

Strategic Environment Assessment of Catchment Water Management: A Comparative Analysis of the Adequacy of SEA Reports using Case Studies from Uganda, Tanzania, South Africa, Ireland and Vietnam

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ABSTRACT

This paper reflects on the adequacy of strategic environmental assessment (SEA) reports based on a comparative analysis of SEA reports from five country contexts randomly selected. It briefly examines the role of SEA in basin or catchment planning and management. An overview on institutional and organizational context of SEA in Uganda is discussed. Although, SEA has been described as being a tool to improve strategic decision-making by integrating environmental issues into plans, policies and programmes, there is a growing concern on the adequacy of the SEA reports being prepared and how these reports come about. To be able to determine the adequacy of these SEA reports, the analysis focused on the stages of SEA that guide the SEA process. The results of the study show some examples of effective SEA practice, but still some of the case studies never dug deep but rather scratched the surface in terms of SEA process effectiveness. Based on key findings of the study, some recommendations for improving SEA practice for catchment planning are provided. SEA reports should be presenting key issues, providing clear proposals and conclusive results to facilitate the integration of SEA findings in decision-making. As that's what SEA is about.

Keywords: Strategic environmental assessment, Basin/Catchment based integrated water resources management.

1 Introduction

Water use and demand by different sectors poses several challenges to sustainable development (United Nations, 2013; DWRM, 2014; UNESCO, 2015). Strategic Environmental Assessment (SEA) is therefore broadly recognized as an important tool to promote sustainability driven decision-making (Sadler and Verheem, 1996; Fischer *et al.*, 2002; OECD SEA Guidance, 2006; Dalal-Clayton, 2013; MEMD, 2013; Iyer, 2017). SEA has been widely acknowledged as an important addition to the project on environmental impact assessment (Lobos and Partidário, 2014). They are numerous benefits of SEA for the decision making processes (Fundingsland Tetlow and Hanusch, 2012; Hüesker and Moss, 2015) in basin management including: Improves the transparency of planning and decision-making procedures (Lopes, 2012); Informs stakeholders and the public of the environmental impacts of strategic decisions and contributes to public involvement (Fischer, 2002); Addresses cumulative and large-scale effects (Folkeson and Helldin, 2013); Helps reduce the risk of litigation by affected stakeholder groups (Fischer, 2002), which in turn, can help to avoid delays in implementation and; SEA generates consistency and compatibility between the aims, strategies and policies of a plan (Fischer, 2002; Hirji *et al.*, 2007; World Bank, 2012; Iyer, 2017).

This paper aims at exploring to what extent various SEA processes for the basin planning contribute, procedurally to more strategic and sustainability-oriented decisions. A checklist or framework for reviewing SEA reports was prepared, based on Good Practice Guidance for Development Co-operation (OECD SEA Guidance, 2006). The checklist covers focal elements for enhancing SEA practice and it has been structured into five assessment parameters (SEA stages) with key corresponding questions. The checklist

was used to review 5 SEA reports related to basin/catchment developments. The case studies are in different geographical contexts, and reflect examples of the broad range of SEA procedures existing worldwide. Based on a comparative analysis of the five SEA reports, this paper focused on the stages of SEA to answer the following questions: (1) Did the SEA set the context and objectives, establish the baseline and guide a decision on the scope? (2) Did the SEA develop and refine alternatives and assess effects? (3) Was an environmental report prepared? (4) Were stakeholder consultations on the environmental report carried out? (5) Were the provisions for monitoring the significant effects of implementing the catchment plan on the environment stipulated?

This paper provides evidence of those SEA aspects that play a crucial role in order to recognize more strategic information on which analysis should be based. This can provide substantive insights to improve the quality of SEA reports, as well as to better design more sustainability-oriented outcomes in the water sector. The paper concludes by elaborating a brief SEA guideline for basin planning and makes appropriate recommendations.

2 SEA in Uganda: Institutional and Organisational Context

In Uganda, there has been very lean mention of SEA in the existing legal frameworks. SEA is not mandatory and thus not a regulatory tool. It therefore does not oblige any government authorities or the private sector with additional legislative responsibility. SEA application in Uganda has mainly been donor driven. However, it's important to note that; the National Environment Management Authority (NEMA) initiated the development of SEA guidelines in the year 2000 (Justin, 2004) and the process stalled until recently in 2015 when the interest was resurrected to revise and update the guidelines as well as formulate SEA regulations. The SEA guidelines and regulations are in the final stages of review. The National Environment Act, Cap. 153 lacked the provision for SEA but the NEMA prerogatives that the new National Environment Act No. 5 of 2019 has SEA integrated in it, and that it is well grounded in the revised National Environment Management Policy, 2018. Some voluntary SEAs have been carried out and these include: SEA for oil and gas activities in the Albertine Graben (MEMD, 2013), SEA for the Northern Economic Corridor (JICA, 2017), SEAs for various water catchments among others (DWRM, 2014). It's however, worth noting that there is still confusion on SEA conduct/processes and reporting requirements and SEA is often mistaken to be the same as environmental impact assessment (EIA) by both the public and private actors (Partidário, 2012).

Uganda adopted the principles of integrated water resources management (IWRM) during the preparation of the Water Action Plan in 1993/94. In line with Undertaking No. 4 of the Government of Uganda – Donor Joint Sector Review of 2015 agreed that coordination, implementation and funding mechanisms for basin or catchment based integrated water resources management (CbIWRM) be developed based on experiences from on-going work in the four (4) Water Management Zones, WSS Services Uganda Limited (a private company) contributed to this undertaking through the preparation of the Catchment Management Plan for Rwizi Catchment under the supervision of the Directorate of Water Resources Management (DWRM). This process included preparation of a Strategic Social and Environmental Assessment Report. However, SEA is still relatively a new process that demands time, political will and financial resources (World Bank, 2012; Hirji *et al.*, 2007). There is therefore a need to document and share experiences on how to make use of SEA in CbIWRM. This paper identifies some opportunities and suggest measures for improving the quality of SEA reports and hence making SEA play a vital role in protecting and improving environment aspects and more by ensuring that policy makers embed environmental considerations into the policies, plans and programmes that they prepare.

3 What is the Rationale?

There is generally lack of a shared vision for SEA by those responsible for ensuring its implementation coupled with lack of knowledge about SEA's purpose, process, methodology and reporting. Despite several water projects implemented following project EIAs that include an environmental and social examination,

no adequate SEAs have been carried out in the water sector in Uganda. Of particular concern is the lack of understanding of the differences between SEA and EIA, and the benefits of an additional layer of assessment to the current project regulatory environment (Silva *et al.*, 2014; Do Ó, A and L del Moral, 2013 and Fernando, 2015). Another part of the problem is that the same EIA practitioners registered by NEMA to carry out project EIAs typically carry out “SEAs” and, as a result, SEA tends to adopt an EIA approach/process and one cannot tell the difference. I strongly believe that SEA can support the establishment of a clear policy analysis and decision framework to guide CbIWRM and SEA is an excellent tool for developing this framework. Currently, there seems to be a lot of overlaps and uncoordinated implementation of water resources management programmes and plans by different actors due to the shortfalls mentioned above and often result into conflicts (Nielsen *et al.*, 2013).

This paper thus focuses on addressing the question of how to make use of SEA in catchment/basin planning. A key element of the SEA process is the submission of SEA report for review in order to determine whether the report is adequate and/or whether a greater quantity of information is required before the program and or plan can be authorised. This checklist used in this analysis provides guidance in ensuring that key aspects are addressed before submission of SEA reports by SEA practitioners and will also contribute to establishing criteria for SEA report quality review practice under the new environmental regulations to be promulgated soon in Uganda. This paper does not address SEA implementation.

4 Summary of the Case Studies

Five (5) case studies were identified (Table 1) during an International Training Programme on SEA where SEA reports were randomly selected from different countries and shared by my Mentor at NIRAS, Sweden. Articles, reports, and papers on the subject matter were also searched and are referenced throughout this paper. A checklist for reviewing SEA reports was prepared, based on Good Practice Guidance for Development Co-operation (OECD SEA Guidance, 2006). The checklist covers focal elements for enhancing SEA practice and it has been structured into five assessment parameters (SEA stages) with key corresponding questions. The checklist was used to review 5 SEA reports related to basin/catchment developments. The case studies are in different geographical contexts, and reflect examples of the broad range of SEA procedures existing worldwide. Scores were allocated to each criterion namely, fully met: +++; Averagely (fairly) meet: ++; Not met at all: +.

Table 1: List of selected SEA reports

SEA Case Study	Country	Month/Year
Development of a Catchment Management Plan for Rwizi Catchment under Victoria Water Management Zone, Ministry of Water and Environment	Uganda	April 2017
Southern Agricultural Growth Corridor of Tanzania (SAGCOT) Strategic Regional Environmental and Social Assessment	Tanzania	July 2012
The Knysna Strategic Environmental Assessment (SEA) and the Knysna Integrated Strategic Development Framework (ISDF)	South Africa	December 2015
SEA: Shannon Catchment Flood Risk Assessment and Management (CFRAM) Study for Shannon River Basin.	Ireland	September 2012
Activity Report: Strategic Environmental Assessment and the Calculation of Ecosystem Services Values in the Red River Basin in Viet Nam.	Vietnam	September 2013

A brief background to each of the above mentioned case study is provided below:

Catchment Management Plan for Rwizi Catchment. The Ministry of Water and Environment (MWE) through its Directorate of Water Resource Management (DWRM) is implementing catchment - based water resources management as part of its water resources management reform study recommendations. In order to adopt Integrated Water Resources Management (IWRM) and operationalize it Rwizi catchment management plan (CMP) was developed through a participatory process following the recently published

Catchment Management Planning Guidelines. Rwizi catchment is one of 3 catchments in Victoria Water Management Zone (VWMZ) that covers the South-western parts of the country with its waters draining into Lake Victoria. The Rwizi catchment covers the districts of Mbarara, Sheema, Bushenyi, Buhweju, Kiruhura, Isingiro, Ntungamo, Lwengo, Lyantonde and Rakai. CMP deals with issues of the natural system of land, water and ecosystems as well as the social and economic systems dependent upon the exploitation of the natural system. The CMP addresses the problems of protecting, conserving and managing the natural system, taking into account the social and economic system by a) development of water for economic and social development; b) protection of the resource base that supports these economic and social benefits; and c) conservation of the catchment's resources. Rwizi Catchment Management Plan aims at implementing interventions that will showcase benefits of integrated water resources management and development at catchment level.

Southern Agricultural Growth Corridor of Tanzania (SAGCOT) Strategic Regional Environmental and Social Assessment. The SAGCOT programme is a public-private partnership (PPP) aiming to mobilize US\$2.1 billion in private sector investment over the next 20 years to achieve rapid and sustainable growth in Tanzania's Southern Corridor, a very large area stretching west from Dar es Salaam through Morogoro, Iringa and Mbeya to Sumbawanga. The initiative aims to facilitate the development of profitable agricultural businesses in 'clusters' along this corridor to achieve economies of scale, synergies and increased efficiency. The partnership is the centrepiece of Tanzania's high-level Kilimo Kwanza strategy for enhancing food security, poverty reduction and reducing vulnerability to climate change.

The Knysna Strategic Environmental Assessment (SEA) and the Knysna Integrated Strategic Development Framework (ISDF). The Knysna Integrated Strategic Development Framework (ISDF) is owned by the citizens of the Greater Knysna Municipality. As such it seeks to address the needs and aspirations of the people that live, work, play and visit the area utilizing the natural, societal and economic environment. Applying the SEA approach to the development of the Knysna ISDF enables the integration of detailed data and information published in the available sector planning documents into a guiding framework that aims to implement the principles of a Green Economy and the application of innovation in terms of the Blue Economy through facilitating a coordinated and integrated approach to development planning in the long-term (up to and beyond the year 2030). An ecosystem-based approach is followed and this means that a holistic method has been adopted for managing human activities within the context of the social and ultimately the biological and physical (i.e. the biophysical) context. This the approach considers the links amongst living and nonliving resources. Fundamental to the approach is the acceptance that the specific ecosystem defines the boundaries of the management unit and not the artificial, jurisdictional boundaries.

Shannon Catchment Flood Risk Assessment and Management (CFRAM) Study for Shannon River Basin. Flood risk in Ireland has historically been addressed through the use of engineered arterial drainage schemes and/or site-specific flood relief schemes. In line with internationally changing perspectives, the Government adopted policy¹ related to a new flood risk assessment and management that has shifted the emphasis in addressing flood risk towards: A catchment-based context for managing risk; Pro-active flood hazard and risk assessment and management; and Increased use of non-structural and flood impact mitigation measures. The Office of Public Works (OPW) and their Local Authority partners undertook a catchment-based flood risk assessment and management study of the Shannon River Basin District (RBD) – the Shannon Catchment Flood Risk Assessment and Management (CFRAM) Study. The main outputs from this Study include: a series of Flood Risk Management Plans (FRMPs) – will identify programmes of prioritized studies, actions and works to manage the flood risk in the Shannon RBD in the long-term, and make recommendations in relation to appropriate land use and development planning. This Study was subject to a SEA and an Appropriate Assessment (AA) to provide for a high level of protection of the environment and promote sustainable development by integrating environmental considerations into the preparation and adoption of the FRMPs whilst meeting the provisions of the Habitats Directive (92/43/EEC), the SEA Directive (2001/42/EC) and transposing regulations.

SEA and the Calculation of Ecosystem Services Values in the Red River Basin in Viet Nam. This report summarizes activities and analysis implemented as part of technical assistance provided through the Greater Mekong Sub-Region Environment Operations Center under the Asian Development Bank Core Environment Program. This technical assistance involved the development of an approach to SEA within the context of preparatory activities for the development of a river basin planning system for the Red River Basin in Viet Nam. It should be stressed at the outset that the support was not to the preparation of the plan itself but was rather to the preparatory work, with the intention of seeing where and how an SEA would fit into the river basin planning process. Although the legislation providing for river basin planning is now clear, as specified in Article 20 of the 2012 Law on Water Resources Management, a specific process for river basin planning in Viet Nam has yet to be established. In this context, the Red River Basin has been selected by the responsible ministry, the Ministry of Natural Resources and Environment as a pilot for the detailed development of a national approach to river basin planning. The as yet undefined process for river basin planning in Viet Nam presented a challenge to the development of an approach to integrate SEA into the river basin planning system. The implementation of an SEA is a statutory requirement for most major strategic planning exercises in Viet Nam, including river basin planning, as determined by the criteria set out in Decree 29 (from April 2011). The Decree states that river basin planning that is inter-provincial must have an SEA that is integrated into the strategic plan, rather than presented as a separate document.

5 Key Findings and Discussion of what could have been done better?

To check the adequacy of the SEA reports prepared by different consultants in Uganda, Tanzania, South Africa, Ireland and Vietnam a comprehensive checklist was prepared, identifying almost all the components to be covered by any SEA report (OECD SEA Guidance, 2006; Dalal-Clayton and Sadler 2017). The OECD Development Assistance Committee (DAC) is a key forum where major bilateral and multilateral donors work together to increase the effectiveness of their common efforts to support sustainable development. DAC work in the area of development and environment is carried out primarily through its Network on Environment and Development Co-operation (ENVIRONET). In 2004, ENVIRONET established a Task Team on Strategic Environmental Assessment, in response to the demand for guidance on the most efficient and effective application of SEA in the context of development co-operation. This Good Practice Guidance is the product of this work. It has involved a comprehensive consultation process with bilateral and multilateral development co-operation agencies, as well as representatives from partner countries and individual experts and practitioners from a wide range of developing and developed countries. Table 2 presents the results following the detailed review of carefully selected 5 SEA reports. The selected SEA reports were prepared by different consultants for new development programmes and plans from both developed and developing world.

Table 2: Results of the detailed review of selected SEA reports

Key Criteria	Uganda	Tanzania	South Africa	Ireland	Vietnam
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope					
Is it clear why the SEA was undertaken and what implications did that have on the SEA?	+++	+++	+++	+++	+++
Was SEA undertaken as a top-down requirement, or as a home-grown need for a better future?	++	+++	++	+++	+++
Were other relevant plan's and environmental protection objectives Identified?	++	++	++	+++	++
Was the baseline information collected?	+++	+++	+++	+++	+++
Were environmental problems identified?	+++	+++	+++	+++	+++
Were SEA objectives developed?	++	+++	+++	+++	+++
Were consultations on the scope of SEA done?	+++	+++	+++	+++	+++

Stage B: Developing and refining alternatives and assessing effects					
Were the catchment plan's objectives tested against the SEA objectives?	++	++	++	++	++
Were strategic alternatives developed?	++	++	++	+++	++
Were the effects of the catchment plan predicted, including alternatives?	++	++	++	++	++
Were the effects of the catchment plan evaluated, including alternatives?	++	++	++	++	++
Were adverse effects identified and potential mitigation measures considered?	+++	+++	+++	+++	+++
Were measures to monitor the environmental effects of catchment plan implementation proposed?	+++	+++	++	++	+++
Were alternatives analyzed – seriously or only as a cover up?	++	++	++	+++	++
Stage C: Preparing the Environmental Report					
Was an Environment Report prepared?	+++	+++	+++	+++	+++
Were the predicted environmental effects of the plan presented, including alternatives, in a form suitable for public consultation and use by decision-makers?	+++	+++	+++	+++	+++
Did the SEA scratch the surface or dig deep? I.e. did it seriously question the approach taken?	++	++	++	+++	++
Who did the SEA work? Were they qualified to seriously undertake such work?	++	++	+++	+++	++
Stage D: Consulting on the draft catchment plan and the Environmental Report					
Were consultations held on the draft catchment plan and Environmental Report	+++	+++	+++	+++	+++
Were significant changes to the draft plan at this stage assessed and taken into account?	+++	+++	+++	+++	+++
Was the information provided on how the Environmental Report and consultees' opinions taken into account in deciding the final form of the plan to be adopted?	+++	+++	+++	+++	+++
Stage E: Monitoring the significant effects of implementing the catchment plan on the environment					
Were aims and methods for monitoring developed?	++	++	++	++	++
Were appropriate responses prepared where adverse effects were identified?	+++	+++	+++	+++	+++

Notes: Fully met: +++; Averagely (fairly) meet: ++; Not met at all: +.

Generally, the SEA reports are well organized and indicate an understanding of the SEA requirements. Although the treatment of key features of the existing environment, associated impacts and mitigation measures was comprehensively done, the review shows experience with key concerns, aspects of the SEA were felt to require further attention i.e., the conduct of SEA only scratched the surface rather than digging deep. The approach taken was never seriously questioned while the discussion on alternatives was never analyzed seriously but only as a cover up with exception of the Shannon River Basin case study from Ireland.

Setting the context and objectives, establishing the baseline and deciding on the scope: As the review of the SEA reports shows that setting the context for SEA is an integral part of a SEA report that should be present (Therivel, 2010; Sloomweg, 2018). All the five reports analyzed met this requirement fully

as environmental/sustainability issues were identified and SEA objectives and indicators elaborated. It's evident that all the SEA were undertaken following a top-down approach and environmental problems were identified together with the stakeholders. With exception of the case study from Ireland, other strategic actions that would influence the strategic action in question were not reported in the SEA reports and the question of how this influence would come about was never discussed in the reports. The significance of the context for SEA effectiveness has been outlined by a number of scholars (Bina 2008; Partidario and Monteiro, 2019).

Developing and refining alternatives and assessing effects: There seemed to be confusion on the difference between the plan's objectives and SEA objectives thus this component in the report was averagely done and the objectives never tested against each other as a SEA requirement. Strategic alternatives were developed averagely and it was not clear whether some were eliminated early or not in decision making. Although the effects of the plans were predicted and evaluated using several tools, alternatives were never included. This made the analysis of alternatives more of a cover up and not seriously questioned. All the 5 reports fully identified potential effect and mitigation measures were also elaborated. Measures to monitor the environmental effects of plan implementation were also considered and reported. Although the lists of alternatives are presented within the SEA reports, an explanation of why those presented were preferred was never given. Some studies find that practitioners do not assign significant value to the task of conducting SEA and perceive it as an administrative burden (Stoeglehner, 2010; Zhou and Sheate, 2011).

Preparing the Environmental Report: All the five SEA analyzed produced an environment report as part of the SEA process where a predicted environmental effect was presented including alternatives that could be easily understood by the public and easily utilized in decision making. However, with the exception of Ireland, the rest of the SEA reports never questioned the approach taken but simply scratched the surface. Basically the information was averagely presented. This could be attributed to lack of resourceful person(s) that are trained in SEA. The SEA reports to a large extent look like EIA reports as those who prepared them happened to be experts in EIAs. Thus guidelines for implementation were not well articulated with exception of South Africa and Ireland case studies. Two broad approaches can be considered while documenting SEA findings i.e. task-based and topic-based reports (Therivel, 2010). 'Task-based approach' considers and presents each SEA stage separately, covering all environmental components at each task while 'topic-based approach' uses the environmental components as a basis and carries out each task for each component (Therivel, 2010). Most of the SEA reports for basin management tend to follow a task-based approach which allows for better integration of sustainability components and consideration of cross-cutting issues, leads itself better to objective led, policy appraisal type SEA approaches and allows closure of some report chapters early in the process. On the other hand, topic-based approach allows baseline data to be more clearly linked to the impact assessment stage and allows proposals for impact avoidance and mitigation (Therivel, 2010). These approaches will ensure that nothing is left out and SEA will have dug deep than scratching the surface. SEA reports should be presenting key issues, providing clear proposals and conclusive results to facilitate integration of SEA findings in decision-making. As that's what SEA is about.

Consulting on the draft catchment plan and the Environmental Report: SEA is a participatory process. Stakeholder analysis and consultations were well presented and it is evident that feedback from those consulted was taken into account. The reports elaborated on who was consulted and how consultation results were addressed. The reports attest that this was not a one off exercise but a continuous process throughout the SEA preparation process. However, it's vital to increase collaboration between SEA experts and decision-makers. To highlight key issues on which planning decisions should be made requires close collaboration (Bina 2008). By increasing interaction between SEA practitioners and decision-makers it could contribute to an increased understanding of the decision-making process and of the underlying political context among SEA practitioners, while at the same time reducing confusion among planners concerning which key issues to focus on. The SEA should not be conducted within a too limited group of

actors thus ensure public participation and stakeholder involvement in planning and decision-making processes (Vicente and Fidélis, 2015 and Sereno, 2013). This includes access to information and opportunity to leave comments at least, and giving stakeholders sufficient time to consider the results of the SEA.

Monitoring the significant effects of implementing the catchment plan on the environment: To a large extent, all the reports attempted to provide monitoring tools to be used to monitor environmental effects of the strategic actions by providing a clear guideline on how to deal with any negative impacts of the strategic action. However, the methods for monitoring were averagely developed thus the need to establish a national environmental monitoring and evaluation system. To support better informed baseline studies, impact assessment itself and monitoring measures, there is a need for appropriate monitoring systems to be in place (Zhou & Sheate 2011; Zhang *et al.* 2013; Iyer, 2017) but also well documented and reported in the SEA.

6 Conclusions

Although SEA is not McDonald's where the ingredients for a burger are the same, the SEA reports analyzed were found to be adequate as they talked about what needs to be done to solve key environmental and strategic issues in relation to social and economic issues. In some sections of the reports aspects like alternatives were hardly presented yet SEA is designed to explore and evaluate suitable alternatives. There is need to ensure that, SEA for basin management clearly establishes the context for the SEA; undertake a scoping exercise, collect baseline data, identify alternatives, identify opportunities and provide mitigation measures to address identified, produce an environment report; inform and influence decision-making by making recommendations together with stakeholders and incorporating their feedback and; monitor and evaluate. There is a need to clearly identify the scope and objectives of the SEA that seemed lacking in the reviewed reports. The purpose or aim should be clearly defined to minimize risks of the SEA objectives not to be understood by the Actors. To ensure that all relevant information is included in the SEA report and that the SEA report provides a complete basis for strategic decision-making, there is need to ensure that the SEA experts from relevant fields are involved early enough during the SEA process. Furthermore, its critical to separate SEA from EIA to ensure optimal use of the strategic assessment tools to be able to bring confusion to an end between different levels and unnecessary additional work. SEA should be focused on the overall picture i.e. covering the largest issues, while details should be left to the EIA. There is need to establish clearly defined legal requirements, regulations and guidelines for SEA practice in Uganda to form the basis for a uniform SEA approach.

7 Declarations

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7.2 Competing Interests

The author declared that no conflict of interest exists in this publication.

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References

- Barry, D. (2013). *The role of strategic environmental assessment in promoting a green economy*. Retrieved from <https://www.oecd.org/dac/environment-development/SEA%20and%20Green%20Economy%20Background%20note.pdf>
- Bina, O. (2008). *A Context-specific interpretation of SEA in China*, in Au, E., Lam, K. C., Zhu, T. and M. Partidario (eds), *International Experience on Strategic Environmental Assessment*.
- Dalal, C., and Sadler, B. (2017). *A methodology for reviewing the quality of strategic environmental assessments in development cooperation*.
- Do Ó, A., and del Moral, L. (2013). *Transboundary river basins planning - a challenge to the implementation of the European Water Framework Directive*. In *Transboundary Water Management across Borders and Interfaces: Present and Future Challenges of the Proceedings: TWAM 2013 International Conference and Workshops, Aveiro, Portugal, 16–20 March 2013*. Aveiro, Portugal: University of Aveiro.
- DWRM. (2014). *Uganda Catchment Management Planning Guidelines*. Retrieved from <https://www.mwe.go.ug/sites/default/files/library/Uganda%20Catchment%20Management%20Planning%20Guidelines%20-%20Final.pdf>
- Fernando, V., & Gonzalo, M. (2015). *Strategic Environment Assessment of River Basin Management Plans: Proposal for an Integrated Assessment*. *Journal of Environmental Assessment Policy and Management*.
- Fischer, TB (2010). *Reviewing the quality of strategic environmental assessment reports for English spatial core strategies*. *Environmental Impact Assessment Review*, 30, 62–69.
- Fischer, T. B. & Seaton, K. (2002). *Strategic environmental assessment — Planning instrument or “lost” concept?* *Planning Practice and Research*
- Fischer, T. B. Wood, C. and Jones, C. (2002). *Improving the practice of policy, plan and programme environmental assessment*. *Environment and Planning B*
- Fischer, T.B (2002). *Strategic Environmental Assessment in Transport and Land Use Planning*, Earth scan, London.
- Folkesson, L, H Antonson and JO Helldin (2013). *Planners’ views on cumulative effects: A focus-group study concerning transport infrastructure planning in Sweden*. *Land Use Policy*, 30(1), 243–253.
- Fundingsland Tetlow, M and M Hanusch (2012). *Strategic environmental assessment: The state of the art*. *Impact Assessment and Project Appraisal*, 30(1), 15–24.
- Hirji, R., R. Davis, K. Mfalilia, M. Wishart, F. Loayza, and, B. Livernash. (2007). *Strategic Environmental Assessment and Integrated Water Resources Management and Development*. Washington, DC: World Bank.
- Hüesker, F and T Moss (2015). *The politics of multi-scalar action in river basin management: Implementing the EU Water Framework Directive (WFD)*. *Land Use Policy*, 42, 38–47.
- Iyer, V.G. (2017) *Strategic Environmental Assessment (SEA) Process for Sustainable Mining and Mineral Management Development*.
- JICA. (2017). *Project for master plan on logistics in northern economic corridor*. Retrieved from http://open_jicareport.jica.go.jp/pdf/12291803.pdf
- Justin, E., NEMA, (2004). *A review of the application of the environmental impact assessment (EIA) in Uganda a report prepared for the united nations economic commission for Africa*.
- Lobos, V and M Partidário (2014). *Theory versus practice in Strategic Environmental Assessment (SEA)*. *Environmental Impact Assessment Review*, 48, 34–46.
- Lopes, PD, (2012). *Governing Iberian rivers: From bilateral management to common basin governance?* *International Environmental Agreements: Politics, Law and Economics*, 12(3), 251–268.
- MEMD. (2013). *Strategic environment assessment (SEA) of oil and gas activities in Albertine Graben, Uganda*.
- Nielsen, HØ, P Frederiksen, H Saarikoski, AM Rytönen and AB Pedersen (2013). *How different institutional arrangements promote integrated river basin management: Evidence from the Baltic Sea Region*. *Land Use Policy*, 30(1), 437–445.
- OECD (Organization for Economic Co-operation and Development) (2006). *Applying Strategic Environmental Assessment Good Practice Guidance for Development Co-operation*. ISBN 92-64-02657-6.
- Partidario., and Monteiro. (2019). *Strategic environmental assessment effectiveness in Portugal*.
- Partidário.M.R. (2012). *Strategic environmental assessment –better practice guide –methodological guidance for strategic thinking in SEA*. Lisbon: The Environmental Ministry of Portugal.
- Riki Therivel. (2010). *Strategic Environmental Assessment in Action*. Second Edition, Earth scan published by Taylor and Francis.
- Roel, S. (2018). *Strategic Environmental Assessment (SEA) for Wetlands*.
- Sadler, B. and., Verheem, R. (1996). *Strategic Environmental Assessment, Ministry of Housing, Spatial Planning and the Environment of the Netherlands, The Hague*.
- Sereno, A (2013). *The idea of environmental governance applied to watersheds*. *Revisit Aranzadide Derecho Ambiental*, 24,129–165.
- Silva, AWL, PM Selig, AA Lerípio and CV Viegas (2014). *Strategic environmental assessment: One concept, multiple definitions*. *International Journal of Innovation and Sustainable Development*, 8(1), 53–76. Vol. 17, No. 3 (September 2015).
- Stoeglehner G. (2010). *Enhancing SEA, effectiveness: lessons learnt from Austrian experiences in spatial planning*.
- The United Nations World Water Development Report. (2015). *Water for a sustainable world*. Retrieved from <https://sustainabledevelopment.un.org/content/documents/1711Water%20for%20a%20Sustainable%20World.pdf>
- Vicente, F., T Fidélis and G Méndez (2015). *Public participation in environmental impact assessments between Spain and Portugal*. *Journal of Environmental Assessment Policy and Management*, 17,1550022.
- World Bank. (2012). *Strategic environmental assessment in the World Bank: learning from recent experience and challenges (English)*. Washington, DC: World Bank. Retrieved from <http://documents.worldbank.org/curated/en/729811468331017746/Strategic-environmental-assessment-in-the-World-Bank-learning-from-recent-experience-and-challenges>
- World Economic and., Social Survey. (2013). *Sustainable development Challenges*. Retrieved from <https://sustainabledevelopment.un.org/content/documents/2843WESS2013.pdf>
- Zhang, J., Christensen, P., & Kjørnø, L. (2013). *Review of critical factors for SEA implementation*. *Environmental Impact Assessment Review* 38, pp. 88–98.
- Zhou, K.-Y., & Sheate, W. R. (2011). *Case studies: Application of SEA in provincial level expressway infrastructure network planning in China - Current existing problems*. *Environmental Impact Assessment Review* 31pp.521-537.

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