PROCEEDINGS
NATIONAL CHARCOAL WORKSHOP TO LAUNCH PROJECT ON
ACCESS AND EXCLUSION ALONG THE CHARCOAL COMMODITY CHAIN IN GHANA (AX)

Venue: Yiri Lodge, Legon
Date: Thursday, 28th April, 2016
1.0. Introduction

The AX project—Property, Access and exclusion along the Charcoal Commodity Chain in Ghana” (AX) is a collaboration between the University of Copenhagen, University of Ghana, Kwame Nkrumah University of Science and Technology and Tropenbos International Ghana. It will examine how each set of actors along Ghana’s charcoal chain gain or maintain access to benefits and identify how means of access and exclusion shape current distribution of benefits in the sector. It will strengthen research capacity through three embedded PhD studies, closely coordinated with senior staff from Ghana and Denmark. AX aims at involving relevant stakeholders in the research from the design of the research at the onset to the discussion of the implications of the research results at the end of the project. To initiate this process, this project inception meeting was organized. The meeting sought to achieve the following objectives:

- to inform relevant stakeholders about the project and the planned research activities;
- to provide comments to the research plans and
- to explore mechanisms for improving stakeholder participation in the project.

In attendance were representatives from TIDD, FORIG, UENR, Traditional Authority, FSD, Energy Commission, Ministry of Power, IAS Legon, MLNR, KNUST, University of Copenhagen and the Danish Embassy-Ghana. There were also representatives from the Kintampo Forest District. Please find attached full list of participants and program for the workshop in annex I and II.

2.0. Opening Session

2.1. Welcome Address and Narratives on Charcoal Production: Prof. Kojo Amanor

The presentation captured the narratives (literature) about charcoal production and trade over the years in Ghana. It outlined how various stakeholders have perceived charcoal production and trade as the major driver of deforestation and forest degradation. The myths which have surrounded the activity and not based on research findings were mentioned. Details of presentation re in Annex IX

2.2. Project overview: Prof. Christian Hansen

He outlined the objectives of the workshop (refer above). The basic facts about the project; its partners, the funding and the research themes were mentioned. It was mentioned that the research focus will be on the charcoal commodity chain; profit distribution and livelihood; and the impact of charcoal production on the natural vegetation cover. Details of presentation are in Annex III.

2.3. The wood energy and ongoing projects for future plans on charcoal production in Ghana: Statement by Energy Commission

Wood fuel has and continues to provide about 50% of the total energy needs in this country. It has been the major source of energy for rural households and a greater percentage of peri-
urban and even urban households. It has also served some cottage industries and still continues to be the preferred choice for commercial activities such as fish smoking, garri-processing and kenkey production. We may not be far from wrong to say that our everyday energy requirements will always include some amount of wood fuels. Wood fuels are mainly derived from forest resources aside some few private plantations.

Considering the importance of this resource, it is therefore imperative to have a sustainable management mechanism in place to ensure the continuous supply and use of the resources in order to reduce or avoid depletion and degradation of our forest resources. The realization of this objective will require that various state institutions such as the Ministry of Land and Natural Resources, Energy Commission, Forestry Commission, District Assemblies and other Local Authorities collaborate effectively to ensure prudent management and utilization of the country’s forest resources.

The Renewable Energy Act, 2011, Act 832 mandates the Energy Commission to provide for the development, management and utilization of renewable energy resources, which include wood fuels, for the production of heat and power in an efficient and environmentally sustainable manner. It is on the premise of this that the draft bio energy policy strategy was developed in 2014. The draft policy document covers three main sub-sectors namely: wood fuel, bio fuel and biomass waste. The goal of the draft bio energy strategy document is to develop and promote the sustainable supply and utilization of bio energy to enhance energy security for Ghana while maintaining adequate food security.

There are clear strategies to addressing the wood fuel sub-sector. These include:

- Promoting an increased supply of wood fuel
- Supporting the sustainable production and supply of biomass energy
- Creating an enabling environment for wood fuel production, transportation and marketing
- Promoting other wood fuel sources (Bamboo)
- Promoting efficient wood fuel and alternative end-use technologies
- Developing comprehensive legal and regulatory instruments to effectively manage wood fuel activities.

Some of these projects and programmes include:
1. The establishment of woodlot in second cycle institutions for the supply of wood fuel
2. The Development of a regulatory framework for an improved cook stove sector
3. The Development of a regulatory framework for wood fuel
4. The Development of mid-stream charcoal regulatory framework
5. The Promotion of improved charcoal carbonization technology

The Commission currently regulates the charcoal export industry to ensure that exported charcoal is produced sustainably through the use of improved carbonization technologies and feedstock from a sustainable source, such as woodlots, off cuts or waste wood. To ensure effective regulation the Energy Commission collaborates with the Forestry Commission,
shipping lines, CEPS and GHAPOMA. The Energy Commission is already engaged in various activities that are geared towards the sustainable supply and utilization of bio energy in the country. We would be grateful if the workshop could come up with workable suggestions that will address the challenges that are hindering the development of the value chain in the wood fuel industry.

2.4. Statement by Ministry of Lands and Natural Resources
The Ministry of Lands and Natural Resources regard charcoal production as one of the drivers of deforestation in Ghana, even though it is a livelihood issue. The Ministry is always advocating for alternative raw material for charcoal production other than what is taken from the forest reserves.

The Ministry is interested in any studies attempting to bridge the gap between research and policy that is geared towards a sustainable charcoal commodity chain in Ghana. The policy brief and the results from the study should be shared with the Ministry to inform policy decisions.

There is an NREG support which seeks to create Multi stakeholder platforms to discuss the charcoal commodity chain. The FIP also seeks to give voice to charcoal producers and be recognized as stakeholders.

The issue of land grabbing in the country is real and must be considered critically in any policy discourse.

There is a high demand for charcoal in and outside Ghana and producers are always trying to produce to meet consumption level. The continuous and increased awareness on the use of LPG must be encouraged by the Energy Commission.

2.5. Keynote Address: Danish Ambassador (Tove Degnbol)
It is a great pleasure for me to participate in the opening of the National Charcoal Workshop to launch the project on Access and Exclusion along the charcoal commodity chain in Ghana.

The Project is funded by Danida and is part of a strong research cooperation between Ghana and Denmark which dates back to the 1960s, when Danish researchers started more systematic studies in Ghana. I would like to particularly mention the famous Henrik Jeppesen from Institute of Geography, who established strong collaboration links with researchers from University of Ghana as early as the mid-1960s and was so fond of Ghana that he wore clothes of Ghanaian fabric in Copenhagen and gave his children Ghanaian names.

Denmark started development cooperation with Ghana immediately after Independence. Initially mainly NGO support. During late 1960s and 1970s there were more infrastructural support. We got the present embassy in 1970 but closed it during the turbulent years from 1983 to 1991.
From 1991, when the embassy was reopened, Ghana has been a DANIDA priority country and we established an extensive country programme. It included support to the health sector, water and sanitation, rural roads, decentralisation, environment, private sector development, support to the electoral process, the Commission on Human Rights and Administrative Justice (CHRAJ), Parliament, and to the Judiciary Service. Also extensive cultural cooperation and last but not the least cooperation between Danish and Ghanaian researchers.

Together with our Ghanaian partners, we have achieved a lot of positive results and established strong relations with stakeholders in Ghana both in government, the private sector, civil society, universities and think tanks.

We are now in transition from a cooperation mainly based on development cooperation to a different type of partnership based on commercial cooperation and cooperation on a number of strategic priorities, where Denmark and Ghana share common agendas in the international dialogue. These include human rights issues such as the efforts to have all countries sign the Anti-Torture Convention, women’s rights, Responsibility-to protect, and climate change issues.

We are gradually phasing out our development cooperation, and 2016 is the last year we are supporting the health sector. The Good Governance Programme and the Tax & Development Programme is running until the end of 2018, and the Support to Private Sector Development Programme is running until the end of 2020.

At the same time we are building up our commercial cooperation, and we are very proud that we have been able to push this development a lot over the past years. Our trade people cooperate closely with colleagues working on private sector development from a development cooperation perspective, with our new maritime advisor who joined us in September last year, and with the local representative of the Investment Fund for Developing Counties who is also sitting in the Embassy.

Research cooperation is expected to remain an important part of our cooperation with Ghana, and we see obvious and important links both between the still on-going development cooperation activities and between research and our commercial activities.

The existing research cooperation is based on two main activities: One is the support to specific research projects based on collaboration between researchers in Danish and Ghanaian institutions such as the Charcoal commodity chain project. We have provided this kind of support for many years, and the major change in recent years is that we have introduced a ‘south-driven approach’, whereby Ghanaian researchers can apply for funding through the Research Council for Development Research and link up with Danish researchers, as a supplement to the traditional approach, where Danish researchers apply for funding and then identify Ghanaian research partners.

The other is the institutional support to University of Ghana and KNUST under the Building Stronger Universities Programme. The areas of collaboration have been defined by the Ghanaian universities, and Danish universities have formed consortia, which have proposed
how they could cooperate with the UG and KNUST in the areas identified. The current phase started in 2014 and is expected to run well into 2017.

Denmark got a new government in June 2015, and since then has been through a process of re-focussing and reducing our development cooperation. The refugee crisis in Europe is part of the background, since reception of asylum seekers is increasingly paid for with funds previously used for development cooperation activities in countries in Africa and Asia.

Ghana is less affected than many of our other partner countries since the transition had already been agreed before the change of government, and we have been able to continue the activities according to plan. We have also been able to initiate a new phase of our Support to Private Sector Development Programme but unfortunately without a planned cooperation with the Energy Commission.

The future support to research has not yet been finally decided. We are currently preparing a new overall strategy for Danish development cooperation, and when I said that we expect research to remain a key element in our activities in Ghana, it is based on my reading of drafts of this strategy.

The specific form of future research collaboration has not yet been agreed, but it seems clear that it is expected that research should link up as closely as possible to the potential users of the research results, whether in the private sector, in government institutions or in civil society.

The approach of the Charcoal Commodity Chain Project of inviting stakeholders from government, district assemblies, traditional authorities, producers, traders, and civil society is exactly what DANIDA would like to encourage. It is so important that stakeholders are involved as early as possible to be able to qualify the research questions, to get knowledge about and preferably also ownership to the results as they are generated by the project. It ensures a higher quality of the research while increasing the likelihood that the results would be used by the stakeholders and not just put on the shelf.

Before I end, I would like to mention a new initiative to strengthen the collaboration between research and other Danish activities. An Alumni for former Master and Ph.D. students in Denmark is being established. Ghana is a pilot country, and the idea is to roll it out to all the countries where DANIDA has supported training in Denmark. We are aware of about 200 Master and Ph.D. candidates in Ghana, it may be that there are many more. The initiative is anchored in DANIDA Fellowship Centre, which has put an invitation on their webpage to sign up. In Ghana, the contact person in the Accra areas is Enoch Yeboah Agyepong (eyagyepong@gmail.com), and in Kumasi it is Lydia Otoo (lydiaotoo34@gmail.com).

The board was recently presented in a Business-get-together for Danish companies and their Ghanaian partners, and reaction from many of the participants was that they were extremely interested in linking up with highly qualified Ghanaians who have a thorough knowledge about Denmark and Danish culture and at the same time know Ghana, have a deeper understanding than Danes can have, an extensive network, etc. “Where did you hide these people all the time?”.
I wish you an interesting and successful workshop, and I wish all the best for the Charcoal Commodity Chain Project. I look forward to seeing your results.

2.6. Discussions

Key issues emerging from the discussions are presented below.

- The situation with charcoal production is changing, there are contractors who move from one community to another to produce charcoal (tenant charcoal producers);

- Charcoal exporters do not engage in charcoal production as they are supposed to do. With the permit issued them (to produce charcoal from a so-called sustainable source), exporters purchase charcoal from the local market and export;

- It was indicated that, the export demand for charcoal is huge in Ghana; however, monitoring of charcoal export is a difficult task since the exporters do not necessarily declare their consignment as charcoal. There are examples at the port of charcoal being declared as cashew nuts.

3.0. PhD Presentations

3.1. The Livelihood and Political Economy of Small Scale Charcoal Producers in Ghana: Lawrence Kwabena Brobbey

This presentation focused on charcoal production as a livelihood and income generating activity for rural and urban folks. The negative image some stakeholders perceived about charcoal production in Ghana was also elaborated. The PhD research addresses the limited knowledge on the contribution of charcoal to rural livelihood and the role of charcoal as livelihood and the socio-economic context within which its production takes place in Ghana. Details of the presentation are found in Annex IV.

3.2. Gendered Access and Contested Authority along the charcoal commodity chain: Frank Kwaku Agyei

This research focuses on the distribution of income along the charcoal commodity chain (who gets what), how women, who usually benefit the least, have achieved some status and profit in this commodity chain. It also focuses on how actors and institutions mediating access to profits along the charcoal commodity chain strengthen their authority. Details of the presentation are found in Annex V.

3.3. The Environmental Outcomes of charcoal Production in the Transition zones of Ghana: Tontie Kanton
This research looks at the role of fallow regeneration in the promotion of charcoal resources and conflicts over the control of these regenerated resources between farmers, charcoal producers, chiefs, state organizations and the new class of entrepreneurs with linkages to the state.

In specific terms, it examines the impact of charcoal production on tree stocks or vegetation on fallow and farm lands, identify the types of tree species that are used for charcoal production and how common they are on fallow lands. It further investigates the characteristics of tree species in fallow lands and how they differ in density and diversity from land that have not been fallowed, examining the farmer management strategies on fallow land and how rights to trees and land are established within the system of rotational bush cultivation. Details of the presentation are found in Annex VI.

3.4. Discussions
The following recommendations were made during the discussion of the presentations from PhD students:

- Brobbey was asked to clearly identify and determine the determinants of poverty at the local level before concluding that actors along the charcoal chain are poor.
- It was suggested that Tontie combines his objective two and three since both seek to achieve the same thing. He was also asked to improve his presentation skills.
- Tontie was asked to focus his research on identifying the characteristics of tree species used for producing charcoal and how they are managed rather than just identifying the species. The characteristics of the species should be specific (physical or chemical).
- All three presenters were asked to give attention to the operationalization of the research work.
- It was recommended that Frank develops an institutional framework for the charcoal commodity chain taking into consideration current roles of institutions and their expected roles.

4.0. Other Presentations
4.1. Study of vegetation changes from charcoal production through analysis of satellite imagery: Dr. Opoku Pabi
Dr. Pabi explained that this research will focus on the relation between charcoal production and vegetation change, potential sources and environmental impacts of charcoal production and traditional environmental management strategies and competing land uses. Please find details of the presentation in Annex VII.
4.2. Study on estimating national charcoal production and consumption: K. S. Nketiah

It was indicated that the study will seek to provide insight into charcoal production in Ghana by estimating national charcoal production and consumption levels. The research will focus on generating information on charcoal production levels as well as overland trade in Ghana. This information is relevant for policy and will also inform and be used by other parts of the AX project. Please find details of the presentation in Annex VIII.

4.3. Discussions

Discussions emerging from the last set of presentations are outlined below.

- There should be a shift in raw material acquisition for charcoal production (alternative sources of raw material). Woodlot and plantation establishment;

- There is possibilities for synergies between Dr. Pabi’s and Tontie’s work, to identify possible areas they can work together;

- Over the years research and available information has been silent on industrial charcoal producers and their activities, there appears to be too much focus on small scale producers and their activities;

- The study estimating national charcoal production and consumption should rather focus on only national production estimate.

5.0. Closing Remarks: Prof. Christian Hansen

In his closing remarks, he thanked all stakeholders for attending the workshop. He indicated that the AX project will continue to work with all relevant stakeholders for their inputs, since the task ahead is a herculean one. There will be subsequent meetings to share project outcomes/findings and solicit for stakeholders input.

He said that the charcoal sector is surrounded by a lot of myths and assumptions and that the AX project will attempt to provide solid scientific information and results for informed policy discussions and policy-making.
# Annexes

## Annex I: List of Participants

<table>
<thead>
<tr>
<th>NAME</th>
<th>ORGANISATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Zomelo</td>
<td>TIDD, Takoradi</td>
</tr>
<tr>
<td>Beatrice Obiri Darko</td>
<td>FORIG, Kumasi</td>
</tr>
<tr>
<td>Mercy Derkyi</td>
<td>UENR, Sunyani</td>
</tr>
<tr>
<td>Emmanuel Fosu</td>
<td>TBI Gh, Kumasi</td>
</tr>
<tr>
<td>Nana Kwesi Gyimah</td>
<td>Traditional Authority, Kintampo</td>
</tr>
<tr>
<td>Edward Opoku Antwi</td>
<td>FSD, Kintampo</td>
</tr>
<tr>
<td>Eva Kyei Sampong</td>
<td>TBI Gh, Kuami</td>
</tr>
<tr>
<td>Evans Sampene Mensah</td>
<td>TBI Gh, Kuami</td>
</tr>
<tr>
<td>K. S. Nketiah</td>
<td>TBI Gh, Kuami</td>
</tr>
<tr>
<td>Mercy Owusu Ansah</td>
<td>TBI Gh, Kuami</td>
</tr>
<tr>
<td>Dorothy Adjei</td>
<td>Energy Commission, Accra</td>
</tr>
<tr>
<td>Doris Duodu</td>
<td>Ministry of Power, Accra</td>
</tr>
<tr>
<td>Solace Asafo</td>
<td>IAS Legon, Accra</td>
</tr>
<tr>
<td>Musah Abu-Juam</td>
<td>MLNR, Accra</td>
</tr>
<tr>
<td>Kyereh Boateng</td>
<td>KNUST, Kuami</td>
</tr>
<tr>
<td>Lawrence Brobbey</td>
<td>KNUST, Kuami</td>
</tr>
<tr>
<td>Frank Akwasi Agyei</td>
<td>KNUST, Kumasi</td>
</tr>
<tr>
<td>Tontie Kanton</td>
<td>UG, Legon, Accra</td>
</tr>
<tr>
<td>Christian Hansen</td>
<td>University of Copenhagen, Denmark</td>
</tr>
<tr>
<td>Tove Degnbol</td>
<td>Danish Embassy-Ghana, Accra</td>
</tr>
<tr>
<td>Prof. Kojo Amanor</td>
<td>University of Ghana, Accra</td>
</tr>
<tr>
<td>Emmanuel Achampong</td>
<td>KNUST, Kuami</td>
</tr>
<tr>
<td>Opoku Pabi</td>
<td>University of Ghana, Accra</td>
</tr>
</tbody>
</table>
Annex II: Program for the Workshop

<table>
<thead>
<tr>
<th>Agenda</th>
<th>Duration</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrival and Registration</td>
<td>9:30am-10:00am</td>
<td></td>
</tr>
<tr>
<td>1. Opening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-introduction and purpose of meeting</td>
<td>10:00am-10:15am</td>
<td>All Participants, Facilitator</td>
</tr>
<tr>
<td>Welcome address and narratives on charcoal production</td>
<td>10:15-10:30am</td>
<td>Prof. Kojo Amanor</td>
</tr>
<tr>
<td>Project Overview</td>
<td>10:30-11am</td>
<td>Prof. Christian Hansen</td>
</tr>
<tr>
<td>Statement by the Energy Commission</td>
<td>11am - 11:05am</td>
<td>Chief Executive</td>
</tr>
<tr>
<td>Statement by MLNR</td>
<td>11:05: - 11:10am</td>
<td>Technical Director</td>
</tr>
<tr>
<td>Keynote Address</td>
<td>11:10-11:30am</td>
<td>Danish Ambassador</td>
</tr>
<tr>
<td></td>
<td>10:50am-11:20am</td>
<td></td>
</tr>
<tr>
<td>Snack Break: 11:30am-12.00pm; Group Photograph</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Presentations From PhD Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. The Livelihood and Political Economy of Small Scale Charcoal Producers in Ghana</td>
<td>12:00am-12:20am</td>
<td>Lawrence Kwabena Brobbey</td>
</tr>
<tr>
<td>ii. Gendered Access and Contested Authority along the charcoal commodity chain</td>
<td>12.30pm-12:50pm</td>
<td>Frank Kwaku Agyei</td>
</tr>
<tr>
<td>iii. The Environmental Outcomes of charcoal Production in the Transition zones of Ghana</td>
<td>12:50pm-1:10pm</td>
<td>Tontie Kanton</td>
</tr>
<tr>
<td>Discussions</td>
<td>1:10pm - 1:30 pm</td>
<td>Facilitator</td>
</tr>
<tr>
<td>3. Presentation of other Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Study of vegetation changes from charcoal production through analysis of satellite imagery</td>
<td>1:30 pm - 1:40pm</td>
<td>Dr. Opoku Pabi</td>
</tr>
<tr>
<td>ii. Study of national charcoal production and consumption</td>
<td>1:40pm - 1:50 pm</td>
<td>K.S. Nketiah</td>
</tr>
<tr>
<td>Discussions</td>
<td>1:50pm-2:00pm</td>
<td></td>
</tr>
<tr>
<td>Closing Remarks</td>
<td>2:00pm-2:10pm</td>
<td>Christian Hansen</td>
</tr>
<tr>
<td>Lunch and Departure</td>
<td>2:10pm</td>
<td></td>
</tr>
</tbody>
</table>

Facilitator: Prof. Kyereh Boateng
Annex III: Project Overview

Access and exclusion along the charcoal commodity chain in Ghana (AX)

Project overview
Christian Pilegaard Hansen

Department of Food and Resource Economics
Faculty of Science
University of Copenhagen

Why this meeting?

- To inform about the project and the planned research activities;
- To provide comments to the research plans.

We intend to invite you again, in subsequent years:
- To discuss and provide feedback to the research results;
- To consider the findings and their implications for policy

Basic facts about the AX project

- Five-year project (2015-19)
- Total budget of 8.7 mill DKK (5 million GH Cedis or USD 1.3 million) financed by Danda
- Partners:
  - University of Ghana (UG)
  - Kwame Nkrumah University of Science and Technology (KNUST)
  - Tropenbos International - Ghana
  - University of Copenhagen/University of Illinois

AX has two main research themes:

- Charcoal commodity chain, profit distribution and livelihood
- Charcoal production and its impact on the natural vegetation cover

Many actors involved in the charcoal commodity chain (production, transport and trade)

Producers

Transporters

Wholesalers and retailers

District Assemblies

Various government agencies

Chiefs

Charcoal commodity chain, profit distribution and livelihood

Key research question:

Why is it that the large majority of people involved in the charcoal commodity chain are poor and continue to be so?
Charcoal commodity chain, profit distribution and rural livelihood

Two PhD students will address various aspects of this:
- Lawrence Brodbey
- Frank Agyei

In addition, AX intends to do a national study on production and consumption (bags, bales) of charcoal coordinated by Tropenbos.

Charcoal production and its impact on the natural vegetation cover

Charcoal production accused/assumed to be a main driver of deforestation and/or forest degradation.

These assumptions seem not to be based on scientific evidence but rather be “narratives” (conventional wisdom) that subsequently form the basis for policy interventions (present and future).

The AX project wants to explore deeper into the consequences/impacts of charcoal production on the vegetation cover (forest area, biomass, species diversity/composition, fragmentation, etc.)

Charcoal production and its impact on the vegetation cover

PhD student Tontie Kanten will research this interaction (on the ground)

AX will also do analysis of satellite and aerial images (led by Dr. Peter)

Objectives of the AX project

- Explanation of the current distribution of profits and the contribution to livelihoods
- The consequences/impact of charcoal production on the vegetation cover
- Enhancing research capacity
- Information sharing/dissemination

AX is a research project, not a development intervention/project. Yet, we of course want the research to be relevant and useful.

Expected outputs

1. 3 PhD graduates
2. 6 MSc/PhD theses (partial contribution)
3. 5 manuscripts for international peer-reviewed journals
4. Local and national charcoal platforms
5. 5 policy briefs
6. International research conference
7. Special issue of international peer-reviewed journal
8. National end-of-project conference
9. Enhanced research capacity

The project website

www.ifro.ku.dk/AX
Annex IV: The Livelihood and Political Economy of Small Scale Charcoal Producers in Ghana

Background

- Charcoal is a major source of energy for heating and cooking for over 80% urban households in Sub-Saharan African countries.
- Charcoal provides subsistence, cash income and safety net to rural households in developing countries in Africa and Asia.
- Income from charcoal supports the livelihoods of over 3 million rural and urban households in Ghana.
- Charcoal serves as source of revenue to local governments and land owners through taxes, levies and payment of royalties.

Problem statements

- Limited knowledge on the contribution of charcoal to rural livelihood.
- The role of charcoal as livelihood and the socio-economic context within which its production takes place in Ghana is poorly understood.
- Study aims at filling this knowledge gap.

Outline of presentation

- Background
- Problem statement
- Objectives
- Conceptual framework
- Operational questions
- Methodology
- Data collection and analysis
- Expected output

Background con't

- Charcoal has a negative image
- Seen as a driver of deforestation by conservationists, some scholars and governments
- Face ban or treat of ban in certain countries
- Due for replacement - promotion of alternative sources of energy like LPG

Objectives

- Overall objectives is to investigate the contribution of income from charcoal production to rural livelihood in charcoal producing areas in Ghana and the role of political economy in mediating charcoal production as a livelihood.
- Specific objectives are to:
  1. Assess the reliance on income from charcoal by rural households in charcoal producing areas.
  2. Ascertain how local institutions, activism, power blocks and policies influence charcoal production and trade in the producing areas and how these in turn impact on charcoal-dependent livelihoods.
  3. Ascertain how charcoal producers tend to influence institutions, policies and processes to maintain access to tree resources.
  4. Assess the return to labour on charcoal production.

Operational questions

R1. How reliant are rural households in Ghana on income from charcoal production?
  1.1. How much does charcoal production contribute to the livelihoods of rural households in Ghana?
  1.2. How do rural households use and/or invest income from charcoal production? (is it for subsistence, 'stepping out' or 'stepping up' strategies for preferred livelihood activities?)
  1.3. What determines the choice of charcoal as a seasonal gap filler by rural households?
  1.4. How do rural households use charcoal income as safety net?
Operational questions can't

R2. How do institutions, activism, power blocks and policies influence charcoal production and trade in charcoal producing areas and how do these in turn impact on charcoal-dependent livelihoods?
   • 2.1. Which institutions (statutory and customary) regulate charcoal production in Ghana; with what policies, laws and conventions; and what are the focus of these policies, laws and conventions?
   • 2.2. Which organisations are involved in activism for or against charcoal production; what informs their decisions; how do they manifest their activism; and how do their activities impact on the livelihoods of charcoal producers?
   • 2.3. What are the constraints to accessing higher income from charcoal production by rural households?

Operational questions can't

R4. What is the “return on labour” in small scale charcoal production?
   • 4.1. What are the production costs, labour requirements, production volumes and prices obtained in small-scale charcoal production?
   • 4.2. What are the returns from charcoal production?

Data collection methods and analysis

• Data collection
  • Personal interview with semi structured questionnaire
  • Field observation
  • Focus group discussion
  • PRA

• Data analysis
  • Descriptive statistics
  • Regression and correlation analyses to examine the relationship between household income and dependence on charcoal.

Methodology

• Stratified sampling
• Household survey to collect both qualitative and quantitative data over four quarters (one year)
• Quantitative data on on-farm, off-farm and non-farm livelihood activities
  • Volumes and farm gate prices of produce
  • Cost of production (in pence, labour)
  • Variations between seasons
  • Other sources and proportions of rural households’ income
• Qualitative data
  • PRA methods
  • Livelihood analysis
  • Life stories on sea of income from charcoal (e.g. safety net, investment for stepping up or stepping out of livelihood activities)

Study area

• Kintampo forest district
  • Comprised of:
    • Kintampo North
    • Kintampo South
    • Nkoranza North
    • Nkoranza South
• Largest charcoal producing area in Ghana
• Study to be conducted in 8 villages/communities

Expected output

• Contribution of charcoal income to rural livelihood will be known
• Role of institutions and processes that mediate access to various forms of capitals for charcoal production and their corresponding effects on the livelihood outcomes of the producers will be understood
• Policy reforms in poverty alleviation programmes that take into consideration the economic benefits of charcoal production, and guidelines for analysing the effects of governance issues on natural resources on the livelihoods of rural households and forest fringe communities.

Thank you for your attention
Annex V: Gendered Access and Contested Authority along the charcoal commodity chain

OUTLINE

- Summary
- Problem
- Questions
- Methods
- Contributions

Summary of East Africa studies
Charcoal commodity chains have lucrative business

Revenue source for local governments, customary authorities, and state forestry institutions

Over 2,000,000 are involved in the chain in Ghana

Yet, it is not alleviating poverty
Skewed Distribution

- Few actors control larger share of the profits and skewed distribution is maintained within groups of merchants, retailers, and wholesalers (Kenya Forest Service, 2013; Ribot, 1998; Obiri et al., 2014).

- Income along Ghana’s charcoal chain is also differentiated between women and men – with each having greater access to certain activities (Obiri et al., 2014).

- While the sector is producing wealth, why is that wealth concentrated among a few powerful actors while the poor remain poor? ???

Gendered access

The research will also explain an interesting twist in Ghana; how is it that women, who usually benefit the least, have achieved some status and profit in these markets.
Methods (collecting data)

- observation; surveys; structured interviews; unstructured interviews; historical interviews, forestry & relevant documents, etc.

- Institutions forestry, energy commission, landowners, chain actors, etc.

Contribution

a) the explanation of the maldistribution;

b) the explanation of woman’s gaining access,

c) the relation between access and authority

identify areas in which this lucrative market may come to more-equitably serve the livelihood needs of forest-dependent women and men.

Bibliography

[List of references]

| Page | 18 |
Annex VI: The Environmental Outcomes of charcoal Production in the Transition zones of Ghana

THE ENVIRONMENTAL OUTCOMES OF CHARCOAL PRODUCTION IN THE SAVANNA AND TRANSITION ZONES OF GHANA: A CASE STUDY OF THE KINTAMPO NORTH DISTRICT

Kanton L. Tontie: PhD candidate
Institute of African studies, UGI, Ghana
Department of Geosciences and Natural Resource Mgt UCPF.

Introduction
In Ghana, charcoal is produced in all the ecological zones. However, the major charcoal producing areas are in the savanna and transition ecological zones (Energy Commission, Ghana 2013). The hardwood tree species—suitable for high quality charcoal—are found in these ecological zones. The ecology of the transition zone is essentially a fire climax characterized by annual destruction or breakdown and regeneration (Morrison and Lind, E, 1974; Lawton, 1963). The trees have resistance to fire. Savannahs can persist over periods of millennia, since the landscape consists of many patches in different states of transition between a grassy dominance and tree dominance. (Scholles and Archer, 1997.) It should therefore be clear that the notion of such ecosystems evolving toward a single type of climax vegetation, a notion that was quite common among colonial administrators, is essentially meaningless (Behnke, Scoones et al., 1993b).

Rather, multiple stable states can exist (and co-exist) with temporal and spatial variation and can persist as a result of a range of natural and anthropogenic influences. Savanna ecosystems are thus best understood as dynamic systems that are subject to change with or without human influence. These ecological zones are still evolving, likewise the charcoal production systems in the country. There is no one charcoal production system. First, there are the professional sissala charcoal producers who go round getting concessions from chiefs, most of them in farming areas because that is where you get high densities of suitable trees. This often leads to conflicts between the professional charcoal producers and the yam farmers. Second, there are farmers and youth who engaged with charcoal production on their own lands. So most charcoal production takes place in the context of shifting cultivation in which the trees are not produced for charcoal but for yams because yam needs sticks.

In Ghana, like most Sub-Saharan African countries, policies concern with charcoal production and regulating it are based on environmental decline narratives. These are often the product of uncritical assumptions and generalizations applied uniformly and broadly to what are, in reality, complex and locally specific processes (Watts, 1985). Many of the assumptions about charcoal production in Ghana are not backed up by evidence and may be at variance with the situation on the ground. Yet, the policy empowers traditional authorities and government organizations at the local level in the control of the forest resources. As a result, they (chiefs) in some of the communities present narratives which distort the nature of charcoal production, and justify their control over the charcoal resources. As a result, threats of banning charcoal production are often used by the chiefs to achieve their goal. This often leads to tensions and conflicts not only between the professional charcoal producers and yam farmers, but also conflicts between the chiefs, elders and the youth in the communities over the control and the use of the charcoal resources.

Despite the strong link between charcoal and agricultural production, in Ghana and in most Sub-Saharan African, most governments and policy makers perceive the two activities differently. Agriculture is considered an ideal development path for rural communities. Hence, agricultural activities are often supported to varying degrees by governments and donor-founded projects. In contrast, charcoal production is viewed as harmful to the environment and steps are often taken to restrict it. As a result, charcoal production in Ghana is the target of repeated, however, inconsistent threats of bans and restrictions in the name of environmental conservation.

This approach to environmental regulation not only leads to criminalization of an important land management practice that many people rely on as the first step in developing their land for cultivation, but also play into the hands of a few group of people—the traditional authorities (chiefs), government organizations and a class of entrepreneurs who benefit from the charcoal resources and trade whereas the majority of the people are alienated and marginalized.

The overall effect is that the benefits of forest resources in the communities tend to be appropriated by a few people—chiefs, the elite and the new class of entrepreneurs with linkages to the state, living the majority of the people who depend on the forest resources for their livelihood alienated and marginalized.

However, in the mist of all these policy issues, the lack of evidence to support claims, the issue of control over the resources and its associated conflicts and exclusions of the majority of the poor people in the benefits of the charcoal resources; we have limited knowledge of the impact of charcoal production on tree stocks / vegetation on fallow and farmed lands.
We have limited knowledge on the types of species used for charcoal burning in the transition zone and how common they are in fallow lands. There is also limited knowledge on the best charcoal burning tree species, their characteristics and whether they are becoming extinct.

Furthermore, we have limited knowledge on farmer management strategies on fallow land – how long it is followed, the trees that are selected and preserved, the trees they destroy, the techniques of enhancing the follow and promoting forest regrowth, the different values of trees in the forest; types of farms – yam, maize, cassava etc; and the different types of farms which occur in different environments.

It is also not clear how rights to land are established. Similarly, how rights are established to trees and land within the system of rotational bush cultivation is not clear.

A very important gap of knowledge is the rights of chiefs, and the conflicts that ensue when they give out land to charcoal burners or grazing rights to cattle, or land for establishing plantations; and the narratives which underpin these conflicts.

Against this backdrop, the overarching question is: to what extent are environmental policies, practices and perceptions distorted by chiefs and government organizations at the local community level to the disadvantage of the majority of the people?

**Objectives**

The policies often assume that charcoal is produced from fixed forests which are not regenerating but which are depleted, and that there is no link between charcoal production and agriculture.

In broad terms, therefore, the study will look at the role of fallow regeneration in the promotion of charcoal resources and conflicts over the control of these regenerated resources between farmers, charcoal producers, chiefs, state organizations and the new class of entrepreneurs with linkages to the state.

In specific terms the study will:

1. examine the impact of charcoal production on tree stocks or vegetation on fallow and farm lands.
2. identify the types of tree species that are used for charcoal production and how common they are on fallow lands.
3. find out the characteristics of tree species in fallow lands and how they differ in density and diversity from land that have not been fallowed.

**Significance of the Study**

The study will be valuable in contributing to the understanding of the processes of land cover change. It will offer an understanding of the environmental impact of charcoal production in the transition zone of Ghana. Insights from the study would identify strategies that would enhance inclusive and participatory forms of policy decisions that would be socially and culturally relevant. This is critical as an understanding of social and cultural aspects of environmental change (Watts, 1985; Bernstein 1979) would contribute toward a sustainable charcoal production industry, and facilitates equity and justice in the distribution of benefits of the charcoal resources.
Methodology
This case study will utilize an evidence-based participatory research methodology (Sorkheh, 2006). In line with the theoretical framework of the study, participatory research will allow a collaborative partnership of the farmers, charcoal burners, and the researcher. Also, participatory research has the potential to empower the participants to become agents of change in the charcoal production industry in the savanna and transition zones of Ghana.

Participants and Context
Participants for the study will include farmers and charcoal producers, land owners, chiefs, youth groups, resource-user groups, local authorities, forestry officials, and buyers in the Kintampo North District of the Brong Ahafo Region of Ghana. This district was selected as the site for the study because it spans both the savannah and transition zones of the country.

The study will be made up of three parts. In the first part, formal interviews using semi-structured questions will be used to illicit information on demographics such as age, gender, occupation, level of farming and charcoal burning experience, and site. The questionnaires will also illicit from farmers and charcoal burners their perceptions on the environment and regeneration and how farmers and charcoal burners can benefit more from exploitation of tree species for charcoal. The research will also look at the conflict in the communities and how the blame narrative is being played out.

The second component of the study will involve taking quadrats on farms and fell land or of whole farms and measuring their regeneration potentials; species composition by carrying out inventories of the incidences of tree species identified or present; the nature of coppice regeneration and the number of coppices with the collaboration of the farmers and charcoal burners. This will also include detail discussions with farmers and charcoal burners on the history of land use within the plots; the last date the plot was cleared, the woody tree species that were preserved and the user's own estimates of the age of trees based on their recollection of when they fell the trees or cleared the land. The species composition and regrowth of land that is abandoned over the period of the study will be measured. Period of cultivation of a plot and duration of fallow will be measured against coppice regrowth on the plots.

The discussion will also focus on the strategies farmers and charcoal burners use to manage regeneration of tree species on their farms; the trees they preserve after clearing the land; how long the trees take to regenerate and how long the farms are allowed to fallow. The number and girth size of trees preserved on the farms will be measured at chest level.

The formal interviews and observations will be complimented with informal interviews and a workshop. The informal interviews will allow participants interviewed formally to clarify responses on the formal interviews, while the focus group discussions will allow me to share my tentative interpretations with the farmers, charcoal producers, and other stake holders for their confirmation or otherwise.

Data Collection
The study will use multiple data collection techniques including: surveys, semi-structured interviews, and participant observation. The study will use semi-structured interviews and participant observation with farmers and charcoal burners on their farms. In addition, I will collaborate with farmers to carry out tree inventories and sampling of the nature of regeneration on farms and fallow lands.

Three communities will be selected using the random sampling technique. Within each selected community, the stratified sampling technique will be used to select respondents according to indigenes, migrants, and gender. One community each will be selected from communities where charcoal burning is high, communities where charcoal burning is high but dominated by migrants and from communities where charcoal burning is less or has stopped. This will enable me to compare the impact of charcoal in areas where charcoal production is high and on areas where charcoal production is low.

Data Analysis
The data will be analysed using both qualitative and quantitative analytical tools. Inductive analysis will be used to analyse the qualitative data from the semi-structured interviews and participant observation. The surveys and mapping of tree cover data will be analysed quantitatively.

THANK YOU
Annex VII: Study of vegetation changes from charcoal production through analysis of satellite imagery

ANALYSIS OF VEGETATION CHANGE

Potential sources and environmental impacts of charcoal production.

- Wood extraction
  - Biomass depletion,
  - Reduced tree density and cover
  - Fragmentation,
- Selective exploitation of suitable/preferred plant species.
  - Species richness,
  - Relative abundance,
  - Dominance,
  - Rarity etc.

Questions

- What is the nature and extent of actual charcoal production impacts on the vegetation in time and space?
  - Fragmentation and biomass, vegetation cover change, biodiversity, rarity, dominance, tree density etc.
- How do the actual impacts occur?
- Knowledge and perceived impacts of charcoal production on vegetation?

Charcoal production and Vegetation Change

- A key intractable issue in the production of charcoal is its impacts on the environment.
- The question of the extent and nature of charcoal impacts remains highly contested.
- Both policy makers and the public, deforestation and land degradation in the transitional zone are direct responses of the environment to charcoal production.

Traditional Environmental Management Strategies and competing land uses

- Traditional charcoal production and farming systems have developed techniques that promote the preservation and regenerating of new trees
- Charcoal burners move from exploited landscapes to new areas to allow for regeneration and regrowth of new trees
- Coparcion and Remote sensing studies on charcoal production landscapes indicate that exploited landscapes are capable of regenerating and replenishing new stocks of trees (Amaran and Pabi, 2009; Pabi, 2009; Pabi and Athiu, 2007)
- Caution of unsubstantiated attributions: multiple complex use of land activities on charcoal production landscapes, all with the potential for some environmental impacts.
- Objectively isolate the which of these activities actually have significant environment impacts.

Methodology

- Already articulated, scenarios of multiple factors, multiple land uses, multiple and complex environmental outcomes.
- Issues of scale in time and space, regular data acquisition, cost of data etc.
- Mixed methodological Approach for improved triangulation
- Satellite, Aerial and Drone Remote Sensing
  - Some advantages: wider area, cheaper, repetitive data capture, inaccessible areas.
  - UAV (Unmanned Aerial Vehicles) and Drones (UAVs), Landsat 8 (OTI), Protos
    - Landscape/covcape classification (different levels of vegetation cover; intensity of land use); in space
    - Landscape change; time and space (Dynamics of deforestation and regeneration)
    - Biomass estimation at different levels in time and space (ODIM)
    - Plant species identification (high spatial resolution images; Protos)
Methodology contd
- Ecological study:
  - For assessing species diversity, relative abundance, rarity and dominance, tree density etc
  - Compare landscapes with different intensities of charcoal production
    - Vegetation sampling using quadrats,
    - species identification and count
  - Community knowledge and perceptions on environmental impacts of charcoal production and traditional tree management techniques for sustained charcoal production

ANALYSIS
- Classification, change detection, image statistics, use of models for biomass estimation
  - Rainfall analysis and plots
  - Relative abundance plots
  - Quantitative Diversity indices
    - Shannon Index
    - Simpson Index
  - Statistical Analysis

What specific outcome to expect from this study
- Knowledge and information of evidence on actual impacts of charcoal production on:
  - Biodiversity heterogeneity, density
  - Forest fragmentation
  - Rarity and extent of small cover changes in different localities
- Issues that provoke relevant questions and further inquiries for enhanced understanding of the charcoal-environment nexus
- Promote informed discussions on environmental impacts of charcoal and policy formulation

Generalized and unsubstantiated conclusions, assumed attributions and entrenched positions led to lost opportunities to grapple with unresolved critical questions.

Open mindedness to make objective analysis of the real situation

This project will investigate relevant issues for evidence of realities

Participants encourage to make inputs for success

Mixed land uses
Timber felling

Plaèdes Sample Satellite imagery
Annex VIII: Production and Consumption levels of Charcoal in Ghana

Production and Consumption Levels of Charcoal in Ghana

K.S. Nketiah
Programme Director
Tropenbos International Ghana

28th April, 2016

Background and Rationale

- Charcoal remains an integral part of the developing economies energy demand.

- Estimated increase in fuel wood and charcoal consumption in tropical countries from 1.34 billion m³ in 1991 to 1.81 billion m³ in 2010 (FAO, 1993)

- In Ghana, like in other parts of Africa, wood fuel provides about 71% of total annual energy demand (Mason, 2008).

Aim of the study

- The study seeks to provide information on charcoal production and consumption levels in Ghana.

- Specifically, it estimates national charcoal production and consumption levels and any associated dynamics.

Outline

- Background and Rationale
- Objective
- Research Questions
- Scope of the study
- Approach and methods
- Expected outputs/deliverables

Main Gap

Charcoal production and consumption dynamics in Ghana is not well established.

This lack of relevant statistics hinders informed decision making including, investment in the charcoal subsector.

Research Questions

- How much charcoal is produced in a year?
- How much charcoal is consumed in a year?
- What seasonal variations exist?
- How much charcoal is involved in cross-border trade (exports and imports)?
Scope of the Study

- Major charcoal producing areas and consumption centers across the ten regions of Ghana.
- Identification of wholesale markets in the charcoal supply chain from producers to urban markets
- Assessment of quantities of charcoal arriving in major urban markets and their sources, over the two main seasons.

Study methodology

- Desk study to identify available information on
  - Methodologies used
  - Production areas and consumption centres
  - Estimates
- Market centres
- Snowballing technique to identify/confirm production areas
- Mounting of sentries at entry/exit points
- Data from check-points and MMDAs
- Household energy consumption surveys

Approach and Methods

Estimating production levels

- Identify major supply sources
- Categorize supply sources
  - Ecological/raw material/etc
- Estimate quantities from each major source
  - Survey/key informant interviews
  - Participant/observation methods
  - Using data from check points over time (time series data)
- Aggregate to get national production, making adjustments for minor production from other areas

Methods for estimating consumption

- Two main approaches:
  - Gross estimates from inflow-outflow balance
    - Assumptions
  - Refined estimates based on per capita consumption

Inflow-Outflow balance

- Sample major consumption centres
- Identify all entry points
- Mount 24/7 sentries at entry/exit points
- Collect data on inflows and outflows over 14 days
- Repeat for dry season and wet season
- Take sample weights/volumes from each production area
- Estimate consumption for study centre
- Allow for consumption in other areas
- Extrapolate to get national figures
Refined estimation of consumption levels

- Sampling frame
  - Major consumption centres
  - Classification based on income levels
  - Proportional sampling
- Household energy consumption surveys
  - Household size
  - Household energy mix
  - Household dependence on charcoal

Research methods

- Desk study (review of publications)
- Primary data collection (semi-structured questionnaire)
- Monitoring of cargo border points of entry and exit
- Form clusters based on level of production and consumption
- Road monitoring (inflows and outflows)

Expected Outputs/Deliverables

- Data on quantities of charcoal produced and consumed per annum in Ghana.
- Estimated seasonal variations in the production and consumption levels
- Reports and Policy briefs on charcoal production and consumption patterns in Ghana
- Interactive map of charcoal production and consumption hotspots
- MSc./Mphil. Graduates
- A framework for updating charcoal statistics?

Refined estimation method -2

- Population data
  - Update using growth rate and time of estimation
- Use data on percentage dependence on charcoal
- Estimate urban consumption
- Estimate rural household dependence on charcoal
- Use weighted averages (rural/urban) to estimate national consumption

Study strategy

- One comprehensive study to give an overview
- Several (limited) student studies to refine the data
- A blend of the two, where possible

The end

Thanks for your attention
Annex IX: Narratives about Charcoal Production

Narratives about Charcoal Production

Kojo Amanor

Property, Access and Exclusions along the Charcoal Commodity Chain in Ghana Project Inception Workshop, 28th April 2015, Vri Lodge, Legon

GHANA’S REDD+ STRATEGY

- Ghana’s National REDD+ strategy recognises that REDD+ should be implemented through open, equitable and transparent processes and that it should not be used to promote external interests or ‘elite capture’ at the expense of the people. Although this is to be welcomed how can it be ensured that REDD+ is both transparent, and equitable and meets the needs of the rural poor?
- A policy of collaborative forestry was adopted in Ghana in the 1990s, which resulted in reforms to forest policy and the declaration that forestry would support community initiatives for sustainable development. However, the end result of this was the ban on charcoal timber and the appropriation of timber resources of farmers.

1994 Forest Policy and Ban on Chainsaws

1994 Forest and Wildlife Policy stated that government would: "Encourage local community initiatives to protect natural resources for traditional, domestic and economic purposes and support with the reservation of such lands to enable their legal protection, management and sustainable development". On-farm resources were transferred from district assemblies to the Forest Commission in the national interests and timber resources were appropriated from farmers for timber concessionaires. What followed was a policy of salvage felling which denuded the farming areas of timber resources preserved by farmers, and transformed areas such as Ceha pentodonu, which were widely preserved by farmers to enhance the farming environment into timber resources for the export trade.

Undermining farmer rights in timber

- The rights of farmers and community members to timber resources were criminalised, as were organisations such as the National Association of Chainsawyers and Charcoal Burners, who had played an important role in attempting to control illegal timber, and the conventions through which local district councils allocated off reserve resources through a permit system was overturned.
- By the late 1990s nearly 70 per cent of harvested timber originated from fallow and farmland and 28 per cent from natural and secondary forest and this was appropriated for the timber industry and for concessionaires at the expense of the farmers who had nurtured the trees.
- This was achieved by redefining farmers' customary rights in timbers as the rights of chiefs which were being abused by youth, sawyers and farmers.

Timber and charcoal

- The appropriation of timber on farmland has not led to more sustainable timber management or an open and transparent system of forestry, but increasing corruption and rapid decline of forest resources.
- These policies have been justified by a series of narratives that promote a crisis in forestry, decline of forests at an alarming rate, the need for government interventions to halt this decline, and the stewardship of chiefs over forest resources and the need to protect their rights to forests to maintain the resources.
- As policies are devised to regulate charcoal production many of the narratives are being reproduced to justify interventions.
- This presentation critically examines these narratives about a crisis in forestry resulting from the increased production of charcoal and the need to regulate charcoal.

Narratives and Green Grabbing

Fairhead et al. (2012) identify green grabbing as the appropriation of land and natural resources for environmental ends. This involves the transfer of ownership, use rights, and control over resources. As such it can be achieved through the introduction of rules and regulations over access, use, and forms of management that alienate the resource owners and use of the resources. This may be achieved through government agencies working in alliances with NGOs, through a framework of value chains.

What do these narratives justify?

- Narratives about protecting the environment are used to justify the appropriation of the resources of the rural poor.
- These narratives justify the appropriation of land to create forest reserves, or state-sponsored timber plantations, and the "rural curtailing of land and resource use rights and practices" (Fairhead et al. 2012).
- They portray peasant farmers and rural people as destroyers and wielders of forests.
- They depict an alarming environmental crisis that needs to be solved urgently by removal or restriction of peasant rights in land, control and regulation of practice, and re-education.
- The narratives are not based on detailed empirical evidence but received wisdom, assumptions, and doubtful statistics.
- They demean rural people and facilitate displacing their access and control of resources. They enable new investors to capture these resources and make large profits from them.

Critically examining charcoal narratives

- The policy narratives about charcoal depict serious deforestation in Ghana – 2 percent per annum.
- But how is this measured?
- What is the base year?
- What constitutes forest? (15% canopy cover 5 metres tall 1 hectare in land?)
- Is this uniform throughout different types of forests in Ghana?

Forest statistics

- Fairhead and Leach (1996) examine how statistics are constructed about rates of deforestation in West Africa.
- These are based on guesstimates and assumptions about the original extent of forest cover.
- These assumptions about a one-way decline in forest cover are contradicted by several evidence.
- Paleoclimate – forests in West Africa in a phase of expansion particularly in transition zone
- Substantiated by remote sensing work in Sahel

Paleoclimate

- Long term patterns of climate change influence present
- Contemporary period is one of forest expansion (with wet and dry periods) as forests recover from major drought during the Holocene period in which West African forest was transformed to grasslands.
- Evidence based on core taken from lakes such as Bosumtwi
- Evidence of recent droughts show quite significant changes in forests

Paleoclimate (cont.)

- Research at Lake Bosumtwi shows a major drought in the late 18th century in which much of forest seed stocks were replaced in the lake sediments by grassy species

Atlantic Forcing of Persistent Drought in West Africa


Although persistent drought in West Africa is well documented from the instrumental record and has been attributed to changing Atlantic sea surface temperature, little is known about the length, severity, and origin of drought before the 20th century. We combined geoclimates, geospatial, and paleoclimatic evidence from the sediments of Lake Bosumtwi, Ghana, to explore this question. The results of our analysis show that intervals of severe drought lasting for periods ranging from decades to centuries are characteristic of the monsoon and are linked to natural variations in Atlantic oceanography. Thus, the severe drought of recent decades is not anomalous in the context of the past three millennia, indicating that the monsoon is capable of longer and more severe interdecadal droughts.
Contemporary ecological research

- Although contemporary forest research is influenced by policy objectives, the structure of present forests reveals much about their history.
- Van Rompaey:
- the [semi-dense] forests have experienced a heavier disturbance regime than in wetter forests. The disturbance in this zone has mainly been climatic. Over the last million years, this part of the forest has experienced a dramatic oscillation of dry and wet spells, with dry phases being most frequent. In this respect the dry semi-dense forests are a recently installed forest. p.34

The wet evergreen forests are of higher conservation priority. The semi-dense forests are of lower conservation priority but have more valuable timber species. Hawthorne characterizes semi-dense forests as “scar tissue”

Other evidence

- Remote sensing evidence shows expansion of woody vegetation particularly in transition zone and Sahel
- The incidence of the 1983 bushfires results in a process of regeneration in many areas rather than environmental loss.

REDD+ Direct Drivers of deforestation

- Transition zone Programme
- Emission reduction Program for the Shea landscape of the northern savannah woodland
- Drivers of deforestation: charcoal, illegal logging, agricultural expansion
- Commodity focus: Shea and cashew

REDD+

- This program has not benefitted from years of data collection, conceptualization, and planning. Thus considerable work will be required to fully understand the landscape and land use change dynamics. In the landscape and the most valuable REDD+ outcomes are rewarded and efforts of implementation are reduced. This is in significant part because of the long-term benefits of deforestation and the need for improved land use practices and better management. p.24

- Various commodities of global interest are grown from the area include shea butter and seedwood. Shea trees which normally occur naturally in the landscape are harvested by women to produce shea butter, a product that is used and consumed locally, nationally and globally. However shea trees are being lost to induce increases in charcoal production driven by a burgeoning urban demand. African Rossewood is a ORS limited endangered species that is highly sought after in China and is being illegally harvested and exported. Addressing the threats to shea trees, as well as the other drivers and sustainable development challenges in the region, robust policy responses coupled with well thought out activities that could include sustainable management and charcoal supply reduction, promotion of climate smart agriculture and agroforestry systems, tree planting and native species plantations and woodlots. Landscape level use planning, developing Shea landscape standard of certification, wildlife management efforts. P.25

Recent Research on farmer management of trees

- Assumptions that charcoal resources are product of pristine forests rather than farmer management of the environment including fallow land under “shifting cultivation” and that the resource is under threat.
- Therefore resource to be preserved through industrial plantations and through increasing regulation and taxation
- However if fallow contain significant tree resources these merely replace natural regeneration with plantations.
- Thus policy interventions and regulation will result in a significant shift of economic activity from food producers to plantations and from poor farmers to elite capture of the resource

- A recent detailed study by C. Haase et al. concludes

- Out of sixty in the northern savannah zone of Ghana indicates that tree resources are important for sustaining the rural livelihoods and that are used by people of indigenous resource used by farmers. Trees are integrated into the cultivated landscape and farmers are practicing simple methods of managing the naturally regenerated trees. The current approach of development action on improving tree management in the region poorly reflects the dependence on indigenous trees for fuelwood, food, fodder, construction materials and other indirect uses and the role of farmers that they manage and maintain their own resources. Most development strategies among local and international organizations and institutions have focused on distribution of exotic fruit tree species. It is recommended that the current strategies should be replaced with development programmes focusing on the management of the naturally regenerated woody vegetation. The development strategies should acknowledge the full aspects of current local tree management practices and the value of indigenous trees species. p.26

**Conclusion**

- Important to examine narratives about deforestation critically and the evidence on which they are based.
- Important to bring recent research on forests to attention of policy makers for incorporation in policy frameworks and promote development of these critical research frameworks in Ghana.
- Need to integrate the social and economic implications of policy narratives and effects on economic life.

**Branam State Farm**

Modern mechanised maize production leads to preservation of fewer trees although there is no shifting cultivation.