



A Technical Review of the Simandou Railway EIES\* through the lens of  
International Best Practices for Biodiversity Assessment and Mitigation

For  
Center for Transnational Environmental Accountability (CTEA)

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2 December 2022

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\* Études d'Impact Environnemental et Social (EIES), Projet ferroviaire de Simandou, Guinée (17 Novembre 2021)

**A. Potential impacts on both biodiversity and ecosystem services must be thoroughly considered and addressed.**

An important distinction to consider in the discussion of best practices is that between biodiversity itself and the ecosystem services provided by biodiverse systems to society. It is no longer considered sufficient to assess and mitigate impacts on biodiversity alone. Best practices now require that ecosystem services be explicitly considered and treated with the same respect and rigor as biodiversity itself. Perhaps the most relevant standard for the Simandou project is the International Finance Corporation (IFC) “Performance Standard 6: Biodiversity conservation and sustainable management of living natural resources” given that IFC has been directly involved in funding the project. This standard explicitly requires that ecosystem services be considered. The introduction of the standard states:

*“Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development. The requirements set out in this Performance Standard have been guided by the Convention on Biological Diversity, which defines biodiversity as ‘the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems.’*

*Ecosystem services are the benefits that people, including businesses, derive from ecosystems. Ecosystem services are organized into four types: (i) provisioning services, which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the nonmaterial benefits people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services.*

*Ecosystem services valued by humans are often underpinned by biodiversity. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem services. This Performance Standard addresses how clients can sustainably manage and mitigate impacts on biodiversity and ecosystem services throughout the project’s lifecycle.”<sup>†</sup>*

Key references on the incorporation of ecosystem services:

- a. IFC (International Finance Corporation). (2012). Performance standard 6. Biodiversity conservation and sustainable management of living natural resources.
- b. Lydia Olander, Robert J. Johnston, Heather Tallis, Jimmy Kagan, Lynn Maguire, Steve Polasky, Dean Urban, James Boyd, Lisa Wainger, and Margaret Palmer. 2015. “Best Practices for Integrating Ecosystem Services into Federal Decision Making.” Durham: National Ecosystem Services Partnership, Duke University. doi:10.13016/M2CH07

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<sup>†</sup> IFC (International Finance Corporation). (2012). Performance standard 6. Biodiversity conservation and sustainable management of living natural resources.

c. Tallis, H., Kennedy, C. M., Ruckelshaus, M., Goldstein, J., & Kiesecker, J. M. (2015). Mitigation for one & all: An integrated framework for mitigation of development impacts on biodiversity and ecosystem services. *Environmental Impact Assessment Review*, 55, 21-34.

EIES-specific observations with respect to ecosystem services:

The railway EIES falls short on its assessment of ecosystem services and the ways in which they are likely to be impacted by the project. There is a short and cursory section in Vol 4 (Ch 14.9.4.2 through 14.9.6.2; pages 14-58 to 14-69) that notes a handful of the most obvious services that are likely to be impacted but ignores some critical and fundamental ecosystem services that are clearly defined by international best practices (i.e., IFC Performance Standard 6 quoted above; further detailed in the figure below).

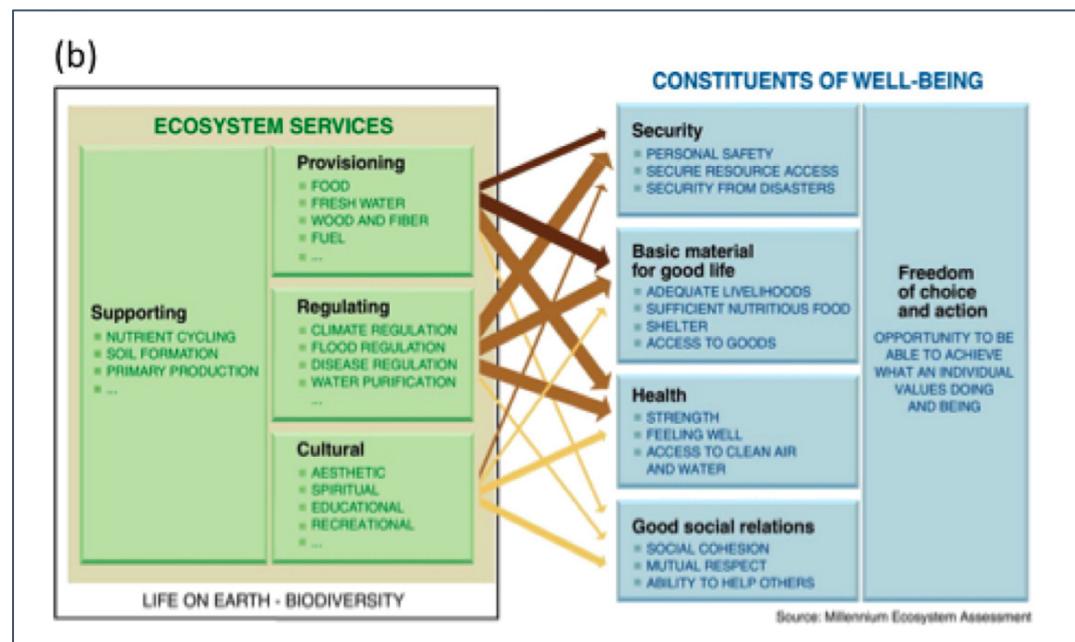


Fig. 2 from Tallis et al 2015.<sup>†</sup> This figure provides a guide for the basic, key ecosystem services that should be considered in a EIES. The Simandou Railway EIES does not address any “Supporting” services and it also ignores half of the “Regulating” services (i.e., climate and water purification) as well as most of the “Cultural” services (i.e., aesthetic, educational, recreational) listed in this figure (shown in green text).

<sup>†</sup> Tallis, H., Kennedy, C. M., Ruckelshaus, M., Goldstein, J., & Kiesecker, J. M. (2015). Mitigation for one & all: An integrated framework for mitigation of development impacts on biodiversity and ecosystem services. *Environmental Impact Assessment Review*, 55, 21-34.

### **Best Practice Questions: Creating Conceptual Diagrams for Ecosystem Services Using Causal Chains**

To follow best practice, the assessor should be able to answer yes to ALL of these questions:

- Have all effects of a policy, management decision, or program on ecological conditions been included?
- Have the changes in ecological conditions that lead to changes in the delivery of affected ecosystem services been included?
- Have the effects on individuals or groups from changes in the delivery of ecosystem services been included?
- Have all impacts that people care about been included in the diagram (even if they will not all be included in the final analysis)?

Text box from page 9 of Olander et al 2015.<sup>§</sup> This figure summarizes the key steps that an assessment should take to appropriately capture all ecosystem services that must be considered in a systematic way. The Simandou Project has not yet completed any one of these steps in a comprehensive or satisfactory way.

**B. The internationally accepted best practice is to follow a mitigation hierarchy in sequential manner.** The first step, avoidance, must be seriously undertaken for all potential negative impacts to biodiversity or ecosystem services before the evaluators can even begin to consider minimization or restoration strategies. Offset measures should be designed to compensate for any negative impacts that are likely to remain after all the other measures are implemented.

The mitigation hierarchy is defined as:

1. Avoidance: measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.
2. Minimisation: measures taken to reduce the duration, intensity and / or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.
3. Rehabilitation/restoration: measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/ or minimised.
4. Offset: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the form of positive management

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<sup>§</sup> Lydia Olander, Robert J. Johnston, Heather Tallis, Jimmy Kagan, Lynn Maguire, Steve Polasky, Dean Urban, James Boyd, Lisa Wainger, and Margaret Palmer. 2015. "Best Practices for Integrating Ecosystem Services into Federal Decision Making." Durham: National Ecosystem Services Partnership, Duke University. doi:10.13016/M2CH07

interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.\*\*



Fig. 1 from Bennet et al. 2017.<sup>††</sup> This figure provides a visual representation of the mitigation hierarchy and the order in which mitigation steps should be taken.

#### References on mitigation:

- a. Business and Biodiversity Offsets Programme (2012) Standard on Biodiversity Offsets. BBOP–Forest Trends
- b. Bennett, G., Gallant, M., & Ten Kate, K. (2017). State of biodiversity mitigation 2017: Markets and compensation for global infrastructure development. *Forest Trends' Ecosystem Marketplace, Washington, DC*.
- c. OECD (Organisation for Economic Co-operation and Development). 2016. *Biodiversity offsets: effective design and implementation*. OECD Publishing, Paris.
- d. Wende, W., Tucker, G. M., Quétier, F., Rayment, M., & Darbi, M. (Eds.). (2018). *Biodiversity offsets: European perspectives on no net loss of biodiversity and ecosystem services*. Springer.

#### EIES-specific observations with respect to mitigation hierarchy:

The EIES does not appear to have followed international best practices with respect to the mitigation hierarchy. A thorough discussion of the reference scenario against which

\*\* Quoted directly from Business and Biodiversity Offsets Programme (2012) Standard on Biodiversity Offsets. BBOP–Forest Trends, pg. 1

†† Bennett, G., Gallant, M., & Ten Kate, K. (2017). State of biodiversity mitigation 2017: Markets and compensation for global infrastructure development. *Forest Trends' Ecosystem Marketplace, Washington, DC*.

biodiversity and ecosystem service losses can be measured was not described, and thus a serious undertaking of each subsequent step of mitigation cannot be adequately performed. First and foremost, all efforts possible should be made to avoid impacts-- the EIES appears to lack any thorough discussion of potential alternatives, for example, and thus it is impossible to assess if avoidance was seriously considered and measures were adopted. The next step should be to minimize unavoidable impacts, which this EIES assessment includes to some degree but appears to be missing some critical details (see part C below for examples). The final two steps are to restore and then compensate/offset. Restoration and mitigation measures are mentioned, but the chapter (17) where they are supposed to be detailed is missing from the document, so it is impossible to evaluate. Offset measures appear to be entirely missing from this EIES.

### **C. Inconsistent and incomplete documentation of the EIES process.**

The EIES is written with a number of inconsistencies that make it extremely challenging or impossible to evaluate whether or not the project is prepared to undertake a robust biodiversity management plan.

Vol 4, ch 13.4 (the table spanning pages 8 and 9; referred to as “Table 10.1” in the text but titled as “Table 10.0.2”). Not only does the inconsistent naming and reference to the table make it challenging to follow the author’s narrative, but in terms of content, they are missing some important impacts. For example, the potential impact of increased illegal logging and tree/wood harvest associated with increased accessibility created by the project is absent. They only cite hunting and bushmeat sales (though they do note that unintentional degradation to the habitat by creating access would impact forests as well):

### 13.4 Impacts du projet sur la biodiversité

Le tableau 10.1 résume les impacts identifiés du projet et les groupes de récepteurs qui sont particulièrement sensibles aux effets et sur lesquels l'évaluation est centrée. Pour certains groupes, des références croisées sont fournies lorsqu'un impact est traité dans une section connexe. Par exemple, pour les zones protégées et les zones internationalement reconnues, l'évaluation des incidences sur les habitats et les espèces constitutifs est renvoyée à ces sections, à moins qu'ils ne constituent le principal élément d'intérêt pour lequel le site est désigné. L'évaluation s'appuie également sur les conclusions d'autres évaluations techniques de cette EIES, telles que l'eau, le bruit et les vibrations, la migration intérieure et les services écosystémiques, et y fait référence.

**Tableau 10.0.2 : Impacts du projet et récepteurs pertinents**

Impact	Nature de l'impact	Groupes de récepteurs particulièrement sensibles aux effets
<b>Perte d'habitat</b> dans les terres occupées pour la construction de la voie ferrée et des installations associées, y compris une largeur de corridor de 80 m pour la voie ferrée, les gares, y compris les boucles de passage et les ateliers d'entretien, les tunnels de Kindia, Mamou, Kaba et Soyah, les ponts, en particulier les ponts de très grande taille, les passages souterrains et les ponceaux, les centrales électriques et les lignes de transmission, les tours de communication, les routes d'accès, les bancs d'emprunt et les zones de décharge, les zones de carrière prévues et les camps d'hébergement	Direct, Construction	Zones protégées et internationalement reconnues Habitats (tous) Mammifères Oiseaux Herptiles Poisson Invertébrés Flore
<b>Effet de barrière</b> restriction des mouvements ou de	Direct, Opération	Mammifères (grands)

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L'accès et la migration induits qui peuvent, par exemple, entraîner des pressions sur la biodiversité et les ressources naturelles en raison de la perte et de la dégradation des habitats, de la pollution, de l'augmentation des perturbations, de la chasse.	Indirecte, Construction et Exploitation	Zones protégées et internationalement reconnues Forêt Bowal Mammifères (grands) Oiseaux Herptiles Poisson
Chasse, viande de brousse et commerce de la faune sauvage	Indirecte, Construction et Exploitation	Zones protégées et internationalement reconnues Mammifères Oiseaux Herptiles
Des espèces envahissantes et des agents pathogènes sont introduits dans les zones et font concurrence aux	Indirecte, Construction et Exploitation	Zones protégées et internationalement reconnues

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In section 13.12.3 on mediation measures, it says that a plan will be made to allow crossings and that a plan for biodiversity management will also be made (see the 1<sup>st</sup> and 3<sup>rd</sup> bullet points

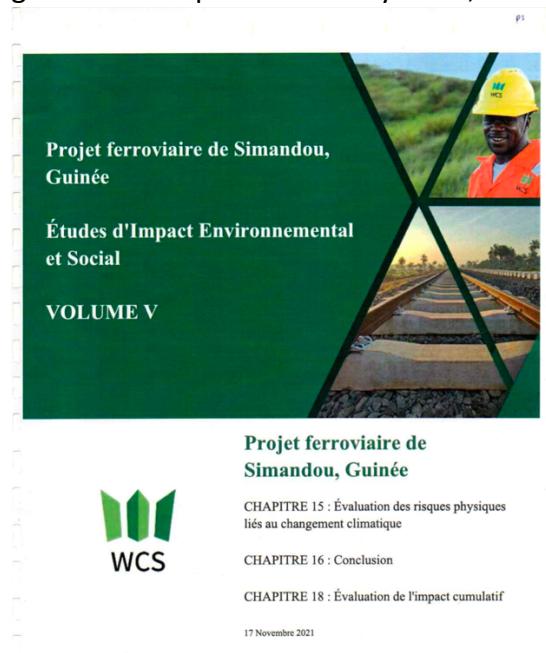
below); however, no credible plan appears to have been documented for either issue. It is not in keeping with best practices to wait until a project is underway prior to deciding on the mitigation needs of the local fauna, flora, and biodiversity at large. In general, it does not seem that Vol 4, Ch 13 contains sufficiently clear or detailed mitigation plans that the public could feel confident that the project managers will follow international best practice. The authors clearly reference what best practice are in general terms in figure 13.1 (avoid, minimize, restore, compensate/offset); however, the lack of detail regarding how they will specifically apply those practices to this specific project does not instill confidence that necessary measure have been thoroughly considered, budgeted for, nor will be monitored and evaluated rigorously to ensure good outcomes are achieved.

- tes cours d'eau.
- Une stratégie pour les passages à niveau sera élaborée afin d'identifier les zones à haut risque et de développer des solutions appropriées. Cela permettra le déplacement continu de la faune à travers l'alignement du projet, y compris les espèces de grande faune comme les éléphants (par exemple, dans les zones au nord de l'étang de Thié).
- Une série de mesures d'atténuation et de gestion spécifiques supplémentaires qui seront mises en œuvre pour éviter ou gérer les risques pour la biodiversité pendant la construction et l'exploitation sont énumérées dans le ESMP. Il s'agit notamment d'éviter la construction de ponts en rivière (sur tous les cours d'eau sauf un) et de concevoir des structures facilitant le libre passage de la faune (ponceaux, ponts permettant le passage des poissons et des mammifères).
- Un plan de gestion de la biodiversité (BMP) plus détaillé est en cours d'élaboration et sera fourni au WCSR et aux entrepreneurs pour être utilisé sur le site. Il enregistrera les engagements pris dans l'ESIA/EIES et les actions et responsabilités correspondantes. Il sera également lié à un plan de gestion des espèces envahissantes.

Lower down on the same page, they reference “chapter 17” as containing all of the additional detail for mitigation measures:

Les autres mesures qui seront mises en œuvre sont énumérées dans le chapitre 17 du ESMP. Après la mise en œuvre de ces mesures d'atténuation, la **section 13.14** rend compte de l'importance de tout effet résiduel restant.

However, in the version of the EIES that we have access to, Ch.17 does not exist. The document goes from chapter 16 directly to 18, as can clearly been seen in the title page of Vol. V:



**D. Key reference suggesting that Chinese investors lag behind other major international investors with respect to implementing international best practices on biodiversity mitigation requirements.**

A recent study published in the journal *Nature Sustainability* analyzes 65 financiers (35 Chinese and 30 international) with respect to biodiversity safeguard requirements. The authors found that only 1 of the Chinese financiers had any biodiversity requirements in place, while more than half of the international financiers did.

“While 16 of the 30 international financiers had biodiversity impact mitigation requirements, only one (China-ASEAN Investment Cooperation Fund) of the 35 Chinese/China-led financiers had requirements on biodiversity (Fig. 2) (see Supplementary Tables 2–4 for details). China’s national export credit insurer, China Export Credit Insurance Corporation, or Sinosure, which widely insures BRI investments, was also found to not have any requirements on biodiversity impact mitigation.”<sup>##</sup>

Table 3: Identifying Biodiversity Impact Mitigation Requirements in Environmental Policies of BRI’s Financiers

	Financier	Environmental Policies/Standards	Biodiversity Impact Mitigation Requirements
Chinese Sources	China Development Bank	《绿色信贷工作方案》、《绿色信贷管理暂行办法》、《授信投向指引》、《环保及节能减排工作方案》、“Green Credit Work Plan”, “Green Credit Management Implementation”, “Environmental protection, energy saving and emission reduction workplan” etc.	Not Detected
	Export Import Bank of China	Guidelines for Environmental and Social Impact Assessments of the China Export and Import Bank’s (China EXIM Bank) Loan Projects	Not Detected
	Industrial and Commercial Bank of China	Green Credit Classification Management Method based on IFC and Equator Principles	Not Detected
	Agricultural Bank of China	Agricultural Bank Green Financing Implementation Guidelines	Not Detected
	China Construction Bank	China Construction Bank Green, Society and Sustainable Development Credit Framework	Not Detected
Multilateral Development Banks	China-ASEAN Investment Cooperation Fund	Social Responsibility and Environmental Protection Guidelines for Investments in the ASEAN Region	Detected
	Asian Infrastructure Investment Bank (AIIB)	Environmental and Social Framework, 2016	Detected
	New Development Bank	Environmental and Social Framework, 2016	Detected
	World Bank	Environmental and Social Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources, 2018	Detected
	Asian Development Bank	Safeguard Policy Statement, 2009	Detected
	EBRD	Environmental and Social Policy, 2019	Detected
	EIB	Environmental and Social Standards, 2018	Detected
	MIGA	IFC's Performance Standards	Detected
Bilateral Aid Agencies	JICA	Guidelines for Environmental and Social Considerations	Detected
	JBIC	Guidelines for Confirmation of Environmental and Social Considerations	Detected
	DFID	DFID Environment Guide A guide to environmental screening	Not Detected
	ADF	Environmental and Social Risk Management Policy for AFD-funded Operations	Detected
Private Multi-national Investment Banks	Standard Chartered	Equator Principles	Detected
	HSBC	Equator Principles	Detected
	Citibank	Equator Principles	Detected
	FMO	Equator Principles	Detected
	Mizuho Bank, Japan	Equator Principles	Detected
	KfW-IPEX Bank	Equator Principles	Detected

Supplemental Table 3 from Narain et al 2020.

<sup>##</sup> Pg 653 of Narain, D., Maron, M., Teo, H. C., Hussey, K., & Lechner, A. M. (2020). Best-practice biodiversity safeguards for Belt and Road Initiative’s financiers. *Nature Sustainability*, 3(8), 650-657.