Define baselines & thresholds of food, energy, environment, water

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Identification of Events

- **Risks**
  - What are the risks being assessed?

- **Triggers**
  - What are the triggers?

- **Consequences**
  - What are the consequences?

Options Identification

- **Controls**
  - What are the options to control risks?

- **Mitigants**
  - What are the options to mitigate consequences?

Define linkages across system & directions of causation
Risk Model

Triggers:
- Increasing Water Demand for Agriculture**
- Climate Change
- Unsustainable Agricultural Practices
- Inadequate Government Responses

Water Demand > Water Supply in the Dry Season

Consequences:
- Reduction of Crop Yield
- Reduction of Farmer's Income**
- Increased Crop Production Costs
- Disputes Amongst Farmers over Water-Use
- Groundwater scarcity

Controls:
- Water pricing and social mobilization
- Communication and awareness raising
- Promotion of water-saving technology and policy
- Irrigation infrastructure construction

Mitigants:
- Farmer production cooperation
- Credit support for investment
- Agricultural insurance
- Emergency cash transfers
2. Assess Risks & Options

- Estimate likelihoods across system events
- Estimate consequences of risks
- Estimate consequences of options
- Develop options portfolios
- Estimate consequences of options portfolios

Risks and Options Assessment

Which stakeholders benefit? Which stakeholders lose out?
Are decision-maker objectives met?
What is the change against the baselines? Are thresholds breached?

Select portfolio of options & investment decisions

Sensitivity Analysis
Would a different portfolio be selected under different likelihoods?

if yes, consider repeating Step 2
3. Implement & Evaluate Decisions

Consult stakeholders

Are key estimates incorrect or invalid?

if yes, consider repeating Step 2

Review & revise decisions

Implement decisions in phases

Evaluate outcomes across stakeholders, decision-maker objectives, baselines & thresholds

Do outcomes diverge from estimated consequences?

if yes, stop & repeat Step 2

Re-evaluate causal model & review available options
Going beyond synergies and trade-offs: a seven-point scale

- **Negative interactions:** cancelling (-3), counteracting (-2), constraining (-1)
- **Neutral interaction:** consistent
- **Positive interactions:** enabling (+1), reinforcing (+2) and indivisible (+3)


Scoring according to their impacts on the objectives
<table>
<thead>
<tr>
<th>Interaction</th>
<th>Name</th>
<th>Explanation</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td>+3</td>
<td>Indivisible</td>
<td>Inextricably linked to the achievement of another goal.</td>
<td>Ending all forms of discrimination against women and girls is indivisible from ensuring women’s full and effective participation and equal opportunities for leadership.</td>
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<tr>
<td>+2</td>
<td>Reinforcing</td>
<td>Aids the achievement of another goal.</td>
<td>Providing access to electricity reinforces water-pumping and irrigation systems. Strengthening the capacity to adapt to climate-related hazards reduces losses caused by disasters.</td>
</tr>
<tr>
<td>+1</td>
<td>Enabling</td>
<td>Creates conditions that further another goal.</td>
<td>Providing electricity access in rural homes enables education, because it makes it possible to do homework at night with electric lighting.</td>
</tr>
<tr>
<td>0</td>
<td>Consistent</td>
<td>No significant positive or negative interactions.</td>
<td>Ensuring education for all does not interact significantly with infrastructure development or conservation of ocean ecosystems.</td>
</tr>
<tr>
<td>Interaction</td>
<td>Name</td>
<td>Explanation</td>
<td>Example</td>
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<tr>
<td>−1</td>
<td>Constraining</td>
<td>Limits options on another goal.</td>
<td>Improved water efficiency can constrain agricultural irrigation. Reducing climate change can constrain the options for energy access.</td>
</tr>
<tr>
<td>−2</td>
<td>Counteracting</td>
<td>Clashes with another goal.</td>
<td>Boosting consumption for growth can counteract waste reduction and climate mitigation.</td>
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<tr>
<td>−3</td>
<td>Cancelling</td>
<td>Makes it impossible to reach another goal.</td>
<td>Fully ensuring public transparency and democratic accountability cannot be combined with national-security goals. Full protection of natural reserves excludes public access for recreation.</td>
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<tr>
<td></td>
<td>Initial Score</td>
<td>Adjustment Measure</td>
<td>Final Score</td>
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<td><strong>Food Security</strong></td>
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<td><strong>Water Security</strong></td>
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<td><strong>Environmental Protection</strong></td>
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