

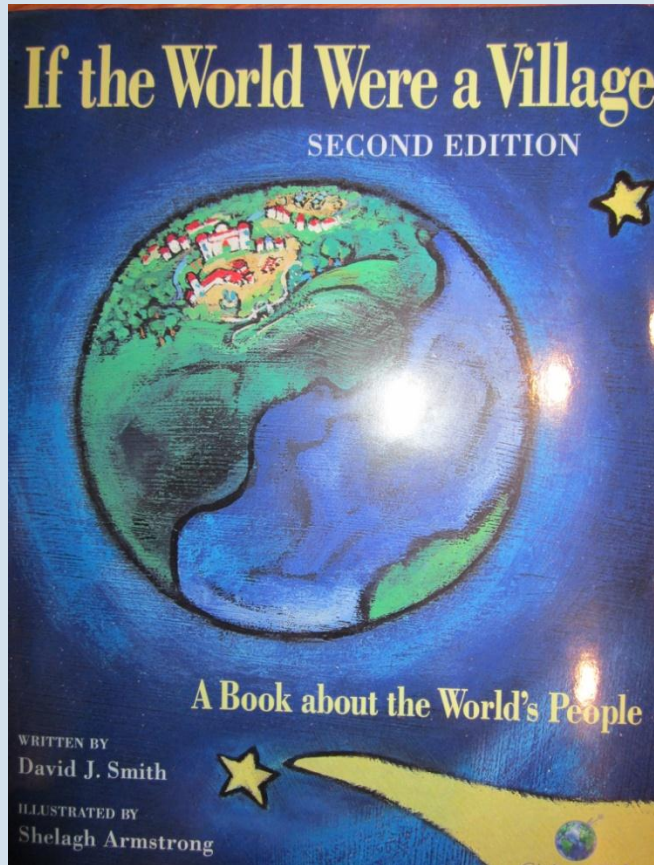
Linking Food Security and Agriculture Production to Conservation Practices

Policy Tool Box Presentation
January 24, 2012



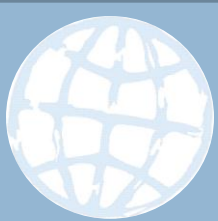


Why Is This Important?



47 people in the village do not have food security

- As populations grow ag activity must intensify.
- Fertilizer will be at least a part of the solution.
- Countries and farmers must have tools to balance production efficiency with conservation
- The GPNM Tool Box will provide this connection.
- We want to support you to better implement plans to address LBS.
- We need your feedback.



GEF BMP Investments Central & Eastern Europe



- Systems of practices
- Scale of production & practices
- Engaging farmers
- O&M
- Measuring outcomes/data is difficult
- Policies are an important driver
- Low cost interventions offer value

Paradigm shift is needed to consider tonnes reduced rather than counting practices



Global Inventory Summary

The screenshot displays a web browser window with the following elements:

- Browser Address Bar:** <http://nutrientdb.iwlearn.org/AllImplementations>
- Page Title:** All implementations
- Navigation Menu:** File, Edit, View, History, Bookmarks, Tools, Help
- Page Content:**
 - Header:** Contents, Edit, Properties, view, Rules, Sharing
 - Actions:** Close, Delete
 - Section:** All implementations
 - Metadata:** by admin — last modified Feb 17, 2010 01:17 AM
 - Table:**

Name
<input type="checkbox"/> Sustainable farming practices (Sustainable farming practices)
<input type="checkbox"/> A combination of solid and semi-solid slurry for fertilizer (A combination of solid and semi-solid slurry for fertilizer)
<input type="checkbox"/> Innovative financing mechanisms (Innovative financing mechanisms)
<input type="checkbox"/> The establishment of a network for project sustainability (The establishment of a network for project sustainability)
<input type="checkbox"/> A dedicated team for outreach to farmers (A dedicated team for outreach to farmers)
<input type="checkbox"/> Urine diverting, low flush toilets (Urine diverting, low flush toilets)
<input type="checkbox"/> Household-based planted soil filters and/or constructed wetlands (Household-based planted soil filters and/or constructed wetlands)
<input type="checkbox"/> The use of safe, natural fertilisers (including phosphorous) and soil conditioners. (The use of safe, natural fertilisers (including phosphorous) and soil conditioners.)
<input type="checkbox"/> The safe re-use of resources (nutrients and water) for agriculture (The safe re-use of resources (nutrients and water) for agriculture)
<input type="checkbox"/> Municipal wastewater treatment and aeration (Municipal wastewater treatment and aeration)
<input type="checkbox"/> Wetlands restoration (Wetlands restoration)
<input type="checkbox"/> Training on and implementation of organic agriculture (Training on and implementation of organic agriculture)
<input type="checkbox"/> Effective use of manure as fertilizer (Effective use of manure as fertilizer)
<input type="checkbox"/> Improved crop production (Improved crop production)
<input type="checkbox"/> improved water quality (improved water quality)
<input type="checkbox"/> nonpolluting agricultural practices (nonpolluting agricultural practices)
<input type="checkbox"/> Effective use of manure as fertilizer (Effective use of manure as fertilizer)
<input type="checkbox"/> Improved crop production (Improved crop production)
<input type="checkbox"/> improved water quality (improved water quality)
<input type="checkbox"/> Controlled use of fertilisers (Controlled use of fertilisers)
- Left Sidebar:** Navigation, Design, Database, Add new..., Status
- Right Sidebar:** Add new entry (Best Practice, Best practice: implementation, Project, Project manager, Project report), Manage portlets

- Database:
 - 280 practices
 - 50 countries
 - 55 organizations
- Case Studies
- Pilots
- Training
 - eXtension



Other Tools

- Nitrogen foot printing and others - Dr. Jan Willem Erisman, Energy Research Centre of the Netherlands
- Ecosystem report card - Dr. Ramesh Ramachandran, Institute for Ocean Management, Anna University
- WRI interactive map - Dr. Robert Diaz, Virginia Marine Institute



“Test Ready ”Policy Tool Box Review

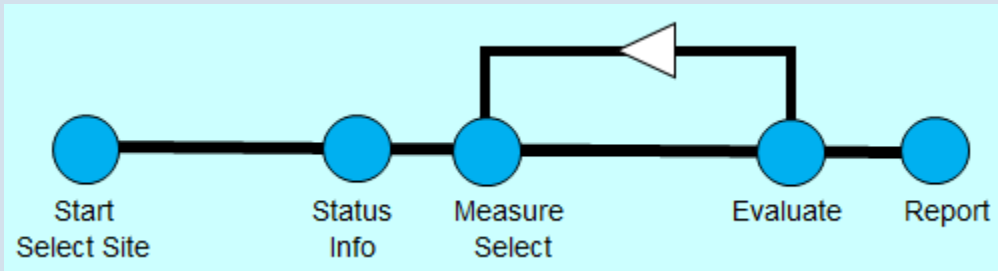
- The development includes:
 - Leveraging current data and database models
 - Serving as a “decision support” tool and bring together various policy options from key source sectors
 - Providing an initial approach to integrate the policy tool box/inventory of best practices with the scientific models developed under Component B of the GEF project
- Presented structure is not final; comments are welcome
- Received feedback at the GEF IWC
 - Search by geography & watershed
 - Select systems of measures to get reductions
 - Include references/promote transparency
 - Do not duplicate but leverage current databases and models



- In general, the Policy Toolbox should contain:
 - User interface and calculator for:
 1. Selecting sites and giving information
 2. Selecting policy measures
 3. Performing calculations
 4. Reporting results
 - A database with:
 1. Management options (i.e., agriculture, wastewater, etc) including their effects and side effects costs/benefits
 2. Information about major sources
 3. Post-source options to reduce nutrients
- Example policies and plans of action including their effects, costs, etc.



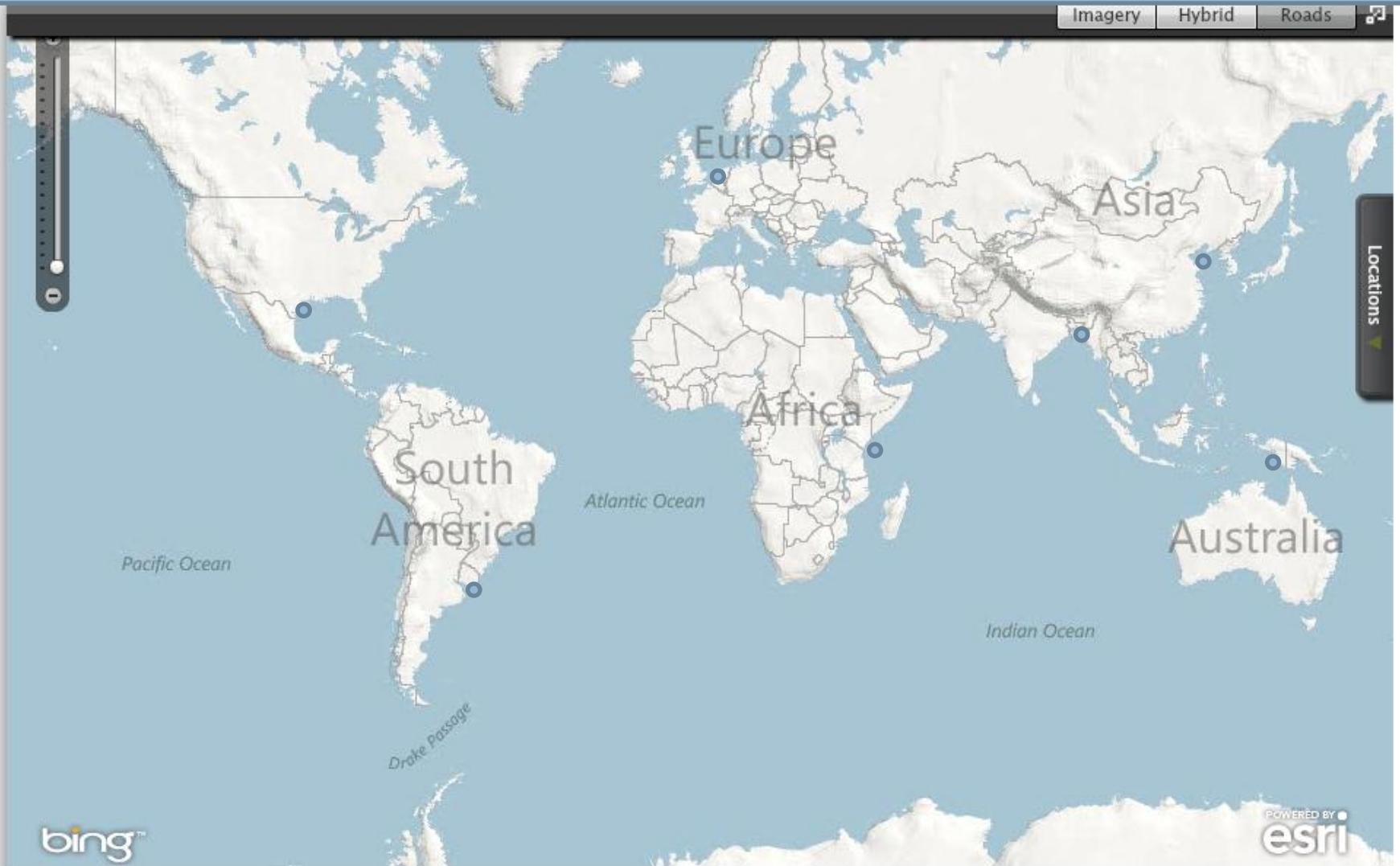
General Structure



1. Select an area/ region/country/etc
2. Provide current loads status
3. Select options/measures (or let the 'system' do that, based on efficiency')
4. Provide their effect in terms of reducing the load, but also side effects (crop production, water requirements)
5. Evaluate costs (for implementing measures) & benefits (in terms of reduced load / side effects)
6. Report effects/costs



Selecting a Site



Full screen version of this map



Selecting a Site

Imagery Hybrid Roads

Europe Asia

Pacific Ocean Indian Ocean

Drake Passage Australia

Locations

Site Name Region

Country

Some Statistics

Population	<input type="text" value="1356750"/>	Present load (N)	<input type="text" value="25000"/>
Water area (km2)	<input type="text" value="3575"/>	Present load (P)	<input type="text" value="3500"/>

POWERED BY esri

bing

Full screen version of this map



Selecting a Region or Site

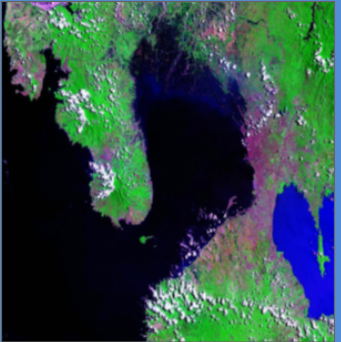
Select Region	Select Country	Select Site
East Asia Europe North America South America	Phillipines China Japan	Manila Bay

Next

Site Name	Manila Bay	Region	East Asia
Country	Phillipines		

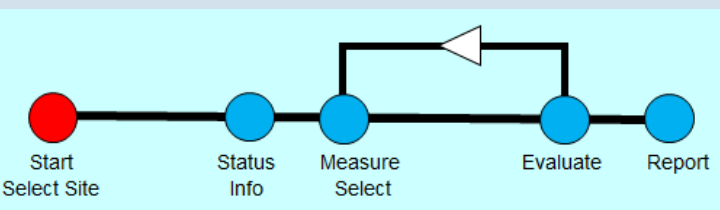
Some Statistics

Population	1356750	Present load (N)	25000
Water area (km2)	3575	Present load (P)	3500



- **Remarks**

- Only shows available sites with general information
- After selection, analyses continues using that site
- Search' option can be included, searching for 'sites' based on different variables (e.g. emissions, watersheds, etc.)
- More examples needed
- More information required (see also 'measures')





Current Load

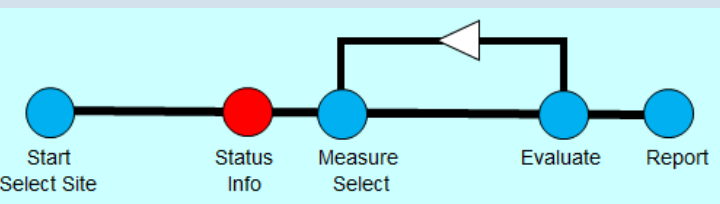
- **Remarks**

- Shows current situation with respect to the emissions to air/water and food production capacity + water requirements for the different functions

- What we need are clear definitions of what to include (e.g. extent of region influencing the area under consideration)

Site	Manila Bay	
	Emissions	
	(tonN/y)	
NH3	427	
NOx	248	
N2O	95	
NO3	1200	
PO4	25	
	Food prod	
	ton/y	
Rize	100	
Wheat	80	
Maize	25	
Meat	30	
Fish	45	
	Water req	
	m3/y	
Agri	60	
Ind	35	
Dom	25	

Previous Next





Select Measures

Agricultural Measures

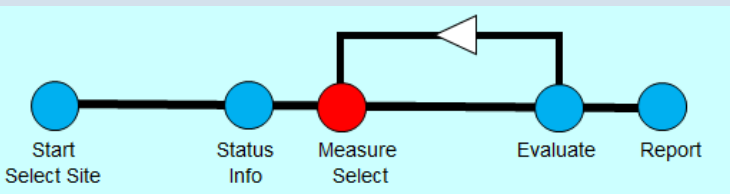
<input type="checkbox"/> A1.1 Dairy reduction artificial fertiliser/use	Crop Type	<input type="text" value="MAIZE"/>
<input type="checkbox"/> A1.2 Reduced feed use	Meas. Type	<input type="text" value="Reduce N-input"/>
<input type="checkbox"/> A2.1 Less manure application	Implementation (%)	<input type="text" value="0"/>
<input type="checkbox"/> A2.2 low emission application		
<input type="checkbox"/> A2.3 use diferent type artificial fertiliser		
<input type="checkbox"/> A2.4 trailing hose		
<input type="checkbox"/> A2.5 use injector on arable land		

Changes Emission (in %)		Changes Food (in %)		Changes Water (in %)	
NH3	<input type="text" value="-0.9"/>	NO3	<input type="text" value="-37.53"/>	Rice	<input type="text"/>
NOx	<input type="text"/>	PO4	<input type="text"/>	Meat	<input type="text"/>
N2O	<input type="text" value="-2.8"/>	Maize	<input type="text"/>	Fish	<input type="text"/>
				Agri	<input type="text"/>
				Ind	<input type="text"/>
				Dom	<input type="text"/>

Click on overview to go to Excel

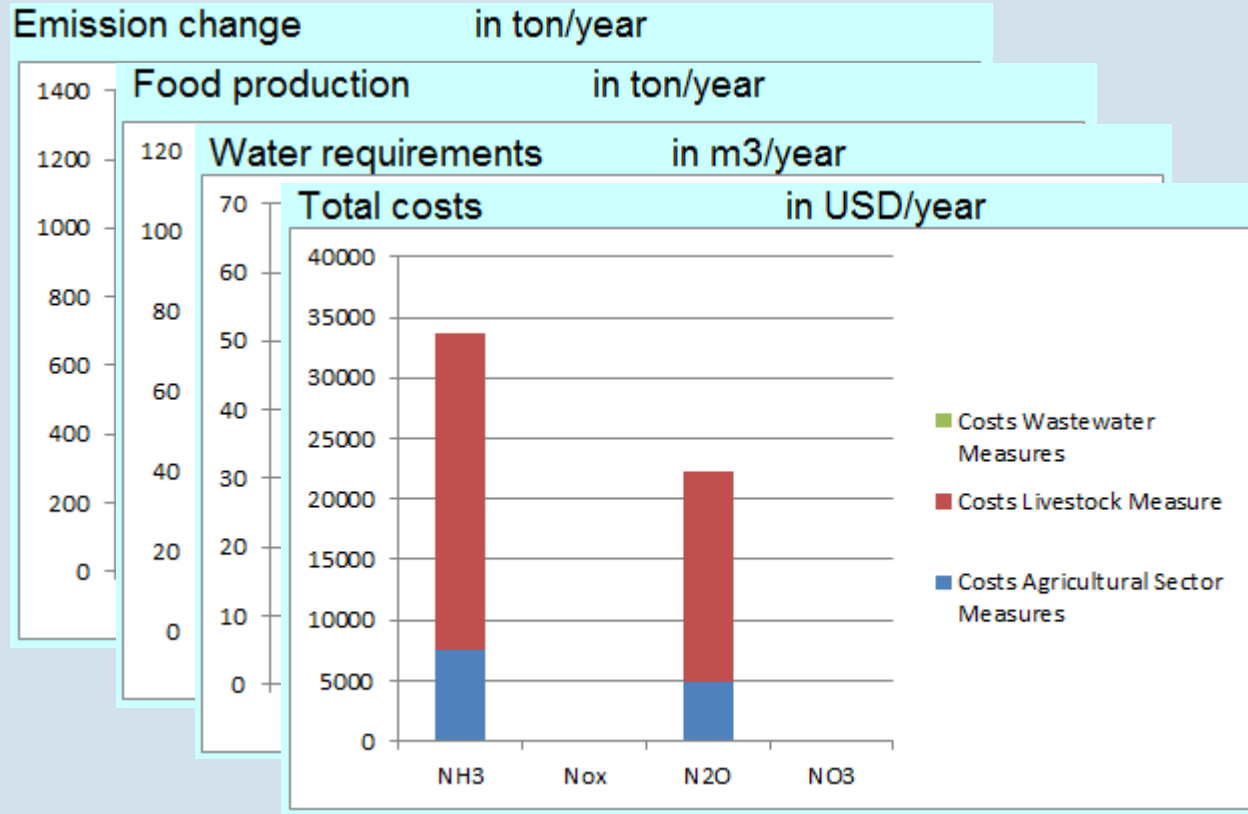
Remarks

- Shows available measures for reducing the environmental load.
- Also shows changes in food production and water requirements
- Including measures by changing % Implementation (0-100%)
- Measures need to be defined that are specific for the sites (e.g. aquaculture)
- Implementing multiple measures possible



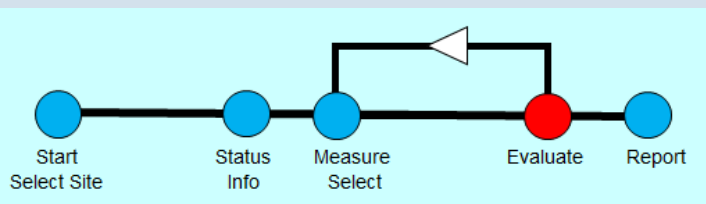


Show Costs/Effects



• Remarks

- Changes in Emission, Food Production, Water Requirements and Total Costs can be evaluated here
- Via iterative process adjustments to measures can be made
- In later stadium, selection of measures (and level of implementation) through optimization routine





Site Data Needs

- Information on:
 - Boundaries of the site
 - Land use around the site
 - Current activities (industry, population, traffic) around the site
 - Current emission levels of the activities (e.g. N/P to water, NH₃/NO_x to air)
 - Current concentration of N/P in water
 - Current food production and water need numbers for the area
 - Targets set for N/P concentration/loads



Conclusions/Initial Next Steps

- General concept is ready
 - Questions: Is this concept clear? Are there suggestions for change?
- First version of user interface available as Excel Spreadsheet (further work still needed)
 - Questions: Did you get a good impression of the general set-up? What issues did you miss? Are there suggestions for change?
- Database structure is developing
 - Questions: What data/information would you like to have included in the database? Can you assist in populating the database with measures/sites?



Commitments/Recommendations

- Develop and design training for farmers, extension agents and policymakers
- Build regional-level pilot initiatives and exchanges to promote of best practices and exchange of lessons learned in LME/coastal environments
- Develop institutional strengthening and use of participatory approaches in empowering governments/communities with foundational skills and knowledge to implement practices and reduce stress
- Undertake local, regional, national and transboundary policy research and innovation to develop cost-effective market, and institutional interventions to promote BEP agriculture on a large scale

We need your help & feedback.



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