



European  
Commission

EuropeAid

*Introduction to methods & tools  
to screen climate issues  
Session D1*



Environmental Integration for EC Development Co-operation



# **TOOLS - DATA - INFORMATION**

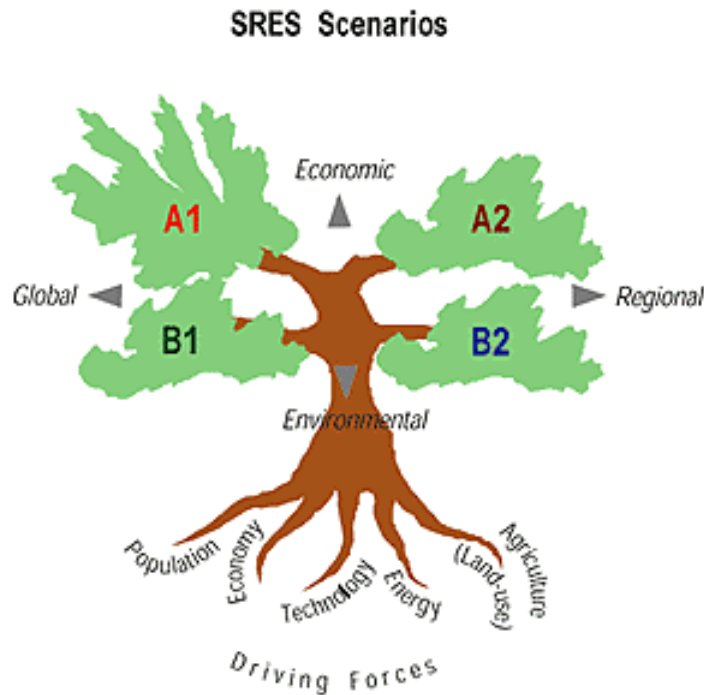
# ANALYTICAL TOOLS

- **Scenario driven impacts analysis**  
Provides broad overview
- **Vulnerability assessment**  
Broadened analysis to include social vulnerability
- **Adaptation based approach**  
Examine adaptive capacity and improve resilience

# SCENARIO IMPACT ANALYSIS

## 2000 Special Report on Emissions Scenarios (SRES)

40 scenarios by 6 modeling teams



□ A1 Scenario family : Development of Energy Technologies

□ A2 Scenario family: Heterogeneous world

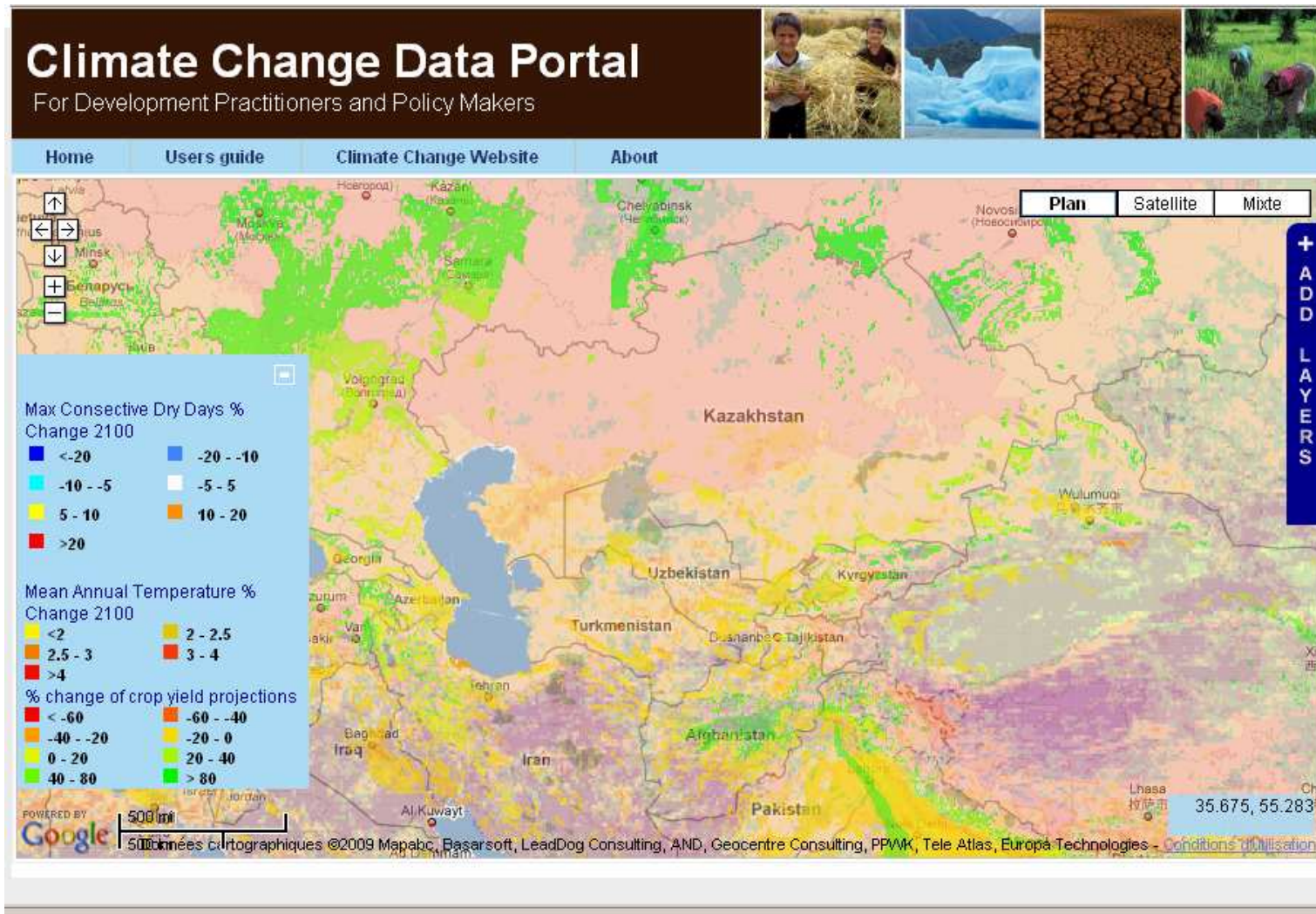
□ B1 Scenario family: Convergent world

□ B2 Scenario family: Local and regional

Neither predictions nor forecast: VISUALISATION

New IPCC scenarios are under development.

# Possible Source of Information



# Possible source of information

Country: Kazakhstan  
 Latitude / Longitude: 46.56/66.09  
 Holdridge Zone: Cool temperate desert scrub  
 Latitude -6.66 Longitude -123.05

## Climate Data

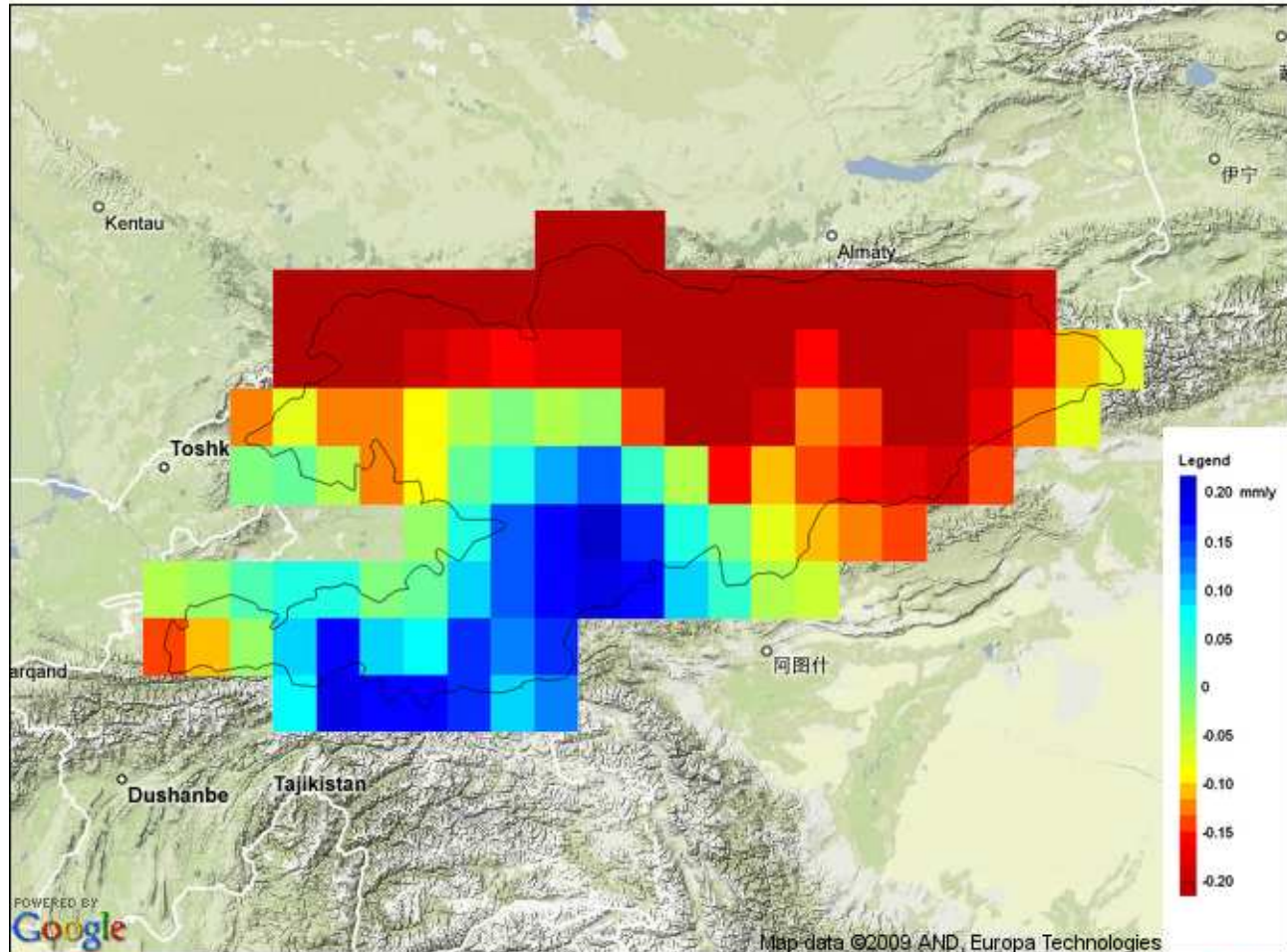
	Japanese High Resolution GCM (20 km.)	IPCC GCMs		Country Average Values
	Change (2091 - 2100 vs. 1981- 1990)	Change (2030 - 2049 vs. 1980-1999)	# Models Projecting Same Change	
Mean Annual Precipitation:	0%	3%	14 out of 20	4%
DJF Precipitation:	--	4%	11 out of 20	9%
MAM Precipitation:	--	-2%	11 out of 20	5%
JJA Precipitation:	--	6%	15 out of 20	6
SON Precipitation:	--	5%	12 out of 20	4%
Runoff:	--	1%	8 out of 12	3%
Mean Annual Temperature:	3 (°C)	2 (°C)	--	2 (°C)
DJF Temperature:	--	2 (°C)	--	2 (°C)
JJA Temperature:	--	2 (°C)	--	2 (°C)
Sea Surface Temperature:	--	--	--	--
Maximum 5-day Precipitation Total:	11%	6%	6 out of 8	7%
Daily Precipitation Intensity:	--	6%	8 out of 8	5%
Consecutive Dry Days:	6 day(s)	2 day(s)	4 out of 8	1 day(s)
Frost Days:	--	-23 day(s)	8 out of 8	-22 day(s)
Heatwave Duration Index:	--	27 day(s)	8 out of 8	29 day(s)
Wildfire Frequency:	NA			--
Biome Change:	NA			--

# Possible source of information

Change in Average June Precipitation 1951 - 2001

**HISTORICAL  
DATA  
JUNE  
PRECIPITATION**

**mm/year**



Data Source: Climatic Research Unit and the Tyndall Centre. Mitchell et. al.  
<http://cru.csi.cgiar.org/PDF/mitchelljones.pdf>

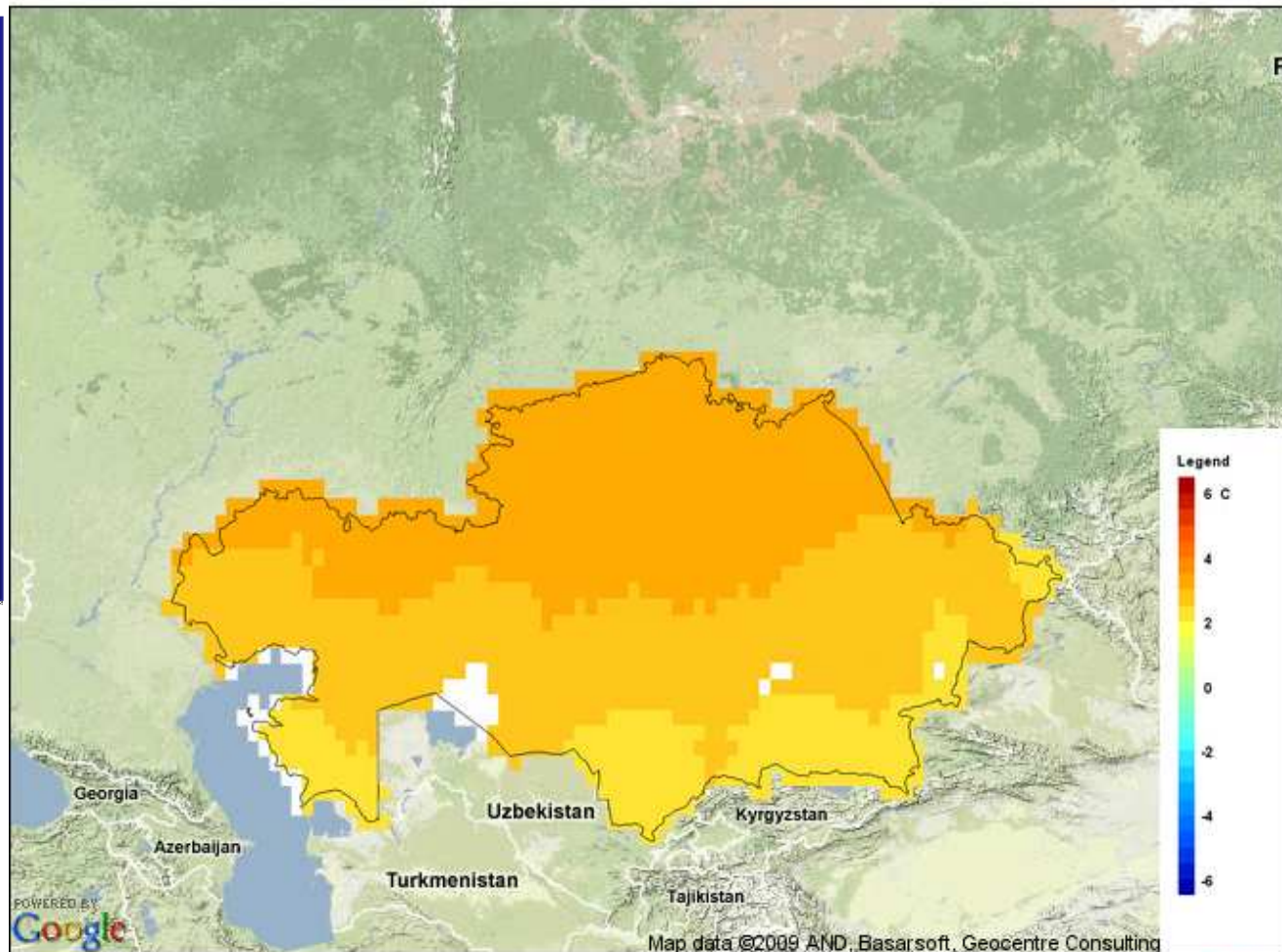
The Nature Conservancy  
Protecting nature. Preserving life.™

# Possible source of information

Change in Average Annual Temperature by 2100  
Model: Ensemble Average, SRES emission scenario: A2

**VISUALIZE  
GHG EMISSION  
SCENARIO :  
TEMPERATURE  
CHANGES  
by 2100**

**Legend: from  
- 4 to + 6 C**



Data Source: The World Climate Research Programme's Coupled Model Intercomparison Project phase 3 multi-model dataset. Anomalies calculated and interpolated by: US Forest Service - Mapped Atmosphere-Plant-Soil System Study, Neilson et.al.

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# Results for climate survey in Kazakhstan

- No significant change in mean annual rainfall (-15 to +15%) is projected.
- No significant change (-10 to + 10) in consecutive dry days is projected
- A moderate increase in temperature (1 - 2.5° C) is projected.
- **A significant increase in runoff (>35%) is estimated. A significant increase can lead to some shifts in biodiversity and ecosystems. Increase of agricultural land will intensify land use changes. However, lack of soil cover and water holding capacity can promote floods, excess runoff, and siltation in surrounding areas.**
- No significant change ( ± 25 mm) in the maximum 5-day precipitation (rainfall extreme events) is projected.

# Now broadening the sources of information!



## Natural Disaster Data

Climate Data	Adaptation Screening Tool	Historical Data	Natural Disaster Data	Socioeconomic Indicators	Agricultural Data	Download Data & Resources for selected country
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Natural Disaster - Relative Risk				
	Frequency	Mortality	Economic Loss	Economic Loss/ GDP
Flood:	1	1	4	9
Drought:	0	0	3	0
Landslide:	0	0	0	0
Cyclone:	0	0	0	0

The number refers to the decile of the global distribution for each variable. The higher the value, the higher the relative risk. The value is for this particular location, not the country as a whole.

**Source:**  
 Dilley, M., R.S. Chen, U. Deichmann, A.L. Lerner-Lam, M. Arnold, J. Agwe, P. Buys, O. Kjekstad, B. Lyon, and G. Yetman. 2005. Natural Disaster Hotspots: A Global Risk Analysis. Disaster Risk Management Series, Issue No. 5. The World Bank, Washington, D.C.

# Broadening the sources of information

Country: Kazakhstan  
 Latitude / Longitude: 47.93/75.85  
 Holdridge Zone: Cool temperate steppe

Latitude 43.71 Longitude 98.7

## Socio Economic Indicators

Climate Data	Adaptation Screening Tool	Historical Data	Natural Disaster Data	Socioeconomic Indicators	Agricultural Data	Download Data & Resources for selected country
<b>Socioeconomic Data</b>						
					<b>Value</b>	<b>Year</b>
				Population, total	15,308,084.00	2006
				GDP (current US\$)	81,003,249,664.00	2006
				Surface area (sq. km)	2,724,900.00	2006
<b>Economic</b>						
				GDP growth (annual %)	10.70	2006
				GNI per capita, Atlas method (current US\$)	3,870.00	2006
				GNI, PPP (current international \$)	133,199,225,003.00	2006
				Poverty headcount ratio at national poverty line (% of population)	15.40	2002
<b>Agricultural</b>						
				Agricultural land (% of land area)	76.90	2005
				Agriculture, value added (% of GDP)	5.88	2006
<b>Environment</b>						
				Annual freshwater withdrawals, total (% of internal resources)	46.42	2002
				Improved water source (% of population with access)	86.00	2004
				Improved sanitation facilities, urban (% of urban population with access)	87.00	2004
				Forest area (% of land area)	1.24	2005
<b>Social/Human Development</b>						
				Population growth (annual %)	1.06	2006
				Primary completion rate, total (% of relevant age group)	100.68	2007
				Ratio of girls to boys in primary and secondary education (%)	99.17	2007
				Mortality rate, under-5 (per 1,000)	29.10	2006
				Births attended by skilled health staff (% of total)	99.80	2006
				Life expectancy at birth, total (years)	66.16	2006
				Malnutrition prevalence, weight for age (% of children under 5)	3.80	1999

Now, let's explore them on line...

<http://sdwebx.worldbank.org/climateportal/>

