

Screening Development Projects for Risks from Climate Change



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The World Bank

The “conventional” view of adaptation



- Adaptation to CC is an additional cost to developing countries and thus should be **funded** by those responsible
- There is a high degree of **uncertainty** in climate projections
- Form collaborative links with **international** organisations
- Improve our **projections** of climate change
- Identify **hot spots**
- Understand traditional **coping strategies**
- **Build capacity** in all sectors
- **Mainstream** adaptation into the development process



Current Adaptation Projects

Usual Outcome

- Assess literature
- Assess current and future vulnerability
- Increase local forecasting capacity (downscaling)
- Assess institutional structures
- Develop adaptation options
- Costing and prioritizing
- Implement priorities
- Monitor and assess outcomes
- Compare lessons learnt



A restated message

Based on these major points

- **Urgency** - climate change is occurring now
- Climate **variability and change** is currently a threat to development.
- Start by dealing with capacity to cope with **current** climate variability
- We **know enough** about the nature of climate change to take **sensible decisions** about adaptation now
- Can we assess (do we need to) the **costs** of adaptation?



We can act now

- o We will never be able to predict climate with the precision that we would like
- o But, we already know enough about the core climate trends to make sensible decisions about adaptive measures
- o Most actions have to start with current coping (in)capacities with current climate variability





ADAPT

A Screening & Design Tool

for adapting projects to climate
change



Goals



- **Raise profile** of adaptation to climate change in project planning
- **Screening** - Identify the level of risk in a project
 - Simple five level classification
- **Design** - Guide to options to minimise risk where necessary, based on ...
 - Past experience within World Bank and other relevant agencies: national and multinational
 - Recent research results



Screening & design tool



- **Target:** Project developers (national, bilateral and multilateral) and assessors; NGOs
- Increase awareness of the issue
- Provide a first (quick) check of potential issues (by region & sector)

- Levels of advice provided
 - **Red flag** – adaptation issues are important and must be taken into account
 - **Yellow flag** – some concerns, that should be checked
 - **Orange** – Not enough known to assess
 - **Green flag** – No adaptation issues foreseen
 - **Blue flag** – Positive action for adaptation



A framework for a screening & design tool

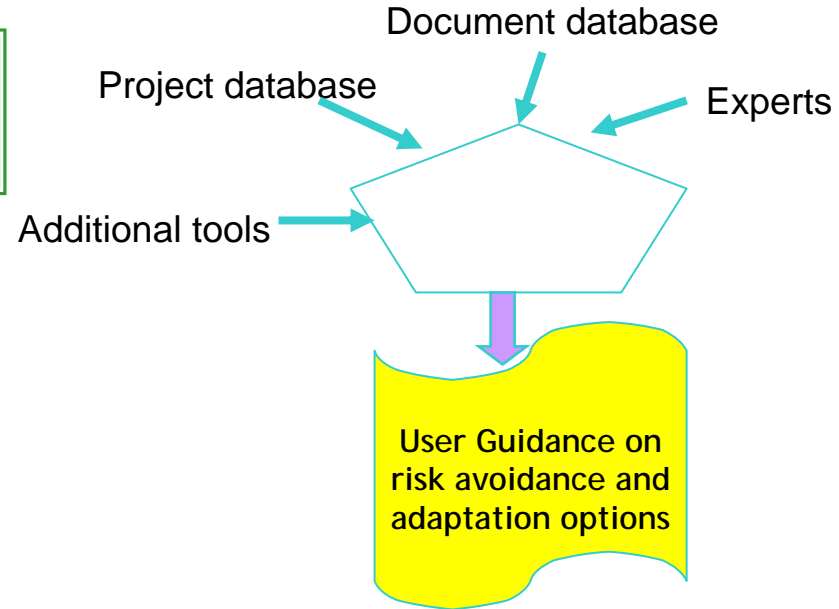
What do project managers need?

User Guidance on
risk avoidance and
adaptation options



A framework for a screening & design tool

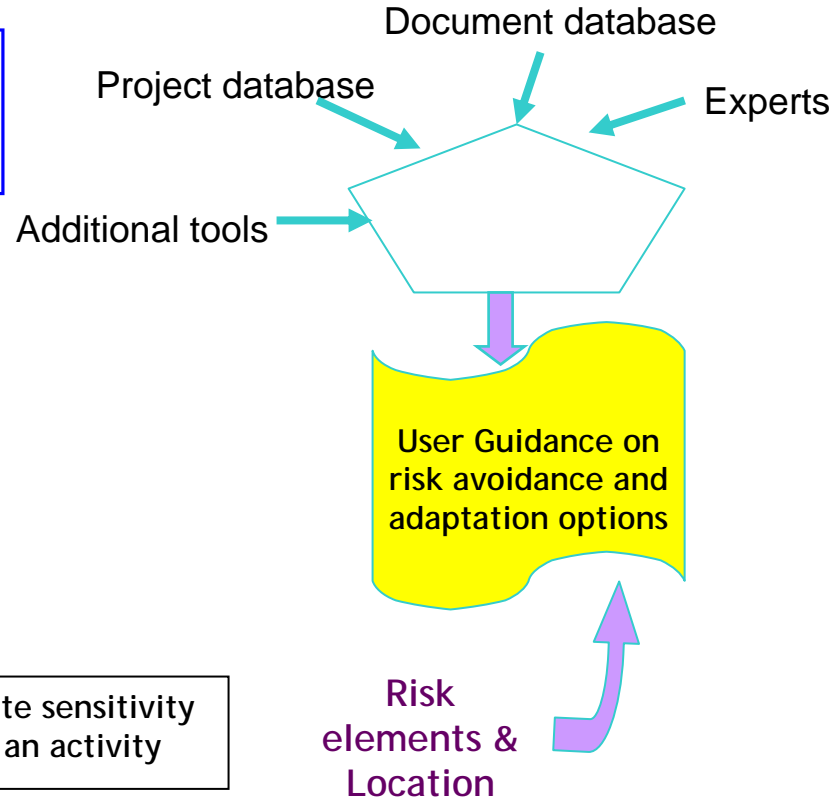
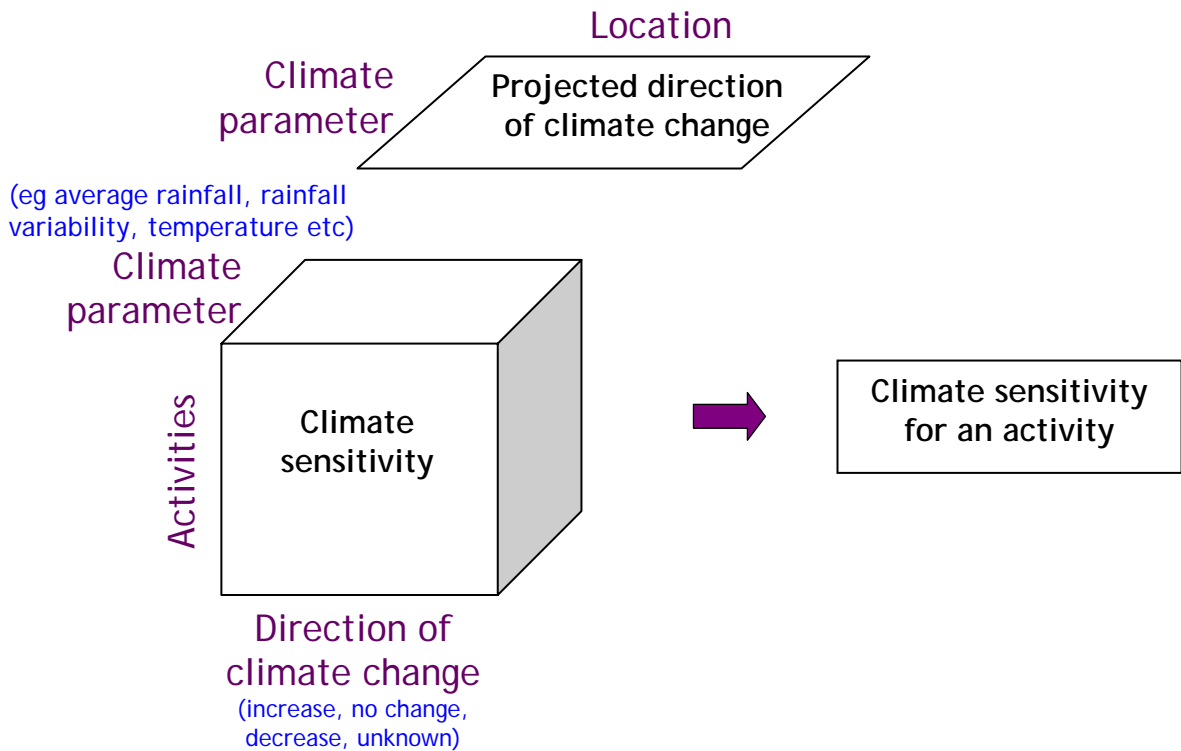
Bring together the expanding database of information





A framework for a screening & design tool

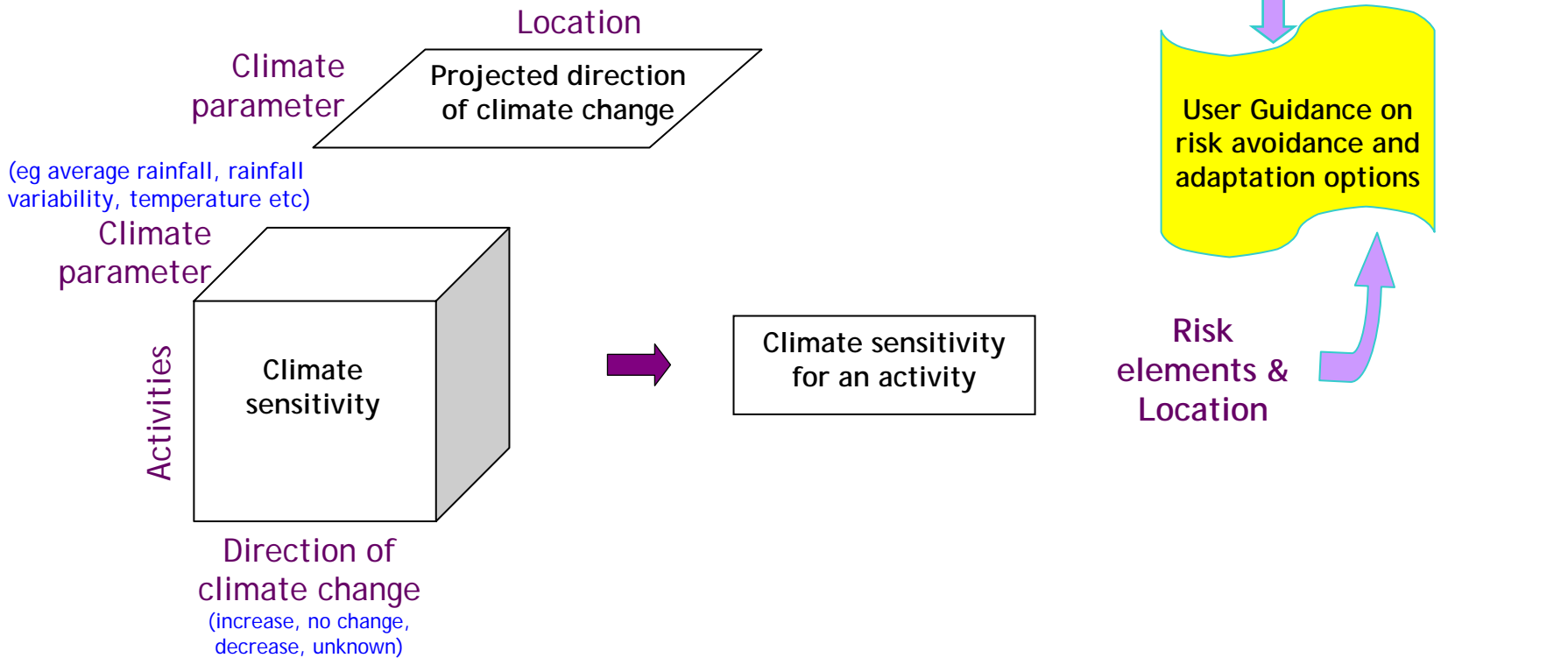
Provide a screening tool to guide user to appropriate material





A framework for a screening & design tool

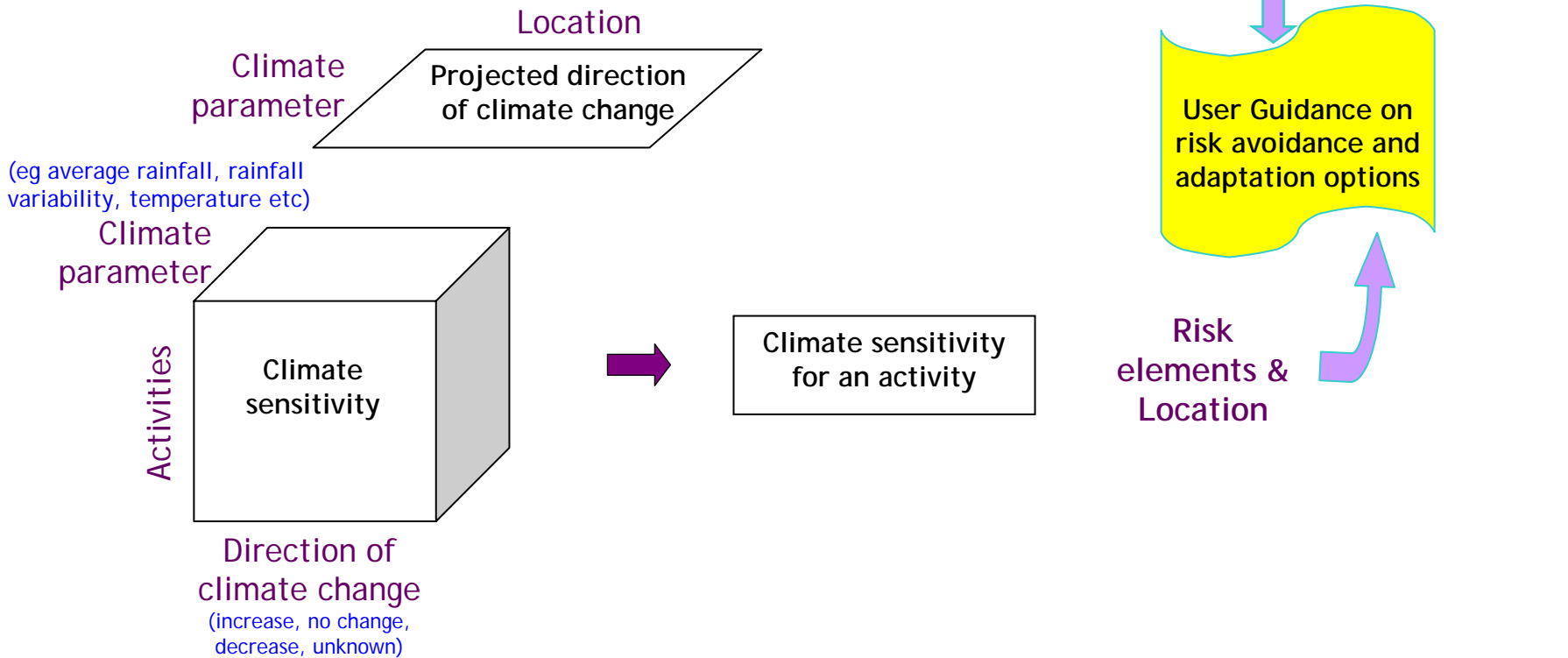
Based on best expert advice?





A framework for a screening & design tool

What does the user see?





Assessment & Design for Adaptation to Climate Change

A Prototype Tool

Welcome to the prototype screening and design tool.

This tool is designed to assist you in assessing whether a project might be sensitive to the effects of climate change.

It then provides guidance to the best sources of information to help take these potential effects into account in the project design.

The tool provides a first level of assessment based on a simple description of the project and its location.

The guidance is based largely on expert assessment of the risks and opportunities that arise from climate change.

[How to use](#)

[Analyse Project](#)

[Show Existing Results](#)

[Save or Fetch a Project](#)

[More information on climate change](#)

[About this version](#)

[Contact the developers](#)



UserForm1

Mock up Interface - Ian Noble inoble@worldbank.org - Dec 2004

Question 221

What kind of farm-level irrigation project is this?

Water delivery to farm
Improve water availability on farm
Water distribution within farm
Water delivery to plants etc
Drainage
Water conservation

Explanation

HELP --- This question helps to establish just which type of irrigation activity will be used or changed. You can select multiple options. If you are uncertain whether an option will be used, it is best to include it in your selection.

Help about the question and about each option

UserForm1

Mock up Interface - Ian Noble inoble@worldbank.org - Dec 2004

Question 262

How will on-farm water be delivered to crops?

Flood irrigation (furrow and surface)
Drip irrigation
Sprinkler irrigation
Uncertain

Multiple options

Go Back Quit

Explanation

HELP ---

Multiple options

Go Back Quit

Select

Restore

Save

More Explanation

Ability to change ones mind



Users are asked to identify the location of their project.

This can either be via lat-long coordinates or pointing to a map

The underlying climate change data base will be based on expert assessment of the various models and of recent trends.

A composite map representing climate change for each variable over the next 20 to 30 years will be prepared.

The image shows a software window titled "Location" with a close button (X) in the top right corner. The window contains a world map in the background. Overlaid on the map is a text box with the following content:

We now need to identify the location of the project

NOT YET IMPLEMENTED

Please enter the latitude & longitude of the project site or of the boundaries of the site

	Lat	Long
Point locn	25.5	123.56
	0	0
	0	0
	0	0

Below the table are two buttons: "Clear" and "CONTINUE". In the top right corner of the window, there is a "Direct Entry" button.

**Relevant Document**

33

Bridging the Rice Yield Gap in India

Author(s)

Siddiq, E.A.

2000

Bridging the Rice Yield Gap in the Asia Pacific Region

FAO

RAP Publication

Source

Summary

This paper examines the status of rice production in several Indian states, yield gaps, and the potential for expansion. The author suggests ways of bridging the yield gap and be expanded to eastern rainfed areas.

Link

..\\KB - General\\Rice_Yield_Gap_I
_2000.mht

ed
ect.

Debugging Information

A_AS_Rice



FAO CORPORATE DOCUMENT REPOSITORY

Originated by:

Title: Bridging the rice yield gap in the Asia-Pacific region...

**BRIDGING THE RICE YIELD GAP IN INDIA - E.A. Siddiq**

** National Professor, Directorate of Rice Research (ICAR), Hyderabad-500030 (AP), India.*

1. INTRODUCTION

India is one of the countries that took full advantage of the plant type based high yielding varieties of rice since the mid-sixties. Spectacular production growth initially through combined growth of productivity and area and later through productivity enabled the country to attain self-sufficiency by the early eighties and sustain the same since then. From 12-15 million tonnes of milled rice in buffer stocks and an exportable surplus of 2-5 million tonnes. Now the country will be able to sustain this status in the absence of some and shrinking of many of the favourable growth opportunities. The 80's, is an issue of concern. Assuming the population to grow annually at around 1.9 percent and income at 3.5 percent, a projection for sustaining the present level of calorie supply has been estimated to exceed 158 million tonnes. This requires an annual productivity growth of 2.4 percent. The target is no doubt a challenging task, but it is not unachievable. There are many opportunities and avenues yet to be exploited and rapid advances being made in crop improvement research.

RptClim

Climate Summary

NOTE: The coding to identify the location and best climate projections has NOT yet been implemented in this prototype. Summary of climate projections for your site ...

Annual rainfall	No significant change in annual rainfall is expected
Rainfall variability	Rainfall variability is expected to increase moderately This will result in more frequent periods of unusually wet or dry conditions.
Annual temperature	Annual mean temperatures are expected to increase moderately (e.g. by 0.5 to 1 °C by 2050).
To be added	
To be added	

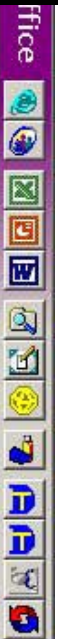
Printed summary

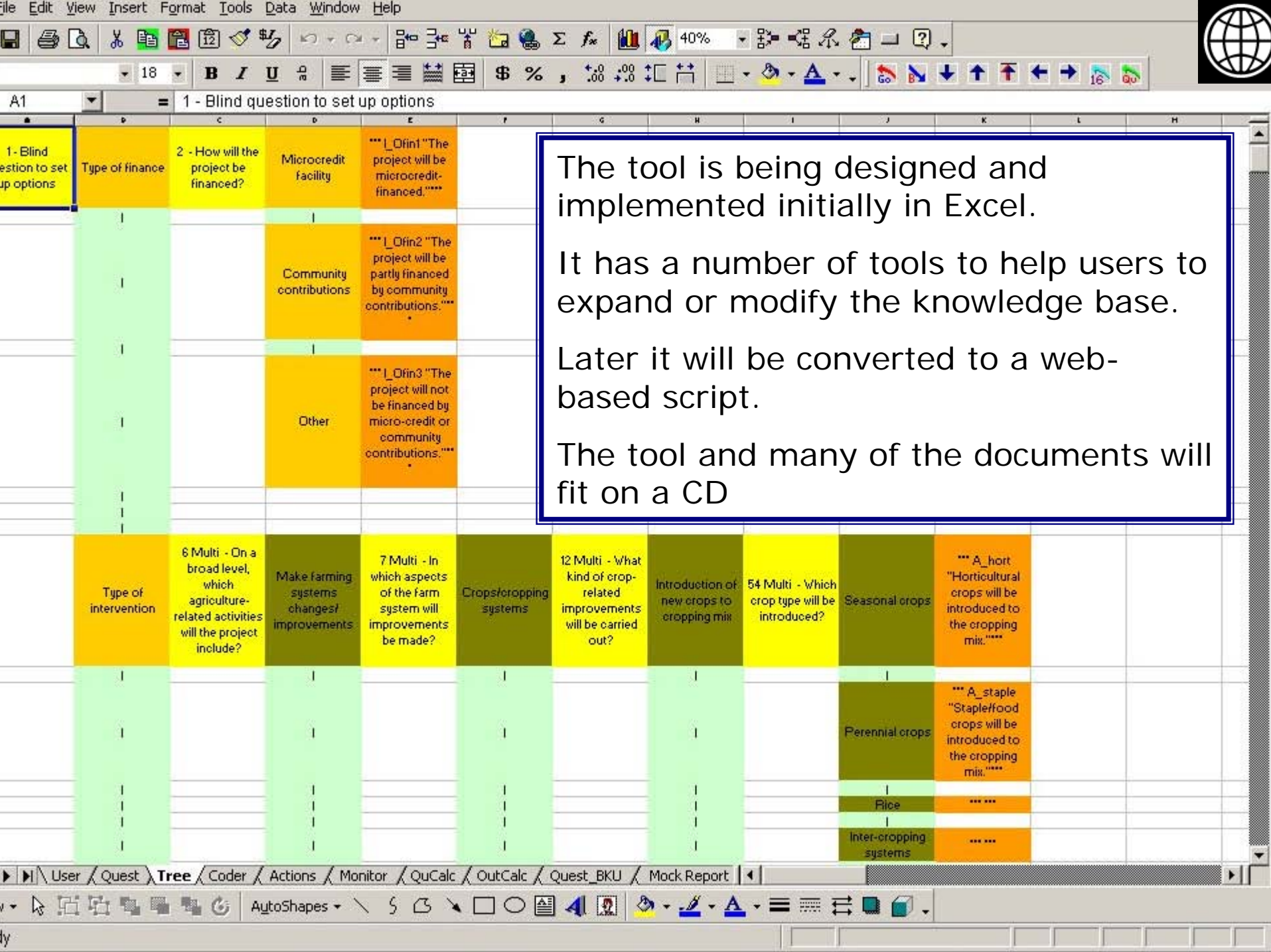
RptOutC

Flag	Activity Code	We have identified the following activities in your project that may be sensitive to climate change:	Explanation	Flag if climate change greater than currently	Best Projection	Flag if climate change less than currently projected
R	A_AS_Seas	planting seasonal crops, fruit, vegetables or herbs.	The rainfall is expected to change in either amount or variability at the site of your project. You should check whether current crops and any planned introductions will remain suitable in the changed climate. Higher temperatures are expected at the site of your project. You should check whether current crops and any planned introductions will remain suitable in the changed climate.	R	R	Y
R	A_ir_Tank	construction of earthen dams or tanks.	Your project site is projected to have increased rainfall and/or increased rainfall variability. Ensure that the design of the check dams and or eathern dams (tanks) will cope with heavier flows of water.	R	R	Y
Y	A_ir_drip	drip irrigation.	Your project site is projected to have significantly increased rainfall variability. This could lead to extended dry spells. Drip irrigation is a very valuable coping mechanism, but note that if water supplies fail, then extended periods without use can lead to deterioration and blockage of the drip system. Discuss appropriate designs with irrigation engineers.	Y	Y	G
Y	A_ir_flood	flood irrigation.	You are planning flood irrigation, but temperatures are projected to increase significantly at your project site. The higher temperatures will increase evaporative losses and probably demand for water by the crops. Reconsider more efficient irrigation systems such as drip or sprinkler.	Y	Y	Y
Y	A_ir_ShallowWell	construction of shallow ground wells.	Your project site is projected to have decreased rainfall and/or increased rainfall variability. This may reduce recharge rates to shallow wells. You should take this into account in considering whether more shallow wells are justified within the region.	Y	Y	G



	A	B	C	D	E	F	G
1	1	Quest Text	High-lighted	Option Text	Next Question	Action	Outcome
40							
41							
42	9	What level is the irrigation project on?					
43			*	Farm level	10		
44				River basin level	18		
45				This is an irrigation water quality project	30		
46							
47	10	What kind of farm-level irrigation project is this?					This q irrigati multip will be
48		Multi	*	Water delivery to farm	0		
49				Improve water availability on farm	14		
50				Water distribution within farm	16		
51				Water delivery to plants etc	17		
52				Drainage	19		
53				Water metering	0	A_meter "This project involves metering farmers' water consumption."	
54				Water conservation	41		
55							
56							
57	11	How will non-arable land be reclaimed?					
58		Multi	*	Reclaim waterlogged land	21		
59				Improve soil chemistry	22		
60				Improve soil moisture profile and reduce erosion	23		





The tool is being designed and implemented initially in Excel.

It has a number of tools to help users to expand or modify the knowledge base.

Later it will be converted to a web-based script.

The tool and many of the documents will fit on a CD

1 - Blind question to set up options	Type of finance	2 - How will the project be financed?	Microcredit facility	***_L_Ofin1 "The project will be microcredit-financed."***						
			Community contributions	***_L_Ofin2 "The project will be partly financed by community contributions."***						
			Other	***_L_Ofin3 "The project will not be financed by micro-credit or community contributions."***						
Type of intervention	6 Multi - On a broad level, which agriculture-related activities will the project include?	Make farming systems changes/ improvements	7 Multi - In which aspects of the farm system will improvements be made?	Crops/cropping systems	12 Multi - What kind of crop-related improvements will be carried out?	Introduction of new crops to cropping mix	54 Multi - Which crop type will be introduced?	Seasonal crops	***_A_hort "Horticultural crops will be introduced to the cropping mix."***	
								Perennial crops	***_A_staple "Staple/food crops will be introduced to the cropping mix."***	
								Rice	*** **	
								Inter-cropping systems	*** **	



No.

2

**Project
outcomes**INF_CommMethods, INF_DryFarm, INF_India/AP,
INF_CommInterview**Article title**Community driven development in the dryland farming areas of
Andrah Pradesh**Authors**

Anon

**Publication/Vol/Issue/
Report No.**

WB Community Notes

Year

2001

Pgs.

105

Summary

Describes the development of a methodology for community consultations in AP. Three different methods investigated, only one recommended. Based on formally constructed "contact groups" set up and interviewed over three visits.

Other info:

Applied to water management, but little relevant material on water issues in this document. See Article 234 for more water detail

Article Link

/water/SA/Community Driven 356.doc

ADD

BACK

CLEAR

EDIT

GET QUESTION

SAVE

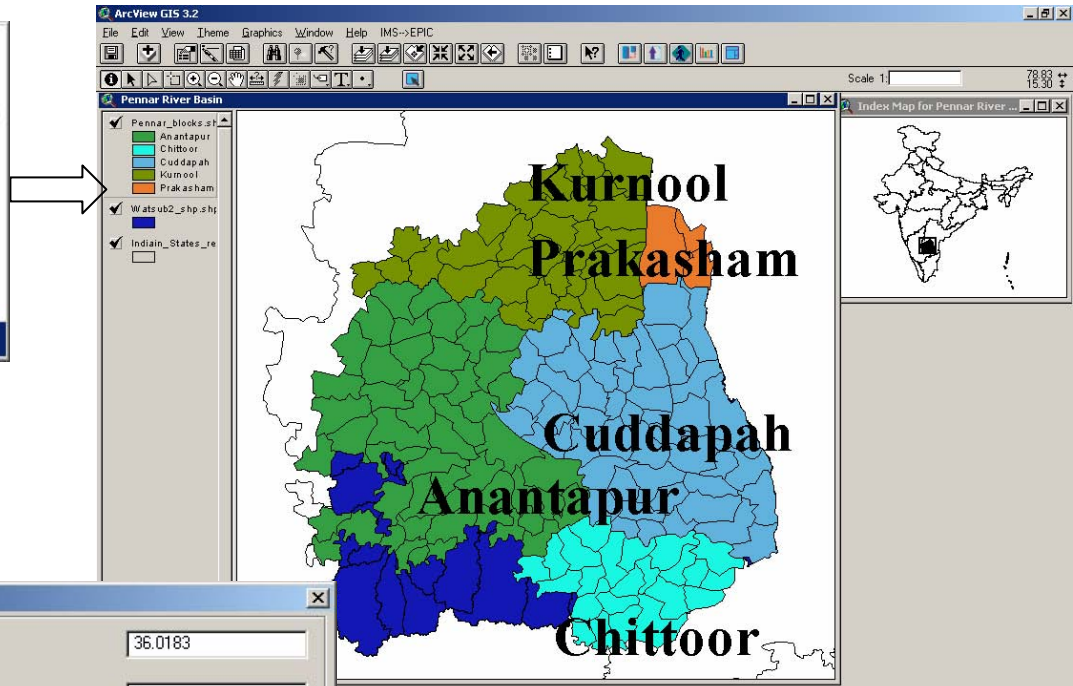
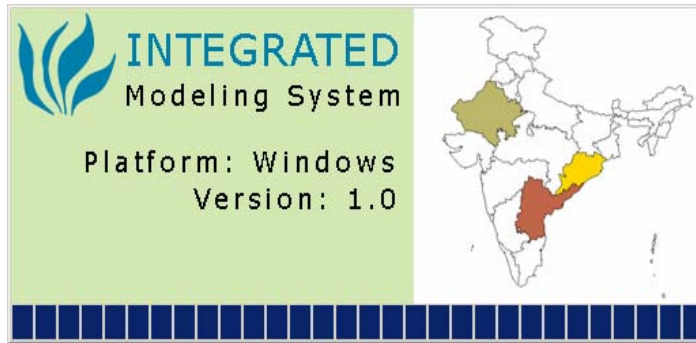
NEXT

CLOSE

Each document has a brief summary describing its relevance

Users can add to the document data base if they wish

Integrated Modeling System – GUI



Integrated Modelling System

Select State:

Select District:

Select Block:

Select Season:

Select Crop:

Integrated Modelling System

Area Under Cultivation (In Hec):

Irrigated Area (In Hec):

Unirrigated Area (In Hec):

Crop Type:

Average Precipitation:

Crop Available Water:

Irrigation Water Needed:

Surface Available Water:

IMS-->EPIC

ID	Description
58	001.dat
59	002.dat
60	003.dat
61	004.dat
62	005.dat
63	006.dat
64	007.dat
65	008.dat
66	009.dat
67	010.dat
68	029.dat
69	030.dat
70	031.dat
71	032.dat
72	033.dat
73	034.dat
74	035.dat
75	039.dat
76	040.dat

Program Controls
Showing Modified Data:

Weather Station

Soils

Crop Management

Parameters



Contact :

inoble@worldbank.org
fiqbal1@worldbank.org

- Working in cooperation with several other agencies and NGOs.
- The tool and data-base will be available for unrestricted distribution
- Nine other agencies have expressed interest in using or cooperating in designing the tool



This is a summary report based on your description of the project.

Debugging Information

A_AS_Rice

Sensitive Activities | Briefing | Experts | 7 Documents | Climate

Sensitive Activity

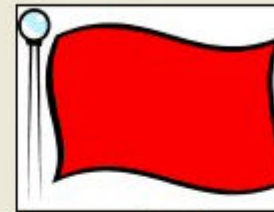
This project involves rice cropping.

Why this Activity is Sensitive

Rainfall variability as Red ...
Rainfall variability is projected to increase at the site of your projects.

What can be done?

Rainfall variability as Red ...
If the rice cropping is significantly dependent on rain fall or if there may be competition for irrigation water you should check whether this may threaten its viability.



Climate projection



NEXT Flag Colour

PREVIOUS Activity

NEXT Activity

To Home (i.e. Quit)



This is a summary report based on your description of the project.

Debugging Information

A_A5_Rice

Sensitive Activities | Briefing | Experts | 7 Documents | Climate |

Sensitive Activity

This project involves rice cropping.

Relevant Documents

Click on document to view a summary

- 11 Schultz, B. / Irrigation, Drainage and Flood Protectio
- 20 Upadhyaya, A. and Singh, S.R. / A Scientific Approach For Water Managem
- 21 Bourai, V.A., Choudhary, A. an / Participatory Crop Improvement in Easter
- 33 Siddiq, E.A. / Bridging the Rice Yield Gap in India
- 39 Mishra, A., Ghorai, A.K. and S / Rainwater, Soil and Nutrient Conservatio
- 54 Anon. / Asian Farmers Turn to Low Till farming
- 59 Fred Bloggs / All about rice

View Printable Output

Print the Results

To Home (i.e. Quit)

***Relevant Document***

33

Bridging the Rice Yield Gap in India

Author(s)

Siddiq, E.A.

2000

Source

Bridging the Rice Yield Gap in the Asia Pacific Region
FAO
RAP Publication 2000/16

Summary

This paper examines the status of rice cultivation in India, declining productivity growth in rice in several Indian states, yield gaps, and various national programs aimed at increasing rice production. The author suggests ways of bridging these yield gaps, and concludes that rice cultivation needs to be expanded to eastern rainfed areas of India, and technological innovations need to be pursued.

Link

.\\KB - General\Rice_Yield_Gap_India_Siddiq_FAO_RAP_16
_2000.mht

Fetch It

Hide



BRIDGING THE RICE YIELD GAP IN INDIA - E.A. Siddiq*

* *National Professor, Directorate of Rice Research (ICAR), Hyderabad-500030 (AP), India.*

1. INTRODUCTION

India is one of the countries that took full advantage of the plant type based high yielding varieties of rice since their introduction in the mid-sixties. Spectacular production growth initially through combined growth of productivity and area and later largely through productivity enabled the country to attain self-sufficiency by the early eighties and sustain the same since then. Also, its impact is seen from 12-15 million tonnes of milled rice in buffer stocks and an exportable surplus of 2-5 million tonnes. Nevertheless, whether the country will be able to sustain this status in the absence of some and shrinking of many of the favourable growth factors of the 70's and 80's, is an issue of concern. Assuming the population to grow annually at around 1.9 percent and income around 5 percent the demand projection for sustaining the present level of calorie supply has been estimated to exceed 158 million tonnes by 2010, which amounts to an annual productivity growth of 2.4 percent. The target is no doubt a challenging task, but it is not unachievable given the potential opportunities and avenues yet to be exploited and rapid advances being made in crop improvement research. Of various strategies being contemplated, consolidation of the genetic yield potential of the currently available high yielding varieties in irrigated and semi-irrigated ecologies, raising the ceiling of yield through hybrid technology and New Plant Type varieties and maximization of yield level in relatively favourable rainfed lowland ecologies in eastern India are the predominant thrusts. Consolidation of yield by correction of yield destabilizing factors is, however, considered as the more promising short-term strategy.