

# **COOPENER**

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**DEA**

**Development and Energy in Africa**

Intelligent Energy – Europe (IEE)

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**Second Project Workshop**

**5-7 June 2006**

**Workshop Report**

Start date of the project: 1 May 2005

Duration: 30 months

End date of the project: 31 October 2007

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**Title:** Second Project Workshop Report

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#### Abstract

This report refers to the COOPENER project "Development and Energy in Africa (DEA)" initiated on 1 May 2005. The report covers the proceedings of the Second Project Workshop, held at Fringilla Farm Lodge, Zambia from 5 to 7 June 2006.

The main contributions of the African partners so far had been WP 4, the energy intervention catalogue, consultations with national stakeholders, and selection of the individual interventions to be subjected to case studies in WP 6. In the meantime, the methodological approach to be followed has converged on the 4-level causal link procedure being developed in conjunction with the M&EED Group (see also Progress Reports). In preparation for the workshop and the case studies, the African partners had prepared draft causal link diagrams and associated tables for the respective case studies. These would provide the substantive starting points for their work in the three day workshop.

The purpose of the Second Project Workshop was to run through the proposed assessment methodology and to prepare the country teams to carry out the cases studies, ending at the end of the workshop with a developed research plan. This would be implemented immediately after return to their countries over the period June to September 2006.

The practical preparations for the workshop in Zambia were arranged by the Zambia partner CEEEZ. The African participants, one from each centre apart from Zambia who had a team of three, were all prepared for the workshop, having been exposed to the proposed methodology through the preceding months, and having developed initial causal diagrams for their case study projects, and translated these into fiches (tables) according to instructions from the EU team.

The objectives for the Second Project Workshop were:

- to follow the four-step process described above in 1.2 so that all six Centres were prepared to carry out the case studies
- to discuss and agree on next steps in the project and related matters

These objectives were achieved sequentially over the three days.

- day 1: From causal diagram to "fiche" – Step 1
- day 2: From fiche to research plan – Steps 2 to 4
- day 3: Next steps – analysis, reporting, national workshops, etc.

There was a generally expressed agreement that the workshop had been highly successful. The African Centre participants agreed that the hopes and fears expressed in the first day had been well addressed during the programme. The assessment framework had been well presented and received by the participants and the process of going through the four steps of preparation had been a worthwhile and productive exercise. The process would henceforth be referred to as the Fringilla Process after the workshop venue.

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## Preface

Development and Energy in Africa (DEA) is a project under the European Commission's Intelligent Energy - Europe programme COOPENER. Ultimately DEA aims to "support decision makers with the implementation of more sustainable energy policies, ..." in line with the key action VKA 11.1 of the COOPENER programme. The project will do this by identifying and quantifying, where possible, the elements of concrete energy interventions that contribute to sustainable development (SD) and systematising this in an Assessment Framework which can enhance policy to promote energy for sustainable development.

The principal aims of the Development and Energy in Africa (DEA) project are (i) to identify and examine the developmental impacts of energy innovations and actions linked to improving energy access and poverty alleviation and (ii) to use the information obtained to improve on-going and future energy interventions through the energy policy makers and institutions in the countries concerned.

Specific energy activities in six African countries (Botswana, Ghana, Mali, Senegal, Tanzania and Zambia) will be examined with respect to development impacts and a methodological framework developed to feed results back into the conception and design of new projects. The Project is aimed at national energy- and development-policy makers, initially in the six participating African countries, but with a view to wider application in Sub-Saharan Africa. The project is also relevant for international and national energy, development and environment practitioners.

# 1 Background

## **1.1 Workshop purpose and state of project**

The first project workshop was held during the Inception Period in May 2005. Since then, as reported in the First Progress Report, there have been changes in personnel both in the EU partners and some of the African partner Centres. Communication between the EU and African partners had primarily been electronic by email, apart from a short extraordinary meeting in Paris in January and a telephone conference two weeks before the workshop. Contact between EU and Africa teams had been made at a high level also through the first round of national workshops in September and October 2005.

The main contributions of the African partners so far had been WP 4, the energy intervention catalogue, consultations with national stakeholders, and selection of the individual interventions to be subjected to case studies in WP 6. In the meantime, the methodological approach to be followed has converged on the 4-level causal link procedure being developed in conjunction with the M&EED Group (see also Progress Reports). In preparation for the workshop and the case studies, the African partners had prepared draft causal link diagrams and associated tables for the respective case studies. These would provide the substantive starting points for their work in the three day workshop.

The purpose of the Second Project Workshop was thus to run through the proposed assessment methodology and to prepare the country teams to carry out the cases studies, ending at the end of the workshop with a developed research plan. This would be implemented immediately after return to their countries over the period June to September 2006.

## **1.2 The assessment process**

The process to be followed in preparing the impact assessment for the case studies will be described fully in separate documents under preparation. Essentially the process consists of four steps, given the identification and initial characterisation of the intervention to be assessed, and expressed in an initial diagram of causal links between inputs outputs outcomes and impacts of the intervention.

Step 1: Filling out “consolidated fiches (tables)” containing:

- a) hypothetical, causal relationships between the specific energy services provided by each intervention and the specific facets living standards affected among the intervention’s beneficiaries
- b) suggested indicators which would allow empirical assessments of the above relationships
- c) the target groups, individuals or institutions who may provide information or values for the indicators

Step 2: Assigning and arranging methodologies (for example surveys, interviews, focus groups), sources and research questions.

Step 3: Planning fieldwork under time and financial constraints: methods and sampling.

Step 4: Finalizing the integrated research plan – Who does what and when?

## **2 Workshop preparation and practical details**

The practical preparations for the workshop in Zambia were arranged by the Zambia partner CEEEZ. Participants arrived in Lusaka on Sunday 4 June at times between 10:00 and 16:00 depending on their respective flights. The whole group met at the Intercontinental Hotel, Lusaka and travelled together by minibus to the workshop venue at Fringilla Farm Lodge, 50 km north of Lusaka.

The African participants, one from each centre apart from Zambia who had a team of three, were all prepared for the workshop, having been exposed to the proposed methodology through the preceding months, and having developed initial causal diagrams for their case study projects, and translated these into fiches (tables) according to instructions from the EU team.

Development and agreement of the criteria for case study selection are covered in the Second Progress Report.

## **3 Workshop proceedings**

### **3.1 Day 1**

#### **3.1.2 Introduction**

Most of the workshop participants (see Appendix 2) were acquainted with each other beforehand, and all had an opportunity to socialise on the minibus from Lusaka to Fringilla Farm, about 50 km, and in the evening preceding the workshop. The normal “round of introductions” was thus superfluous. Instead, participants formed a circle in the garden outside the meeting room, and in turn – dictated by throwing a rugby ball across the circle to the next speaker - expressed their feelings for the DEA project and the workshop in terms of a landscape, time of day and weather. The exercise proved successful in creating a positive, productive and enthusiastic atmosphere.

#### **3.1.3 Overview of the DEA project**

See appendix 3 for the presentation.

### 3.1.4 Objectives and agenda for the workshop

The objectives for the Second Project Workshop were:

- to follow the four-step process described above in 1.2 so that all six Centres were prepared to carry out the case studies
- to discuss and agree on next steps in the project and related matters

These objectives would be achieved sequentially over the three days.

- Day 1: From causal diagram to “fiche” – Step 1
- Day 2: From fiche to research plan – Steps 2 to 4
- Day 3: Next steps – analysis, reporting, National Workshops, etc.

Participants would work in three groups of two countries, grouped as follows:

- Senegal (Sécou Sarr) and Mali (Pierre Dembele)
- Botswana (Peter Zhou) and Ghana (Solomon Quansah)
- Tanzania (Gisela Ngoo) and Zambia (Gilbert Phiri, Lilian Zulu)

with resource persons circulating among the groups

- Gordon Mackenzie
- Sten Dieden
- Emiel van Sambeek
- Yizenge Chondoka
- Professor Francis Yamba

### 3.1.5 Hopes and Fears

The session was essentially a brainstorming with participants expressing their hopes and fears for the DEA project as they see it at the present time. The contributions were recorded on flip charts and hung on the wall to be addressed throughout the workshop and revisited on Day 3.



Figure 3-1 Emiel van Sambeek recording “Hopes” and “Fears”

## Hopes

- **Make clear to stakeholders what the impact of their investment is**  
**=> impact on the ground**
- **more holistic view**
- **what projects make a difference?**
- **linking to what else is happening**  
**=> project design**
- **integration in government development planning**
- **which project has most impact?**
- **evaluation framework on impacts of (inter-sectoral) development planning**
- **tool for advocacy**
- **spread of the tool**  
**=> incorporating the experience of the other case studies**
- **ministerial buy-in**
- **helping stakeholders to apply the tools**
- **building on good relations/involvement/good will in the workshops**

*Figure 3-2 Contents of flip chart - Hopes*

- FEARS**
- **No feedback into project design**
  - **How to convince stakeholders to use the Assessment Framework**  
**=> different sectors**
  - **Does not serve to coordinate between sectors/stakeholders**
  - **DEA procedure not accepted by stakeholders**
  - **understandability**
  - **How to measure the impact of DEA itself?**
  - **How to internalise DEA?**
  - **How to incorporate lessons in the project?**
  - **DEA is already forgotten (by stakeholders who attended national workshops last year)**

*Figure 3-3 Content of flip chart - Fears*

### **3.1.6 Outline of the methodology**

The DEA project started with concept of an Assessment Framework which could be applied across a broad range of energy interventions. In other words the project would attempt to develop and apply a “universal” method for evaluating the development impacts of energy interventions.

Over first year of the project, through literature studies and discussions, it became clear that no one “method” is possible. There is a great diversity in energy interventions, as well as the recurring difficulty of attribution by which it becomes virtually impossible to “disentangle” which interventions may have contributed how much to any particular development impact. Nevertheless there is significant interest among stakeholders and researchers to investigate the various possible contributions that energy can make to the development process, and to document or quantify the contributions at the various stages as far as possible, also taking into account other contextual factors that can operate to produce or enhance developmental effects.

In parallel to the DEA project, the international M&EED<sup>1</sup> group (initiated by GVEP, EUEI and others) had been working on developing a methodology for monitoring and evaluation of energy projects and had adopted a 4-level causal link approach. (See Second Progress Report and other project documents to be developed on the Assessment Framework.)

The approach is illustrated diagrammatically in Figure 3.1 which shows a (simplified) 4-level causal diagram representing an energy intervention (here an energy supply company or ESCO) and the associated table or “fiche”<sup>2</sup> which is a projection of the table, comprising the various elements of the assessment at each level.

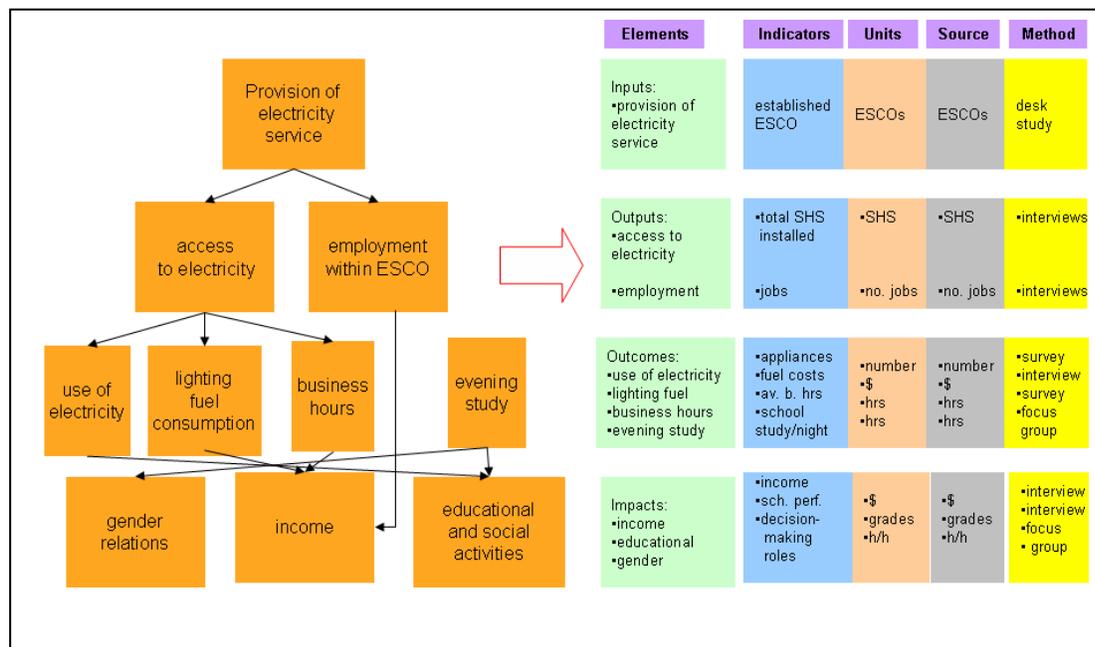


Figure 3-4 Example of causal link diagram and associated fiche.

### 3.1.7 Causal diagrams

Participants had already been introduced in the months leading up to the workshop to the concept of causal diagrams as developed in the M&EED

<sup>1</sup> The Monitoring and Evaluation for Energy and Development International Working Group (M&EED) was initiated by GVEP in 2003 in response to a request from one of its partners (Electricity de France) to cooperate in developing indicators for measuring the impact of energy services on general development – poverty reduction, health, education etc. The EUEI joined soon after and the Group has expanded since to include major actors in this field such as UNDP, UNEP, World Bank, GNESD, REEEP, ADEME, GTZ, Energia, and private sector organisations like Future Energy Solutions, Fraunhofer ISE and IT Power. The objectives of M&EED are to enable the development of monitoring and evaluations practices among energy access programmes for poverty reduction in a coherent and coordinated manner, which can be recognised by all stakeholders, and to promote the results of energy projects in terms of development. (For more information see: <http://www.gvep.org/section/services/results/> )

<sup>2</sup> The term “fiche” is used extensively in the M&EED documentation.

group. Each country group had developed an initial causal diagram on the basis of the information for the respective interventions in the catalogues. These initial diagrams had been discussed with the EU project team in the months leading up to the workshop. The presentation (Appendix 4) and discussion was thus by way of a summary to prepare for the break-out group work which would re-examine the initial casual diagrams for the 6 case studies and revise them if necessary taking into account the key issues at each link in the chain.

### 3.1.8 Break out groups

The break-out group session focussed on the causal link diagrams which had been prepared prior to the workshop. Discussion in the two-country groups, constructively criticising and revising the diagrams took longer than originally allocated in the programme, but proved to be a very useful and important exercise. Particular issues brought out were how best to incorporate different sectors and different energy end uses in the diagrams. There was general agreement that the process of discussing, enhancing, expanding and editing the causal link diagrams was a necessary step before moving on to completing the table or “fiche” – Step 1.

An example of a revised causal diagram, that for the Tanzania case study, is shown in appendix



Figure 3-5 The Mali/Senegal group with Emiel van Sambeek



*Figure 3-7 Gisela Ngoo (Tanzania) and Gilbert Phiri (Zambia)*



*Figure 3-6 Solomon Quansah (Ghana) discussing the causal diagram with Sten Dieden.*

### **3.1.9 Step 1 – Filling in the consolidated fiche**

Following the break-out session on causal diagrams and feedback from the groups, Sten Dieden presented an overview for filling in the consolidated fiche, Step 1 of the process. The preliminary tables submitted by the teams prior to the workshop had been converted to excel worksheets and these were distributed to the teams..

The teams broke up into groups once more and were guided by the resource persons in revising the tables on the basis of their revised causal diagrams. An example of a revised table, corresponding to the revised diagram of Appendix 5, is shown in Appendix 6.

A summary presentation of rural research methods was given by the local expert, Dr Chondoka, followed by discussion on potential pitfalls in conducting such research based on the experience of the participants.

### **3.2 Day 2**

The teams continued their revision of Table 1 and proceeded to Steps 2, 3 and 4 following outlines presented by Emiel van Sambeek and summarised in Appendix 7. By the end of Day 2, all teams had completed Step 2 and had begun working on the research plan, Steps 3 and 4.

### **3.3 Day 3**

#### **3.3.2 Research methods**

Day 3 began with an extensive presentation by Dr Yizenge Chondoka, focussing on the specific research methods to be used in the field study. Particular points mentioned were the importance of asking few, simple and single questions.



*Figure 3-8 Dr Yizenge Chondoka addressing the workshop*

Dr Chondoka stressed that questions should preferably be open-ended allowing interviewees to volunteer information, leading questions should be avoided and an emphasis should be placed on communicating with people. The points were illustrated with numerous examples based on Dr Chondoka's experience in field research and related to the particular examples of energy interventions to be investigated in the case studies. A set of summary notes from Dr Chondoka's presentation are included in Appendix 8.

Following Dr Chondoka's presentation and active discussion, participants completed their research plans with guidance from the resource persons. It was agreed that final research plans and the associated documents would be submitted to Risoe and ECN within 2 weeks for comments.

### 3.3.3 Next steps

Finally, the next steps in the project were discussed. It was agreed that case studies should be completed if possible and reported by mid-September, allowing the second round of National workshops to be held in October. The prime focus of the national workshops would be on the results of the cases studies. It was agreed that all 6 case studies should be presented at all 6 workshops since it the stakeholders should be exposed to the assessment framework as a whole and not only to the cases studies in their own countries.

An overview of the remainder of the project is illustrated in Figure 3-9. The process which had been carried out over the past 3 days (and the preparation) is referred to as the "Fringilla Process" which involves the 4 steps described above, ending in a detailed research plan for the case studies.

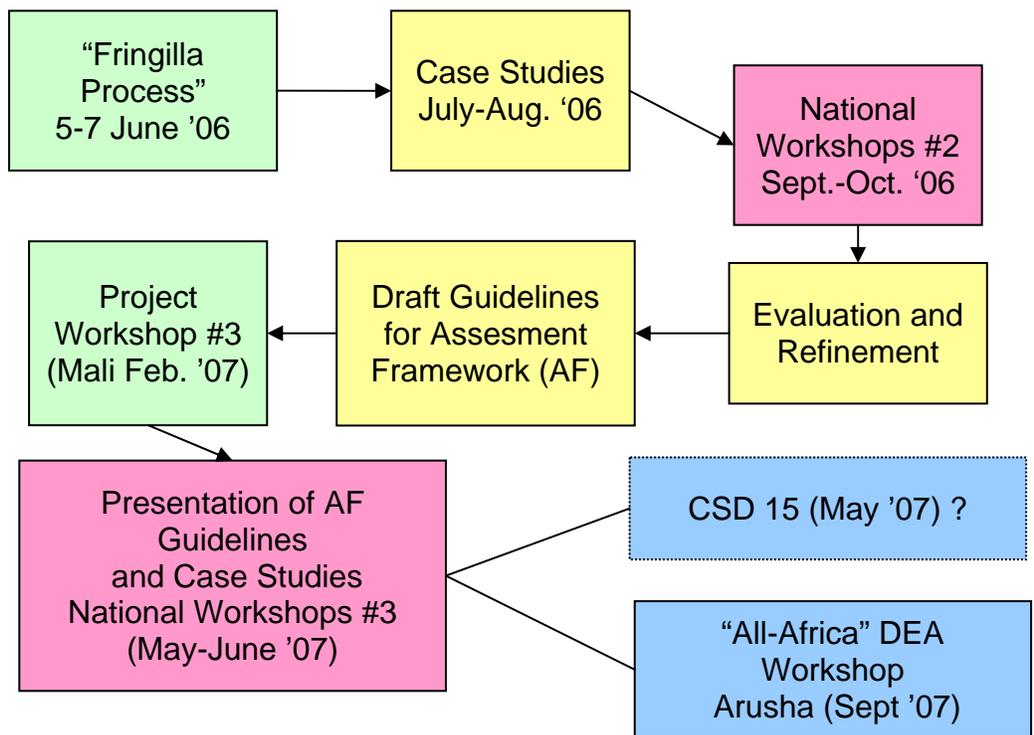


Figure 3-9 Schedule for the rest of the DEA project

Provisional agreement was reached on a schedule of meetings for the rest of the project. Following the case studies, a second round of national workshops will be held in the 6 countries, allowing stakeholders and policy makers to comment on the cases studies and the assessment methodology. Following this, a process of evaluation and refinement will be carried out, culminating in a third project workshop in February 2007, provisionally to be hosted by the Mali Folkecenter.

The final assessment framework, in the form of a set of guidelines and the examples of the case studies, as well as the wider relevance and application of the framework will be discussed among stakeholders at a third round of national workshops between May and June 2007.

The assessment framework and its application will be disseminated to a larger audience, provisionally at the CSD 15 in New York (May 2007) and at the scheduled All-Africa DEA Seminar or Workshop, at which stakeholders from a number of non-participating African countries will be invited. TaTEDO agreed provisionally that the All-Africa Seminar could be hosted in Arusha, Tanzania.

## 4 Conclusions

There was a generally expressed agreement that the workshop had been highly successful. The African Centre participants agreed that the hopes and fears expressed in the first day had been well addressed during the programme. The assessment framework had been well presented and received by the participants and the process of going through the four steps of preparation had been a worthwhile and productive exercise. The process would henceforth be referred to as the Fringilla Process after the workshop venue.

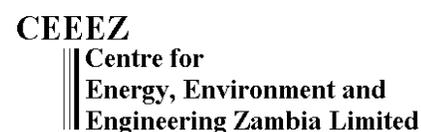


## **Appendix 1: Workshop Programme**

## Development and Energy in Africa (DEA)

### Second Project Workshop Fringilla Farm Lodge, Zambia 5-7 June 2006

time	item	facilitator/chair	content
Sunday evening	introductions and settling in	Gordon	Social
<b>DAY 1</b>			
09.00 - 09.10	Welcome	Prof. Francis Yamba	Welcome
09.10 - 09.45	Introduction of participants	Gordon	Expectations for the workshop
09.45 - 10.00	Overview of DEA	Gordon	Brief overview of the DEA project <ul style="list-style-type: none"> <li>- Where are we now?</li> <li>- Catalogue</li> <li>- Literature review</li> <li>- The Assessment Framework</li> <li>- Case Study outcomes</li> <li>- After the case studies</li> </ul>
10.00 - 10.20	Objectives and agenda for workshop	Gordon	Primary objective: the research plans for the case study.  Presentation and discussion of the agenda
10.20 - 10.40	break		
10.40 - 11.20	Discussion: What do we want to get out of DEA <i>after the case studies</i>	Emiel	<ul style="list-style-type: none"> <li>- 'Hopes' and 'fears' for the AF</li> <li>- Facilitated discussion</li> <li>- Key issues for discussion on Day 3.</li> </ul>



11.20 - 12.00	Outline of the DEA methodology – The “Assessment Framework”	Gordon	<ul style="list-style-type: none"> <li>- 4-level concept</li> <li>- overall process of conducting a case study</li> <li>- causal chains</li> <li>- key research questions</li> <li>- fiches: (measurable) indicators, units, sources, methodologies</li> <li>- sampling</li> <li>- research planning</li> <li>- implementation</li> <li>- data processing and analysis</li> <li>- reporting</li> </ul>
12.00 - 13.00	Lunch		
13.00 - 13.10	Causal diagrams	Gordon/Emiel	Short presentation on how to construct and use a causal diagram
13.10 - 13.40	Break-out groups on causal diagrams	Gordon, Sten, Emiel	Break-out groups discussing and commenting on each other's causal diagrams based on the catalogue
13.40 - 13.45	Feedback from break-out groups	Gordon, Sten, Emiel	Plenary feedback round on the construction of the causal diagrams
13.45 - 14.15	Step1: Filling out Table 1	Gordon, Emiel, Sten	<ul style="list-style-type: none"> <li>- How to fill out Table 1</li> <li>- Feedback on what the partners’ experience and observations from the 'pre-workshop drafts'.</li> </ul>
14.15 - 14.45	Methodologies for field study – brief overview	Yizenge	<ul style="list-style-type: none"> <li>- Brief overview of methodologies for obtaining information in the field, incl. interviews, surveys, focus groups.</li> <li>- brief impression of participants’ field-study experience</li> </ul>
14.45 - 15.00	Break		
15.00 - 16.45	Break out groups completing Table 1	Gordon, Sten, Emiel, Yizenge	Discuss, review, amend and complete the pre-workshop drafts of Table 1
16.45 - 17.00	Feedback from the group on day 1	Gordon	Feedback from the break-out groups on the process of finalising Table 1
19.00	Dinner		

<b>DAY 2</b>			
09.00 - 09.15	Recap of day 1	Gordon	Key elements from day 1
09.15 - 09.30	Agenda, objectives and structure of day 2	Gordon	<ul style="list-style-type: none"> <li>- Agenda and objectives for Day 2</li> <li>- Outline of the process of developing and implementing a research plan: <ul style="list-style-type: none"> <li>- methodologies, sources, research questions</li> <li>- sampling</li> <li>- research planning</li> <li>- design of research methods</li> <li>- implementation</li> <li>- data processing</li> <li>- data analysis</li> </ul> </li> <li>- Partners' previous experience with the various methodologies</li> </ul>
09.30 – 9:45	Research plan Step 2: arranging methodologies, sources and research questions (Table 2)	Sten	Discussion of methodologies, sources, research questions tables made by Risø and ECN based on Table 1 from Day 1
9:45 - 10.45	Research plan: Step 3: Planning fieldwork under constraints: methods and sampling	Yizenge	<p>Field study, data collection methodologies</p> <p>Discussion of sampling issues:</p> <ul style="list-style-type: none"> <li>- sample size</li> <li>- time planning</li> <li>- resource planning</li> <li>- second-best and proxy options (within resources available for the case studies)</li> <li>- provide reference material</li> </ul> <p>More detailed discussion on partners' experience</p>
10.45 - 11:00	Break		
11:00 - 12.30	Break-out groups working on Table 3 of the research plan	Gordon, Sten, Emiel, Yizenge	<ul style="list-style-type: none"> <li>- Prioritization of research issues using the causal tree, Tables 1 and 2</li> <li>- Work on Table 3 of the research plan: sampling</li> </ul>
12.30 - 13.30	Lunch		
13.30 - 13:40	Step 4: integrated research plan (Table 4) – Who does what and when?	Gordon	<p>Developing an integrated research plan:</p> <ul style="list-style-type: none"> <li>- methods</li> <li>- sampling</li> <li>- resources</li> <li>- time</li> </ul>
13.40 – 15:00	Break-out groups for	Gordon, Sten,	Developing an integrated research

	research plan table 4	Emiel, Yizenge	plan based on table 3 of the research plan
15:00 - 15:30	Break		
15:30 – 16:00	Field-study practicalities	Yizenge	<p>Key tips, concerns, pitfalls, issues, etc in designing and planning fieldwork:</p> <ul style="list-style-type: none"> <li>- surveys</li> <li>- literature research</li> <li>- interviews</li> <li>- focus groups</li> </ul> <p>Data issues</p> <ul style="list-style-type: none"> <li>- cross-checking different sources</li> <li>- analysing data</li> <li>- quantitative and qualitative</li> </ul>
16:00 – 17:00	Continuation of break out groups	Gordon, Sten, Emiel, Yizenge	Continued work on Table 4 and completing research plan - in groups or individually.
17:00 – 17:30	Evaluation of day 2	Gordon	<ul style="list-style-type: none"> <li>- Is everybody still with us?</li> <li>- Are we still going in the right direction?</li> <li>- What issues have not been dealt with and should still be considered?</li> </ul>
19.00	Dinner		

<b>DAY 3</b>			
09.00 - 09.10	Recap of day 2 and objectives for day 3	Gordon	<ul style="list-style-type: none"> <li>- Key elements from day 2.</li> <li>- Where are we now and where do we want to be at the end of day 3?</li> </ul>
09.10 – 9:30	Next steps	Gordon	<ul style="list-style-type: none"> <li>- Central data storage (intranet)</li> <li>- Analysis</li> <li>- Presentation and discussion with multi-sector stakeholders</li> <li>- Showing whether and how the project has made a difference</li> <li>- Impact on stakeholders and policy makers</li> <li>- Format and requirements for reporting on the case studies:</li> <li>- Include stakeholder analysis for defining the focus of the report</li> </ul>
9:30 - 10.30	Break out groups	Gordon, Sten, Emiel, Yizenge	Stakeholder analysis and planning of 2nd National Workshops
10.30 - 11.00	Break		
11.00 - 12:30	Broader context of the project	Emiel	<p>Follow up from day 1:</p> <ul style="list-style-type: none"> <li>- what in the end do we want out of DEA?</li> <li>- what should we focus our efforts on after the case studies?</li> <li>- what should be done extra to really give DEA practical added value?</li> <li>- what do you expect from DEA after the case studies?</li> <li>- etc.</li> </ul>



12.30 - 13.30	Lunch		
13.30 – 14:30	Planning of next steps in the project	Gordon	<ul style="list-style-type: none"><li>- Identify steps</li><li>- Allocation of tasks and responsibilities</li></ul>
14:30 - 15:00	Break		
15.00 - 15.30	National workshops in Sept-Oct 2006	Gordon	<ul style="list-style-type: none"><li>- Objectives</li><li>- Timing</li><li>- Participation</li></ul>
15.30 – 17:00	Evaluation	Gordon	Discussion
19:00	Dinner		
Evening	Free		Relaxation and social activities
<b>Thursday morning</b>	Departure from Fringilla		



## Appendix 2: List of participants

<b>name</b>	<b>institution</b>
Dr Peter P. Zhou	EECG, Botswana
Mr Solomon Quansah	KITE, Ghana
Mr Pierre Dembele	MFC, Mali
Mr Sécou Sarr	ENDA, Senegal
Ms Gisela Ngoo	TaTEDO, Tanzania
Prof. Francis D. Yamba	CEEEZ, Zambia
Mr Gilbert Phiri	CEEEZ, Zambia
Ms Lilian Zulu	CEEEZ, Zambia
Dr Yizenge Chondoka	UNZA, Zambia
Mr Emiel van Sambeek	ECN, Netherlands
Dr Gordon A. Mackenzie	Risø, Denmark
Dr Sten Dieden	Risø, Denmark

## Appendix 3: PowerPoint presentation – DEA overview

*Gordon Mackenzie*

**RISO**

### DEA – Second Project Workshop June 2006, Zambia

- Programme for morning discussions:
  - Brief overview of DEA
  - Objectives of the workshop – getting to the research plan for the Case Studies
  - Outline of the methodology

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**RISO**

### What's so special about DEA?

It is not just a collection of case studies

- Case Studies linked by a common purpose: to identify, quantify and document development impacts
- Case Studies linked by a common approach
- Common approach refined, made operational, presented as a method for integrating development impact information into policy and project design

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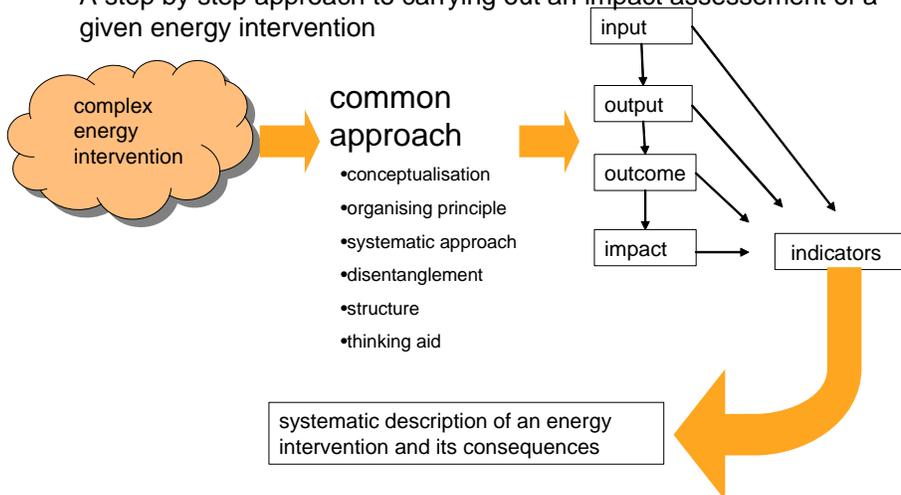
From energy intervention to development impact

- The basic problem is to trace a causal chain, from the inputs brought to a project or programme, downstream, all the way or part way to macro impacts related to government development goals, or the MDGs.
- Why is causality more complex in energy projects than in other projects:
  - energy as a technical factor of production, goes into everything, but is not directly consumed
  - multiplicity of impacts
  - complex inter-relation with other activities, ie. little impact from energy alone
  - difficulty of establishing linear causal relations.

(source: M&EED Guidelines v. 3 2005)

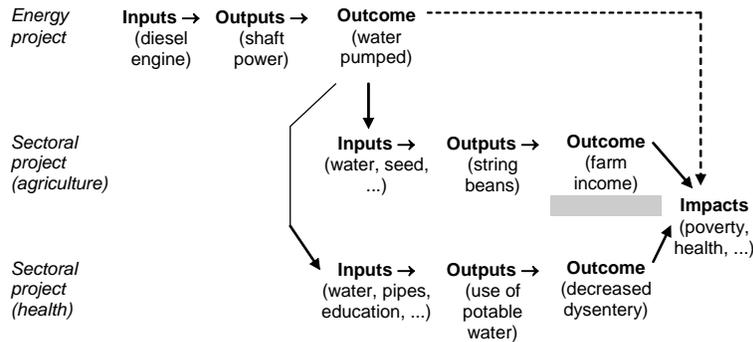
The common approach – The ASSESSMENT FRAMEWORK

- A step by step approach to carrying out an impact assessment of a given energy intervention



### Four-level model or representation

- similar to Logical Framework used in planning of most projects
- adopt terminology used by EC and M&EED



#### Toolbox

The Procedure calls for the application of various tools, or techniques.

The type of tool will depend on the type of assessment, the type of intervention, the availability of data and the target group or audience for the assessment.

An open-ended "toolbox" is envisaged, with tools borrowed or adapted from, for example:

- M&EED
- Sustainable Livelihoods Approach (SLA)
- Outcome Mapping (OM)
- Millennium Development Goals

An essential feature of the M&EED procedure is the 4-level representation of the causal links:

**INPUT – OUTPUT – OUTCOME- IMPACT**

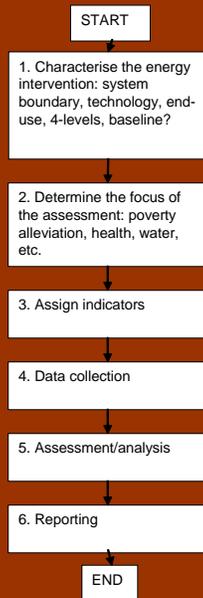
The toolbox will be structured to allow searching at each of the 4 levels.

SLA will provide information and assistance on choice of indicators.

OM will assist in determining stakeholder identity and information needs.

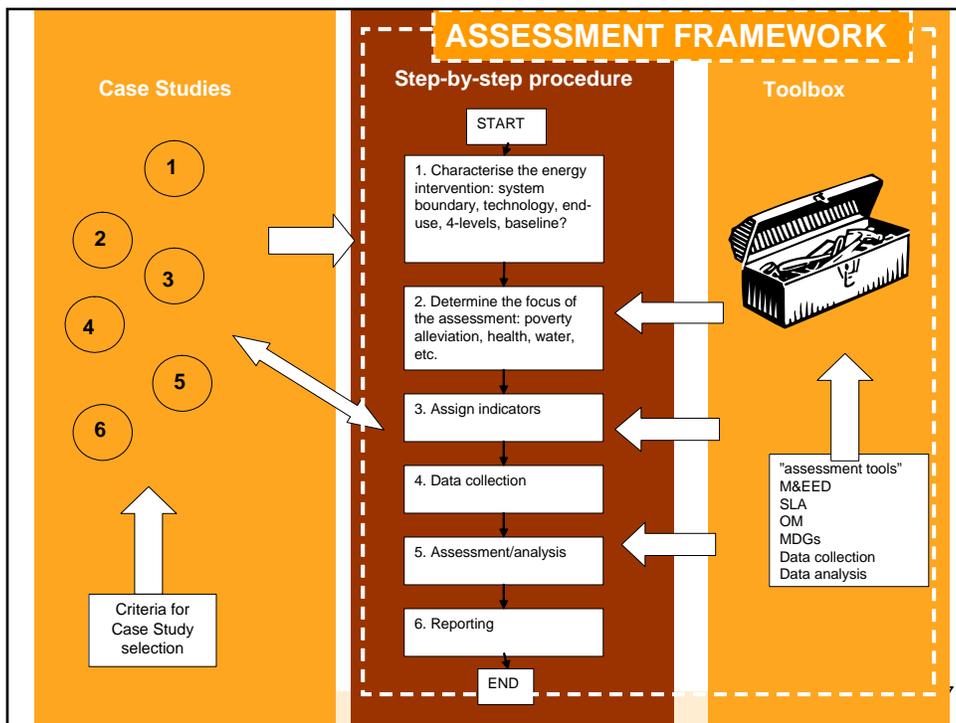
MDGs are an important metric for the development impacts.

#### Step-by-step procedure



The common core of the Assessment Framework is a step-by-step list or procedure of how to carry out an assessment of an energy intervention or project in order to obtain information about developmental impacts.

A 6-step procedure is proposed initially, but this may be extended.



### Collective Responsibility

- The whole team should be involved in:
  - development of the Preliminary Assessment Framework
  - decision on selection of Case Studies
  - collection of experience and refinement of AF
- The final quality of the AF will be as good as the Case Studies
- Therefore we have a collective responsibility in choosing the best set of Case Studies
- How do we ensure this?
  - selection of case studies earlier than originally planned
  - agreement on criteria for selection now
  - discussion of tools to be used
  - discussion of indicator selection

## Case Study selection

Six case studies (CS) have to be selected from the catalogue portfolio of 42, one in each country. Possible criteria:

- global criteria
  - representative: the CS should span a number of different types of interventions in order to “test” or develop the AF
  - coverage of key sectors and energy project types
- local criteria
  - national relevance
  - should be achievable, data available for both the energy intervention and potential impacts
  - baseline available
  - availability of assessment tool

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## Where are we now?

- Catalogue - completed
- Literature Study – in preparation
- Methodological Development (Assessment Framework) – ready to be tested
- Case Studies – about to start

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## After the Case Studies?

- September – October 2006
- 2nd National Workshops
- Present Case Studies to multi-sector stakeholders
  - focus on national case
  - but discuss all 6 case studies in each country
- What does this mean?
- We have to develop a format for the Case Study reporting
  - include analysis that focuses on multi-sector development outcomes and impacts
  - see the intervention in the broader context
  - both the technical intervention (e.g. rural electrification)
  - also the way of studying and analysing

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## Outcome of the 2nd National Workshops

- Response of the stakeholders
- Is the DEA methodology useful?
- Can it be improved?
- Tracking impact on stakeholders and policy makers
- Refinement and enhancement of the AF
- Presentation in the broader African context

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## Objectives for the workshop

- Complete the table – fiches – indicators, sources of information, methods
- Develop and complete research plan
- Discuss research (field study) methodologies
- Day 1: From causal diagram to “fiche”
- Day 2: From fiche to research plan
- Day 3: Next steps – analysis, reporting, National Workshops, etc.

## But that's in the future .....

- First we have to carry out the Case Studies .....
- Any questions at this stage?

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## Groups

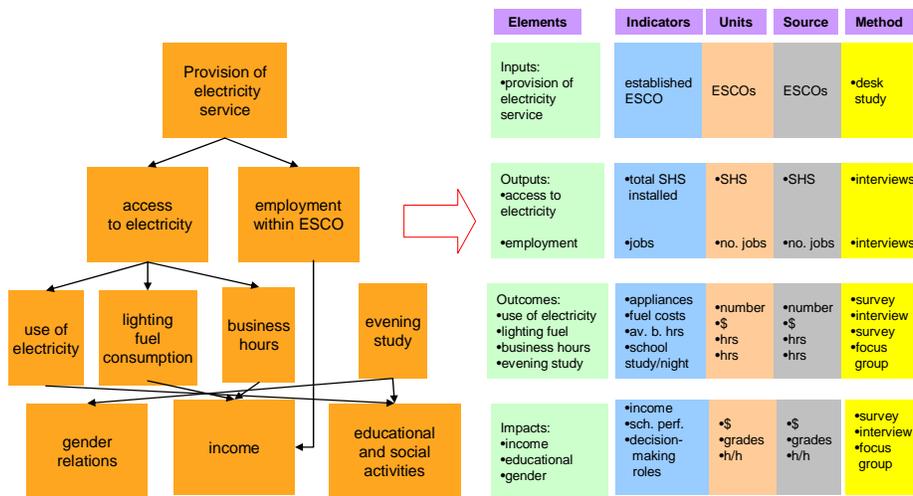
- Sécou and Pierre
- Peter and Solomon
- Gisela and Gilbert/Lilian
- Resource Persons:
  - Gordon
  - Sten
  - Emiel
  - Dr Chondoka
  - Professor Yamba

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DEA Methodology

- Started with concept of an Assessment Framework
- A universal method for evaluating the development impacts of energy interventions
- Over the past year, through literature and discussions, it has become clear that no one “method” is possible – great diversity in energy interventions, as well as difficulty of attribution
- In parallel – the M&EED group and other impact assessment activities: 4-level causal links

From 4-level diagram to tables



## Case Study

- Case study is about filling in numbers or values for these indicators
- Identify key research questions – focus on key indicators
- Indicators must be measurable (not necessarily quantifiable)

### 4-Step process

Step 1: filling out table – partially done – complete today

Step 2: arrange methodologies: interviews, focus groups, survey

Step 3: plan fieldwork: constraints, methods, sampling

Step 4: integrated research plan: Who does what, and when?

Discuss later: data processing and analysis, reporting

## Lunch

next presentation:

Emiel – Constructing the causal diagrams

Groups: discuss each other's diagrams

Plenary: Filling out Table 1

## Day 1 Feedback

- Are we going in the right direction?
- What could be done better tomorrow?
- What are your expectations for tomorrow?

## Day 2: Key elements from Day 1

## Day 2: Research Plan

Outline of the process of developing and implementing a research plan:

- methodologies, sources, research questions
- sampling
- research planning
- design of research methods
- implementation
- data processing
- data analysis

Partners' previous experience with the various methodologies

## Day 2: Afternoon – Developing an Integrated Research Plan

- methods
- sampling
- resources
- time
  
- Break-out Groups: Develop plan based on Table 3

## Day 2 Feedback

- Are we still going in the right direction?
- What could be done better tomorrow?
- What are your expectations for tomorrow?
- What issues have not been dealt with?

## Appendix 4: Presentation – What is a causal chain?

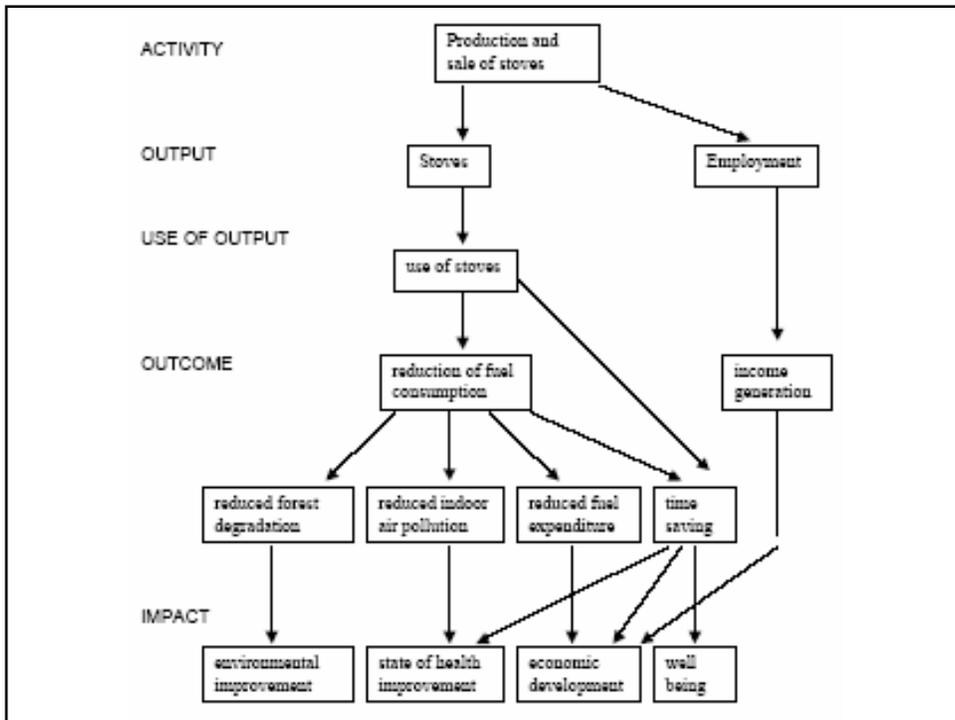
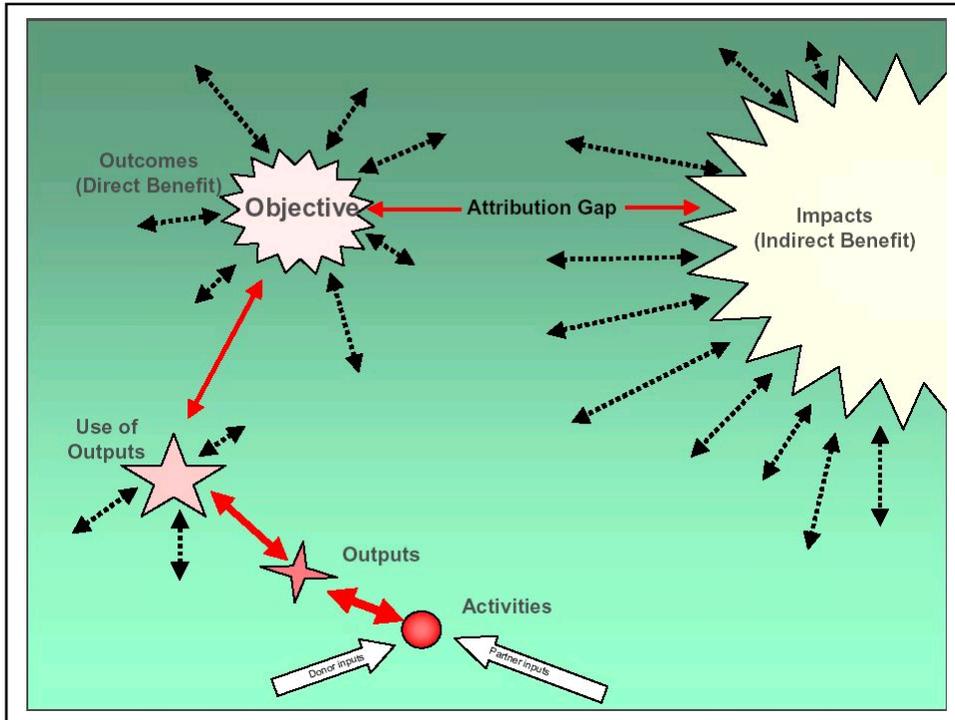
*Emiel van Sambeek*

### What is a causal chain?

- A causal chain maps the causal relations between:
  - Inputs
  - Activities
  - Outputs
  - Outcomes
  - Impacts

### Elements of a causal chain

- **Inputs.** Materials and services brought to the field by the project, or by project stakeholders.  
Examples: money, equipment such as gensets, technical support services, experts, ...
- **Outputs.** Goods and services whose production is directly under the control of the project team.  
Examples: electricity service to a village, production of improved stoves, definition of sustainable forest management practices, drafting of an energy law,  
**Outcome.** A first level of consequences, which flow from the energy services which are outputs of the project. Usually depends on inputs, actions and decisions which are not directly under the control of the project team.  
Examples: potable household water supply, vaccination programme, time saved by women, increased or new crops grown, institutional change in the energy sector, integration of energy planning into transport planning,
- **Impacts.** Consequences of project activities which are directly related to national development goals and/or the MDGs. Can be far downstream from project activities.  
Examples: Gender equality, health, economic well being, quality of life, MDGs.



## Why do we need a causal chain?

- To make explicit our thinking about the linkages between energy projects and development impacts
- Causal links form a hypothesis for the evaluation
- Elements of the causal chain give clues for indicators
- Only the measurement of indicators along the entire causal chain can 'prove' a link between energy projects and development
- Helps us to identify other important developments that influenced development

# Appendix 5 Example of revised causal diagram

## TaTEDO: small-scale irrigation projects

Activity

small-scale irrigation using solar energy for pumping water from Lake Victoria

Output

increased access to water for irrigation

Use of outputs

Domestic use

Agricultural use

Outcome

Time saving

Reduced water borne diseases

increased agricultural production

Increased re-forestation

Employment

Use of the outcome

Subsistence use

Commercial use

Impact

Improved social relations (gender)

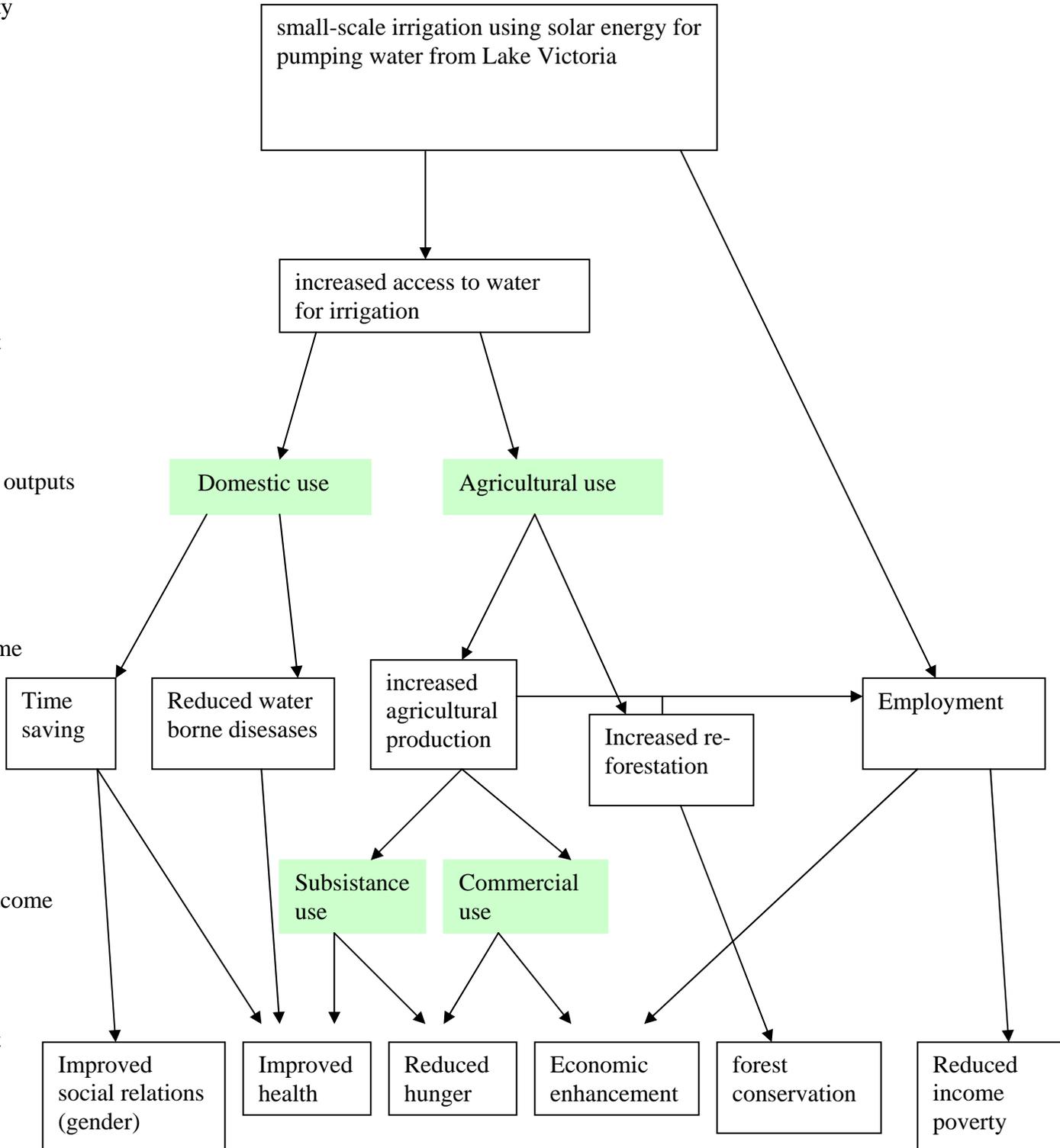
Improved health

Reduced hunger

Economic enhancement

forest conservation

Reduced income poverty



# Appendix 6 Example of revised consolidated fiche (table)

## TaTEDO: small-scale irrigation projects

Elements in your causal chain diagram	„What to measure?“	Indicators	Unit	Source	Data collection methods
Output	Increased access to water	Amount water pumped	Litres	Project manager	Secondary infor/Interview
Output	Increased access to water	Time saving	Hours	Women/girls	Interview /focussed groups
Output	Increased access to water	Size of the farms	Hactres	Farmers/Agr. Officers	Interview/ Agr. Records
Output	Increased access to water	Number of people using the water	Households	Project manager	Interview
Output	Employment	Number of people operating the plant	Individuals	Project doc.	interview/secondary infor.
Output	Employment	Salary/wage	Currency	Project expenditure records	Secondary information
Output	Employment	Type of employment (Full time/temporary) (men/women)	Moths/years	Project employment records	Secondary information
Outcome (Domestic use)	Time saving	Distance covered to fetch water	Kilometers	Households	Interview
Outcome (Domestic use)	Time saving	Time spent	Hours	Households	Interview
Outcome (Domestic use)	Reduced water borne diseases	Number of partients	Patients	Clinic records	Secondary infor.
Outcome (Agricultural use)	Increased agricultural production	Varieties of agriculture produce	Produce	Village Agric. Officer	Interview
Outcome (Agricultural use)	Increased agricultural production	Quantity of production	Sacks/Kg	Farmers	Interview
Outcome (Agricultural use)	Increased agricultural production	Harvesting frequency	Frequency	Farmers	Interview
Outcome (Forestry)	Increased afforestation/reforestation	Number of seedlings raised	Seedlings	Farmers	Interview
Outcome (Forestry)	Increased afforestation/reforestation	Number of trees planted in the field	Trees	Farmers	Interview
Outcome (Forestry)	Increased afforestation/reforestation	Hacters of land afforested	Hactres	Farmers	Surveys
Outcome	Employment	Number of people employed in the agricultural activities (men/women)	Individuals	Village govt.	Interview/focussed group
Outcome	Employment	Number of people employed in the forestry activities (men/women)	Individuals	Village govt.	Interview/focussed group
Impact (utilization of agricultural produce for income generation)	Economic enhacement	New markets	markets	Farmers	Focussed groups
Impact (utilization of agricultural produce for income generation)	Economic enhacement	Volume of sales	Sacks/Kg	Famers	Focussed groups
Impact (utilization of agricultural produce for income generation)	Economic enhacement	Varieties of agriculture produce	crops	Farmers	Focussed groups
Impact (utilization of agricultural produce for income generation)	Economic enhacement	Income earned from selling the crops	Currency	Farmers	Focussed groups
Impact (utilization of agricultural produce for income generation)	Economic enhacement	Income from direct employment in the project	Salary	Employees	Focussed groups
Impact (for subsistance consumption)	Reduced hunger	Amount of produce consumed	kgs/crop	Farmers	Focussed groups
Impact (for subsistance consumption)	Reduced hunger	Number of meals per day	meals	households	Interview
Impact (downstream)	Reduced hunger	Reserve for future use	Kilogram	Households	Interview
Impact (downstream)	Improved health	Meals	Meals	Households	Interview
Impact (downstream)	Improved health	Reduced mulnutrition incidencies	incidencies	Clinics	Secondary information
Impact (downstream)	Improved health	Type/Varieties of food consumed	kalories/crop ?	Households	Interview
Impact (downstream)	Improved social status (gender)	Involvement in meetings(men/women)	Meetings	Village govt.	Focussed/discussion groups
Impact (downstream)	Improved social status (gender)	Time for entateinments (men/women)	Hours	Households	Interview
Impact (downstream)	Improved social status (gender)	Involvement in other social events (men/women)	Events	Households	Interview
Impact (downstream)	Reduction of income poverty	Income earned from selling the seedlings	Currency	Tree nusery owners	Interview
Impact (downstream)	Reduction of income poverty	Income earned from selling the crops	Currency	Farmers	Interview
Impact (downstream)	Reduction of income poverty	Income from direct employment in the project	Amount of Income	Farmers	Interview
Impact (downstream)	Reduction of expenditure poverty (increased expdnture)	Type of expenditures (e.g. schooling, health cares etc)	Currency	Farmers	Interview
Impact (forestry)	Increased forest area	Afforested/reforested area	Hactres	Farmers	Surveys

## Appendix 7: Guide to developing a research plan

1. **Input-output-outcome-impact framework**
2. **Drawing a causal tree**
3. **Causal tree, indicators, sources and methodologies**

A useful step in identifying indicators for the different elements in the causal tree is to think of a number of research questions for each element. For each element you can aim to formulate around 5 research questions. These are in fact the key questions you'd like to get answers to and they are specific for the element they correspond with. These questions can also relate to linkages with other sectors.

The formulation of research questions can also help you in the designing questionnaires and implementing other data collection methods. For example, in designing questionnaires, you adapt the research questions to questions you can actually pose and specify them according to the different sources. The questionnaires are usually designed after finishing the research plan and are not actually part of the research plan<sup>3</sup>.

### 4. **Sources, Methodology, Elements**

Table 1 from the first day of the workshop is the base for the research plan. From the table a matrix can be made that shows a list of the various sources and the elements each source should provide information on. The contents of the table show you the elements the ESCO will inform you, on what elements the technicians etc. The Zambia case is elaborated partly by way of example:

Table 2. connecting data sources, data collection methods and indicators

<b>Source</b>	<b>Methods</b>	<b>Indicators</b>
ESCO	interview, desk study	# of systems sold
Technicians	Interview	# of systems installed

After having finished this and before going to the next step, it is wise to reflect on the list and check whether:

- The amount of information expected from each source is realistic in terms of content and amount
- Most of the elements are provided by more than 1 source, at least the important ones. The research becomes more reliable by triangulating between different sources and looking at things from different points of view.

If needed you can adapt the matrix accordingly.

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<sup>3</sup> NB It is useful to check some literature on questionnaire design if you are not experienced. Having a good questionnaire/script/interview plan is quite important in order to get the right data from the sources. For more information, please see the reference material in the workshop folder.

## 5. Sampling

### *Some definitions:*

- **Research population:** The entire group of possible respondents to your survey question. Since it is improbable you will survey every individual in your target population, you must survey a smaller sub-group of your population, known as a sample.
- **Sample:** A sub-group of selected respondents derived from your research population.
- **Respondent:** A person who has actually provided responses to your survey or participates in a discussion group

The next step in the research plan is to determine for each source what percentage of the research population you'll approach for the research in order for it to be representative (**sampling**). This doesn't apply to sources like reports, archives etc, but mainly to human sources.

If the research needs to be statistically representative you'll end up with relatively big sample sizes. However, you can and must consider limitations in time and money and the fact that case study research isn't representative by nature. It is very hard to give standards for sampling in this case, but depending on the size of the research population your sample will vary between 5%-35%.

Below you'll find some examples of sample sizes used in previous case study research and evaluations:

- Source: people employed through the project  
Size of research population: 10 (persons employed)  
Sample: 2-3
- Source: clinics  
Size of research population: 3 clinics in a community  
Sample: 1 clinic
- Source: households through surveys  
Size of research population: community of 500 HH  
Sample: 30-40 HH surveys
- Source: households through Focus Groups  
Size of research population: community of 500 HH  
Sample: 2-3 Focus groups, 6-8 participants each, homogeneous groups (men, women, youth separately)
- Source: teachers  
Size of research population: 25 teachers  
Sample: 3-5 teachers

>> For case study research it is unlikely you'll use **random samples**; rather you'll make a **stratified sample**. This means that in order to maximize the spread you'll aim for a variety within your sample, for example between males and females or senior managers and regular employees.

>> When sampling you could consider to include a **control group**, i.e. a group of people that was not part of the project or did not receive the services. This only makes sense if you have the resources to address a considerable group (like half of the sample), otherwise it is merely useful for illustrative purposes.

>> Furthermore note that in order to get a sample of 2 out of 10 you may have to approach 200% (4 persons) in order to get 2 actual respondents, due to availability problems etc.

As a result of the sampling exercise you'll include a data collection overview in your research plan that could look like this:

Table 3. Sources, methods, sample size, respondent specification

Source	Method	Sample size	Respondent specification	Resources needed	Duration
ESCO	interview	1	project manager		
Technicians	interview	2	1 new, 1 experienced		
Household	Focus group	3*8	1 group women, 1 men, 1 youth		

This overview will be the base for your data collection planning.

## 6. Planning

Making a detailed planning for the research is a crucial part of the research plan. This is what the planning could look like:

Table 4. Overview of research planning.

What	When <b>work backwards from Nat. W/S</b>	Who	Remarks
<i>Preparation</i>			
Finish and agree on research plan			
Desk study			
Design questionnaires			
Recruit respondents			
Recruit research assistants (if needed for surveys)			
Prepare focus group discussion (if applicable)			
Elaborate data collection planning			
<i>Data collection</i>			
Continuation desk study			
Interviews (if applicable)			
Focus groups (if applicable)			
HH surveys (if applicable)			
Observation			
Documenting preliminary findings			
Updating people involved in research on preliminary findings			
<i>Analysis and Reporting</i>			
Data analysis			

Report writing			
Discussing draft report			
Finalising report			
Communicating results			

## Appendix 8: Research Methodology

*Yizenge Adorn Chondoka*  
*School of Humanities and Social Sciences*  
*University of Zambia*

Fieldwork can be very easy once the researcher follows certain steps. Before you plan to go into a community to carry out interviews the following should be considered:

- Obtain a letter of introduction from your sponsor/boss to be given to the area leader where you will do the interviews
- Have enough writing paper and pens and pencils
- Where possible carry a camera or a tape recorder
- Laptop with a Flash diskette plus a few floppies
- A bicycle/vehicle will make you mobile
- A few minor items such as foodstuff and minor clothes as token of appreciation to the host political or local authority
- A small radio and plenty of batteries if there is no electric power
- Malaria tablets or mosquito net, torch/lantern, candles, paraffin (kerosene)
- Empty audio cassettes

You, as a researcher must:

- Dress simply not in suits but casual but neat or presentable, be like them.
- For women, chitenge cloth (as explained) is fine and very dignified dress
- Use simple language if speaking in English
- Go to Church or Mosque and pray with them even if you have never been inside of these places
- Mingle with people once in a while especially if you are staying there long
- PLEASE never get involved with the respondent or anyone in the area intimately
- But as you go carry that **protector**

Once in the field do the following things quickly

- Introduce yourself to the host telling him about your mission and please present the token items you brought for him/her
- Identify the place where you will be staying.

- Better rent a house and employ someone to assist you with preparation of food, warm water to bath and cleaning of the house
- Let your host identify the elders in the community and know them quickly, pay them a social visit
- Identify one elder who will be with you all the time, take him as your research assistant

Interviews with the local people: Interviews are better done in the afternoon than in the morning when people go to the field to work. When undertaking interviews take note of the following:

- Using the interpreter or if you know the language do it yourself
- Interview each gender separately beginning with the **male** gender
- Then interview both genders together
- Identify a few influential individuals with whom you will have in-depth interviews later on at their homes
- If female make sure that you have another female nearby to avoid being misunderstood by the husband or boyfriend, and vice-versa

Depending on the levels of education of the local people, interviews should be face-to-face and you the researcher writing down the responses. Questionnaires are not good in the field as some people are not literate or are semi-literate and may feel insulted or may feel that you are laughing at their low level of education. They may even ask someone to do it for them.

The sample size will depend on what you want but the simple rule is to at least have a figure you want and interview at least beyond half of the sample size

Questions and questioning: Take note on the following about questions and questioning

- Simple language when questioning is very important
- Be to the point when questioning, NEVER ambiguous questions
- Ask in a straight way, what you say should be understood the same way by the recipient
- NEVER interrupt the respondent unless necessary and PLEASE be diplomatic
- Questions tailored to the level of education of the people/respondent
- Provide more open ended questions for qualitative data that you need most
- PLEASE no LEADING questions
- Closed ended mainly for quantitative data

