

Afghanistan: A Case Study in Climate Change and Security



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Not New

“ ...national security is not just about fighting forces and weaponry. It relates to watersheds, croplands, forests, genetic resources, climate and other factors that rarely figure in the minds of military experts and political leaders,”

Ref: Norman Myers, *The Environmentalist*, 1986



Environmental Security Defined

Environmental security is a process that effectively responds to changing environmental conditions that have the potential to reduce peace and stability in the world. Accomplishing our environmental security goals mandates planning and execution of defense programs to prevent and mitigate anthropogenically induced adverse changes in the environment which impact sustainable living conditions for people in a region

Ref: King, Understanding International Environmental Security:
A Strategic Military Perspective, 2000



Theme

- Basic human need begins with land, water, and climate to sustain life
- Without a sustainable environmental setting that provides for basic human needs- no stable peace can exist, and therefore -
- Environmental Security is a component of defense/security policy assessment – A significant topic of National Interest of Every Nation
- Therefore-Climate Change Impacts Security and Peace

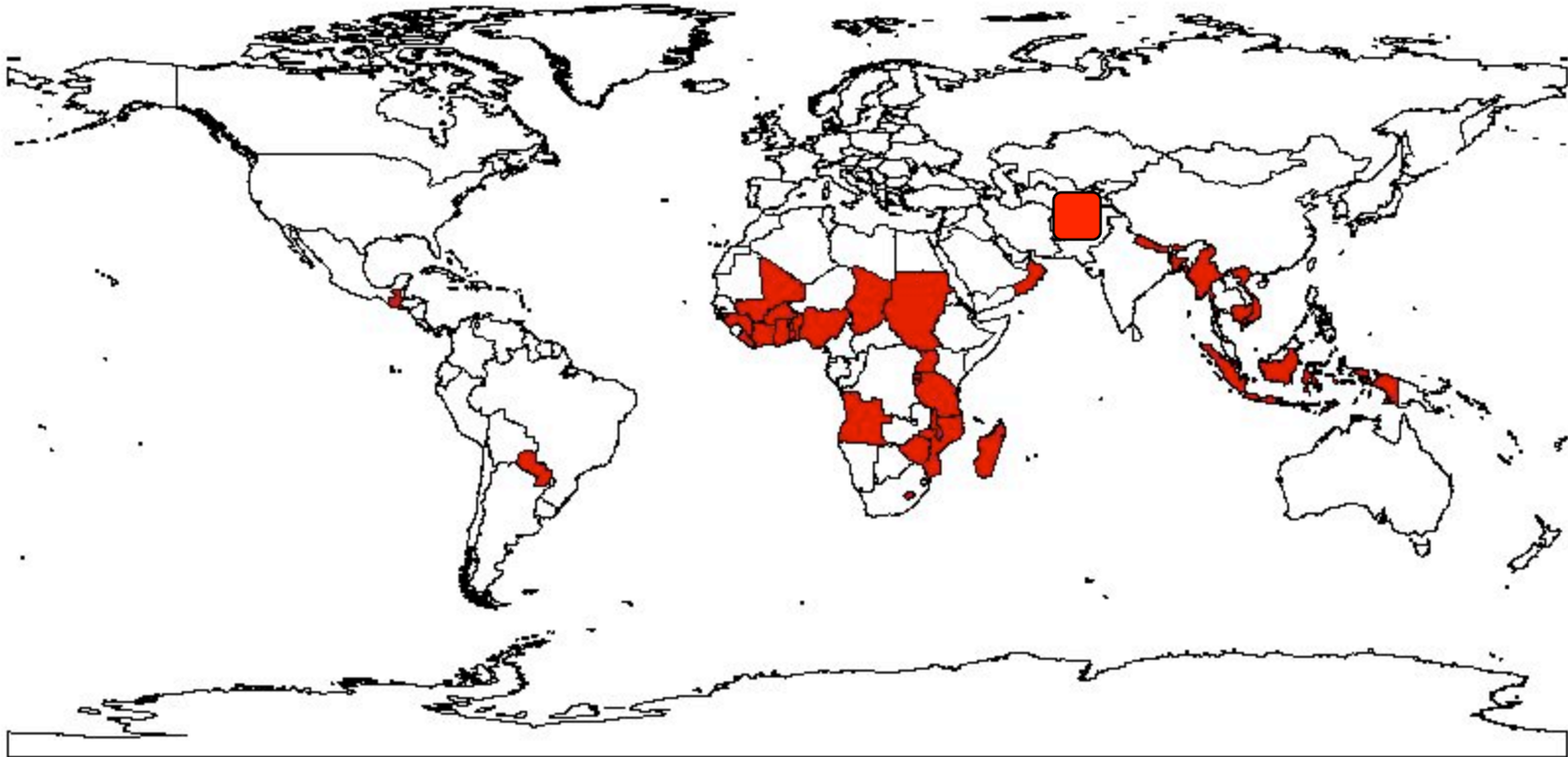


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Environmental Security is the common ground which defines the mutual interests of security and the environment

Countries Impacted by Population Stress + Deforestation + Water Scarcity

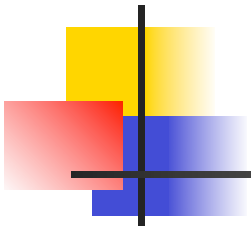


7000 0 7000 14000 Miles



Method of analysis

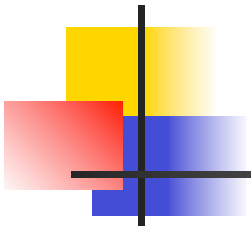
- Start with a data base of stability -next slide
- Conduct statistical correlations of groups of environmental parameters with stability index.
- Conduct correlations for threshold values of critical environmental parameters



REF: Foreign Policy Magazine
Failed State Index 2007

			Indicators of Instability												
			Demographic Pressures	Refugees and Displaced Persons	Group Grievance	Human Flight	Uneven Development	Economy	Delegitimation of State	Public Services	Human Rights	Security Apparatus	Factionalized Elites	External Intervention	
Rank	Total	Country													
1	113.7	Sudan	9.2	9.8	10.0	9.0	9.1	7.7	10.0	9.5	10.0	9.9	9.7	9.8	
2	111.4	Iraq	9.0	9.0	10.0	9.5	8.5	8.0	9.4	8.5	9.7	10.0	9.8	10.0	
3	111.1	Somalia	9.2	9.0	8.5	8.0	7.5	9.2	10.0	10.0	9.7	10.0	10.0	10.0	
4	110.1	Zimbabwe	9.7	8.7	8.8	9.1	9.5	10.0	9.5	9.6	9.7	9.5	9.0	7.0	
5	108.8	Chad	9.1	8.9	9.5	7.9	9.0	8.3	9.5	9.1	9.2	9.6	9.7	9.0	
6	107.3	Ivory Coast	8.6	8.3	9.8	8.4	8.0	8.9	9.5	7.9	9.2	9.6	9.3	9.8	
7	105.5	Dem. Rep. of the Congo	9.4	8.9	8.8	7.6	9.1	8.0	8.3	8.7	8.9	9.6	8.6	9.6	
8	102.3	Afghanistan	8.5	8.9	9.1	7.0	8.0	8.3	8.8	8.0	8.2	9.0	8.5	10.0	
9	101.3	Guinea	7.8	7.4	8.1	8.3	8.5	8.5	9.6	8.9	8.6	8.1	9.0	8.5	
10	101.0	Central African Republic	8.9	8.4	8.8	5.5	8.6	8.4	9.0	8.0	8.2	8.9	9.3	9.0	
11	100.9	Haiti	8.6	4.2	8.0	8.0	8.2	8.4	9.2	9.0	9.1	9.3	9.3	9.6	
12	100.1	Pakistan	8.2	8.5	9.0	8.1	8.5	5.8	8.7	7.1	8.7	9.5	9.5	8.5	
13	97.7	North Korea	8.0	6.0	7.2	5.0	8.8	9.6	9.8	9.5	9.7	8.3	7.9	7.9	
14	97.0	Burma	8.5	8.5	9.1	6.0	8.9	7.6	9.1	8.3	9.8	9.0	8.2	4.0	
15	96.4	Uganda	8.1	9.4	8.5	6.0	8.5	7.5	8.5	8.2	8.2	8.3	7.8	7.4	
16	95.9	Bangladesh	8.6	5.8	9.6	8.4	9.0	6.9	9.0	7.4	7.8	8.0	9.5	5.9	
17	95.6	Nigeria	8.2	5.6	9.5	8.5	9.1	5.4	9.1	8.7	7.1	9.2	9.5	5.7	
18	95.3	Ethiopia	9.0	7.9	7.8	7.5	8.6	8.0	7.9	7.0	8.5	7.5	8.9	6.7	
19	95.2	Burundi	9.1	8.9	6.7	6.7	8.8	8.2	7.1	8.9	7.5	6.8	7.5	9.0	
20	94.9	Timor-Leste	8.1	8.5	7.1	5.3	6.5	8.5	9.5	7.9	6.9	9.0	8.8	8.8	
21	93.6	Nepal	8.1	5.2	8.9	6.1	9.2	8.2	8.5	6.6	8.8	8.3	8.5	7.2	
22	93.5	Uzbekistan	7.7	5.4	7.1	7.1	8.6	7.5	9.2	6.8	9.0	8.9	9.2	7.0	
23	93.4	Sierra Leone	8.6	7.4	7.1	8.7	8.7	8.7	8.0	8.0	7.0	6.5	7.7	7.0	
24	93.2	Yemen	8.0	6.7	7.3	7.2	8.7	8.0	7.8	8.1	7.2	8.0	9.0	7.2	
25	93.1	Sri Lanka	7.0	8.6	9.5	6.9	8.2	6.0	8.9	6.5	7.5	8.7	9.2	6.1	
26	93.0	Republic of the Congo	8.7	7.3	6.8	6.1	8.1	8.3	8.5	8.8	7.9	7.9	7.2	7.4	
27	92.9	Liberia	8.1	8.5	6.5	6.8	8.3	8.4	7.0	8.6	6.7	6.9	8.1	9.0	
28	92.4	Lebanon	6.9	8.6	9.0	7.0	7.1	6.3	7.3	6.4	7.0	9.0	8.8	9.0	
29	92.2	Malawi	9.0	6.0	6.0	8.0	8.8	9.2	7.9	9.0	8.0	5.4	7.5	7.4	
30	92.0	Solomon Islands	8.5	4.8	8.0	5.1	8.0	8.0	8.5	8.5	7.1	7.7	8.8	9.0	
31	91.3	Kenya	8.4	8.0	6.9	8.0	8.1	7.0	8.0	7.4	7.0	7.1	8.2	7.2	
32	91.2	Niger	9.2	5.9	8.9	6.0	7.2	9.2	8.2	8.8	7.1	6.7	6.0	8.0	
33	89.7	Colombia	6.8	9.5	7.4	8.4	8.4	3.8	8.2	6.0	7.4	8.3	8.5	7.0	
33	89.7	Burkina Faso	8.6	5.6	6.4	6.6	8.9	8.2	7.6	8.9	6.6	7.6	7.7	7.0	
35	89.4	Cameroon	7.0	6.8	7.0	7.9	8.7	6.1	8.5	7.5	7.2	7.7	8.0	7.0	
36	89.2	Egypt	7.7	6.5	7.8	6.2	7.8	7.0	9.0	6.7	8.5	6.1	8.3	7.6	
36	89.2	Rwanda	9.1	7.0	8.7	7.6	7.1	7.5	8.5	6.9	7.4	4.6	8.2	6.6	
38	88.8	Guinea-Bissau	7.6	6.5	5.4	7.0	8.6	8.0	7.2	8.5	8.0	8.0	6.8	7.2	
39	88.7	Tajikistan	7.7	6.1	6.3	6.4	7.3	7.3	9.0	7.3	8.6	7.8	8.8	6.1	
40	88.6	Syria	6.5	8.9	8.0	6.8	8.1	6.8	8.5	5.3	8.5	7.4	7.5	6.3	
41	88.2	Equatorial Guinea	8.0	2.0	7.0	7.4	9.0	4.0	9.4	8.6	9.4	8.9	8.5	6.0	
41	88.2	Kirgizstan	7.5	6.2	6.8	7.4	8.0	7.5	8.2	6.3	7.9	7.9	7.5	7.0	
43	87.5	Turkmenistan	7.0	4.5	6.2	5.6	7.3	7.4	9.0	7.7	9.6	8.5	8.2	6.5	
44	87.2	Laos	8.0	5.5	6.5	6.6	5.7	7.1	7.9	8.0	8.5	8.2	8.6	6.6	
45	86.7	Mauritania	8.7	6.2	8.0	5.0	7.0	7.8	6.8	8.1	7.1	7.4	7.9	6.7	
46	86.6	Togo	7.5	5.4	6.0	6.5	7.5	8.2	7.7	8.0	7.8	7.8	7.6	6.6	
47	86.4	Bhutan	6.5	7.5	7.0	6.7	8.7	7.9	8.0	6.5	8.5	4.6	8.0	6.5	
48	85.7	Cambodia	7.6	5.9	7.3	8.0	7.2	6.4	8.5	7.6	7.1	6.2	7.5	6.4	
48	85.7	Moldova	7.0	4.7	7.3	8.4	7.5	7.5	7.9	7.1	6.8	6.3	7.5	7.7	
50	85.5	Eritrea	8.1	7.1	5.4	6.0	5.9	8.4	8.3	7.7	7.4	7.5	7.2	6.5	
51	85.2	Belarus	8.0	4.6	6.5	5.0	7.5	6.8	9.1	6.9	8.5	6.7	8.5	7.1	
52	85.1	Papua New Guinea	7.5	3.5	8.0	7.9	9.0	7.3	7.8	7.8	6.1	7.0	6.7	6.5	
53	84.9	Angola	8.5	7.5	5.9	5.0	8.7	4.2	8.6	7.7	7.5	6.2	7.5	7.6	
54	84.5	Bosnia	6.1	8.0	8.3	6.0	7.2	6.0	7.6	5.6	5.3	7.3	8.3	8.8	
55	84.4	Indonesia	7.0	7.5	6.0	7.5	8.0	6.5	6.5	7.0	7.0	7.3	7.2	6.9	
56	83.2	Philippines	7.0	5.7	7.2	6.7	7.6	5.8	8.2	5.9	6.8	7.6	7.8	6.9	
57	82.8	Iran	6.2	8.6	7.1	5.0	7.2	3.3	7.8	5.7	8.7	8.3	8.9	6.0	
58	82.3	Georgia	6.3	6.8	7.6	5.7	7.0	5.7	7.9	6.1	5.4	7.8	7.8	8.2	
59	82.0	Bolivia	7.4	3.7	7.0	7.0	8.5	6.4	7.2	7.4	7.0	6.2	8.3	5.9	
60	81.4	Guatemala	7.0	6.0	7.1	6.7	8.0	7.0	7.4	6.6	7.1	7.3	5.9	5.3	

REF: Foreign Policy Magazine
Failed State Index 2007



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Environmental Security Analysis

F= Awful
 D= Bad
 C= Average
 B= Good
 A= Good and improving

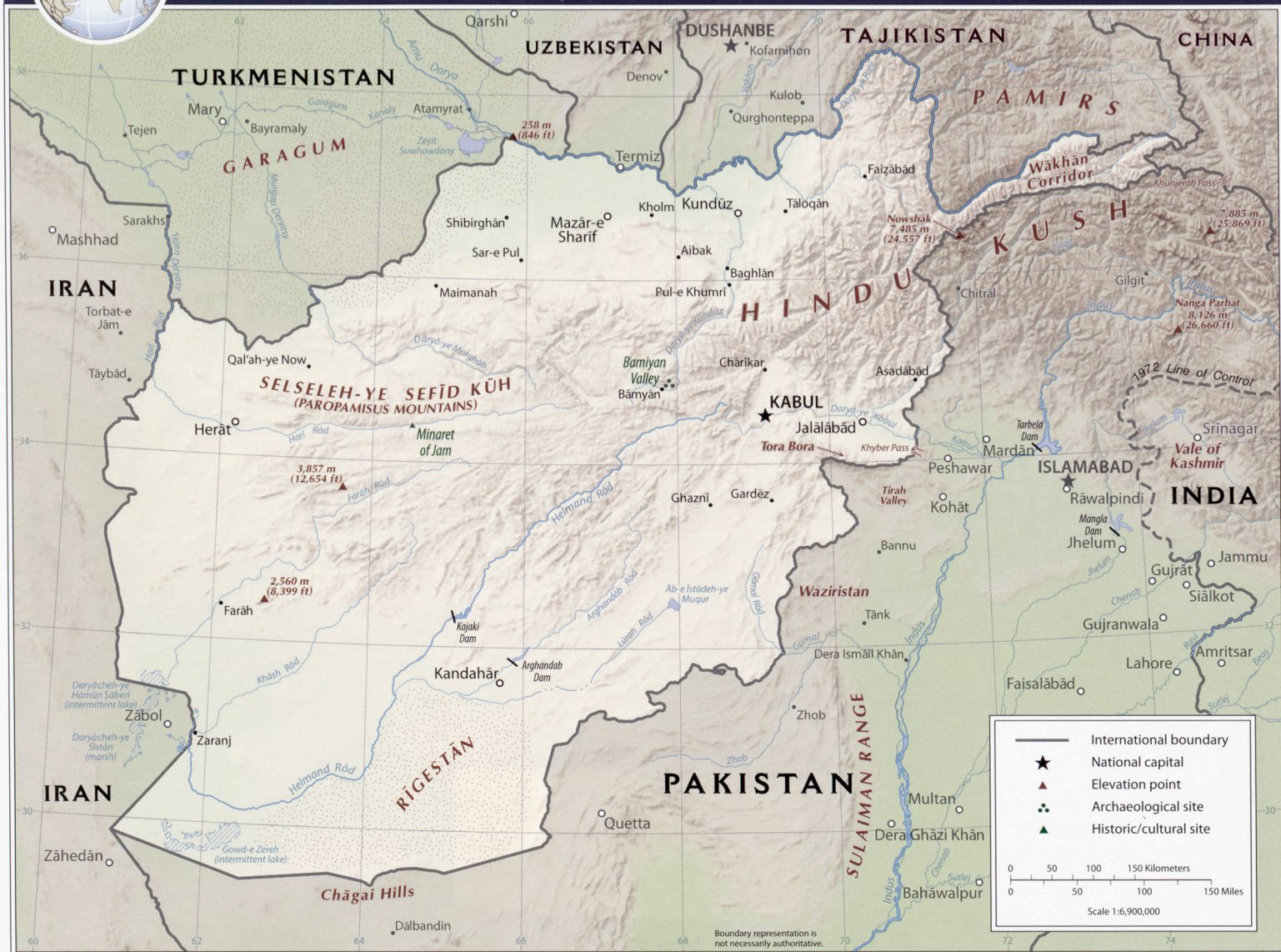
	RNI %	Fertility rate	Water Data	Arable land	Forest Data	Crops	ES Risk
Sudan	2.9	6.0	F	F	F	F	Extreme
Iraq	3.1	5.5	D	D	F	D	High
Somalia	2.5	6.3	F	F	F	F	Extreme
Zimbabwe	1.5	3.7	F	D	F-	F	High
Chad	3.1	6.6	F	F	F	F	Extreme
Ivory Coast	2.3	5.4	F	C	NA	F	High
Dem Rep of the Congo	3.2	7.2	F	C	C	F	High
Afghanistan	2.7	6.9	F	F	F-	F	Extreme
Guinea	2.7	6.2	F	D	D	F	High
Central Africa Republic	2.7	5.4	F	C	C	F	High
Haiti	2.5	5.7	F	F-	F-	F	Extreme
U.S.	0.6	2.0	A	B	B	A	Low
France	0.6	1.9	A	A	A	A	low

population data is 1995 based



AFGHANISTAN

Physiography



	International boundary
	National capital
	Elevation point
	Archaeological site
	Historic/cultural site

0 50 100 150 Kilometers
0 50 100 150 Miles
Scale 1:6,900,000

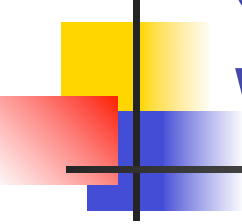
LAMBERT CONFORMAL CONIC PROJECTION; STANDARD PARALLELS 30°25' N 37°10' N

Boundary representation is not necessarily authoritative.



Afghanistan Facts

- 23.8 million, 12.3 million males -44m by 2025
 - 3.88 % growth rate, 3rd in the world
 - 2.7 % RNI
 - 6.90 fertility rate, 8th in the world
 - Life expectancy -43.1 years
 - Median age – 18 years
 - Infant mortality rate -147
- 13 % access to safe drinking water
 - 39L/day/person (minimum std is 50)
- 21% access to sanitation in 1970, 12% today
- Management of solid and hazardous waste does NOT exist.
- Less than 3 % forest (rate data not available once forests are gone)
- Percent arable lands – 12 % including 3 % in forests
 - Food production dropped by 40% 1995 to 2000
- Air Quality - ???



Impact of Climate Change in Afghanistan; or, just when you think it can't get any worse, it does

- Temperature increase 1-2 degrees C, 1970-2004, projected to increase by more than 4 degrees by 2090
- Impact on snow and ice in Hindu Kush extreme
- Precipitation rates reduced by 5-20 %
- Runoff up to 40% less than 1980-1999 by end of this century
- Adaptation and mitigation potential, near zero
- Overall vulnerability to climate change very high

In real world terms – Disease, drought, famine,



Summary

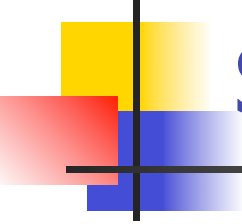
- Peace is not the absence of war, but the existence of stable communities of people who have the basic human needs satisfied
- Defense and security is a much larger issue than wielding military power
- Protecting peace means assuring regional stability, therefore
- Environmental degradation is a major threat to peace and stability in the world
- Climate Change generally degrades environmental conditions and reduces carrying capacity in the arid tropical ecosystems, and most heavily populated areas of the world.

*Environmental security provides a scientific tool
to correlate science to the political/social
dimension of stability and security*



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How Can We Use Environmental Security Analysis

- Analyze future threats
- Predict regional impacts of changes in key environmental factors
- Assist in planning programs to avoid or mitigate destabilizing environmental conditions
- Focus rebuilding efforts
- Disaster planning and training

One picture is worth a thousand words

