Decisions for the Decade: A “Serious Game” for Water Planners
Decisions for the Decade
How do we make smart long-term decisions?

All Participate
(...expect confusion...)

2
You are a Principal Planner …of a large city

…within a region like this one

…or this one

...or this one

...or this one!
Your objective.... prepare your community for the future

- What will the future bring?
- Will it be different from the past? In what way?
- What investment decisions should we make?
- Will we be prepared?
Making Decisions

**City** decisions are independent
- Use the online survey to allocate 10 tokens.

**Regional** decisions require teamwork
- Coordinate within your region in breakout rooms and collectively submit 1 survey to allocate 10 tokens.
Making Decisions

INVESTMENT & DEVELOPMENT
Earn Prosperity Points, if no crisis

DROUGHT PROTECTION
If a drought occurs, you use 1 protection token

FLOOD PROTECTION
If a flood occurs, you use 1 protection token

Allocating your Budget
Use the decade survey provided in the chat to submit your budget each decade.

Note: each decade has its own survey!
If you’re having trouble, raise your hand!
The Set Up

Region 1

Region 2

Region 3

Cities

Cities

Cities
Steps of the Game

1. Receive Scientific Information

2. Make Decisions

3. See Observations

4. Review Results
Steps of the Game

1. Receive Scientific Information

2. Make Decisions

3. See Observations

4. Review Results
1. Scientific Information

Annual Precipitation Cheesman Reservoir (1903-2016)

- **Flood**
- **Drought**

Typical Information
The game’s source of information

= Flood

= Drought
The game’s source of information

6 = Flood
1 = Drought
Steps of the Game

1. Receive Scientific Information

2. Make Decisions

3. See Observations

4. Review Results
2. Make Decisions

• Allocate resources (10 tokens) for each decade
  
  • Drought protection
  
  • Flood protection
  
  • New investments, operations, maintenance, infrastructure upgrades, roads
Development
Drought Protection
Flood Protection
Development
DROUGHT PROTECTION
If you roll a drought: you lose 1 token

INVESTMENT & DEVELOPMENT
Earn Prosperity Points, if no crisis

FLOOD PROTECTION
If you roll a flood: lose 1 token
DROUGHT PROTECTION
If you roll a drought: you lose 1 token

INVESTMENT & DEVELOPMENT
Earn Prosperity Points, if no crisis

FLOOD PROTECTION
If you roll a flood: lose 1 token

Your Funding Allocations

<table>
<thead>
<tr>
<th>Drought Protection</th>
<th>Development</th>
<th>Flood Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>
Steps of the Game

1. Receive Scientific Information

2. Make Decisions

3. See Observations

4. Review Results
3. See Observations

Ten years of precipitation occur

<table>
<thead>
<tr>
<th>If you roll a...</th>
<th>You get...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drought</td>
</tr>
<tr>
<td>2, 3, 4, 5</td>
<td>Normal Conditions</td>
</tr>
<tr>
<td>6</td>
<td>Flood</td>
</tr>
</tbody>
</table>
3. See Observations

Ten years of precipitation occur

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

One Drought
Steps of the Game

1. Receive Scientific Information

2. Make Decisions

3. See Observations

4. Review Results
We protected against 1 drought…

Since one drought occurs, we use one token…
4. Review Results

DROUGHT PROTECTION
If you roll a drought: you lose 1 token

INVESTMENT & DEVELOPMENT
Earn Prosperity Points, if no crisis

FLOOD PROTECTION
If you roll a flood: lose 1 token

...and we get 9 Prosperity Points!
But what if we had a second drought?
4. Review Results

If one drought occurs:

Scenario 1

If another drought had occurred:

Scenario 2

<table>
<thead>
<tr>
<th># Crises</th>
<th># Prosperity Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># Crises</th>
<th># Prosperity Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Repeat Steps of the Game

1. Receive Scientific Information

2. Make Decisions

3. See Observations

4. Review Results
Key Rules

Simplification of reality
No challenging the rules!

Decisions are individual
No consulting on City Decisions
Do collaborate on Regional Decisions

We will play 4 decades of decision making
Each round is 10 years
Winning The Game

Winning City:
- City with fewest crises from all Regions
- Tiebreaker within Region: City with the most Prosperity points

1 Winning Region:
- Most Prosperity Points
- Tiebreaker: Region with fewest crises
Let’s Play!!!
Round 1
(years 1-10)
1. SCIENTIFIC INFORMATION

Historical Precipitation

- = Flood
- = Drought
2. DECISIONS

Make investments for the coming decade

Use the survey link in the chat to allocate your 10 tokens
3. Observations

*Did you plan for this decade well? Let's see what happens!*

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>Result</td>
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<tr>
<td>Observation</td>
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</tr>
</tbody>
</table>

Click the Roll button to roll your dice and populate your Decade 1 Observations.
4. Results

Review results

<table>
<thead>
<tr>
<th># Crises</th>
<th># Prosperity Points</th>
</tr>
</thead>
</table>

Any crises?

How much prosperity?
Round 2
(years 11-20)
1. SCIENTIFIC INFORMATION

Historical Precipitation

= Flood

= Drought
2. DECISIONS

New Investment Option: Robustness

You are guaranteed a fixed number of prosperity points, no matter how many floods or droughts occur.

But you must give all tokens above that fixed number to the bank.

How many prosperity points would you accept for this robust option?
2. DECISIONS
Make investments for the coming decade

Allocate your 10 tokens or select the robust option.

1st
City

2nd
Region

Cities
3. Observations

Did you plan for this decade well? Let’s see what happens!

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tbody>
<tr>
<td>Result</td>
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<tr>
<td>Observation</td>
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</tbody>
</table>

Click the Roll Button to roll your dice and populate your Decade 2 Observations.
Have you heard about... CLIMATE CHANGE?

- Drought
- Flood

1, 2, 3

6

= Flood

= Drought
4. Results

Review results

Any crises?

How much prosperity?

= Flood

= Drought

1 2 3

Decade 2 Results

<table>
<thead>
<tr>
<th># Crises</th>
<th># Prosperity Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Round 3
(years 31-40)
1. SCIENTIFIC INFORMATION

Precipitation Under Climate Change

News Flash!
IPCC to release more climate information in the next 5-10 years

= Flood

= Drought
2. DECISIONS
Robust Option Again Available

Robust Option

- You are guaranteed a fixed number of prosperity points, no matter how many floods or droughts occur
- But you must give all tokens above that fixed number to the bank
- How many prosperity points would you accept for this robust option?
2. DECISIONS
Make investments for the coming decade

Allocate your 10 tokens or select the robust option.

City

Region

1st

2nd

Cities

Region 2
3. Observations

*Did you plan for this decade well? Let's see what happens!*

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</tbody>
</table>

Click the Roll button to roll your dice and populate your Decade 3 Observations.
4. Results

Review results

Any crises?

How much prosperity?

Decade 3 Results

<table>
<thead>
<tr>
<th># Crises</th>
<th># Prosperity Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
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</table>

= Drought

= Flood
Round 4
(years 41-50)
We have a **NEW MODEL** for climate change...
Robust Option

• You are guaranteed a fixed number of prosperity points, no matter how many floods or droughts occur
• But you must give all tokens above that fixed number to the bank
• How many prosperity points would you accept for this robust option?
2. DECISIONS
Make investments for the coming decade

Allocate your 10 tokens or select the robust option.
3. Observations

Ten years of precipitation

Climate will remain deeply uncertain…
Final Results: Decades 1-3 ONLY

<table>
<thead>
<tr>
<th>City</th>
<th>Decade Number</th>
<th>Crisis</th>
<th>Prosperity Points</th>
<th>Total Crisis</th>
<th>Total Prosperity Points</th>
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<tbody>
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</tbody>
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Fewest Crises = City winner!

Most Prosperity Points = Region winner!
Thank you for playing
Decisions for the Decade!
Credits

Special thanks to

• Michelle Miro and Robert Lempert, RAND
• Pablo Suarez and Janot Mendler de Suarez, Red Cross / Red Crescent Climate Centre)