Ecological Anthropology
SANT 512

Lectures 4 and 5

Dr. Elias Alemu

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Topics:

Natural resources
Natural resource management
Sustainable development
Conservation
Water



Definition of a natural resource

- In general, a resource is defined as “a stock or supply of money, materials, staff, and other assets that can be drawn on by a person or organization in order to function effectively” (Oxford dictionary). For example, we also speak about “human resources.”
- In particular, when we speak about a “natural resource”, it is defined as “a country’s collective means of supporting itself or becoming wealthier, as represented by its reserves of minerals, land, and other natural assets” (Oxford dictionary).



Natural resources

- This idea of an “asset” or something that can enhance a country’s wealth is an important part of defining a “natural resource.”
- This is the main reason that there are disputes between countries over borders, because of the natural elements or “resources” in the land.
- The most glaring example is our neighbour the Sudan where the conflict between north and south is presented by international organisations, politicians and mainstream media as an ethnic conflict whereas the fundamental problems over land, its resources and livelihood is presented as a secondary cause.



From “nature” to “natural resource”

- It is therefore important to understand that the foundation for this view of nature as a “resource” comes from industrial society.
- This is why we highlighted the core ideas of control, protection and insulation in the previous lecture.
- Since natural resources are located in specific national territories, governments, donors and private companies generally determine how these resources are used or “exploited.”



The politicisation of nature

- The access to natural resources, their use, distribution and who benefits from their extraction and exploitation are political processes.
- Questions of power, wealth and inequality emerge in these processes.
- These issues shape the reality and discourse of natural resources and their management.



Natural resource management

- Since natural resources are so important to a country's economic growth, there is now a field of study called "natural resource management."
- This focuses on how to sustainably manage the earth's natural resources and countries' resources.
- This is why the term "sustainable development" usually goes along with "natural resource management."
- The notion of "sustainable development" or sustainability in development focuses on how countries of the Global South should "develop" economically and, at the same time, try to maintain their natural resources and not worsen environmental destruction.



Natural resource management, sustainable development and climate change

- For example, if Ethiopia is to improve its infrastructure (meaning transportation networks) this means quarrying more (extracting rocks), producing more cement, importing more steel etc.
- In doing this, the rock should not be extracted completely and the cement factory should not emit a large amount of pollutants, like greenhouse gases. The country also needs to have enough foreign currency to purchase steel, tar etc.
- So it is difficult to achieve both development objectives and to sustainably manage natural resources while not adding to environmental destruction.



Nnatural resource management, sustainable development...

- This is the major challenge for developing countries.
- Countries of the Global South, including Ethiopia, are putting ‘green’ solutions on their national agenda.
- For example, in 2011 Ethiopia formalised a Climate-Resilient Green Economy Strategy (see http:www.undp.org for details).
- This is part of the country’s plan for sustainable development.

Sustainable development (continued)

- The UN definition is “development which meets the needs of current generations without compromising the ability of future generations to meet their own needs” (http://www.unece.org).
- In 1992 the United Nations Commission for Sustainable Development was formed.
- Now international organisations promote “sustainable development” or “sustainability” alongside “climate change” and “natural resource management.”
- UN MDG number 7 is “to ensure environmental sustainability” (un.org).



Climate change

- Climate- the general temperature and rainfall (or precipitation) of an area or of the earth as a whole measured over a long time.
- Thus, climate is weather calculated over a long period of time.
- According to researchers on the Intergovernmental Panel on Climate Change (IPCC), warming of the climate has definitively taken place.
- “This is seen in many independent lines of evidence: the warming of the atmosphere and ocean, reductions in snow and ice, and rising sea level” (http://www.un.org/climatechange/the-science).



Climate change

- A report published in April 2014 by the IPCC states, “temperatures were likely to rise by between 0.3 and 4.8 degrees Celsius by the late 21st century. The low end of the range would only be achieved if governments sharply cut greenhouse gas emissions. World sea levels could rise by between 26 and 82 cm by the late 21st century, driven up by melting ice and an expansion of water as it warms, in a threat to coastal cities from Shanghai to San Francisco” (http://www.euronews.com).
- This threat is not only to coastal cities but islands as well.



Climate change: the Rio Declaration

- One important international agreement that addresses the harmful effects of climate change is the Rio Declaration.
- This Declaration was drafted as a result of the seminal 1992 Rio Conference.
- Various principles of the Declaration refer to maintaining the stability of the “ecosystem,” countries’ responsibility to the environment, and introducing “environmental legislation”.



Climate change: the Kyoto Protocol

- The UN Framework Convention on Climate Change was introduced in 1994 with the Kyoto Protocol added to it in 1997.
- The Kyoto Protocol (1997) is an important declaration because it set **targets for reducing greenhouse gas emissions** (or carbon emissions) on national levels.



Greenhouse gas emissions

- Greenhouse gases (such as carbon dioxide) are dangerous to the erosion of Earth's ozone layer and have harmful environmental and health consequences.
- In addition to toxic gases from industrial production and transportation, with increasing deforestation, there is less flora (trees, plants, algae etc.) to absorb CO2 in the environment.
- In addition to this natural cycle, with the use of the earth's natural resources for example, in industrial production, the amount of pollutants increases.



Greenhouse gas emissions

- For instance, the USA with a population of about 300million makes up about 4.7% of world population but is responsible for 22.5% of carbon dioxide emissions (UNDP 2002).
- This is about 17.67tonnes per capita (2009), which is the highest in the world proportionally.
- By comparison, Ethiopia with its population of about 75 million (2007 G.C Census) emits about 0.08tonnes of carbon dioxide per capita (2009) which is comparatively very low.



The Kyoto Protocol

- The Kyoto Protocol (1997) is a binding agreement that states voluntarily sign.
- According to the Protocol, on average 5% of greenhouse gases (based on levels in 1990) should be reduced over the years 2008-2012 in 37 industrialized countries (Canada, Japan etc.) and in the EU (France, Norway etc.).
- This agreement recognises the “common but differentiated” targets for greenhouse gas reductions between developed and developing states as a result of the longer period of industrialisation in the Global North.
- The Kyoto Protocol expired in 2012 and there is a new amendment to the Protocol (the Doha Amendment) that goes from 2013-2020.



The Kyoto Protocol: carbon trading

- Each signatory to the Kyoto Protocol has an amount of emissions known as “assigned amount units.”
- If one country has units that it has not used then it can sell these units to another signatory that is above its emission limit.
- This is how greenhouse gas “reductions” have become a commodity that can be “traded.” This is known as “carbon trading.”
- There are specific ways of measuring and calculating these units. The EU for example has a well-developed emissions trading scheme (see unfccc.int).



Conservation

- If, as environmentalists argue, industrialisation has caused widespread damage to the environment, then people and states must take measures to stop this and to protect the environment.
- This leads to the notion of conservation, a popular one in the Global North.
- The definition of the verb to conserve means “to protect (something, especially something of environmental or cultural importance) from harm or destruction” (Oxford dictionary).
- UN Convention on Biological Diversity is one major international agreement created to conserve and protect natural resources.
- The Ethiopian Environmental Protection Authority is mandated to fill this function on a national level (see http://www.epa.gov.et).
- Environmentalists emphasise that conservationists must be aware of and consider peoples’ practices in relation to biodiversity.
- Social and cultural awareness must therefore complement conservation initiatives.



UN Convention on Biological Diversity

- Biological Diversity is often shortened to “Biodiversity”.
- “Biological diversity” is defined as “the variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable” (Oxford dictionary).
- This UN Convention was signed in 1992 at the Rio Summit.
- The Convention conserves biodiversity through awareness-raising and the sustainable use of biodiversity through environmental initiatives.



UN Convention on Biological Diversity: Aichi targets

- It sets various national and international targets for protecting nature. For example, “at least halve and, where feasible, bring close to zero the rate of loss of natural habitats, including forests;”
- “Establish a conservation target of 17% of terrestrial and inland water areas and 10% of marine and coastal areas;”
- “Restore at least 15% of degraded areas through conservation and restoration activities;”
- “Make special efforts to reduce the pressures faced by coral reefs” (http://www.cbd.int/sp).
- These are examples of the targets set in Aichi (Japan) at the 10th Conference of Parties to the Convention in 2010.



Conservation

- “Conservationists define the environment as ‘nature’, and the living part of nature as ‘wildlife’”(Milton 1996: 124).
- From the conservationist perspective, it is essential that humans protect the environment, meaning nature, and maintain the biological diversity of wildlife.
- It is important to recognise that the core idea of protection in the conservation perspective is a dominant idea in the industrial North, but may not be shared across cultures.



“Conservation” and the Mende

- Another clear example of this difference in perspective on relations between people and the environment is the experience of anthropologist Paul Richards among the Mende of the Gola forest in Sierra Leone (West Africa).
- While Richards was conducting fieldwork on ecology among the Mende, he suggested that Mende people translate conservation slogans that are popular in the Global North like “save Gola forest”.
- However, as Richards relates, this was problematic.



The idea of “saving” the forest for Mende

- “ ‘Save’ was generally understood in the sense of to care for or to protect. In local thought that would imply to care for the forest as if it were someone’s property…. But to Mende, forest is not property, nor should it be allowed to become so, because it is a basic resource upon which the whole society depends’ (Richards 1992a:151)” (cited in Milton 1996:126).
- As Richards continues, “the Mende were not in a position to protect the forest, not only because it was not property, but also because the forest, in their view, cared for and supported *them, in the way that patrons* support their clients. The closest local approximation to ‘Save Gola Forest’ was a phrase that meant ‘get away from behind (stop living under the protection of) Gola Forest’. The forest was compared to a patron with too many clients, and the only conceivable way of ‘saving’ it was to relieve it of this burden (Richards 1992a: 151–2)” (ibid).



Water as a source of energy

- The relation between water as a energy source, development in the Global South and conservation is a complex one.
- The reality is that water is a source of energy so it is one natural resource that developing countries are encouraged to exploit.
- Hence the construction of dams. In the film “Blue Gold” the narrator mentioned the Itaipu Dam on the Brazil/Paraguay border in South America which uses the Paraná River and has produced over 90,000 megawatts (MW) of power. This is the largest amount produced by any dam in the world.



The World Commission on Dams

- The World Commission on Dams was set up by the World Bank and the International Union for Conservation of Nature (IUCN).
- The Commission was mandated to conduct an independent review of existing dams and dams under construction. The Commission published the report of its findings in 2000 and after this the Commission was disbanded.
- The Commission was supposed to formulate international guidelines for making decisions around dam construction and the “effectiveness” of construction for development agendas, which were partly done. Other organisations are continuing this work.



Dams in Ethiopia

- Ethiopia has various water sources that are currently exploited such as the Tekeze River, Abay River and the Awash River.
- The two major dams that ***are/were*** now under construction are the Gibe III dam along the Omo River and the Grand Renaissance Dam on the Nile River.
- We will focus on the expected advantages and the potential disadvantages of building the Gibe III.
- The main source of information is the Oxford University African Studies Centre study entitled “Lake Turkana and the Lower Omo: hydrological impacts of major dam and irrigation developments” (2012).
- There are other reports by the Africa Resources Working Group (2009) and the African Development Bank (2009).



Gibe III dam

- This dam has been under construction since 2006.
- However, the environmental impact assessment took place after construction began (Avery 2012).
- It is expected to produce 1,870 megawatts (MW) of power.
- It will be about 243 metres high and create a lake 200 square kilometres in area. The reservoir (where water will be stored) will hold 15 cubic kilometers of water “gross storage” which is “roughly the mean annual runoff needed to sustain Lake Turkana” (Avery 2010).
- The predecessors are the Gibe I and Gibe II dams which also harness hydropower from the Omo River.
- According to an African Development Bank study, there are two more dams planned for the Omo River, Gibe IV and Gibe V, “downstream of Gibe III.” Gibe IV “will create a lake similar in volume to Gibe III” (cited in Avery 2012: 7).



The Omo River environment

- People living around the Omo River include the Mursi, Bodi, Kara, Dassanetch and Nyangatom.
- The population of the Omo Basin is about 13million as of 2009 (cited in Avery 2012). This includes South Omo and Lower Omo.
- Their livelihood depends mainly on pastoralism with some fishing and farming.
- The Omo River flows into Lake Turkana on the Ethiopia/Kenya border.



Benefits of the Gibe III dam

- A sizeable amount of power will be produced.
- Potentially, electricity service will improve in Ethiopia. There is some uncertainty regarding whether or not the existing national grid has the capacity to handle increased electricity (Abbink 2012).
- Agreements are already reached with some neighbours to purchase power. This means that Ethiopia would acquire foreign currency.
- This will enable Ethiopia to buy materials required for various development initiatives such as improving infrastructure.
- Hydropower will also allow Ethiopia to continue its development projects.
- Leasing the land to grow sugarcane also means that the by-product of sugarcane, bagasse, can be used as a source of fuel. This is an alternative to oil and water.
- There will be work available in the short term.



Concerns about Gibe III construction

- Firstly, to build the dam inhabitants of the area need to be moved. When these people are displaced they will lose their livelihoods (subsistence land). How will they be compensated for this loss?
- This area is also home to wildlife and especially to the protected areas of the Omo National Park, Mago National Park and Tama Wildlife Reserve. In 2011 it was reported that these reserves were reduced in size to create more available land for commercial agriculture (Avery 2012).
- Since the Omo River provides almost 90% of the inflow to Lake Turkana the lake will not get as much water.
- Less water into the lake combined with natural evaporation that takes place means that the level of the lake might drop as much as 22metres or 72 feet. Considering that the average depth of the lake is 30 metres this is a lot.



Concerns (continued)

- Since the water level of the lake has risen and fallen naturally since the 19th century arguably it could rise again (Avery 2012: 6).
- Less water will increase the salinity (the amount of salt) in the water which will adversely affect marine life and subsistence farming that people practice around the lake.
- This also means that there will be less nutrients getting to Lake Turkana; nutrients that the marine life depend on.



Concerns (continued)

- However, there is supposed to be a “regulated flood” where water is released from the dam’s reservoir every 10 days to imitate the natural flood cycles of the river (Avery 2012: 8).
- But if the water is released from the reservoir in this way it will destroy the commercial agriculture in the Lower Omo area (ibid).
- This large-scale agriculture, for example the Kuraz sugar scheme alone, will use over 150,000 hectares and therefore use a lot of water for irrigation (ibid).



Alternative sources of energy

- Wind
- Solar
- Nuclear. This is problematic. As one interviewee mentioned in the film there is no proper mass disposal system for radioactive waste. Currently, this waste is stored in sealed containers at nuclear plants (factories) or buried underground.
- Geothermal
- Biofuel. For example, agricultural waste (from sugar cane for instance).



END



References

- Avery, S. “Lake Turkana and the Lower Omo: Hydrological Impacts of Major Dam and Irrigation Developments” Volume I and Volume II (2012). UK: African Studies Centre, University of Oxford.
- Richards, P. 1992. “Saving the rainforest? Contested futures in conservation” In S. Wallman (ed.). Contemporary futures: Perspectives from Social Anthropology. Association of Social Anthropologists Monographs, No.30. Routledge: London, pp. 138-153.



Appendix 1. Documentary “Blue Gold: World Water Wars” (2008)

- “In every corner of the globe, we are polluting, diverting, pumping, and wasting our limited supply of fresh water at an expedential level as population and technology grows. The rampant overdevelopment of agriculture, housing and industry increase the demands for fresh water well beyond the finite supply, resulting in the desertification of the earth. Corporate giants force developing countries to privatize their water supply for profit. Wall Street investors target desalination and mass bulk water export schemes. Corrupt governments use water for economic and political gain. Military control of water emerges and a new geo-political map and power structure forms, setting the stage for world water wars…” (www.bluegold-worldwaterwars.com).



Appendix 2. Key terms from the film “Blue Gold” (2008)

- Facts and figures – only 3% of the world’s water is freshwater. The remainder is salt water.
- “Recharge”: the process by which ground water is replaced from what people pump from the ground by the natural rain cycle. When the amount of water that we pump is more than the amount of rain getting to the ground then this natural recharge fails and our groundwater supply decreases.
- Aquifer: stores ground water.
- Desertification: “the process by which fertile land becomes desert, typically as a result of drought, deforestation, or inappropriate agriculture.”



Appendix 2 continued

- De-salination: the process of “removing salt from (seawater)”
- Wetlands: “land consisting of marshes or swamps; saturated land.”
- Water table: “the level below which the ground is saturated with water.” The water here is called “ground water.”
- Watershed: “an area or ridge of land that separates waters flowing to different rivers, basins, or seas. An area or region drained by a river, river system, or other body of water” (oxforddictionaries.com).



Appendix 3. Selected Principles of the Rio Declaration

- Principle 2: “States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.”
- Principle 4: “In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.”
- Principle 7: “States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem” etc. (un.org)

