

CHAPTER 5 – TABLES

Table 5.2.1.8-1: Overview of functional groups as represented in the Ecoocean model. 'Small' includes species with asymptotic length < 30 cm, 'medium' length 30-89 cm, and 'large; length > 90 cm. Real prices are for year 2000, and are tentative values (not yet weighted by region/country)

No.	Group name	Real price (US\$/kg)	No.	Group name	Real price (US\$/kg)
1	Pelagics, small	0.76	22	Rays, large	0.42
2	Pelagics, medium	1.83	23	Flatfish, small medium	2.17
3	Pelagics, large (adult)	3.82	24	Flatfish, large	4.90
4	Demersals, small	1.78	25	Cephalopods	0.85
5	Demersals, medium	1.73	26	Shrimps	5.19
6	Demersals, large	2.43	27	Lobsters, crabs	5.19
7	Bathypelagics, small	2.34	28	Jellyfish	0.50
8	Bathypelagics, medium	2.34	29	Molluscs	2.29
9	Bathypelagics, large	2.61	30	Krill	0.50
10	Bathydemersals, small	1.00	31	Baleen whales	
11	Bathydemersals, medium	1.39	32	Toothed whales	
12	Bathydemersals, large	3.50	33	Seals	
13	Benthopelagics, small	1.76	34	Birds	
14	Benthopelagics, medium	2.69	35	Macrobenthos	
15	Benthopelagics, large	2.04	36	Meiobenthos	
16	Reef fish, small	3.58	37	Corals	
17	Reef fish, medium	2.69	38	Soft corals, sponges, etc.	
18	Reef fish, large	3.60	39	Zooplankton, other	
19	Sharks, small medium	0.84	40	Phytoplankton	
20	Sharks, large	0.85	41	Benthic plants	
21	Rays, small medium	1.01	42	Detritus	
			43	Pelagic Large juvenile	

Table 5.3.1.1-1: Population growth.

	2000-05	2005-10	2010-15	2015-20	2020-25	2025-30	2030-35	2035-40	2040-45	2045-50
NAE	0.3%	0.3%	0.2%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	-0.1%
CWANA	2.0%	1.9%	1.8%	1.7%	1.5%	1.3%	1.2%	1.0%	0.9%	0.8%
LAC	1.4%	1.3%	1.2%	1.0%	0.9%	0.7%	0.6%	0.5%	0.3%	0.2%
SSA	2.3%	2.2%	2.2%	2.1%	2.0%	1.9%	1.7%	1.6%	1.5%	1.4%
ESAP	1.1%	1.0%	0.9%	0.8%	0.6%	0.5%	0.4%	0.3%	0.2%	0.1%

Source: UN (2005).

Table 5.3.1.2-1: Per capita income growth.

	2000-05	2005-10	2010-15	2015-20	2020-25	2025-30	2030-35	2035-40	2040-45	2045-50
NAE	3.3%	2.2%	2.8%	2.8%	2.7%	2.5%	2.3%	2.0%	1.8%	1.7%
CWANA	4.3%	3.6%	3.7%	3.6%	3.5%	3.8%	4.1%	4.5%	4.8%	5.0%
LAC	4.3%	1.1%	3.7%	4.6%	4.4%	4.4%	4.5%	4.6%	4.6%	4.5%
SSA	3.6%	3.4%	4.2%	4.3%	4.4%	4.6%	4.9%	5.1%	5.2%	5.2%
ESAP	3.2%	2.7%	3.7%	3.8%	3.6%	3.7%	3.7%	3.8%	3.8%	3.7%

Box Table 5.3.1.2-2: Sector-wise annual growth in production and prices, India, reference world.

	Production		World Price	
	2025	2050	2025	2050
Rice	1.27%	1.75%	-0.04%	1.50%
Wheat	2.15%	5.33%	0.38%	2.46%
Maize	3.78%	9.97%	1.19%	4.48%
Other Crops	2.55%	4.50%	0.78%	1.73%
Pulses	3.30%	8.03%	-0.04%	-0.19%
Potatoes	3.19%	6.80%	-0.40%	-1.30%
Other Non Crops	1.14%	0.98%	-0.02%	-0.06%
Oilseeds	1.13%	0.02%	0.20%	-0.15%
Meat	2.63%	3.91%	-0.27%	-0.10%
Fish	2.11%	3.48%	0.47%	0.53%
Agri	1.27%	1.27%	0.22%	0.89%
Other Livestock	2.73%	6.31%	-0.40%	-1.16%
Total Agriculture	2.27%	4.36%	0.17%	0.72%
Fertilisers	6.98%	1.32%	-0.09%	0.00%
Other Manufacturing	6.98%	8.00%	2.43%	4.00%
Services	7.98%	6.00%	0.25%	6.00%

Box Table 5.3.1.2-3: Some key economic variables (growth per year), India, reference world.

	2000	2025	2025-1	2050	2050-1	2025-2050
CPI (Index)	100.00	3.300	2.898	2.048	2.007	0.436
Total Investment (Constant Prices)	429741	10.762	12.253	74.354	73.404	37.378
GDP Real	1962996	10.316	10.316	19.556	19.556	8.046

Table 5.3.2.1-1: Per capita food availability, various agricultural commodities, by IAASTD region.

	2000	2025	2050	2000	2025	2050	2000	2025	2050	2000	2025	2050	2000	2025	2050
	CWANA			SSA			LAC			ESAP			NAE		
Meat															
beef	6	8	10	5	6	11	25	30	31	4	7	9	24	28	28
pork	0	0	0	1	1	2	9	10	10	16	18	15	32	35	35
lamb	5	6	7	2	2	2	1	1	1	1	2	2	2	2	2
poultry	8	10	12	3	3	5	22	28	31	7	12	17	25	30	29
Eggs	4	5	5	2	2	3	8	9	10	9	11	14	12	13	13
Milk	59	69	87	17	20	29	84	92	102	22	33	48	102	113	124
Cereals															
rice	16	18	21	18	22	27	26	28	31	94	92	81	6	8	8
wheat	142	149	149	19	21	27	50	54	57	55	64	63	104	106	96
maize	14	13	12	44	43	49	45	47	48	13	11	10	8	8	7
sorghum	7	7	8	18	18	20	0	0	0	3	2	2	0	0	0
millet	1	1	2	15	19	25	0	0	0	3	3	2	0	0	0
other grain	5	4	4	2	2	2	1	1	1	1	1	1	8	6	4
Root crops & tubers															
potato	28	30	35	10	11	13	25	30	37	21	27	35	82	83	83
Sweetpotato & yam	1	1	1	40	41	38	4	4	4	18	12	7	1	1	1
cassava	1	2	1	112	109	101	24	22	19	9	8	6	0	0	0
Soybean	0	0	0	1	1	2	1	1	1	4	4	3	0	0	0
Vegetable	64	68	90	28	29	43	39	44	65	98	127	139	86	101	135
Chickpea	2	2	3	0	0	0	0	0	0	1	2	3	0	0	0
Pigeonpea				0	0	0	0	0	0	1	1	2			
Ground nut	1	1	1	4	4	4	1	1	1	3	3	3	2	2	2
Sugar cane/ beet	5	6	9	5	4	5	18	23	35	2	3	3	26	32	37
Sweetener	0	0	0	0	0	0	1	2	2	1	1	1	12	13	15
Subtropical fruit	52	67	97	30	34	43	83	104	151	42	65	85	50	64	75
Temperate fruit	26	28	34	0	0	0	5	6	9	10	13	15	23	30	39
Oils	13	15	19	8	9	14	14	17	25	10	15	25	28	31	34

Table 5.3.2.1-2: Bovines for the reference run, by region (billion head).

Region	2000	2010	2020	2030	2040	2050
CWANA	0.124	0.174	0.227	0.283	0.344	0.407
ESAP	0.578	0.736	0.902	1.053	1.168	1.229
LAC	0.349	0.431	0.522	0.606	0.681	0.747
NAE	0.268	0.286	0.307	0.318	0.317	0.306
SSA	0.179	0.268	0.388	0.539	0.725	0.950
Globe	1.498	1.894	2.344	2.800	3.234	3.638

Table 5.3.2.1-3: Sheep and goats for the reference run, by region (billion head).

Region	2000	2010	2020	2030	2040	2050
CWANA	0.403	0.509	0.612	0.704	0.779	0.834
ESAP	0.723	0.846	0.964	1.049	1.095	1.107
LAC	0.116	0.132	0.147	0.158	0.161	0.158
NAE	0.195	0.209	0.222	0.226	0.220	0.205
SSA	0.271	0.392	0.533	0.687	0.852	1.025
Globe	1.707	2.087	2.478	2.824	3.108	3.329

Table 5.3.2.1-4: Pigs for the reference run, by region (billion head).

Region	2000	2010	2020	2030	2040	2050
CWANA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
ESAP	0.539	0.657	0.769	0.836	0.847	0.804
LAC	0.079	0.098	0.120	0.139	0.154	0.163
NAE	0.274	0.289	0.307	0.313	0.305	0.280
SSA	0.019	0.027	0.037	0.049	0.061	0.073
Globe	0.912	1.073	1.234	1.337	1.367	1.320

Table 5.3.2.1-5: Poultry for the reference run, by region (billion head).

Region	2000	2010	2020	2030	2040	2050
CWANA	1.449	1.607	1.790	1.945	2.026	2.007
ESAP	7.478	10.116	13.153	16.101	18.452	19.797
LAC	2.286	2.966	3.776	4.619	5.403	6.045
NAE	4.180	4.538	4.948	5.190	5.173	4.883
SSA	0.784	1.081	1.424	1.791	2.151	2.464
Globe	16.178	20.309	25.092	29.646	32.205	35.196

Table 5.3.2.1-6: Grazing intensities in rangeland systems to 2030 and 2050 for the reference run, by region (TLU per ha).

Region	2000	2030	2050
CWANA	0.055	0.105	0.140
ESAP	0.043	0.067	0.071
LAC	0.188	0.312	0.376
NAE	0.052	0.064	0.064
SSA	0.065	0.175	0.298
Globe	0.066	0.118	0.153

**Table 5.3.2.1-7: Selected international food prices, 2000
and projected 2025 and 2050, reference run**

	2000	2025	2050
US\$ per metric ton			
Beef	1,969	1,857	2,177
Pork	900	912	997
Sheep & goat	2,745	2,393	2,420
Poultry	1,233	1,182	1,343
Rice	208	213	257
Wheat	115	120	156
Maize	90	101	127
Millet	269	259	243
Sorghum	90	109	136
Other coarse grains	71	75	89
Soybean	203	205	231

Box Table 5.3.2.1-1: Area and yield of major agricultural commodities, China (in million hectares and metric ton per hectare, respectively).

	2004	2020	2050
Area (million ha):			
Cereal	83	75	70
Soybean + oil crops	24	21	19
Cotton	5	5	4
Sugar	2	2	2
Vegetable	18	19	20
Fruit	9	11	12
Sum of above crops	140	132	127
Yield (ton/ha):			
Rice (in milled rice)	4.3	5.2	5.7
Wheat	4.0	4.8	5.3
Maize	5.0	6.1	6.4
Cotton	1.1	1.6	1.8
Sugar	5.6	7.8	8.7
Vegetable	19.4	25.9	27.6
Fruit	9.5	15.2	17.1

Source: CAPSIM reference run.

Box Table 5.3.2.1-2: Self-sufficiency levels of selected major agricultural commodities in China (in percent).

	2004	2020	2050
Cereal	102	92	86
Rice	101	107	112
Wheat	99	95	98
Maize	108	79	69
Soybean	49	41	38
Oil crops	67	63	58
Cotton	85	74	58
Sugar	91	79	65
Vegetables	101	105	106
Fruit	101	106	102
Pork	101	102	102
Beef	100	86	85
Mutton	99	94	95
Poultry	100	105	111
Milk	96	79	75

Source: CAPSIM reference run.

Box Table 5.3.2.1-3 Population shares by income group in rural China (in percent).

Income group	2001	2010	2020	2030	2050
Under poverty	11.0	5.4	0.9	0.0	0.0
By household income in 2001	100	100	100	100	100
1 st quintile	22.6	15.8	8.9	3.9	0.0
2 nd quintile	21.3	24.0	25.2	25.2	12.3
3 rd quintile	20.0	18.9	17.5	16.3	19.1
4 th quintile	19.0	17.4	15.2	13.0	7.6
5 th quintile	17.0	24.0	33.2	41.6	61.1

Note: Households under poverty means that per capita income is less than 1\$/day in PPP. Rural population with less 1\$/day income accounted for 11% of total rural households in 2001. Each quintile households accounted for 20% of total rural households in 2001, but the shares of population in lower quintiles are more than those in higher quintiles.

Source: CAPSIM reference run.

Table 5.3.2.1-8 Fisheries, reference run.

FAO Area	Baseline	% change in trophic level 2003 to 2048	2% increase	% change in trophic level 2003 to 2048
	% change in landings 2003 to 2048		% change in landings 2003 to 2048	
Atlantic				
21	-39	-5.9	-35	-6.0
27	15	-1.5	22	-2.4
31	20	2.8	25	2.3
34	-30	1.1	3.9	-1.3
41	26	-1.2	34	-1.9
47	33	-3.1	13.9	-0.9
Pacific				
61	19	-2.3	14	-2.7
67	47	-2.8	44	-2.6
71	-15	0.5	11.4	-0.9
77	56	1.5	47	0.4
81	13	-0.1	2.8	-0.2
87	-38	3.9	13	-1.8
Indian				
51	-21	1.3	-10	-1.3
57	73	4.8	56	2.1
Med 37	71	-3.8	50	-3.1

Table 5.3.2.2-1: Share of global renewable water resources and population at 2000 and 2050, reference run.

Region	IRW (Km ³ /year)		Share of Global IRW (%)		Share of Global Population (%)	
	2000	2050	2000	2050	2000	2050
North America and Europe (NAE)	7893	12604	20.0	29.1	17.7	12.6
East-South Asia and Pacific (ESAP)	12323	14460	31.2	33.4	53.8	48.6
Central-West Asia and North Africa (CWANA)	1328	1184	3.4	2.7	10.1	13.4
Latin America and Caribbean (LAC)	13683	11076	34.6	25.6	8.4	8.5
Sub-Saharan Africa (SSA)	4304	4017	10.9	9.3	9.9	16.8
Developed Countries	9174	13292	23.2	30.7	19.6	13.7
Developing Countries	30357	30049	76.8	69.3	80.4	86.3
World	39531	43341	100	100	100	100

Note: IRW = Internal renewable water resources

Source: IMPACT-WATER

Table 5.3.2.2-2: Total water consumptive use, reference world.

Region	Total Water Consumption by all Economic Sectors (Km ³ yr ⁻¹)	
	2000	2050
North America and Europe (NAE)	736.6	764.5
East-South Asia and Pacific (ESAP)	1329.5	1489.8
Central-West Asia and North Africa (CWANA)	518.5	492.4
Latin America and Caribbean (LAC)	239.4	353
Sub-Saharan Africa (SSA)	60	123.8
Developed Countries	752.8	776.1
Developing Countries	2131.2	2447.5
World	2884	3223.5

Table 5.3.2.2-3: Potential and actual consumptive water use for irrigation, and irrigation water supply reliability for 2000 and 2050.

Region	Potential Irrigation Water Consumption (Km ³ yr ⁻¹)		Actual Irrigation Water Consumption (Km ³ yr ⁻¹)		Irrigation Water Supply Reliability (IWSR) (%)	
	2000	2050	2000	2050	2000	2050
North America and Europe (NAE)	730.8	887.2	598.4	595.3	81.9	67.1
East-South Asia and Pacific (ESAP)	1950.2	2085.4	1205.2	1193.5	61.8	57.2
Central-West Asia and North Africa (CWANA)	758.3	914.7	489.1	416.3	64.5	45.5
Latin America and Caribbean (LAC)	267.9	391.8	211.2	296.6	78.8	75.7
Sub-Saharan Africa (SSA)	50.0	71.9	48.5	62.4	97.0	86.8
Developed Countries	710.5	873.2	606.3	604.3	85.3	69.2
Developing Countries	3046.7	3477.9	1946.0	1959.7	63.9	56.3
World	3757.1	4351.0	2552.3	2564.0	67.9	58.9

Table 5.3.2.2-4: Non-irrigation consumptive water use for 2000 and 2050 (in Km³ yr⁻¹).

Region	Domestic		Industrial		Livestock		Total Non-Irrigation	
	2000	2050	2000	2050	2000	2050	2000	2050
North America and Europe (NAE)	41	48.1	91.2	114.7	6	6.4	138.2	169.2
East-South Asia and Pacific (ESAP)	62.1	142	46.6	127.1	15.6	27.2	124.3	296.3
Central-West Asia and North Africa (CWANA)	11.1	32.2	6.4	18.7	12	25.2	29.5	76.1
Latin America and Caribbean (LAC)	15.3	29.3	6.5	14.1	6.4	12.9	28.2	56.3
Sub-Saharan Africa (SSA)	6.6	38.4	1	7.4	4	15.7	11.6	61.5
Developed Countries	45.4	51.4	94.4	113.4	6.7	6.9	146.5	171.8
Developing Countries	90.6	238.7	57.3	168.7	37.3	80.4	185.2	487.8
World	136	290.1	151.7	282.1	44	87.4	331.7	659.6

Box Table 5.4.2-1: Average wage rate by skill (growth rate in %) for India in the reference world (in Rs)

	Base =2000	2025	2025-1	2050	2050-1
Labor casual female	1476.32	3.00	2.77	-0.21	-0.22
Labor regular female	8443.14	3.23	3.32	-3.43	-3.96
Total Female	2137.04	3.09	2.99	-0.93	-0.99
Labor casual male	3183.97	2.70	2.52	0.40	0.41
Labor regular male	8865.69	0.87	0.80	-0.89	-0.89
Total Male	4453.40	1.98	1.84	-0.08	-0.06
Grand Total	3697.08	2.21	2.08	-0.21	-0.21

Box Table 5.4.2-2: Per Capita Private Gross Income (Growth rate in %) Constant Prices, India.

Household Types	Base =2000	2025	2025-1	2050	2050-1
	Unit=Rs.	Annual Growth Rate (%)			
Rural Poor Non Agriculture Formal	2363.27	0.88	1.12	0.64	0.66
Rural Non-Poor Non Agriculture Formal	3043.34	0.88	1.12	0.64	0.66
Rural Poor Agriculture Informal	1641.69	2.11	2.36	2.07	2.09
Rural Non Poor Agriculture Informal	1235.19	1.85	2.07	3.12	3.14
Rural Poor Non Agriculture Informal	3939.24	3.11	3.31	2.55	2.57
Rural Non Poor Non Agriculture Informal	4246.87	1.69	1.89	3.56	3.58
Total Rural	1835.89	2.01	2.23	2.92	2.94
Urban Poor Formal	2595.24	2.77	3.01	2.13	2.16
Urban Non Poor Formal	3176.27	2.77	3.01	2.13	2.16
Urban Poor Informal	1827.43	4.13	4.38	3.94	3.96
Urban Non Poor Informal	2383.63	3.74	3.97	4.33	4.35
Total Urban	2561.87	3.33	3.57	3.38	3.40
Grand Total	2028.27	2.20	2.43	2.93	2.95

Box Table 5.4.2-3: Population deciles with per capita consumption expenditure changes over reference run (in ascending order), India.

Per capita consumption (in Rs)						
	Population Deciles	2000	2025	2025-1	2050	2050-1
Rural	1st Decile (poorest 10%)	1245	629	773	4104	4163
	2nd Decile	1606	811	997	5295	5370
	3rd Decile	1854	936	1151	6111	6199
	Poorest 30%	1571	793	974	5177	5251
	4th Decile	2082	1052	1293	6864	6962
	5th Decile	2310	1166	1433	7612	7721
	6th Decile	2575	1299	1597	8485	8607
	7th Decile	2879	1454	1787	9489	9625
	8th Decile	3291	1661	2042	10846	11001
	9th Decile	3954	1995	2453	13030	13216
	10th Decile (richest 10%)	6281	3171	3898	20702	20998
	All Rural	2806	1416	1741	9248	9380
Urban	1st Decile (poorest 10%)	1260	344	799	3696	3757
	2nd Decile	1691	461	968	4960	5041
	3rd Decile	2010	549	1135	5897	5994
	Poorest 30%	1653	452	968	4851	4930
	4th Decile	2323	634	1143	6814	6925
	5th Decile	2678	731	1188	7856	7985
	6th Decile	3092	844	1194	9070	9219
	7th Decile	3604	984	1207	10573	10747
	8th Decile	4337	1185	1098	12726	12935
	9th Decile	5512	1505	1083	16170	16436
	10th Decile (richest 10%)	10226	2793	211	30001	30493
	All Urban	3672	1003	1003	10773	10950

Box Table 5.4.2-4: Imports (Growth Rate in %) Constant Prices, India.

	Base = 2000	2025	2025-1	2050	2050-1
Rice	90333.84	-371.57	-363.07	-57.82	-52.85
Wheat	569.50	-9479.62	-7939.55	1688.81	2074.72
Maize	62.22	2494.26	4541.46	3586.05	3712.58
Other coarse grains	167.17	-2023.81	-4658.18	-981.23	-5470.99
Pulses	242.29	-2459.39	-783.47	1859.65	1898.72
Potatoes	92.64	-1980.68	-2807.67	1401.14	-51.60
Other crops	25120.98	7489.41	7970.93	369.20	263.89
Oilseeds and edible oils	91872.17	-2427.55	-2599.90	-66.93	-73.52
Meat	453.08	-4575.04	-2328.28	22503.91	23369.34
Fishing	243.25	-7944.43	-8260.55	10974.58	10415.16
Other livestock	1471.00	-4896.40	-5783.23	1130.97	-375.64
Total Agriculture	210628.14	-408.38	-419.97	66.62	40.94
Fertilizers	7397.32	636.56	794.54	298.09	295.95
Other Manufacturing	256791.40	1.50	-99.01	1205.87	1170.73
Other services	25893.00	2836.02	4304.53	-8190.30	-7952.90
Total Non-agriculture	290081.72	270.70	316.84	344.01	334.04
Grand Total	500709.86	-14.96	6.89	227.32	210.74

Box Table 5.4.2-5: Total domestic supply of goods and services (growth rate per annum), India.

	Base = 2000	2025	2025-1	2050	2050-1
Rice	170094.72	70.31	43.10	-36.66	-75.86
Wheat	50853.45	234.24	209.38	33.17	-78.19
Maize	5556.32	215.57	212.72	31.43	-59.37
Other coarse grains	8833.80	223.95	213.87	33.75	-194.97
Pulses	21635.14	226.88	214.66	35.48	-80.25
Potatoes	7036.53	228.09	216.55	35.51	-100.00
Other crops	230681.93	16.77	152.14	21.87	-51.18
Oilseeds and edible oils	133038.79	143.52	-120.29	-48.21	-79.92
Meat	39045.70	229.52	212.65	30.05	187.99
Fishing	21015.04	232.37	209.28	33.66	-100.40
Other livestock	115018.91	233.19	215.28	35.62	-99.99
Total Agriculture	802810.33	121.06	104.35	1.93	-62.38
Fertilizers	34902.52	87.44	127.64	76.58	-100.27
Other Manufacturing	1458409.59	101.19	117.28	119.13	-100.73
Other services	1248214.00	102.56	115.45	105.96	-99.47
Total Non-agriculture	2741526.11	101.64	116.58	112.59	-100.15
Grand Total	3544336.44	106.04	113.81	87.53	-91.59

Box Table 5.4.2-6: Some Key Economic Variables (growth rate in %), India

Macro variables	2000	2025	2025-1	2050	2050-1	2050 over 2025
CPI (index)	100	2.4	2.2	1.4	1.4	0.4
Total investment (constant prices)	429741.4	5.4	5.8	7.6	7.5	9.8
GDP real	1962996	5.2	5.2	4.9	4.9	4.5

The period 2025 to 2050 shows annual growth rate from 2025 to 2050 is about 0.4 percent each year as CPI decelerates from a growth of 2.4 to 1.4 percent in 2050.

Table 5.4.3-1: Assumptions for high/low agricultural investment scenarios.

Parameter changes for growth rates	2050 REFERENCE RUN	2050 High AKST variant (#1)	2050 Low AKST variant (#2)
GDP growth	3.06 % per year	3.31 % per year	2.86 % per year
Livestock numbers and yield growth	Base model output numbers growth 2000-2050 Livestock: 1.13 Milk: 0.41	Increase in numbers growth of animals slaughtered by 20% Increase in animal yield by 20%	Reduction in numbers growth of animals slaughtered by 20% Reduction in animal yield by 20%
Food crop yield numbers and growth	Base model output yield growth rates 2000-2050: Cereals: /yr: 0.97 R&T: %/yr: 1.021001 Soybean: %/yr 0.42 Vegetables: %/yr 1.30 Sup-tropical/tropical fruits: %/yr 1.91 Sugarcane: %/yr 1.72	Increase yield growth by 40% for cereals, R&T, soybean, vegetables, ST fruits & sugarcane, dryland crops, cotton Increase production growth of oils, meals by 40%	Reduce yield growth by 40% for cereals, R&T, soybean, vegetables, fruits & sugarcane, dryland crops, cotton Reduce production growth of oils, meals by 40%

Table 5.4.3-2: Assumptions for high/low agricultural investment combined with high/low Investment in other AKST-related factors (irrigation, clean water, water management, rural roads, and education).

Parameter changes for growth rates	2050 BASE	2050 High AKST combined with other services (#3)	2050 Low AKST combined with other services Low (#4)
GDP growth	3.06 % per year	3.31 % per year	2.86 % per year
Livestock numbers growth	Base model output numbers growth 2005-2030 Livestock: Milk:	Increase in numbers growth of animals slaughtered by 30% Increase in animal yield by 30%	Reduction in numbers growth of animals slaughtered by 30% Reduction in animal yield by 30%
Food crop yield growth	Base model output yield growth rates 2005-2030: Cereals: /yr R&T: %/yr Soybean: %/yr Vegetables: %/yr ST fruits: %/yr Sugarcane: %/yr	Increase yield growth by 60% for cereals, R&T, soybean, vegetables, ST fruits & sugarcane, dryland crops, cotton Increase production growth of oils, meals by 60%	Reduce yield growth by 60% for cereals, R&T, soybean, vegetables, fruits & sugarcane, dryland crops, cotton Increase production growth of oils, meals by 60%
Irrigated Area Growth (apply to all crops)	0.06	Increase by 25%	Reduction by 25%
Rainfed Area growth (apply to all crops)	0.18	Decrease by 15%	Increase by 15%
Basin efficiency		Increase by 0.3 by 2050, constant rate of improvement over time	Reduce by 0.3 by 2050, constant rate of decline over time
Access to water		Increase annual rate of improvement by 50% relative to baseline level, (subject to 100 % maximum)	Decrease annual rate of improvement by 50% relative to baseline level, constant rate of change over time
Female secondary education		Increase overall improvement by 50% relative to 2050 baseline level, constant rate of change over time unless baseline implies greater (subject to 100 % maximum)	Decrease overall improvement by 50% relative to 2050 baseline level, constant rate of change over time unless baseline implies less

Table 5.4.3-3: Selected international food prices, projected to 2050, reference run and AKST variations.

	Reference run	AKST- high	AKST_low	AKST_high_pos	AKST_low_neg
US\$ per metric ton					
Beef	2,177	-18	14	-26	42
Pork	997	-24	19	-33	56
Sheep & goat	2,420	-22	22	-31	50
Poultry	1,343	-26	22	-36	66
Rice	257	-37	50	-57	132
Wheat	156	-37	43	-54	141
Maize	127	-44	60	-59	208
Millet	243	-39	57	-48	131
Sorghum	136	-42	56	-53	164
Other coarse grains	89	-54	90	-66	319
Soybean	231	-30	26	-42	92

Table 5.4.3-4: Irrigation water supply reliability, projected to 2050, reference run and AKST variations.

	Reference	AKST_high_pos	AKST_low_neg
	Percent		
North America and Europe (NAE)	67	74	52
East-South Asia and Pacific (ESAP)	57	68	38
Central-West Asia and North Africa (CWANA)	46	58	31
Latin America and Caribbean (LAC)	76	82	57
Sub-Saharan Africa (SSA)	87	90	79
Developed Countries	69	76	53
Developing Countries	56	67	40
World	59	69	42

Table 5.4.5-1: Regional variation in scope for productivity improvements and area expansion.

	Scope for improved productivity in rainfed areas	Scope for improved productivity in irrigated areas	Scope for irrigated area expansion	Need for imports	High potential options in agricultural water management
Sub-Saharan Africa	+++	+	+++		<ul style="list-style-type: none"> water harvesting and supplemental irrigation; resource-conserving agricultural practices to mitigate land degradation small-scale irrigation geared to smallholders multiple use water systems to alleviate poverty adopt development approaches that combine access to markets, soil fertility and irrigation infrastructure
MENA	+	+	-	+++	<ul style="list-style-type: none"> use of low quality water coping with increased sectoral competition and water pollution integrating livestock with irrigation
C. Asia, E. Europe	+	++	+		<ul style="list-style-type: none"> institutional reforms in irrigated areas restore ecosystems services modernize large-scale irrigation systems
South Asia	+++	+++	+	+	<ul style="list-style-type: none"> institutional reforms in irrigated areas integrating livestock and fisheries water harvesting and supplemental irrigation; resource-conserving practices to mitigate land degradation
East Asia	++	+++	+	++	<ul style="list-style-type: none"> water productivity in rice reducing groundwater overdraft
Latin America	++	+	+		<ul style="list-style-type: none"> land expansion and sustainable land use support and regulation of private irrigation
OECD	+	+	+		<ul style="list-style-type: none"> coping with increased sectoral competition

+++ high, ++ medium, - low, - very limited

Source: derived from CA scenario analysis (CA 2007).

Table 5.4.5-2: Scenario (policy experiment outcomes)

Region	Irrigated area		Rainfed area		Rainfed cereal yield		Irrigated cereal yield		Rainfed water productivity		Irrigated water productivity		Crop water depletion		Irrigation water diversions		Trade	
	m ha	% change	m ha	% change	t/ha	% change	t/ha	% change	kg/m3	% change	Kg/m3	% change	km3	% change	km3	% change	M ton	% of consumption
SSA	11.3	78%	174.2	10%	2.34	98%	4.37	99%	0.28	75%	0.50	58%	1379	29%	100	46%	-25	-12%
MENA	21.5	5%	16.1	-12%	1.19	59%	5.58	58%	0.25	47%	0.82	41%	272	7%	228	8%	-127	-61%
C Asia, E Europe	34.7	6%	120.7	-5%	3.00	47%	6.06	78%	0.69	47%	1.22	51%	773	0%	271	11%	66	22%
South Asia	122.7	18%	83.9	-12%	2.54	91%	4.84	89%	0.46	82%	0.79	62%	1700	15%	1195	9%	2	0%
East Asia	135.6	16%	182.2	17%	3.96	51%	5.97	49%	0.57	36%	1.16	45%	1990	19%	601	16%	-97	-12%
Latin America	19.5	18%	147.9	46%	3.90	58%	6.77	68%	0.63	50%	0.91	52%	1361	52%	196	12%	18	6%
OECD	47.3	4%	179.0	4%	6.35	33%	8.03	22%	1.30	25%	1.60	20%	1021	4%	238	2%	151	26%
World	394	16%	920.0	10%	3.88	58%	5.74	55%	0.64	31%	1.01	48%	8515	20%	2975	14%	490	15%

Table 5.4.5-3: Challenges for AKST.

Region	Challenges for AKST
Sub-Saharan Africa	<ul style="list-style-type: none"> • Development of affordable irrigation infrastructure, suitable for smallholders, including supporting roads, and markets • Development of suitable water harvesting techniques and small supplemental irrigation methods to upgrade rainfed areas • Creating the right institutional and economic environment for widespread adoption of these methods
MENA	<ul style="list-style-type: none"> • Development of environmentally sound ways to reuse return flows, often of low quality • Design of appropriate policies addressing sectoral competition and water pollution • Reduce adverse impacts of groundwater over-exploitation
C. Asia, E. Europe	<ul style="list-style-type: none"> • Design of politically feasible institutional reforms in irrigated areas • Measures to restore ecosystems services • Adapting yesterday's large-scale irrigation systems to tomorrow's needs
South Asia	<ul style="list-style-type: none"> • Design of politically feasible institutional reforms in irrigated areas • Water conserving and yield boosting technologies to increase the output per unit of water in irrigated areas • Water harvesting and supplemental irrigation; resource-conserving practices to mitigate land and water degradation and the creation of enabling environment for the adoption of available techniques
East Asia	<ul style="list-style-type: none"> • Techniques to enhance the water productivity, particularly in rice areas (such as alternative wet-dry) • Reduce adverse impacts of groundwater over-exploitation
Latin America	<ul style="list-style-type: none"> • Land expansion and sustainable land use • Support and regulation of private irrigation
OECD	<ul style="list-style-type: none"> • Policies addressing increased sectoral competition • Restoring ecosystem services

Table 5.4.8-1: Natural resource user groups, levels of analysis, service delivery and info-com requirements

Natural Resource user groups	Level of analysis and action	Type of service and content	Type of information sought
Farm households with access to markets	Farm, farming system, access different markets	Private, demand based extension with a focus on production and marketing	Input and output prices, commodity production / protection and processing, technology, marketing advise
Subsistence households (with migrant family members)	Household/ Communities in weakly integrated areas	Public, focus on education, health, and labor; integration of remittances with public funds to re-direct investments in these sectors	Some of the above plus off farm opportunities (jobs, safety net projects, health, education)
Community organization federations	Watershed / ecozone	Public, with attention to collaborative and adaptive management strategies; integration with indigenous knowledge	Regulations and opportunities for negotiation and capacity building; spaces for dialogue and innovation across knowledge systems

Table 5.4.12.2-1: Changes to average income demand elasticities for meat and vegetarian foods by IAASTD region.

			2000	2010	2020	2030	2040	2050
Meat	Baseline	CWANA	0.4833	0.4148	0.3462	0.2829	0.2266	0.1772
		ESAP	0.5598	0.5020	0.4443	0.3909	0.3377	0.2844
		LAC	0.5048	0.4359	0.3670	0.2981	0.2295	0.1655
		NAE	0.3433	0.2696	0.2115	0.1580	0.1206	0.0869
		SSA	0.6028	0.5959	0.5890	0.5821	0.5752	0.5683
	Veggie	CWANA	0.4833	0.3805	0.2829	0.2013	0.1368	0.0881
		ESAP	0.5598	0.4731	0.3909	0.3110	0.2362	0.1748
		LAC	0.5048	0.4014	0.2981	0.1975	0.1054	0.0185
		NAE	0.3433	0.2406	0.1580	0.1031	0.0597	0.0321
		SSA	0.6028	0.5924	0.5821	0.5718	0.5614	0.5512
Vegetarian Foods	Baseline	CWANA	0.2211	0.1758	0.1405	0.1144	0.0945	0.0805
		ESAP	0.1883	0.1252	0.0835	0.0612	0.0456	0.0336
		LAC	0.2144	0.1520	0.1013	0.0856	0.0782	0.0723
		NAE	0.1238	0.0822	0.0567	0.0380	0.0247	0.0141
		SSA	0.3963	0.3521	0.3153	0.2854	0.2592	0.2386
	Veggie	CWANA	0.2211	0.1989	0.1798	0.1628	0.1482	0.1361
		ESAP	0.1883	0.1550	0.1286	0.1068	0.0908	0.0795
		LAC	0.2144	0.1832	0.1563	0.1321	0.1104	0.0993
		NAE	0.1238	0.1023	0.0855	0.0728	0.0629	0.0543
		SSA	0.3963	0.3742	0.3557	0.3394	0.3245	0.3112

Table 5.4.12.2-2: Percent difference in average crop yields from reference case if half of production is converted to certified organic by 2015

		Irrigated	Rainfed
USA	Maize	-14	-14
European Union (15)	Maize	-14	-14
Other Developed	Maize	0	-14
Eastern Europe	Maize	0	0
USA	Wheat	-14	-14
European Union (15)	Wheat	-14	-14
Other Developed	Wheat	-14	-14
Eastern Europe	Wheat	0	0
USA	Soybean	-14	-14
European Union (15)	Soybean	-14	-14
Other Developed	Soybean	-14	-14
Eastern Europe	Soybean	-10	-10
USA	Other grains	-14	-14
European Union (15)	Other grains	-14	-14
Other Developed	Other grains	-14	-14
Eastern Europe	Other grains	0	0
USA	Potato	-20	-20
European Union (15)	Potato	-20	-20
Other Developed	Potato	-20	-20
Eastern Europe	Potato	-12.5	-12.5

Table 5.4.12.2-3: Percent difference in average livestock yields from reference case if half of production is converted to certified organic by 2015

		Livestock
USA	Beef	-12.5
European Union (15)	Beef	-7.5
Other Developed	Beef	-12.5
Eastern Europe	Beef	-10
USA	Sheep & goat	-5
European Union (15)	Sheep & goat	-7.5
Other Developed	Sheep & goat	-5
Eastern Europe	Sheep & goat	-10
USA	Dairy	-10
European Union (15)	Dairy	-7.5
Other Developed	Dairy	-5
Eastern Europe	Dairy	0

Table 5.4.12.3-1: Percent difference from reference baseline in per capita food consumption of meats and cereals in the case of increasing vegetarianism.

		2025	2050
Cereals	CWANA	0.2%	0.7%
	ESAP	2.4%	7.4%
	LAC	0.3%	0.8%
	NAE	0.5%	-0.7%
	SSA	0.4%	4.5%
Meat	CWANA	-0.6%	-4.3%
	ESAP	-5.9%	-18.3%
	LAC	-2.1%	-11.5%
	NAE	-0.3%	1.4%
	SSA	4.3%	14.2%