CIEE Dakar, Senegal

Course name:	Environment and Development in Senegal and Sub-Saharan Africa
Course number:	ENVI 3102 SGSM
Programs offering course:	Language and Culture
Language of instruction:	English
U.S. Semester Credits:	3
Contact Hours:	45
Term:	Spring 2018
Course meeting times:	Tuesdays and Thursdays 10:30 -11:45
Course meeting place:	Jamm
Professor:	Abdoulaye DIANE, Ph.D.
Contact Information:	Tel. Office: 338258333; Cell 775509839 Email: abdiane@gmail.com / adiane@gen-senegal.com
Office address:	Global Education Network. Sacre Coeur 1 à côté du collège Université Cheikh Anta DIOP
Office hours:	By appointment

Course Description:

Africa is vulnerable to the highly temporal and spatial climate variability. According to historical records and recent projections, many droughts or exceptionally high rainfall seasons marked the climate trends over the low-income economics of Sub Saharan Africa. In many West African countries, development policies are still largely dependent to natural resources exploitation (water, arable lands, forestry, energy, etc.). Recently, environment and development issues tend to be more and more centralized on urban areas. The rapid increase of urban population with 45% of African population living in big cities - with poor urban functions and planning -have brought new challenges on the desk of policy makers. Beside global climate issues, African Nations are facing various environmental problems (lack of sanitation, water supply, garbage collection and disposal). For the recent 40 years, important economic investments have been made in coastal regions (major cities are often located on seashore). Such position makes many countries development largely dependent on environmental variability, which affects all productive sectors and natural resources dependent livelihoods. The increase in the demand of ecosystem services in connection with rapid population growth has accelerated the degradation of natural habitats and ecosystems and increased vulnerability of local populations. This class will introduce students to the climate change challenge and the specific environmental problems faced by communities living in urban and suburban areas. A specific emphasis will be put on drought and water supply issues, the sea level rise and the vulnerability of coast lines, sanitation and garbage management. Upon completion of this course, students should be able to understand and describe major environmental issues faced by African nations on the road to sustainable development but also to summarize the current political choices and their limitations.

Keywords: Africa, Climate Change, Development, Physical environment; Impacts, Vulnerability, Mitigation, Adaptation strategies.

Learning Objectives

The course aims at giving not just information and skills for understanding particular environmental problems in Senegal/Africa, but also to develop some methods for identifying and analyzing environmental problems through an integrated approach called holistic interdisciplinary paradigm.

The course will try to answer the following questions:

What is climate change? What is the current stage of scientific debate and evidence about climate change? What are major challenges in Africa, in Senegal? What are the actions taken by the government and local communities to address climate change related challenges? What are the positive aspects and limitations of current political choices in relation to water resources and garbage management? Beside climate change which environmental questions are affecting the most the development options of African nations? Who are the actors and what are their roles? What are the barriers? What are the priorities in reaching sustainable development?

Some basics, including the following, will be provided and discussed:

Presentation and description of main characteristics of Africa's physical environment
An outline of Major Environmental challenges
The impacts of climate change in Africa
Analysis of development sectors affected (water supply, agriculture, garbage management, tourism, etc.)
The strategies and community responses
Strategies and structural responses
Barriers to adaptation

Course Prerequisites

Students enrolled in the course are not required to have a particularly extensive background in environmental science, but should have some general scientific and social knowledge of issues relevant to the topic.

Methods of Instruction

After few introductory lectures, the instructor will give more time for exercises and interactions for broader brainstorming from students. Personal research will be encouraged through presentation preparations and fieldwork reporting (group work).

- Analysis of scientific papers
- Discussions on key issues
- Guest speaking sessions
- Case Studies
- Slides from the instructor for comment and discussion
- 3 Field trips (Mbeubeuss; Diama et Gandiole; Parc Delta du Saloum

Assessment and Final Grade

- Attendance and class participation (20%)
- Reports of personal research / Video Topics (20%)

- Oral presentation of individual work (15%)
- Assignments (15%)
- Fieldwork reports: 30 %

Course Requirements

The course requires classical activities such as readings, presentations and in-class workshops, and will put a big emphasis on field visits and the making of video topics on specific environmental issue. The idea is to be very factual and straightforward in environmental problem description in situ.

- ***Fieldwork reports*** (each student will present a written report describing the visited site and the main environmental issues presented as well as potential solutions)

- ***Reports of personal research*** (students will be encouraged to undertake personal research on any environmental issue of their interest and produce an analysis based on course material, scientific papers, interviews, fieldwork, etc. The personal research will be presented during class hours)

- ***Video Topic*** (the making of a short film of about 10 minutes up to 30 minutes of analysis on a specific environmental issue in Africa. It may consist of a series of interviews or reflection with the power of image and sounds.

- ***Assignments*** (two or three assignments will be given to students as test papers. It will consist of the analysis of scientific papers, test –questions related to a specific topic already reviewed in class or introduced through a supporting paper.)

- ***Attendance and class participation*** (a grade will be allocated to each student depending on their level of attendance and participation to the class activities).

Weekly Schedule

Week 1-2: Evidence. Review: What is climate change? What is adaptation to climate change? The current debate surrounding climate change issue across the world? Today's global environmental challenge in Africa? How the economic development is strongly related to physical environment and natural resources management particularly in Africa?

Week 3-5: Description and analysis of few environmental issues: How climate change is affecting water resources across the continent? A case study of Lake Chad Basin? The Sahel belt and the shift of isohyets towards the south? What were the main causes behind these major environmental changes? What are the drivers of such tremendous change in the Sahel Region? What are the vulnerabilities? We will plan a participatory community workshop to share information and collect local knowledge about impact on the community.

Week4: **Rural visits**

Week 6-7: Community adaptation for various sectors: garbage management, water, forest resources, agriculture, etc. Research on adaptation concepts in practice. Present a range of potential community-based adaptation measures. Ask for feedback; gain local knowledge and

get a sense of the direction the African community wants to go in. Start the buy-in process. Conduct a baseline survey.

Week 7-8: Establish goals for an adaptation project. Research solutions to the community's special problems. Use the community feedback and the baseline results to incorporate adaptation tools into your project. Incorporate your refined strategies into your project.

Week 9-11: Sustainability. Plan and organize ideas to develop a community-based team. Prepare a presentation that uses appropriate knowledge transfer techniques. Partner with experts in the adaptation strategies you intend to offer to the community. Gap analysis of existing adaptation projects.

Week 10: **Spring break**

Week 12-**13**: The issue of knowledge generation and sharing. Language barriers.

Week 14 - 15: Presentation of the research projects. Discussion and Debate. Final remarks and finalization of the class project, publication and scientific proofing.

Week 16: Final Exams

Readings

NB: Some photocopies of additional literature will be available at the CIEE Center prior to the class.

Adejuwon, J., Azar, C., Baethgen, W., Hope, C., Moss, R., Leary, N., Richels, R., Ypersele, v. J.-P., 2001. Overview of Impacts, Adaptation, and Vulnerability to Climate Change. Chapter 2, Climate Change 2001, p. 30.

Adger, W.N., Huq, S., Brown, K., Conwaya, D., Hulmea M. 2003. Adaptation to climate change in the developing world. Progress in Development Studies, 3 (3):179-195.

Adger, W.N., Brooks N., 2002. Does global environmental change cause vulnerability to disaster?, CSERGE and Tyndall Centre for Climate Change Research, University of East Anglia, Norwich.

Burton, I., Challenger, B., Huq, S., Klein, R.J.T., Yohe G., 2001. Adaptation to Climate Change in the Context of Sustainable Development and Equity. Chapiter 18, Climate Change 2001. IPCC, p. 36 p.

Burton, I., Huq, S., Lim, B., Pilifosova, O., Schipper E.L. 2002. From Impacts Assessment to Adaptation Priorities: the Shaping of Adaptation Policy. Climate Policy (2):145-159.

Huq, S., Reid H., 2002. Report of Adaptation Day at COP 8, IIED, Delhi, India.

IPCC, 2001. Climate change 2001: Impacts Adataptation and vulnerability. A report of the Working Group II. Summary for Policy Makers. 18 p., IPCC, Geneva.

Mbow, C., Mertz, O., Diouf, A., Rasmussen, K., Reenberg A. 2008. The history of environmental change and adaptation in eastern Saloum–Senegal. Driving forces and perceptions. Global and Planetary Change, 64 210-221.

Winograd M., 2006. Concepts, cadres et méthodologies pour évaluer la vulnérabilité et les stratégies d'adaptation. C3D, ENDA, p. 32 p.

Ziervogel, G., Bharwani, S., Downing T.E. 2006. Adapting to climate variability: Pumpkins, people and policy. Natural Resources Forum (30):294–305.

Malick GAYE & Seydou NIANG (2002): Epuration des eaux usées et l'agriculture urbaine. Editions ENDA Dakar.

Ludovic Schneider (2010): Le développement durable Territorial. Editions AFNOR

AFNOR (2010): Stations d'Epuration et traitement de leurs boues. Editions AFNOR
UNESCO (1997): Qualité de l'eau de la nappe phréatique à Yeumbeul Sénégal. Etudes sur le Terrain. CSI Infos No.3, UNESCO Paris, 27 p.

Service Techniques de l'Urbanisme (1989): Memento sur l'évacuation des eaux pluviales. La Documentation Française. Paris 349 p.

JICA (1993): Etudes sur l'Assainissement de Dakar et ses environs. Rapport intérimaire. Tokyo 231 p.

Dasylva S. (2001): Les bas-fonds des sables dunaires de la region de Dakar. Potentialités agricoles et contraintes urbaines. These de Doctorat / Université de Paris I Sorbonne 495p.

Durand J. H (1995): Arrêter le Desert, Techniques vivantes, PUF, Paris 416 p.

NAPAS (downloaded from UNFCCC)

MEPN-Bénin, 2008. Programme d'Action National d'Adaptation aux changements climatique du Bénin (PANA Bénin). 81 p.

MECV-Burkina Faso. Programme d'Action National d'Adaptation aux changements climatique du Bénin (PANA Burkina Faso). 84 p.

MEPN-Sénégal, 2006. Programme d'Action National d'Adaptation aux changements climatique du Bénin (PANA Sénégal). 84 p.

MEA. Cape Verde. 2007. National Adaptation Program of Action on Climate Change (NAPA-Cape Verde). 40 p.