Impact of Climate Change & Food System on Early Childhood Development in Pakistan

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Pakistan: Region-wise Climate Projections

Region	Precipitation (mm/decade)			Temperature (°C/decade)		
	A2	A1B	B1	A2	A1B	B1
Pakistan	+1.73	+1.26	-0.89	+0.51	+0.41	+0.24
Northern areas	+4.6	+2.9	-1.3	0.76	0.63	0.39
Potohar and upper NWFP	+6.1	+3.8	-0.5	0.01	-0.34	-0.01
Central/southern Punjab and lower NWFP	-2.98	-1.78	-3.5	+0.63	+0.71	+0.05
High Balochistan	+1.48	+0.92	-0.57	+0.15	+0.26	+0.03
Southeastern Sindh	+5.1	+3.0	-0.1	0.00	-0.1	+0.01
Sindh and lower Balochistan	-1.8	-0.98	-0.05	+0.5	+0.27	+0.01

mm = millimeter, NWFP = Northwest Frontier Province and current Khyber Pakhtunkhwa.

Notes: A2 shows business as usual, A1B shows balanced scenarios, and B1 shows Ideal World (SRES Report IPCC 2001) based on greenhouse gas emissions likely in the 21st century.

Source: Q. Z. Chaudhry et al. 2009. *Climate Change Indicators of Pakistan.* Technical Report. No. 22. Islamabad: Pakistan Meteorological Department.

Projected % changes in productivity in major crops under Business as Usual scenario

Crops	% Change		
	2020	2050	2080
Wheat	-3.2%	-11.0%	-27.0%
Rice	0%	-0.8%	-1.9.0%
Maize	-2.4%	-3.3%	-4.3.0%

Source: World Bank Climate Change Knowledge Portal: Agriculture Model by IIASA. http://sdwebx.worldbank.org/climateportal/index.cfm?page=country_impacts_agriculture&ThisRegion=Asia&ThisCcode=PAK

Future Projections

- Pakistan's projected temperature increase is expected to be higher than the global average.
- Projected temperature increase in northern parts is expected to be higher than the southern parts of the country.
- The frequency of hot days and hot nights is expected to increase significantly.
- Pakistan's rainfall projections do not indicate any systematic changing trends.
- Major crop yields such as of wheat and rice are expected to decrease significantly.
- Water availability per capita is projected to decrease to an alarming level.
- An increasing trend in the rainfall over the Upper Indus Basin and decreasing trend in the Lower Indus Basin.

Impact of Droughts on Children

Direct impact	Indirect Impact
Food shortages and food inflation	• Dicrease in breast feeding practices • Increase in food insecurity of the poor
Poor sanitation	Increase diarrhoea
mulnutrition	Stunting in children under 5
Poor nutrition	Anemia in pregnanat and lactating women
Increase in poverty, vulnerability and inequality	Infant mortality risk is 9 time more for mulnourished children

Impact of Flooding on Children

Direct impact	Indirect Impact
Death and injuries	Child labor, abuse, traficking
Loss of crops, property and assets	Increase in food insecurity of the poor
Degradation of social and economic infrastucture	School absenteeism
Trauma/ mental health issues	Missed vaccinations
Water quality issues	Infant morality

Impact of Air pollution on Children

Direct impact	Indirect Impact
Increase in respiratory illnesses	Fetal and neonatal mortality
Maternal and fetal distress	Abortions, premture births, low birth wieght
Dehydration	Kidney failures
Increased vulnerability to infections	Illnesses and mother and child mortality

What can be done to improve the situation?

- Empower local governments/ communities and develop growth poles
- Promote village planning/ specialisation based on comparative advantage
- Invest in rural development/ micro infrastructure
- Promote nature based agriculture
- Create awareness about climate change
- Provide access to broad based Internet