



Netherlands Commission for
Environmental Assessment

Second Advice on the SEA Land Use Plan – Tana Delta

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Kenya



25 July 2012





Netherlands Commission for
Environmental Assessment

Dr. Ayub Macharia
Ag. Director General NEMA

your reference

your letter

our reference
OS25-O93/AK/Lw

enquiries to
Arend Kolhoff

direct phone number
(030) 234 76 04

Date: 25 July 2012
Subject: Second advice on the Land Use Plan and SEA for the Tana Delta, Kenya

Dear Dr. Macharia,

In November 2011, you asked the Netherlands Commission for Environmental Assessment at the request of the Inter-Ministerial Technical Committee, the LUP/SEA secretariat and the Office of the Prime Minister, to advise on the Strategic Environmental Assessment of the Land Use Plan, for the Tana Delta in Kenya. It is my pleasure to submit herewith the second advice on both the Land Use Plan and the Strategic Environmental Assessment.

I would like to draw your attention to the following issues:

- Water is crucial for the development of the Tana Delta. The Water Catchment Strategy (2008) and the Water Allocation Plan (forthcoming in 2012) provide guidance on the use and distribution of water in the Tana basin. Therefore, the development opportunities for the Tana Delta should ideally be assessed in the framework of those plans for the entire basin.
- The decrease of the water availability in the Lower Tana already has implications for the present users of the Delta. The expected on-going decrease of the water availability due to upstream developments will further hamper the potential for (economic) development of the Delta. Therefore, I propose to carry out an analysis of the constraints and in addition identify and assess the application of, for example, best technical means (more crop per drop).
- Land use planning in a context like the Tana Delta, where formal land rights are not clear, may be a conflict sensitive process. I would thus like to emphasize that consultation of all stakeholders is required to adopt and implement the Land Use Plan. Furthermore, in my opinion, the steering and implementation of this process demands impartiality. Nature Kenya has an interest and a central

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role in this process. This might hamper the adoption of the Land Use Plan. In the SEA / LUPs that are planned for five more deltas, I recommend to reconsider the position of Nature Kenya.

- The proposed Land Use Plan, including Strategic Environmental Assessment is a promising pilot for land use planning in the other Deltas in Kenya. I propose to make sufficient capacity and means available to secure quality.

The NCEA would appreciate to be kept informed on how this advice will be used.

I would like to reiterate the willingness of the Commission to continue co-operation with NEMA in the coming years.

Yours sincerely,

Professor Rudy Rabbinge



Chairman of the Working Group – Advice on the Land Use Plan and SEA for the Tana Delta, Kenya

Second Advice on the SEA Land Use Plan
Tana Delta – Kenya

Advice submitted to the Minister for Development Cooperation, by a working group of the Commission for Environmental Impact Assessment in the Netherlands.

Technical secretary



Arend Kolhoff

Chairman



Prof. Rudy Rabbinge

Utrecht, 25 July 2012

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1. Introduction

1.1 Initiative and involvement of the Commission

This initiative concerns the development of a Land use plan for the Tana delta in Kenya integrated with a Strategic Environmental Assessment (SEA). The Tana river is the largest river in Kenya, fed by the water towers (Mt Kenya and Aberdares) flowing through semi-arid land and discharging into the Indian Ocean. South of Garsen the Tana river is diverting in what is known as the Tana Delta; an area that is frequently flooded. In the Tana delta about 80.000 permanent residents are making a living in predominantly pastoralism and to a lesser extent agriculture, and fishing. The area is used as a grazing area during drought periods by nomadic pastoralists from as far as the North of Kenya. The Delta is internationally recognised for its rich biodiversity and attracts limited numbers of tourists. Large scale agricultural activities take place (rice) and new initiatives are planned or in the pilot phase. The development of hydro-power in the upstream part of the Tana river and the development of the Lamu port North of the delta provide opportunities as well as threats to the development of the Delta.

The Netherlands Commission for Environmental Assessment (hereafter 'the Commission') has been asked by the National Environmental Management Authority of Kenya (NEMA) at the request of the Inter-Ministerial Technical Committee, the LUP/SEA secretariat and the Office of the Prime Minister, to review the quality of the draft scoping report for the Spatial Planning & Strategic Environmental Assessment for the Tana Delta and Tana River basin^{1 2} (hereafter referred to as the "draft scoping report").

The Commission and NEMA agreed to apply a two-step approach: firstly a Commission advice before the start of the LUP/SEA on the overall process and approach of the LUP/SEA. This advice was issued dd 13 January 2012.

Secondly, a Commission advice on (i) the process, more detailed based upon field observations and discussions with members of the LUP and SEA team and (ii) on the contents of the SEA and the Land use plan, which is presented below. This second advice has been presented and discussed with the SEA and LUP teams dd. 23/24 July 2012. The Commission will also review the draft final LUP and SEA that is planned to be available in December 2012.

1.2 Expert working group and field visit

This advice is prepared by a working group of experts that act on behalf of the Commission³.

¹ draft Scoping report

² Appendix 1: letter of request

³ Appendix 2: Information on the working group of the Commission

The group comprises expertise on the following disciplines: economy, land use, ecology, hydrology and SEA application. The composition of the working group can be found in Appendix 2.

For the preparation of this advice, the working group visited Kenya from 31 March until 5 April. A three day visit was made to the Tana delta (1 – 3 April). In the Delta the working group was introduced to the District Commissioner of Tana district. A meeting was organised with the Project Advisory Committee representing a large number, but not all, local stakeholders.

During the visit to the Delta the working group worked closely together with representatives of the SEA team and the LUP team, respectively responsible for the implementation of the SEA and the LUP, and the international consultant responsible for steering both teams: see Appendix 3 for an overview of the programme, the people consulted and the members of the SEA and LUP teams that have been met. During the visit of the Commission the LUP and SEA teams were involved in the implementation of phase 1 according to the Manual – ToR.

1.3 Justification of the approach

The primary task of the Commission is to review the draft scoping report for the SEA (see letter of request). However, it was decided during a preparatory meeting at the Office of the PM (dd. 14 April) that the Commission will also review the draft land use planning framework, because the SEA and LUP should be considered as two interlinked processes. Therefore, the Commission has reviewed the following documents:

- Draft scoping report for the Spatial Planning & Strategic Environmental Assessment for the Tana Delta and Tana River basin;
- Manual (Terms of Reference) for the Spatial planning & SEA relating to the Tana Delta and the Tana River Basin, Draft 2, February 2012; Issues by the Office of the Prime minister. Including the following two Annexes:
 - Annex 2: Brief for land use planning framework;
 - Annex 3: Brief for SEA scoping report.

The review by the Commission is informed through the meetings with experts and stakeholders during the field visit to the Tana Delta.

In the development of this advice the Commission has used the following benchmarks:

- the recently approved National SEA guidelines (February 2012)
- the OECD-DAC good practice guidelines for SEA
- the SEA guidelines adopted by the CBD and Ramsar Conventions.
- the NCEA long term practice experience..

The Commission choose to structure this advisory report as follows. In chapter 2 the main observations and recommendations are presented on the LUP and SEA processes. Detailed observations and guidelines for the LUP and SEA are presented in Appendices.

2. Main observations on the LUP and SEA

2.1 General observations

The Commission judges the following elements of the proposed LUP–SEA process as of good quality:

- The authorities in Kenya are leading this process. We consider the leadership and commitment of the Office of the Prime Minister in guiding this process as an important condition for the success of this process.
- A combined LUP and SEA process for regional / district development for the lower Tana is innovative and new for Kenya. The process is implemented by two multi-disciplinary teams of primarily representatives of the line ministries, based in Nairobi, that are developing respectively the LUP and the SEA. These teams are working together and this collaboration is a unique and important element of the plan process.
- The process is part of a long term strategy to develop deltas in a more integrative way. The combined LUP and SEA process for the lower Tana is identified as a pilot, aiming to learn and apply the lessons learned in the LUP–SEA process in five already selected deltas in Western Kenya.

The Commission has critical observations on the following issues and gives recommendations for improvement in this advice. These issues will be elaborated in the next sections:

- Water resources and the development of the Tana delta;
- The approach for the development and evaluation of alternatives;
- Absentee stakeholders;
- Management of local expectations;
- Management and organisational structure.

Box 1: Short description of the spatial planning and SEA process

The **Spatial plan** for the Tana Delta will be a fully participatory planning exercise which is designed to resolve current land use conflicts by allocating future land uses within the Delta in a manner which protects the interests of local communities, safeguards key features of the natural environment and allows for sustainable forms of economic development and growth.

The **Strategic Environmental Assessment** will cover both the Tana delta and the Tana river basin, together with other areas that are linked socially, economically or environmentally to this core area such as the coastal zone and outlying grazing areas. The role of the SEA will be to ensure that all planning options or scenarios are evaluated critically and objectively to identify potential environmental, social and economic impacts and opportunities. When adverse effects are predicted the SEA will explore the scope for avoiding, mitigating or compensating for these effects. The SEA will be open, transparent and participatory.

Source: Manual (ToR) for the spatial planning &SEA process relating to the Tana Delta and Tana River basin, February 2012; p.7.

2.2 Water resources and the development of the Tana delta

Water resources

The Commission notices that, whatever perspective one takes, water is the essential factor for the maintenance of the existing services as well as for the development potential for the lower Tana delta. The Manual and the draft scoping report acknowledge the importance of the hydrology. However, the complexity of the hydrological system, the limited use of existing data combined with lack of manpower to conduct an adequate analysis means that the Commission has serious concerns whether the proposed SEA can deliver relevant information on the water resources in time. This information is crucial to determine the opportunities or potential for future development.

A brief assessment of the available information on water resources in the lower Tana by the working group of the Commission showed that water availability has decreased substantially due to upstream developments in the last decades (see box 2 for a list of documents available in the library of the MoW in Nairobi). The Catchment Management Strategy for the Tana catchment identified the current situation of water availability in the Lower Tana catchment as alarming (WRMA, 2007). And it is expected that due to other external developments such as development of Lamu port and development of another dam, the pressure on water availability will further increase in future. See Appendix 4 for a more extensive description of the hydrology of the lower Tana.

Water management

Institutionally, the water sector reforms are ahead of the reform of other sectors, such as land. The Water Act 2002 mandates the newly created Water Management Authority (WRMA) to formulate the catchment management strategy. Water being more a development constraint than land, the Tana River Catchment Area Management Strategy published in 2008 and the Water Allocation Plan to be published in 2012 should be leading documents in the development of the LUP / SEA process. Furthermore, forty-two (42) Water Resources Users Associations (WRUAs) have been created with the legal mandate to manage local land and water resources and prepare sub-catchment management plans.

Given the importance of water, the choice to make one person of the Ministry of Water and Irrigation responsible for water issues in both the SEA team and the LUP team does not reflect this importance. The water expertise of both WRMA and TARDA should feed better into the LUP process.

The NEA recommends:

- To recognize the legal status of WRMA and WRUAs regarding the management of the water. Identify whether WRUAs have been established and involve WRMA and WRUAs in the LUP process as a member of the Planning Advisory Committee.
- As water is so crucial in the LUP and SEA, it is recommended to add additional water experts in the present LUP and SEA team.
- To carry out a more extensive analysis of the hydrology of the Lower Tana and Delta, than executed in the draft scoping report, in order to get better insight in the current situation and assess the present and future constraints and opportunities. This analysis will become an important building block for the development of alternatives.

The Manual – ToR provides good guidelines for the execution of a hydrological study that provides insight in the current situation and the constraints and opportunities for water related developments. Preferably, this study can build upon the hydrology studies and sub-basin management plans that are executed in the framework of the Water Allocation Plan (WAP). In case those plans are not timely available, we advise to co-operate with representatives of the WRMA to execute this study.

- In addition, we advise to carry out a reconnaissance study by an expert in river morphology/hydraulics to answer the question whether the water levels in the delta are mainly determined by the flood volume or by the changes in river/delta morphology. Appendix 4 provides an explanation for the need of this study.
- Scenarios: In the light of the importance of the hydrological conditions in the deltas and the multiple developments planned in the upstream catchment, at least two scenarios, a minimum and maximum scenario for water availability in 2030 and 2050, need to be developed as a basis for the development of alternatives.

Box 2: Overview of documentation on the Tana available in the libraries of the MoW, MWRA and TARDA in Nairobi.

- Tana River Catchment Area Management Strategy (2008).
- The National Water Master Plan 1990 by JICA and the 2012 update (draft) is available.
- The Coast ASAL Development project (1990) with 20 reports on water, land, socio-economy including TANA (wetlands).
- TARDA strategic Plan 2008–2012.
- Survey of the irrigation potential of the Lower Tana, 1967.
- Several Hola and Bura feasibility and design studies financed by DGIS (ILACO).
- Delft hydraulics (1986) Tana River Basin Modelling.
- Ecosystems Ltd, 1985, Tana Delta Ecological Impact Study.
- Tana River Delta Irrigation Project: An Evaluation, JBIC, 2001.
- TANA River hydraulics and morphology studies. Delft Hydraulics and DHV, 1988.

2.3 Integrated development and evaluation of alternatives

2.3.1 The approach

In this section observations and recommendations are made on the approach that is proposed for the development of alternatives in the LUP and SEA. In the sections 2.3.2 – 2.3.4 more elaborate observations and recommendations are provided on the development and evaluation of alternatives.

In the Manual – ToR it is stated that the Land Use Planning team is responsible for the development of three alternatives and the SEA will primarily be used to evaluate the impacts of those three alternatives. Based upon an evaluation of those alternatives a preferred alternative will then be developed and evaluated. The Manual – ToR does not provide specific guidance on how those alternatives will be developed. The Commission understands that, based upon discussions with the LUP and SEA teams during the field visit, the following three alternatives will be developed by the LUP team:

A. "A strongly conservation oriented strategy"; In this alternative the protected areas and the areas with high biodiversity value and ecological corridors between those areas will be identified, resulting in an ecological network of areas and corridors.

B. "A strongly development oriented strategy"; In this alternative the extension of existing and proposed large scale investments will be identified and evaluated.

C. "A community focused strategy"; In this alternative all villages present in the delta will be consulted and their current land use practices as well as desired future land use in the delta is recorded and mapped.

The Commission would like to make the following critical observations regarding the proposed development and evaluation of alternatives:

a. In this approach of developing alternatives it appears that first alternatives are developed, after which in a second step it is evaluated whether these alternatives are feasible in light of the biophysical conditions. We think the reverse order would be more effective: first assess the biophysical conditions in a joint process of LUP and SEA team, then develop alternatives within these conditions, again in a joint process. Otherwise we feel too little attention may be given to constraining factors on the one hand, in particular the expected decrease in water availability and, on the other hand, the potential for future development. We question for example whether the proposed large-scale irrigated agriculture projects under the strongly economic oriented development alternative will be sustainable under future water-stressed conditions. Therefore room for alternative developments should be created, based on a good understanding of the development potential of the delta, such as the opportunity of supplementary use of ground water.

b. The development of strongly opposing alternatives as proposed in the present LUP may contribute to polarization of the existing user groups in the Delta. This is an undesired effect in a situation that is characterized by already severely stressed relations between user groups.

c. Three groups of users or stakeholders are not yet represented in the development of the alternatives. Absence of those stakeholders might also lead to polarization and might hamper the adoption and implementation of the LUP. For more information on those groups see section 2.3.2.

d. Evaluation of alternatives; In the Manual-ToR a method is described to develop a framework to evaluate the alternatives, including a societal cost benefit analysis, as recommended by the Commission in its first advice. During the fieldwork and meetings with team members of the SEA and LUP team the Commission noticed that current understanding of the economic value of the area's natural resources is very poor, making it hard, if not impossible, to fully capture the available opportunities and threats to the future development of the area. In this context there is a risk that evaluation of alternatives in the LUP / SEA will be limited to a purely financial analysis of the investment costs. In that case, the broader direct and indirect environmental and social impacts would insufficiently be taken into consideration in the evaluation and comparison of alternatives.

The Commission recommends to modify the approach as follows⁴:

1. Identify the objectives of the Land use plan. Execute a consistency analysis of these objectives with existing policies such as Vision 2030, National Conservation Policy and District Development Plans to get insight in possible conflicting objectives or opportunities for synergy.
2. Divide the delta and its direct surroundings in agro-ecological zones and describe these zones in terms of ecosystem services they provide. In Appendix 5 the Commission has, as an example, preliminary identified five agro-ecological zones and its ecosystem services.
3. Make an inventory for each of the identified agro-ecological zones of the development needs of all the present and future stakeholders (future stakeholders are investors that have plans to invest) on the one hand and on the other hand the opportunities and constraints determined by the bio-physical system. For more information on the stakeholders see section 2.3.2. As to opportunities and constraints particularly the following:
 - a. Opportunities:
 - Supplementary use of surface and groundwater; in the current situation ground water is hardly used;
 - Development of high value, labour and capital intensive and water efficient crops.
 - b. Constraints:
 - Particularly the water constraints: including scenario's for future water availability (see section 2.2 for more guidance).
4. Based upon this opportunity- and constraints analysis the LUP and SEA teams identify in a joint process, options for future land use for each of the identified agro-ecological zones. Per zone this may lead either to alternative options, or the conclusion that only one option is realistic. In the case of alternative options: compare and assess these, inter alia on environmental, social and economic criteria.
5. Combine agro-ecological zones on the basis of the assessed options into coherent alternatives, in light of the LUP objectives and needs of different user groups. This process will most likely result in a number of alternatives. Each alternative consists of all agro-ecological zones.. Therefore, the Commission advises to use names for alternatives that reflect the multi-purpose character and reduces the risk of polarization.

One should take into consideration, that the multi-purpose use of each agro-ecological zone during a year provides many opportunities to serve the interests of different user groups simultaneously. For example the annually inundated provides services to different users: water storage / buffer against salinisation, fishing, habitat for birds, grazing in the dry season.

⁴ This approach is in accordance with the Voluntary guidelines for the integration of biodiversity in SEA, adopted by the Conference of the Parties of the Convention on Biodiversity in the Hague, 2006.

When comparing and evaluating alternatives, involve all existing and expected future stakeholders. We advise to use the method, as described in the Manual-ToR, to develop a framework to evaluate the alternatives, including a societal cost benefit analysis. Due to the limited capacity in the LUP and SEA teams to conduct a full societal cost benefit analysis, the Commission advises to apply as much as possible economic accounting of natural resources, and include need and extent of compensation of stakeholders. For more information on the application of the societal cost benefit analysis see Appendix 6.

The Commission expects that for some agro-ecological zones it is relatively easy to agree with the stakeholders on the future use as the options are limited. For other zones negotiation might be necessary to solve conflicting interests.

2.3.2 Absentee stakeholders

A Planning Advisory Committee (PAC) has been composed that should reflect the interests of all stakeholders that are users of the resources available in the delta, with reference to identities of age, gender, religion, livelihood, ethnicity and so on. In total 20 people act as representatives of these groups for a period of 12 meetings in the months ahead. In addition, four civil servants representing the ministries of Planning, Agriculture, Livestock and Lands based at district level, one Nature Kenya representative and one person representing the local Member of parliament (MP) are member of the PAC. The PAC is chaired by the acting District Commissioner of the Tana Delta District.

The Commission judges the set up of the PAC as an effective mechanism to organise public participation. Essential is to include all relevant stakeholders. In this respect the Commission notices that five stakeholders are not involved in the PAC nor the process (see below). We consider that as a serious risk for the acceptance and adoption of the final land use plan. Consultation of all actors is especially important as the Tana delta has a history of conflict on the use of natural resources and that seems partly to be caused by un-clarity about land rights. For more information on the history of the socio-economic groups see Appendix 7. The LUP can have a role in settling those conflicts when all stakeholders are involved, including the following:

Process actors:

1. The county council: a crucial player with respect to the allocation of land in this part of Kenya (under the old constitution). Apparently they were invited but seem to have declined to take up the position. In case, they do not want to participate, we emphasize the need to inform and consult the county council during the process.
2. The Water Resources Management Authority: is a crucial player in providing detailed inputs on the (technical) availability of the water resources in the delta. Possibly the WMRA has already established Water Resources Users Associations (WRUAs) and they have the legal mandate to manage local land and water resources and prepare sub-catchment management plans. Established (WRUAs) should be involved in the LUP process

Users of the Delta:

3. *Settled pastoralists*, some pastoralist groups have settled in or around the Delta over the last two decades. Although considered intruders by the 'original' inhabitants, they should be regarded as stakeholders.

4. *Nomadic pastoralists* from northern Kenya are using the delta as a safe haven in times of stress. During (severe) droughts these pastoralists (mainly from neighbouring Garissa, Ijara but also as far as Wajir) move towards the Tana delta in search of a safe haven to overcome the dry period. It is estimated that about 85% of the livestock found in Garsen and Tarasaa divisions during the long dry season are from neighbouring districts (Source..).

5. *Investors* (national and international) such as Bedford Biofuel, Mumias and TARDA. Although we do understand the reasoning why they are not represented in the PAC, as they have a different powerbase than the present representatives in the PAC, they need to be involved in the process.

The Commission notices that the interests and the power base differ between on the one hand the users that are represented in the PAC and on the other hand the users that are not yet involved in the LUP. The PAC might not be able to secure the involvement of all users. Therefore we advise to take into consideration the establishment of a group of people that are respected by all stakeholders and that can act as a facilitator in the land use planning process and act as a mediator in case of conflicting interests.

The Commission recommends:

- To develop a strategy on how and when to involve the five identified groups of stakeholders in the process.
- To consider the appointment of an independent person, or small group of persons (non-political) that are respected by all stakeholders to act as a facilitator and mediator of the land use planning process on site.

2.3.3 Management of local expectations

The Commission noticed that villagers as well as some PAC members expect that the LUP will result in the provision of legal documents acknowledging ownership rights over resources, notably in the form of land titles. This is a misunderstanding, as the LUP will not result in this type of legal documents. The LUP might become an important starting document to facilitate a process that might result in the legal acknowledgment of ownership rights. However, at this moment there is no clarity yet about the start of such a process. It might be the case that the people have linked two aspects: on the one hand the LUP being steered by the OoPM; on the other hand the expected effect of the New Constitution rectifying land related injustices from the past. Those incorrect expectations might feed new conflicts and might influence trust in the government negatively. Therefore, management of the expectations is important.

The Commission recommends to be clear in the communication with all stakeholders about what the LUP can and what the LUP cannot deliver.

2.4 Management and organisational structure

In the management framework of the LUP and SEA Nature Kenya plays a number of important roles:

- Sector ministries are equally represented in the Deltas Management Board and the Inter-Ministerial Technical Committee. The chair of the Committee is also team leader of the secretariat (a representative of the OoPM). The deputy team leader is a representative of Nature Kenya.
- The secretariat is located at the Office of the Prime Minister. Implementation of the LUP and SEA is done by respectively the LUP team and SEA team. These teams are supported by three persons working for Nature Kenya that are conducting the village surveys.
- The LUP and SEA is sponsored by UKAid and the RSPB. Financial co-ordination is the responsibility of Nature Kenya.

The Commission would like to emphasize that Nature Kenya plays an excellent role in their initiative to strengthen the interactive way of operating and deserves full credit for their role as initiator, facilitator and knowledge and experienced based input in this innovative process. However, the Commission would like to mention that Nature Kenya represents a specific interest in de delta and has been a key player in criticising proposals for large scale agricultural development. Therefore, their involvement may pose a risk for the perceived neutrality and objectivity of the process and the final LUP and SEA and adoption by stakeholders representing other interests.

The Commission recommends to reconsider the position of Nature Kenya in the future LUP / SEA processes as proposed for five other deltas, for example as observer or resource person. In all cases it is important to be transparent about the role and position of Nature Kenya in those processes.

The Commission would like to notice that participatory approaches for policy development and implementation in Kenya are only possible if all stakeholders have equal access to information and equal opportunities to share information with stakeholders and interested parties.

The Commission recommends to use free and open source software package for the storage and analysis, and the use of a web-enable mapping portal like Virtual Kenya for further dissemination of all LUP and SEA information.

APPENDICES

(Appendices 1 to 7)

APPENDIX 1

Draft letter of request from NEMA, received on 3 November 2011

Ms. Veronica Ten Holder
The Director
Netherlands Commission for Environmental Assessment

STRATEGIC ENVIRONMENTAL ASSESSMENT FOR THE LAND USE PLAN OF THE TANA RIVER DELTA IN KENYA-REQUEST FOR INDEPENDENT ADVISORY SERVICES OF THE COMMISSION

Over the last decade, conflicts have been increasing in the deltas as the demands for competing land uses, natural resources, nature conservation and community interests have intensified. Attempts to reach rational decisions on the future of the Delta's have largely failed due to the polarization of views between different stakeholders which has resulted in recourse to legal processes.

The present impasse in harmonizing multiple development initiatives, local aspirations and conservation goals is unlikely to be achieved without a shift in approach. It is for this reason an inter-ministerial technical committee (IMTC), led by Office of the Prime Minister and the National Environment Management Authority (NEMA) have initiated a combination of strategic planning and integrated assessment to be used to develop a long term Land use plan and/or General Management Plan (GMP) for the Deltas encompassing Strategic Planning approaches (SEA). This strategy sets out a road map, governance and structures needed to secure the long term sustainable development of Kenya deltas that include Tana, Yala, Nyando, and Malewa among others starting with Tana Delta. The end product of the strategy is to ensure a planning process that provides for economic prosperity, stable social conditions and sustainable environmental quality.

An integrated approach makes it possible to carry out a comprehensive and objective planning of competing development needs in the Deltas. It also enables identification of future land use options that ensure sustainable development of the deltas in line with the Constitution and aspirations of Vision 2030 and other planning frameworks.

To build SEA Country capacity, ensure quality control and to set up a good SEA process which is efficient and effective, NEMA is requesting the services of Netherlands Commission for Environmental Assessment (NCEA) to:

1. Advice on the terms of reference for the SEA for the Land Use Plan (LUP) for the Tana River Delta and provide an advisory report on the Terms of Reference for the SEA for the LUP of the Tana Delta.
2. Together with NEMA SEA Reviewers, undertake Review of the scoping report, draft SEA Report and Final SEA Report. The deliverable being and advisory review report on the quality of the mentioned SEA output documents and provide

Your role as an advisor will also provide opportunities on the hands-on- capacity building for NEMA Officers. We look forward to your favorable consideration on this matter and advice on any notification procedure that we need to comply with.

Yours Sincerely,

DR. AYUB MACHARIA

AG. DIRECTOR GENERAL

CC. Permanent Secretary
Ministry of Environment & Mineral Resources

NAIROBI KENYA

APPENDIX 2

Project information

Proposed activity:

The Netherlands Commission for Environmental Assessment (the Commission) has been asked by the National Environmental Management Authority of Kenya (NEMA) to review the quality of the draft Terms of Reference for the Spatial Planning & Strategic Environmental Assessment for the Tana Delta and Tana River basin. This draft ToR contains proposed guidelines for the preparation of the Land Use Plan as well as for the SEA, with a focus on guidelines for the process and approach to be followed.

The Commission and NEMA agreed to apply a two-phased approach: first the Commission will issue an advice on process and approach issues. This resulted in an advisory report submitted on 10 January 2012. Secondly an advisory report will assess the scoping report for the combined SEA - LUP. This second advice is expected to be submitted in July 2012. The third advisory report will review the draft SEA - LUP, scheduled for December 2012.

This advice concerns an assessment of the scoping report as well as the current combined SEA - LUP process. For the preparation of this visit a site visit to the Tana Delta has been carried out by the working group of experts in the first week of April 2012.

The findings of this review are prepared by a working group of experts, acting on behalf of the Commission¹.

For the preparation of the second advice the Tana Delta will be visited and will include a consultation of stakeholders.

Composition of the working group of the Commission:

- Prof. Dr. Rudy Rabbinge, chairman
- Dr Roel Slootweg, expert on: ecology and natural resources management
- Prof. Dr. Roy Brouwer, expert on environmental economics
- Dr Robert Becht, expert on hydrology and institutional aspects
- Dr Marcel Rutten, expert on land use and social aspects
- Arend Kolhoff MSc, technical secretary

¹ Appendix 2: Information on the working group of the NCEA

APPENDIX 3

Programme of the site visit

Visit of working group SEA-LUP Tana Delta of the Netherlands Commission for Environmental Assessment to Kenya

Date	Activities	Details
1 st Day Saturday 31 March	<ul style="list-style-type: none"> - Departure of the working group from the Netherlands. - Arrival of working group in Nairobi 20.15 hours: Silver spring hotel in Nairobi 	
2 nd Day Sunday 1 April	<ul style="list-style-type: none"> - 08.00 departure to Malindi (arrival in Malindi by flight 09.00 hours - 12.00-14.00 Lunch Malindi - 14.00-16.00 Travel to Garsen - 17.00 – Briefing on programme for the next two days. - Sleeping in TARDA Farm Accommodation 	Flight for five working group members confirmed. Where do we lunch?
3 rd Day Monday 2 nd April	<ul style="list-style-type: none"> - 9.00 Meeting with the District Commissioner - 10.00 Meeting with the Tana Delta Planning Advisory Committee (PAC) - Lunch – TARDA Farm - PM – site visits to selected areas of the Delta - 	
4 th Day Tuesday 3 rd April	<ul style="list-style-type: none"> - 08.00 site visits to selected areas of the Delta - Lunch TARDA farm - 14.00 Departure to Malindi - 	
5 th Day Wednesday 4 th April	All day – in Malindi set aside to prepare report.	Working group will continue working on report.
6 th Day Thursday 5 April	<ul style="list-style-type: none"> - 09.40 – 10.40 Flight from Malindi to Nairobi Time to be set AM – Meeting / debriefing with SEA/LUP Team PM – Presentation of findings To Government (OPM/ MEMR/ NEMA) 22.30 Departure to Netherlands 	All meetings were cancelled due to serious delay of the flight from Mombassa to Nairobi.

APPENDIX 4

Brief description of the hydrology

The Tana river is the largest river of Kenya, fed by the water towers (Mt Kenya and Aberdares) flowing into semi-arid land and discharging in the Indian Ocean.

No matter which angle one takes looking at the complex issues concerning the developments of the lower Tana river, water is the limiting factor.

Given this, it is conspicuous that in former and in the present SEA study the water aspects are under-exposed. The detailed EIA¹ carried out by a 10 member team for proposed sugar project by Mumias sugar in 2007 had no water specialist in the team and out of the 400 pages only a few pages provide some brief information on water resources (management).

In line with Vision 2030, development plans focus on irrigated agriculture. However, an integrated analysis covering the whole basin including inter-basin transfers (NBI drinking water supply) seems to be lacking.

The combined effects of the changes in the upper catchment, that are land-use change, irrigation, inter basin transfers, and large dams on the temporal distribution of discharges are poorly understood. The large dams capturing part of the floods and releasing water also during dry season are likely to increase base flow, reduce floods and sediment yield, but the evaporation from the surface reduces the total water yield. Land degradation and deforestation are likely to increase flood flow and the 100s of small water intakes will deplete the critically important dry weather flows.

The combined effects could be evaluated at the station at Garissa, but the reliability and completeness of the discharge data may constitute a limiting factor here.

The Station in Garissa is representative for roughly 50% of the total basin area. Below Garissa a very large amount of flood flows will be generated from the huge tracts of ASAL lands. However, this area will not, or hardly, contribute to the base flow.

The very straight river N-S oriented suggests that the river is fault controlled and that rifting is taking place. The river is likely to follow a narrow graben structure filled with fluvial sediments with a very shallow groundwater table supporting a gallery forest with an approximate area of $200 \times 5 = 1000 \text{ km}^2$.

¹ ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED TANA INTEGRATED SUGAR PROJECT IN TANA RIVER AND LAMU DISTRICTS, COAST PROVINCE, KENYA. By: HVA International, 2007.

This 1000 km² of unconfined shallow aquifer may have a complex regulatory effect on the flow regime downstream of Garissa. The aquifers are during higher flows recharged by the river channels, but may discharge as base flow during dry spells. Also the aquifer supports the groundwater dependent gallery forest ecosystem. The partitioning evapotranspiration from groundwater and from soil moisture, that is also replenished during flooding, is making the analysis even more complex. Very roughly, assuming a water deficit of 1 m/year this forest the evaporative loss is in the order of 10e9 m³ per year. A very considerable amount of water. (30 m³/sec)

The catchment area below Garissa constitutes an area of approximately 50% of the basin thus with a conservative estimate of the runoff producing area below Garissa of 40000 km², and runoff coefficient of 2% of the average annual rainfall (600 mm), yields a flood volume of 0.5* 10e8 m³.

The above rough description of the hydrological system explains why (accurate) estimates of the discharge (characteristics) at Garsen is complex. Furthermore, even discharge measurements are known to be difficult, and thus unreliable, in such unstable channels.

The river channels in the 5 km Garissa/Garsen corridor are extremely unstable, changing frequently its course after a major flood. Therefore, not only the quantity of water is difficult to estimate, but the continuity of along a certain channel is even more complex to predict. This is exemplified by the major change of the main channel in 1989. The combined effect of the two complicating factors constitute an investment risk for large scale irrigation projects.

In the Tana delta three (4) water related factors influence the vegetation cover/ecological zone. Depth to the groundwater, quality of the groundwater, the flooding probability of the terrain, and the encroachment of seawater into the delta.

A crucial question is whether the water levels in the delta are mainly determined by the flood volume or by the changes in river/delta morphology. It may very well be that the conveyance capacity of the delta system is strongly influenced by the ever changing channel geometry in this unstable environment of loose sediments. The effect of readjusting of the system to the reduced sediment loads caused by upstream dams makes analysis and prediction even more complex. A volume of sediments deposited at the outlet may control the water level in the delta, and if a big flood alters the hydraulic characteristics of the outlet, or a new outlet is created, the flood levels in the delta may suddenly change completely.

A quick reconnaissance study by an expert in river morphology/hydraulics seems important to weigh the importance of this possible complication.

The sediments of the Tana seems to contain a considerable fraction of quartz sands most likely originating from the basement complex. It is (very) likely that the aquifers in the corridor and delta have high transmissivities allowing high yielding wells. However, the groundwater in the delta is known to be saline at certain places.

Nevertheless, if large scale irrigation will take place the option of conjunctive use of surface and groundwater should be investigated. Conjunctive use may be an interesting option to off load some of the stresses on the system during drought. During droughts one could switch from surface to groundwater. Such an option may have some important secondary benefits: 1) More efficient use of the resource since the recharge of the aquifer by the river and irrigation return flow is (re)used and thus less water will discharge to the Indian ocean. 2) By pumping in the aquifer underlying the irrigation scheme the groundwater level is kept low and soil salinity is thus prevented and 3) without the use of groundwater most likely all agrochemicals are likely to end up in the river affecting the downstream wetlands. Conjunctive use of groundwater may alleviate this effect.

WRMA water management is based on IWRM principles. Many users compete for the same finite water resource: nature, the future activities planned around Lamu, pastoralist, subsistence farmers along the river channels and various upstream users. At a high level of policy making, decision makers should realize that the water productivity of irrigation schemes in KSh/m³ is likely to reduce along the course of the river. In the highlands (supplementary) irrigation may tremendously boost agricultural outputs and thus produce high levels of economic water productivity. At the other hand, reserving water for semi-arid lands, with lower water productivity is a means of distributing (agricultural) economic activity equitable across the country, and allowing so far marginal drylands to have a share in economic development. A policy discussion balancing efficiency against equity.

Such water allocated to ASAL may be used purely for the irrigation of cash crops. However, given the fact that the pastoralism is currently the main economic activity around the middle and lower Tana, designating fodder production in part(s) of the irrigation scheme(s) could alleviate ecological and social stress in and around the delta, and constitute an interesting win-win development.

Building dikes and other water retention infrastructure is not compatible with modern insights in river management, however the option of "helping nature a bit", by creating a small flexible dam where the river breaches through the dunes would allow some regulation/increased storage to support both the wetlands ecosystem and the irrigation schemes. Such retention could possibly offset the water taken for irrigation purposes.

APPENDIX 5

Explanation of identified agro-ecological zones and ecosystem services

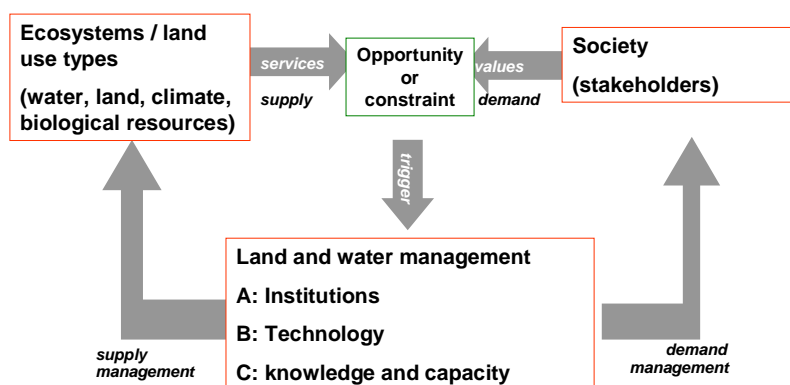
The scoping report for the SEA has made a commendable start with the description of the plan area, including its wider environment. Given the size and complexity of the Tana river basin, the limited time and manpower for the SEA team, and the urgent need for settlement of the many potential social disputes in the delta, the Commission sees a need to provide more focus to the SEA study.

Therefore a simple conceptual framework is provided, putting the LUP and SEA work in the perspective of an integration framework (see figure below). The framework is based on the description of ecosystems and land use types (or agro-ecological zones) by means of the services these zones provide to society (supply). Society values these services and thus has a demand for these. Three situations with respect to supply and demand for a specific service can be recognised:

- 1) supply surpasses demand: a service is not yet exploited to its maximum, thus representing a development opportunity;
- 2) demand surpasses supply: a service is overused thus threatening the sustainability of this service;
- 3) demand = supply: service is used to its sustainable level (or carrying capacity).

All three situations require some sort of management, either through the supply side by, for example interventions in the hydrology of the river to create irrigation systems, or through the demand side by, for example a fishing permits system or water pricing. Management can be organised by formal government agencies, but also by traditional institutions.

Conceptual framework for SEA



While the LUP process is predominantly involved in the inventory and mapping of demands on the area from society, it is the SEA which has to provide the information on the development potential and limitations of the biophysical environment. Combination of the two processes would ideally provide options for a sustainable use and development of the area.

The Commission has made a very rapid assessment of the delta in terms of agro-ecological zones and their ecosystem services. An analysis of the development opportunities and constraints of these services provides a baseline for the creation of sustainable alternative land use plans. In this approach SEA is used in a pro-active manner, informing the LUP process by providing realistic biophysical boundaries within which a land use plans should ideally fit.

The analysis below is by no means complete, and is only intended as an example of how to the LUP and SEA process can be linked while limiting the scope of the SEA study to the minimally required information. The basic organisational principle is the recognition of agro-ecological zones.

1. River / open water

The Tana river is characterised by extreme fluctuations in flow, both seasonally as well as inter-annually. Parts of the Tana delta are flooded annually to a larger or lesser extent. These floods can be mild in dry periods to very extreme and damaging in wet periods. Periodic floods are the dominant feature of the riparian floodplains, providing fertility and soil moisture to these plains. The base flow is essential to maintain biological processes and ecosystem services in the delta and coastal zone. During severe floods the river is known to change its course and to create new river channels, most recently in the early nineties.

The main ecosystem service which is considered not fully developed yet is the supply of freshwater for irrigated agriculture. Further services include water for cattle drenching, for domestic use, and for the maintenance of a salt-fresh water balance in the lower delta where seawater may enter the delta through surface or subsurface intrusion. The watercourses provide an important source of fish production and act as a means of local transport.

The major constraint linked to the river and consequently to the entire delta is the uncertainty about future levels of floods and base flow. Magnitude and timing of floods as well as base flow can be seriously influenced by the construction of upstream dams. A further development particularly affecting the base flow is the proposed water intake for the Lamu area where large port, industrial and municipal developments are foreseen.

2. Annually inundated wetlands

The lower floodplains of the delta are characterised by annual floods. As a result the yearly replenished groundwater table is relatively shallow, providing good conditions for growth of (perennial) grasses deep into the dry season. Sediments deposited by the floods provide soil fertility. Floods also provide shallow, nutrient rich breeding grounds for many riverine fish species. The ecosystem service of high quality, counter-season grazing lands is essential for cattle during the dry season. In periods of extreme droughts the area receives hundreds of thousands of heads of cattle from drought-stricken areas hundreds of kilometres away, creating severe social tensions among local and migratory herdsmen. Moreover, the annually flooded wetlands are an internationally important area for biodiversity, especially migratory birds.

Biophysical constraints for the development of the area are the unpredictability and magnitude of floods. Permanent infrastructure such as irrigation schemes can only be created with extremely heavy investments in river training works, which in their turn put many of the wetland-related ecosystem services at risk. A successful development strategy will probably be focussed on a "living with the

floods” approach, making maximum use of the services provided by floods (groundwater, pastures, fish breeding, high biodiversity).

3. Intermediary lands (occasionally flooded)

The Tana delta is a complex mix of sediment terraces at different elevations, interlaced with natural river levees. Depending on their height these terraces are subject to more or less common flood events. Groundwater can be found at various depths. Part of the subsoil sediments are of marine nature with a high salinity content, and thus creating layers of saline groundwater.

These lands are used for agriculture as well as grazing. The levees are used for human settlement and horticulture (fruit trees). Large sections of these lands are projected to be converted into irrigation schemes. Yet, erratic floods have already created severe damage to several existing irrigation schemes, either by simply destroying the entire schemes or by the changing course of the river, leaving the irrigation intake point dry. Therefore, further extension of irrigation regimes requires sophisticated management of the entire agro-ecosystem, including varietal choice, plant nutrition and crop protection.

Detailed local information is necessary to be able to determine the development potential, the type of land use and the type of technology applied. Availability and reliability of fresh surface water, potentially supported by the conjunctive use of groundwater in some areas, are dominant issues.

4. Elevated terrain (never flooded)

The elevated lands surrounding the delta are never flooded. The limited rainfall (on average < 600mm annually) support savannah vegetation which are predominantly used for grazing during and immediately after periods of rain.

Rain fed agriculture is possible; however, it requires an appropriate way of management of soil fertility and judicious use of water.

Irrigation development would face the least flood risk. Soil productivity as well as potential for gravity irrigation may be limited.

5. Coastal zone

The Commission has not been able to visit the coastal area. From various sources it has become clear that the area contains one of the last remnants of the East African coastal forest system, including its large mammals populations (forest elephants). It may be the area with highest tourism potential. The interaction with open sea may result in significant fisheries productivity in the delta as well as at open sea.

Issues related to the salt/freshwater, nutrient and sediment balance, common to all coastal systems, will most certainly play a role in the functioning of the area. As said, we don't feel capable of making any statement on this area.

APPENDIX 6

Societal cost benefit analysis

Socio-economic issues play an important role in the SEA Scoping Report. Socio-economic developments inside and outside the Tana River Delta Project (TRDP) such as population growth and large scale land irrigation initiatives aiming to feed the growing population and promote the area's economic development drive the increasing pressures on the Delta's natural resources. The overall goal of the SEA is 'to promote sustainability of the Tana delta through integration of *socio-economic* and ecological aspects in the Land Use Plan (LUP)' (Scoping report, p.7). To this end, the SEA seeks inter alia 'to ensure the integration of stakeholders' *socio-economic* perspectives in the proposed LUP (ibid, p.7). Regulation 42 in the EMCA 2003 officially requires the determination of the 'most environmentally and *cost effective*' Public Policy Plans and Programmes, while the SEA Scoping Report refers to *economic* assessment *criteria* such as 'Ecosystem Service Values', 'Contribution to GDP' and 'Foreign Exchange Earnings' (ibid, p.42).

The general steps in an economic impact assessment procedure such as cost-benefit analysis (CBA) are very similar to those in a SEA. The development of a socio-economic baseline scenario is an important first step, which feeds directly into the overall problem analysis in the SEA. Socio-economic trends and conditions are often important driving forces behind the identified natural resource conflicts. This is followed by the identification and where possible quantification of the economic costs and benefits of the proposed alternatives to solve the natural resource conflicts identified in the problem stage of the SEA. An important distinction is usually made between a narrow financial and broader economic impact assessment.

A *financial CBA* typically analyzes the direct cash flows of costs and revenues related to the proposed project alternative and financial investment decision for those directly responsible implementing the project alternative. This is what seems to have been the prime instrument to assess and support decision-making regarding the financial efficiency of, for example, the first Tarda irrigation scheme ('Polder I')¹. In addition, Nature Kenya also seems to have carried out a CBA on ²

In a *societal CBA*, (SCBA) the wider social and economic welfare implications of the investment decision to all relevant parties in society (not only the party implementing the project) are taken into consideration too. Very important here are, first of all, the spatial and temporal dimensions underlying the impacts, which may (and usually do) fall outside the project area and time frame. An example is the effect of building upstream hydropower or irrigation dams on downstream water users. And secondly, the fact that part of these impacts can be measured directly in money terms, but often not all. Some social and economic impacts typically fall outside existing economic market systems and have no market price with which the

¹ The independent Netherlands Environmental Impacts Assessment Commission has requested access to the report describing the Tarda irrigation scheme cost-benefit analysis during its field visit to the Tara headquarters.

² Mireri, C., Onjala, J., and Oguge, N. (2008). The economic valuation of the proposed Tana Integrated Sugar Project (TISP). Nature Kenya, June 14th, 2008.

impacts can be valued and hence be made comparable in money terms. Examples of such wider social and economic impacts include, for instance, the change in employment conditions in a relatively underdeveloped and poor area or the impacts on the natural capital resources in an area like land and water, from which also other stakeholders (e.g. fishermen, cattle owners) benefit. The latter impacts are usually referred to as resource opportunity costs and depending on the degree to which local livelihoods participate in existing cash economy based market systems, part of these benefits may not be directly expressed in monetary terms since they fall outside the market. It is important to agree which effects are considered amenable to robust economic valuation and which ones are not. For example, the various water ecosystem services may be relatively easy to value with the help of production functions (residential water supply, crop farming, livestock, fishery etc.), but should also a monetary value be placed on the TRD biodiversity? Maybe at most what can be said about this specific biodiversity value in a SCBA is the assessment of potential income flows generated by eco-tourism with the help of one or more eco-tourism development scenarios for the delta area.

In conclusion, given the objectives of a SEA in general and the objectives of the SEA outlined in the TRDP Scoping Report more specifically, a societal CBA is the most appropriate instrument to integrate socio-economic concerns with the relevant ecological aspects and inform policy and decision-making regarding the overall green growth objectives underlying the TRDP. The societal CBA offers a structured overview of all relevant positive and negative effects of alternative courses of action, which can be directly integrated into the SEA. This overview allows for incorporation of all relevant stakes held by different stakeholder groups who are expected to be affected by any future LUP in the Tana River Delta, be it positive or negative. Based on this overview it will become quickly clear who the winners and losers will be, where they are located inside and outside the TRD, and hence how the costs and benefits are distributed across the different stakeholder groups. This then in turn provides an important starting point or basis for the discussion about the necessary and/or "just" compensation of those who lose under the proposed LUP.

Closely related to the economic impact assessment in the SCBA is also the question how to organize or manage the different natural resource dependent interests in the TRDP in an economically efficient way. This usually refers to management regime of the natural resources and is sometimes also referred to as 'natural resource governance'. For this, different models may exist with different economic and financial implications. Two extremes would be to either make the central government sole responsible for the economically efficient level of distribution of the annually available stock of water across different stakeholders (top-down approach) or leave this up to the local water user associations (bottom-up approach) within the water resource allocation boundaries set at river basin scale. Intermediate or mixed 'multi-level governance management regimes' may also be feasible and perhaps economically speaking more efficient. Integral part of this organizational question is the issue of sustainable financing. That is, how is and/or can (and/or should) existing management regimes be funded, top-down or bottom-up, and what are considered in the long-term the most sustainable financing structures. This question too is usually part of the sensitive political economy of a country or region in which the plan is to be adopted and implemented.

What role for socio-economic analysis is feasible given time and resource constraints?

The operationalization of a SCBA in the SEA depends on the available time and resources. The latter includes both financial resources to employ experts and the available in-house expertise in the SEA team or in the different ministries involved in the SEA to actually set up and conduct the SCBA. An important starting point for the operationalization is the question of how detailed and accurate the SCBA should be. Generally, this depends on the phase in the policy cycle in which the SCBA is carried out. As a rule of thumb, the degree of detail and accuracy is substantially lower in a strategic 'policy formulation' phase compared to a 'policy implementation' phase. The TRDP clearly is still in the policy formulation phase. This implies that the level of detail is relatively low and the costs and benefits quantified in the assessment procedure primarily provide indications of the order of magnitude of the impacts of the LUP on different stakes and interests held by different stakeholder groups in the TRD. In view of the limited available socio-economic data and information, the expectation is that a large share of the SCBA will be based on a combination of expert judgment and available secondary data sources about the expected socio-economic trends in the baseline scenario and the assessment of the costs and benefits of the identified alternative LUPs.

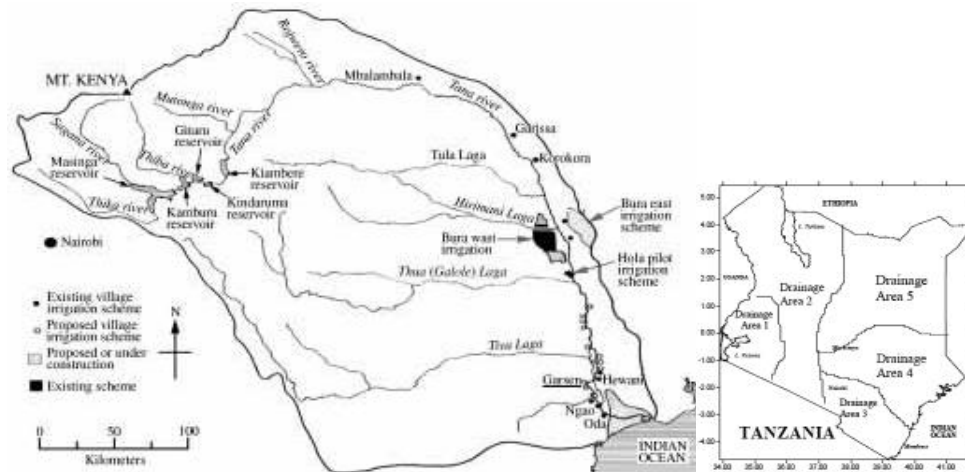
For the development of the socio-economic baseline scenarios, Kenya's Vision 2030 is expected to be one of the leading documents. Related to this, it is considered of paramount importance in the SEA and SCBA to define the relevant time and spatial scale of the baseline scenario driving trends and autonomous developments in the project area.

For the assessment of the costs and benefits of the alternatives, the economic assessment depends directly on the environmental impact assessment of the alternatives. For instance, the estimation of the economic benefits of a development path in which the irrigated area inside the Delta will be expanded requires input from non-economists about the necessary biophysical input and output parameters (e.g. land size, irrigation water supply, fertilizer use, labour input, crop yields etc.). This will then allow the estimation of a (more or less advanced) economic production function which allows prediction of the future flow of benefits from this development path for irrigated agriculture. At the same time, the implications for local, regional and downstream water availability should be made clear, allowing an assessment of production and consumption possibilities of alternative land uses, including the opportunity costs of the specific LUP. Where such quantified information is not available, the SCBA should be carried out in such a way that all the relevant expected impacts are at least identified based on expert judgment and the available secondary data sources.

APPENDIX 7

Information about the socio-economic history

MAP 1: TANA RIVER BASIN



1. History of EIAs and Development Plans in the Tana Basin

Planners have wanted to bring large-scale irrigated monocultures to the Lower Tana since the 1950s (Hughes 1984). Under the stewardship of the Tana and Athi Rivers Development Authority (TARDA) (a government regional development authority created in 1974 to oversee development in two river basins – The Tana and Athi river) and the National Irrigation Board, a number of projects have been introduced to grow rice, notably the Bura and Hola irrigation schemes some 100 km north of the Tana delta, the Lower Tana Village Irrigation Programme, funded by the Dutch government, and the Tana Delta Irrigation Project (TDIP) funded by Japan (Smalley 2011:12). These projects faced difficult environmental conditions and were stopped. For example, the TDIP 2,400 ha scheme started in 1988 was damaged by the El Nino floods of 1997 and lay dormant until its re-launch in 2009.

In the upper stream region several dams have been developed that serve the city of Nairobi among others. Critiques claim that EIAs conducted in the development of these dams were seriously flawed pointing fingers at both TARDA and the World Bank (Hirji & Ortolano 1991). A similar judgment has been aired for the way TARDA handled an EIA for the Tana Delta Irrigation Project (TDIP) in the early 1980s. A Haskoning feasibility study pointed at serious risks of alteration of the hydrologic regime, destruction of habitats, and dangerous use of pesticides. Ecoystems Ltd in a follow up EIA predicted numerous impacts, the most notable of which concerned disruption of Orma pastoralists' ability to water livestock, toxicity of the biocides and the threat to fragile, disappearing riverine forests. In addition, the TDIP's economic feasibility was questioned. Other projects in western Kenya were considered to be cheaper and environmentally less disruptive. As a result the Dutch government withdrew its funding for the TDIP detailed design and initial construction. However, the Japanese government stepped in and enabled the construction of the TDIP. Lately, Mumias Sugar Company, in collaboration with the TARDA showed an interest to develop 38,000 ha for ethanol and electricity production through the new Tana Integrated Sugar Company (TISC).

Table 1. Tana Basin major infrastructural projects/development plans

Project name	EIA/Appraisal study	construction activities
Masinga dam	1976	1978-81
Munyu dam	1982-84	None
Kiambere dam	1983-84	1985-90
Bura/Hola	1977/1986	1979
Tana Delta Irrigation Project (TDIP)	1985/1991/2005	1988
TISP	2007	None
G4	2010	Withdrawn
Bedford Biofuels	2010	2011 pilot started

ABF (2010), Environmental and Social Impact Assessment Study Report: The Proposed Establishment of Jatropha Plantations in Garsen Division, Tana Delta District, Kenya; Africa Business Foundation for Bedford Biofuels, September 2010.

Agrar and Hydrotechnik and Watermeyer Legge Piesold and Uhlman (1980), Pre-Investment Study of the Athi River Basin. Report prepared for the Tana River Development Authority, Nairobi, Kenya. 3 volumes.

Allaway, J. (1986), Recommendations on Actions to Reduce Environmental and Natural Resource Effects of the Bura Irrigation Scheme, unpublished manuscript.

AWEMAC (2010), Environmental and Social Impact Assessment Report for the Proposed G4 International Limited Kenya Farming Project in Tana Delta District of Coast Province; Africa Waste and Environmental Management Centre, February 2010

AWEMAC (2010), Environmental and Social Impact Assessment Report: Proposed G4 Industries Limited Kenya Oil Seed Farming Project in Land Reference Number 13600, Garsen Area in Tana Delta District of Coast Province Within the Republic of Kenya; Study Report by Africa Waste and Environment Management Centre (AWEMAC), February 2010.

AWEMAC (2010), Resettlement Action Plan of G4 International Kenya Farming Project in Lower Tana; 2010.

Ecosystems, Ltd. (1985), Tana Delta Ecological Impact Study: Final Report. Prepared for the Tana and Athi Rivers Development Authority, Nairobi, Kenya.

Engineering and Power Development Consultants Ltd (1980), Kiambere Hydroelectric Development. Feasibility Study. Prepared for the Tana River Development Company Ltd., Nairobi, Kenya. 2 volumes.

Haskoning Royal Dutch Consulting Engineers and Mwenge International Ltd (1983), Feasibility Study Extension Final Report for the Tana Delta Irrigation Project. Prepared for the Tana and Athi Rivers Development Authority, Nairobi, Kenya. 9 volumes.

HVA (2007), Environmental Impact Assessment Study Report for the Proposed Tana Integrated Sugar Project in Tana River and Lamu Districts, Coast Province, Kenya; HVA International for Mumias Sugar Ltd. And TARDA, November 2007.

International Land Development Consultants (1974), Tana River Feasibility Studies: Masinga Area. Report prepared for the National Irrigation Boards, Nairobi, Kenya. 2 volumes.

Luke, Q, R. Hatfield & P. Cunneynworth (2005), Rehabilitation of the Tana Delta Irrigation Project, Kenya - An Environmental Assessment (National Museums of Kenya, African Wildlife Foundation, Wakuluzu: Friends of the Colobus Trust LTD), Nairobi, Kenya.

Mwassco Associated Ltd. (1984), The Environmental Impact Study of the Proposed Munyu Dam. Report prepared for Tana and Athi Rivers Development Authority, Nairobi, Kenya. 2 volumes.

Ward, Ashcroft and Parkman Consulting Engineers. (1976), Upper Tana Reservoir Pre-Construction Environmental Study. Report prepared for the Tana River Development Authority, Nairobi, Kenya.

These development initiatives have mostly resulted in a mixture of response. Pastoralists fear the loss of dry season access for their livestock, while nature conservation groups mention the ecosystem's importance for monkeys, turtles, birds and fish (initial opposition was formed by grassroots resource users (pastoralists, farmers), Tana Delta Management Forum, Tana Delta Environmental Conservation Organization, Pastoralists Forum, IUCN, WWF, KWS, Kenya Wetlands Forum, Nature Kenya etc). Another local company, MAT Int., was planning to develop 30,000 ha but seems to have withdrawn its plan. These initiatives, if realised, might displace a large number of people. Supporters, though, hope TISC will create jobs, especially for (landless) youngsters (the proponents stressed the high suitability of sugar cane production (303 days/year), 20,000 jobs to be created, and reduction of importation of fuel/sugar (Becha, 2006)).

2. New Bottom Up Consultation LUP/SEA

Because, amongst others, the conflicting interests sketched above, the Government of Kenya, coordinated through the Office of the Prime Minister has now embarked on an approach that is supposed to prevent the former top-down implementation of major infrastructural developments in the Tana River area. The approach, lobbied for by Nature Kenya and Birdlife International and sponsored by DFID-UK, is bottom-up and foremost aims to record current land use practices. It is a combined Land Use Plan (LUP) and Strategic Environmental Assessment Exercise (SEA) that will also be soliciting for future views how land should be used in the delta.

3. Consistency Analysis

The land use plan will provide an overview of local communities' practices and aspirations. This raises questions to what extent the outcome matches existing policies and institutional frameworks for controlling and allocating resource use in the delta and beyond. Vision 2030 has made the delta a flagship in the (future) provision of food. The (unpublished?) National Biofuel policy will most likely also point at the high potential of the Tana River basin area for ethanol and biodiesel production as a major contributor to its envisaged production of 32 million litres on 50,000 ha to reduce the country's volume of imported petroleum products by 25% (Schade 2011).

The Tana Delta Development Commission, a district body, has also formulated in its five year development plans a strengthening of agriculture, fisheries and livestock outputs which all enquire financial and natural resource inputs. It is not clear to what extent the Land Use Plan is linking up with all of these policies and plans.

Of even more importance is the potential effect of the possible future addressing of land injustices that occurred in the past in the Delta. Kenya's new Constitution offers a blueprint to address historical injustices related to land. Indeed the coastal area will be one of the key zones to implement a revision as the coastal people have for more than a century been repeatedly alienated from their land. Land tenure is ambiguous or not officially recognized. A fundamental distrust exists between the local representatives of the Tana River County Council whose land allocations are being contested claiming these were done in the interest of a few elite or foreign companies. The National Land Commission, to be established under the new constitution, might correct these mistakes with serious consequences when it speaks of the principle of 'equitable access to land' and 'security of land rights'.

The land use plan should imbed the proposed land use options and its potential negative consequences for certain stakeholders or ecosystems into the international conventions and regulations Kenya is a signatory to. This follows the range of principles already laid down in the August 2010 New Constitution in the field of the right to a clean environment, clean and safe The land use plan should for a start clarify the status of tenure for all land in the delta as for now it is not clear what is private, government of trust land. water, to be free from hunger, to accessible and adequate housing (Schade 2011).

Finally, but certainly not the least important, is the need for the LUP to clarify the status of tenure for all land in the delta as for now it is not clear what is private, government or trust land. The implementation of the New Constitution will change these categories in private, public and community lands.

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