

Understanding Sudan

A Teaching and Learning Resource



Lesson Outline for Discussion of Desertification Debate in Africa

Suggested Readings:

Adams, W.H. 1990. Chapter 7: Environment, Degradation and Sustainability” in Green Development: Environment and Sustainability in the Third World. London and New York: Routledge.

Lamprey, H.F., 1975, Report of the desert encroach reconnaissance in Northern Sudan: 12 October to November 1975, UN Environment Programme- UNESCO, Nairobi.

Swift, Jeremy. 1996. Narratives, Winners and Losers, in Melissa Leach and Robin Mearns (eds.). The Lie of the Land: Challenging Received Wisdom on the African Environment. London: James Currey and New Hampshire: Heinemann.

Thomas, David S.G. and Nicholas J. Middleton. 1994. Desertification: Exploding the Myth. Chichester and New York: John Wiley and Sons.

Warren, Andrew and Clive Agnew. 1988. An Assessment of Desertification and Land Degradation in Arid and Semi-Arid Areas. Dryland Program Issue Paper (2): IIED International Institute for Environment and Development.

1) Defining Desertification

- a) What is Desertification- go through debates over definitions of desertification
 - i) Many scientists find the word desertification very broad and ill-defined, preferring to use other terms:
 - (1) Drought- two or more years of rainfall well below average
 - (a) Reductions in productivity, but with rainfall thing usually go back to normal
 - (2) Desiccation- process of drying out to extended drought
 - (a) Can have more extended effects because trees may die, but when rainfall goes back to normal, land generally goes back to normal.
 - (3) Dryland degradation
 - (a) Persistent decrease in the productivity of vegetation of soils because of inappropriate land use practices which cause changes in soil or vegetation and this can happen irrespective of rainfall or moisture.
 - (i) It is now realized that much of the degradation assumed to have taken place in dry grasslands as a result of overgrazing is a misreading of the situation, resulting from drought and reversed in conditions of more normal rainfall.
 - (4) Many different definitions have led to confusion over what desertification is.

2) History of Desertification Debate in Sahelian Africa

- a) Show Map of Sahel/Sahara area in Africa (map)

- b) Role of E.B. Stebbing
 - i) At a meeting of the Royal Geographic Society in 1935, Professor E.B. Stebbing, Professor of Forestry at the University of Edinburgh
 - (a) Forester in the Indian colonial service
 - (b) Travelled through West Africa and wrote a book entitled "The Encroaching Sahara: the threat to the West African Colonies".
 - (c) He talked about a recent trip that he made through West Africa, where he felt that the desert was advancing.
 - ii) What's interesting is that this argument in the 1930s about human-related desertification really foreshadows future debates
 - (a) What does Stebbing say:
 - (i) The Sahara desert is moving southwards- he estimates about 1 km. Per year and the rate is speeding up.
 - (ii) Desiccation is mainly to blame- the reduction of rainfall, reduction in surface water, a lowering of the water table
 - (iii) And the express cause of desertification is human activity- in particular shifting cultivation, bush fires, deforestation, herding pressure on range lands
 - (iv) Human misuse of resources is a function of population growth
 - 1. too many people, too many animals
 - (v) Stebbing rejects that it is climate change
 - (vi) And then he argues that the Sahara is not the only vulnerable place, but that there are many areas that are subject to the same processes.
 - (b) His solution:
 - (i) His proposal was to plant massive forest belts, one through Burkina Faso, Nigeria all the way to lake Chad, another south through Ivory Coast through Ghana.
 - (ii) Estimated that 15 billion trees would need to be planted.
 - (c) His conclusions are controversial
 - (i) There is a scientific commission set up, the Anglo-French Forestry Commission that looks at these issues in West Africa
 - 1. They come up with a really different conclusion, refuting most of Stebbing's conclusions
 - 2. It is fluctuations in climate that are causing drought
- c) The other international context that this needs to be placed in is the Dust Bowl.
 - (1) Lots of concern about the Dust Bowl internationally, lots of policies are taking place in Africa
- d) The 1950s and 1960s are generally wet years in Sahelian Africa, so there is not a lot of discussion of desertification or things like that at all.
- e) The idea of desertification really came back on the scene in the 1970s when a major drought occurred across Sahelian Africa
 - i) Started in 1968 and peaked in 1974, then was followed by a second drought in 1979-1984.
 - (1) There were two influential pieces of research
 - (2) Hugh Lamprey- UNEP ecologist
 - (a) In 1975, using aerial photographs looked at desert boundaries in 1975 and then compared them with 1958
 - (b) Came up with a boundary change of 90-100km.
 - (i) So in that snapshot he saw that the edge of vegetation had moved southwards and that the desert boundary had increased.

- (ii) Using this data, many extrapolated from this that the desert boundary was increasing between 5-6 km/year
 - (3) Fouad Ibrahim- a geographer conducted research in Darfur province
 - (a) In Sudan did research arguing that the desert was marching southwards
 - (b) Mainly use yield to look at desertification
 - (i) Discuss problematic nature of using yield to measure desertification, basically arguing that yield is highly correlated with rainfall.
- ii) What was the root cause of problems- over-population of animals and people
 - (1) Population in the Sahel had doubled between 1965 and 1983
 - (2) Due to an increase in unsustainable practices, increases in herding and farming.
 - (3) Periodic drought was thought to exacerbate the tendencies of dryland areas to be at risk but not the main cause of problems.
- iii) In the 1980s an alternative picture emerged
 - (1) Geographers from Lund University started doing satellite imagery work and their results were in direct contrast to those of the previous studies.
 - (2) They found a couple of things:
 - (a) No creation of long lasting desert-like conditions
 - (i) Desert boundaries shifted periodically with rainfall
 - (ii) Crop yields also returned to normal when rainfall returned to normal.
 - (b) No creation of sand dunes or Sahara desert encroachment
- f) This led to a replacement of the old alarmism with a different perspective on desertification
 - i) Instead of looking at land loss, reports talk about complexity and poverty
 - (1) Climatic variation is given importance.
 - ii) That doesn't mean that everything is okay with drylands
 - (1) Lots of localized degradation and problems with soil erosion, salinization, etc.
 - (a) There are threats to dryland areas, but the alarmist rhetoric of deserts moving southward was not all that helpful in formulating solutions.

3) How has this affected policy?

- a) UN Conference on Desertification
 - i) International concern about the crisis was so great that a UN Conference on Desertification was held in Nairobi in 1977
 - (1) It funded lots of research on desertification
 - (a) Much of the science was unsure about the causes and extent of desertification
 - (b) But what was interesting was that the final report ignored the uncertainty
 - (i) Delivered a very pessimistic view about world views of desertification and linked it to problems caused by humans.
 - 1. Farming, overgrazing, irrigation, etc.
 - 2. Were concerned about patches of localized degradation linking up.
 - a. Created a Plan of Action to combat desertification to be implemented by the year 2000 to halt the advance of desertification
 - b. Some of the solutions were greenbelts to cross the edge of the Saharan desert.
 - i. Reviving Stebbing's idea of a proposed forest belt.
 - ii) Why does desertification continue despite scientific uncertainty?
 - (1) Jeremy Swift talks about the notion of desertification as a narrative

- (a) How the science is manipulated by politicians and bureaucrats
 - (2) What is a narrative?
 - (a) An idea that persists despite little evidence
 - (b) The science wasn't that good, yet people really grasped onto the idea
 - (c) And has influenced lots of policy
 - iii) The Case of U.N. planning policy
 - (a) United Nations Environment Program asked countries to estimate land use and human and animal populations.
 - (i) Countries without statistics made estimates
 - (ii) From this UNEP came up with some statistics
 1. Desertification threatened 35% of earth's land surface and 20% of World's population
 2. Land lost through desertification was something like 6 million hectares, land reduced zero economic activity was something like 21 million hectares annually.
 3. These figures were repeated over and over and then became part of the Bruntland report, where people again quoted it again and again.
 - (iii) But this view was never accepted by many scientists.
 - (b) UN planning generally ignored the difference between these processes
 - (i) UN also ignored the perception of farmers that changes were caused by rainfall.
 - (ii) When researchers argued for complexity, they were accused on standing in the way of solutions to urgent and well-known problems.
 1. So the concerns of scientists were largely ignored.
 2. Part of this problem was that there wasn't all that much research and data that went back that long.
 3. Small number of works were cited over and over again.
 - a. These works had a lots of weaknesses
 - b. Dry years were compared with wet years.
 - c. The differences were defined as an overall decline, rather than variation.
 - d. Ibrahim's work in particular uses declines in yield to show that there is degradation.
- b) Why did this Development Narrative goes as far was it did, despite the fact that science really didn't support it?
 - i) Historical relativity
 - (1) No accident that these things flair up during drought periods
 - (2) Stebbing's shelter-belt idea for Africa happened after a major drought in West Africa; the surge of interest by the UN happened after donor activity on the 1970s.
 - (3) Under such conditions, it is easy for journalists, civil scientists, foresters to assume that something catastrophic is going on.
 - (a) Indeed the droughts of the 1970s and 1980s were followed by massive famines
 - (i) But as we know many of them were just as much about political instability as drought.
 - ii) In the interest of certain national governments, international aid bureaucracies, particularly the UN, and some major donors as well as some groups of scientists
 - (1) National Governments

- (a) National governments in 1970s were looking for ways to justify their position in power and their role in authoritarian intervention in land use
 - (i) A Crisis scenario allowed them to do this
 - 1. farmers have inefficient systems of land management, governments can do a better job
 - 2. See this during the colonial period in French West Africa and in East Africa
 - a. Colonial authorities forced farmers to build terraces.
 - 3. In the 1970s national bureaucracies benefited from this
 - a. Could get money into government services which needed money- forestry services, planning, or national park services.
 - 4. Also blamed local populations
 - a. Pastoralists came in for special blame under UNCOD Plan of Action
 - i. Those who wished to settle pastoralists had their ammunition.
 - ii. Pastoralists were guilty of a tragedy of the commons
 - iii. Goats were ruining the environment- this influenced planning policies towards livestock.
 - b. Some governments used it to justify politically authoritarian actions.
 - (2) Aid bureaucracies
 - (a) Use to justify increased flows of aid.
 - (i) The need for increased aid to Africa was a constant theme.
 - (b) Also desertification was slightly more appealing because it was seen as more apolitical than other issues, such as birth control, land distribution or poverty.
 - (3) Scientists
 - (a) Some scientists got very involved with policy
 - (b) It was the view of many western range ecologists that African range land was overgrazed.
 - (i) Imposing norms of science that was learned in the West without really understanding the local environment.
- c) So these groups were the winners, they got resources and expanded their influence. Who were the losers?
 - i) Dryland farmers and herders, whose control over resources was taken away and whose understanding of their environment was ignored.

4) New Developments

- a) International Convention to Combat Desertification came about and was signed in 1994.
 - i) The lead states were the African Countries
 - (1) They were the ones pushing the agenda
 - ii) There was a fair amount of opposition from the Developed countries
 - (1) Didn't see it as a true global problem
 - (a) By this time the idea that deserts were expanding had been rethought
 - (b) US, for example, wanted the term land degradation substituted for desertification.
 - (c) Donor countries were also fearful that if it were designated as a global problem, then there would be obligations under the GEF.
 - (2) Also problems with defining what is desertification
 - (a) Came up with a broad definition that looked at a broad array of social and natural factors.

- (3) African countries didn't have a huge amount of credibility because much of the money that was donated for the Plan of Action to Control Desertification was misspent.
 - (a) Many industrialized countries and the World Bank argued that the problems were with the structure of African economies
 - (i) African governments tax agriculture and have an urban bias.
- iii) Even with these problems, it eventually got put on the international agenda because of backing from the US
 - (1) The US wanted Africa's support for other conventions and the Rio declaration so they agreed to support the Convention on desertification.
 - (2) Europe followed as well.
- iv) What is the agreement?
 - (1) Basically tries to consider the livelihoods of dryland inhabitants
 - (a) Land tenure reform, more economic development, and popular participation in environmental issues.
 - (2) African countries wanted debt reduction as part of the package.
 - (a) But international community basically didn't give in on that.
 - (3) The industrialized countries were a veto coalition in providing in rejecting any demands for new and additional funding
 - (a) Developed countries felt that they bore no responsibility for problems of desertification, unlike other problems like ozone.
 - (b) So didn't commit any new funds.
 - (4) So basically what it comes up with are:
 - (a) A recognition of the physical, biological and socioeconomic aspects of desertification
 - (b) Involvement of local populations in attempts to combat desertification
 - (c) The core is the development of national and regional action programs by national governments in cooperation with donors, local populations, and NGOs.