

Sepik Development Project Environmental Impact Statement

Expert Brief

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Qualifications and Experience

I am a Senior Research Lecturer in Corporate Social Responsibility and Sustainability in the School of Business at the University of Western Sydney where I have been employed since 2011. Previously, I held an Assistant Professor and then Associate Professor position at Lebanon Valley College in Pennsylvania, USA (2004-2010), a Lecturer position at La Trobe University (1997-2002) and a tutoring and research-assistance position at the University of Melbourne (1995-1996). I attained my PhD in Economics from La Trobe University in 2006 and I have also graduated with a Master of Commerce (with Honours) (University of Melbourne), a Graduate Diploma in Advanced Economics (La Trobe University) and Bachelor of Business (University of Technology, Sydney).

My speciality is Environmental and Natural Resource Economics and I have published extensively in the field in international journals such as *Ecological Economics*, the *Journal of Economic Perspectives*, and *Wildlife Research* as well as in edited volumes published by respected publishers such as the Oxford University Press. I have more than 20 years of experience analysing environmental policy and the utilisation of natural resources in Australia, the USA and globally. I have qualifications in cost-benefit analysis from the Institute for Public Administration, Australia and I have conducted pro bono and funded research using cost benefit analysis in the area of urban and regional economics for the Union of Concerned Scientists, the Environmental Defenders Office, Illawarra Residents for Responsible Mining, Lock the Gate, local Councils, social housing providers, and Landcom.

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Expert Statement

This report has been prepared in response to an expert brief from the Centre for Environmental Law and Community Rights Inc, Friends of the Earth Papua New Guinea. In particular, I was asked to review the following documents prepared for the Environmental Impact Statement (EIS) of the Sepik Development Project (“project”):

- “Executive Summary” available at <https://friedariver.com/wp-content/uploads/2019/09/Executive-Summrya-English.pdf>.
- “Chapter 6 Assessment of Alternative Development Options” available at <https://friedariver.com/wp-content/uploads/2019/09/Chapter-6-Assessment-of-Alternative-Development-Options.pdf>.
- “Chapter 9 - Socio-economic impact assessment” available at <https://friedariver.com/wp-content/uploads/2019/09/Chapter-9-Socio-Economic-Impact-Assessment.pdf>.
- “Appendix 9 - Desktop Assessment of Commercial Forestry and Agroforestry within the Sepik Development Project Infrastructure Corridor” available at <https://friedariver.com/wp-content/uploads/2019/09/Appendix-9-Desktop-Assessment-of-Commercial-Forestry-and-Agroforestry-within-the-Sepik-Development-Project.pdf>.
- “Appendix 13 - Social Impact Assessment” available at <https://friedariver.com/wp-content/uploads/2019/09/Appendix-13-Social-Impact-Assessment.pdf>.

Having read these documents, I was asked to provide the following:

- a) A plain English summary of the key issues raised by the Project EIS, relevant to my area of expertise.
- b) An opinion on whether the economic assessment undertaken was appropriate and sufficient.
- c) An opinion on whether the non-market values of the forest, or alternative income opportunities from maintaining local forests, have been adequately considered in the economic assessment of the Project.
- d) Any further observations or opinions which I consider to be relevant.

I have read the Expert Evidence Practice Note as per Division 23.12 of Part 23 of the Australian Federal Court Rules including the associated Annexures and I agree to be bound by it.

I do not speak on behalf of my employer, Western Sydney University, but as an independent researcher with qualifications and experience in cost benefit analysis, environmental and natural resource economics, and urban and regional economics.

a) Key issues raised by the Project EIS, relevant to my area of expertise (Economics)

Economic Framework

The project is complex and there are very large implications for livelihoods, local economies, and the environment. Ultimately, though, from an economic perspective, projects can be assessed using the principles of cost benefit analysis (Boardman et al. 2010). Economics is concerned with the allocation of limited resources such as land, labour and capital. An efficient change in the allocation of resources is one that makes at least one person better off without harming anyone else (the principle of Pareto Efficiency). However, any change in the allocation of resources, which the Sepik Development Project represents, will inevitably make someone worse off. Thus, the Kaldor-Hicks compensation test is used to determine whether the change is right or good or efficient (Hicks 1939; Kaldor 1939). This test allows for a new project to be efficient if the winners can, in principle, compensate the losers. The project is then “potentially” good, right or efficient. In practical terms, a change in the allocation of resources will be potentially efficient if the benefits outweigh the costs with ‘costs’ in economics reflecting the ‘opportunity cost’ of the resources – the value of their next-best use.

Whether or not compensation for the losers actually occurs is a separate issue in economics. Proponents of cost benefit analysis suggest that compensation does not need to occur as long as cost benefit analysis is applied consistently throughout a country and region for all projects. In that case it is inevitable that the losers from one project will be the winners in other projects and as resources will be allocated efficiently as a whole, everyone wins (see, for example, Boardman et al. 2010). This of course is a political issue and vested interests often mitigate against the consistent use of cost benefit analysis. Thus, a common practice is to emphasise the distributional consequences of new projects and to compensate victims where possible.

The Project EIS

Using this economic framework, I outline the key issues in the EIS as follows: a cost benefit analysis has not been performed; and negative impacts have not been valued.

The first issue concerns the fact that a cost benefit analysis has not been performed. Before considering any compensation, the project should only go ahead if the benefits outweigh the costs and this has not been demonstrated in the project EIS. The project should not be approved at least until it can be demonstrated that it meets the benefit-cost test. It may still be rejected for other reasons, such as distributional implications or a desire for environmental stewardship. However, from an economic perspective, the minimum requirement is for the proponents of the project to demonstrate that the benefits outweigh the costs and the project is therefore welfare enhancing for the country of Papua New Guinea (PNG).

The EIS does appropriately outline the ‘risks’ associated with the project and discusses certain benefits but the methods do not align with the standard principles of cost benefit analysis. Growth in gross domestic product (GDP) is not an appropriate measure of the benefits of the project and neither is the growth in employment both of which are discussed at various points in the EIS (for example, Coffey 2019, p. 9-15). To understand this, consider an extreme example where a foreign-owned company is granted use of PNG’s resources and flies in its own foreign workers, as well as

their food and supplies, to build and operate a mine. The GDP of PNG will increase based on the output of the mine but the people of PNG will not receive any benefit except from the following: any royalties paid for the use of the land resources; any local company tax paid by the foreign-owned company; any local personal income tax paid by the foreign workers. These taxes would be collected by the government of PNG but returned to PNG nationals through subsidies, welfare payments, the construction of infrastructure, and the like. However, the GDP itself does not matter. The majority of the income that equates with the GDP is delivered to the owners of the foreign company in the form of profits and to foreign workers in the form of wages and salaries. Thus, it confuses matters to highlight the GDP growth as a benefit of the project under the principles of cost benefit analysis (see, for example, The Treasury 2017).

Employment is also not a benefit of a project in and of itself (see for example, The Treasury 2017). First, it is only employment of PNG nationals that would be considered and while the project EIS has outlined a priority list of employees beginning with local communities (Coffey 2018, Appendix 13, pp. 11-13), they could use methods to estimate the actual employment of locals and nationals versus foreign workers. Second, given this estimate, the benefit of the project does not derive straight from the employment or the wages the locals and nationals receive. Under the principles of cost benefit analysis, the benefit derived from employment in a new project is the extra wages workers receive in their new employment relative to their previous employment or value of their non-market activities (The Treasury 2017; Boardman et al. 2010). For example, if the workers were removed from one mining project, placed in the new mining project and paid the same amount, there is no extra utility for the workers and no benefit from employment. In terms of people who are currently not employed in the cash economy, the benefit is again the extra utility they gain. Thus, the benefit is the wages they receive less the disutility of the often risky mining work and less the value of their current non-market activities or even the value of their leisure if that is how they use their time.

The same issues apply to indirect employment and GDP arising from local people providing goods and services to workers, and the materials for the construction of the mine. Such secondary or indirect effects are usually ignored in a cost benefit analysis because the benefit is already incorporated into the primary benefits of the project. However, governments often want to understand the local effects on employment and growth. For example, in the State of New South Wales in Australia mining projects are accompanied by a 'local effects analysis' which looks at the GDP and multiplier effects on the local economy (NSW Government 2015). This is separate from the cost benefit analysis and should not be used to justify the project. It is really only useful to understand the distributional implications of the mining project. However, even if these effects were relevant, it would only be the incremental benefit received due to the new project over and above the value of the local people's current employment (in market or non-market activities).

The second main issue in the EIS concerns the negative externality costs of the project. While the 'risks' have been outlined in chapter 9 and appendix 13 (Coffey 2018), and I am not in a position to determine the accuracy of the risk assessments in the Tables in chapter 9, many of these 'risks' are actually 'impacts' and the costs of these impacts should be valued and used to determine whether the benefits of the project outweigh the costs. The costs of the project include the value of the land in its alternative use, and all the externalities or spillover costs of the project. The spillover costs are substantial and include the displacement of four villages and some 1,316 people (Coffey 2018, p. 9-

9), as well as the downstream impacts, noise and vibration impacts, and the loss of livelihoods for many other villages.

The issue of compensation is relevant due to these spillover costs and the EIS explains that the four villages that will be displaced due to the construction of the hydroelectric dam will have improved facilities in their new locations (Coffey 2018: Appendix, p. iii). However, from an economic perspective, improved facilities and access to the cash economy are not the fundamental issue. The issue is whether the people in those villages are better or worse off in their new locations and with the new opportunities. If the people in the villages would ultimately prefer to continue with their current livelihoods, they are being made worse off due to the project and the extent of this impact needs to be included as a cost of the project. The relevant method would be to apply non-market valuation principles to assess whether there is a difference in the utility of the people from the displaced villages with and without the project. If the people are better off due to the new facilities and opportunities, the dislocation would be a benefit of the project. If their utility decreases, it is a cost of the project.

As the utility in the new locations is difficult to determine prior to the event, this aspect of the EIS needs greater attention and be subject to 'sensitivity analysis', where alternative outcomes and assumptions are used to test the validity of the benefit-minus-cost calculation (Boardman et al. 2010). As the cost benefit analysis has not actually been performed, the sensitivity analysis has also not been performed. However, as a key issue in the EIS, surveying members of the villages and using outcomes from similar projects should be a major part of the justification of the project moving forward.

The same issue applies for other spillover costs. Risks are actually impacts and these impacts need to be valued and included as a cost in the cost benefit analysis. Compensation is then a political issue but at least the extent to which the project is 'potentially' welfare enhancing could be determined.

There are also broader social costs that have been mentioned but not calculated, such as the impact on biodiversity. The project will clearly impact biodiversity and the ecosystem services provided by the forests as duly acknowledged by the proponents of the project. However, these impacts on endangered species and the populations of all species in the areas have not been valued. The impact is an economic issue because people value biodiversity. Thus, from an economic perspective, the 'willingness to pay' – which is a monetised measure of utility (Boardman et al. 2010) – to avoid the impact on species and ecosystem services needs to be calculated for the PNG population as a whole.

In cost benefit analysis, it can sometimes be controversial determining who the people of standing are; that is, the people who need to be considered when assessing the costs and benefits. Sometimes, the people of standing are the local communities or the people in a broader region or the country as a whole. Given national sovereignty, the people of standing are usually limited to the people of a country, although many people around the world would value the biodiversity and ecosystem services of the PNG forests. In my opinion, the appropriate people of standing in the case of the project are the PNG population as a whole and therefore the impact of the project on the utility of all PNG citizens needs to be valued and included as a cost of the project. Again, the project EIS would need to use non-market valuation methods to calculate the willingness to pay to avoid the impact on biodiversity and ecosystem services.

In summary, the key issues raised by the project EIS is that a cost benefit analysis has not been performed and the costs have not been calculated. Therefore, the project has not been determined to be welfare enhancing for the country of PNG. If a cost benefit analysis was performed, the GDP and employment figures are meaningless and the benefits are as follows:

- 1) Local taxes, fees and royalties paid by the foreign company and its foreign workers; noting that taxes paid by local workers are not benefits as they represent transfers from one PNG citizen to another.
- 2) Any surplus of wages over existing wages or the value of non-market activities for local employees, net also of the disutility of working in a mine over and above other pursuits.
- 3) The consumer and producer surplus of the excess electrical power from the hydroelectric plant delivered outside the mine project over a relevant time period, usually not more than 50 years.

These benefits would be compared to costs consisting of the following:

- 1) The value of alternative uses of the land including subsistence agriculture and forestry.
- 2) All spillover costs including:
 - a. The net impact on members of the displaced villages including an assessment of the value or willingness to pay to remain in their current locations and conditions, relative to moving to the new villages with improved facilities and opportunities.
 - b. The livelihood impact on downstream villages and those affected by the noise and vibrations.
 - c. The loss of biodiversity and ecosystem services experienced by the residents of PNG.
 - d. The net cost of the likely forestry activity that will occur along new roads, including an assessment of the impact on local livelihoods.
 - e. The cost of carbon emissions and the loss of carbon sinks from the land-use change and mine may also be considered depending on the global environmental agenda of the country.

b) Was the economic assessment undertaken appropriate and sufficient?

As described above, while the categories of potential risk appear reasonable, the economic assessment is not sufficient. The economic assessment needs to be performed using the principles of cost benefit analysis. At the moment, the project has not been demonstrated to be welfare enhancing for the country of PNG and therefore the economic assessment is neither appropriate nor sufficient.

c) Does the economic assessment of the Project adequately consider non-market values of the forest, or alternative income opportunities from maintaining local forests?

Table 9.1 (Coffey 2018, p. 9-3) describes the direct and indirect impacts of the project, which includes various external or spillover costs that are non-market values. For example, health impacts downstream, air quality, and amenity impacts are non-market impacts. However, there is no attempt to value these impacts in the project EIS so the economic assessment cannot be said to adequately consider the non-market values. An economic assessment requires a cost benefit analysis with appropriate methods used to value non-market impacts. In addition, the ecosystem

services and biodiversity values are not indicated in Table 9.1, and they are not a feature in the economic assessment in chapter 9. The ecosystem services and biodiversity impacts are socio-economic impacts because people value them.

A cost benefit analysis would naturally consider the alternative income opportunities from maintaining local forests because it compares a project to the existing situation (*status quo*) and therefore the current income generation or value of non-market activities. In addition, if an alternative income-generating project was more valuable than the *status quo*, it should be a feature of the cost benefit analysis with the new project being compared to the next-best use of the resources. While the economic assessment acknowledges alternative income opportunities when it speaks of the impact on “livelihoods, subsistence resource use, river use, income derivation” and “the loss of resources such as alluvial gold areas” (Coffey 2018, p. 9-3), it does not attempt to value these incomes and use them in a cost benefit analysis.

Moreover, the economic assessment does not consider alternative uses of the land that may generate substantial income through scientific exploration, bioprospecting, or eco-tourism. Given the enormous amount of new species discovered in the project area (Coffey 2018: Executive Summary, p. 20), there would appear to be a great potential for alternative incomes based on eco-tourism and scientific explorations. The potential also exists for selling the ecosystem services of the forest in international markets, such as biodiversity protection services, pollination services, and the carbon sinks (for example, through the Reducing Emissions from Deforestation and Forest Degradation (REDD+) scheme). The idea of payments for ecosystem services (PES) is controversial with regards to the long-term ecological implications and sharing of income (Gomez-Baggethun and Ruiz-Perez 2011). However, there is no doubt that the concept has potential to provide local incomes for intact ecosystem services provided by forests, if properly governed, and this potential will only grow over the life of the project as climate change becomes more apparent.

d) Other observations

My statement points out that it is impossible to assess the worth of the Sepik Development Project without a formal cost benefit analysis. In the final section I would like to make two additional points. First, in my opinion, there is no way to assess the economic benefits to the Nation, Province or Local Level Governments, or the community being impacted without utilising the principles of cost benefit analysis. Second and further, from a corporate social responsibility perspective, PanAust should be meeting at least the minimum requirements of their home country, where cost benefit analysis has become standard practice.

PNG and cost benefit analysis

The objects (Part 2, section 4) of the *Environment Act 2000* include the following:

“(a) to promote the wise management of Papua New Guinea natural resources for the collective benefit of the whole nation and ensure renewable resources are replenished for future generations”; and

“(d) to ensure that proper weight is given to both long-term and short-term social, economic, environmental and equity considerations in deciding all

matters relating to environmental management, protection, restoration and enhancement”.

In my expert opinion an appropriate way to meet these objectives in the context of preparing an EIS is to conduct a cost benefit analysis. The “wise” management of natural resources implies that the principle of efficiency underlying cost benefit analysis should be guiding decisions. Providing proper weight to incommensurate social, economic and environmental considerations also implies the need for a cost benefit analysis where different values can be traded off with one another because they are monetised and made commensurate.

The Operational Manual (DEC 2004a: p. 98) governing the preparation of the Environmental Impact Statement under section 53(2) of the *Environment Act 2000*, and the Guideline for Environmental Impact Statements (DEC 2004b: p. 2) both refer to the following:

“detail the economic benefits to the Nation, Province, Local Level Governments and to the local community being impacted”.

As described above, there is no way to assess the economic benefits to the Nation, Province or Local Level Governments, or the community being impacted without utilising the principles of cost benefit analysis.

Corporate Social Responsibility

Principles of corporate social responsibility (CSR) should dictate that the foreign company follow the requirements of their home country when those requirements are stricter than the host country. CSR is a contested concept but an early definition outlined by Bowen (1953, p. 6) is the following:

“It refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society.”

This again suggests that cost benefit analysis should be used to assess mining projects because it is the only way to determine if actions are desirable in terms of the objectives and values of society.

Another early definition by Davis (1973, p. 313), cited in the seminal article on the development of the concept of CSR by Carrol (1999), suggests the following:

“It means that social responsibility begins where the law ends. A firm is not being socially responsible if it merely complies with the minimum requirements of the law, because this is what any good citizen would do.”

Thus, CSR refers to a situation where a company goes beyond the law and does more than the minimum required. PanAust highlights its 14 Sustainability Principles in the EIS (Coffey 2018: Executive Summary, p. 59) and an overriding statement in its sustainability policy (PanAust 2018) is that “as a minimum, we will meet applicable legal requirements in our host countries”. This statement is in contrast to the definitions of CSR discussed above. Under those principles, PanAust should go beyond the minimum legal requirements of the host country and instead, in my opinion, meet the minimum requirements of the home country. As mentioned, cost benefit analysis has become standard practice for new mining projects as evidenced, for example, by the State of New

South Wales' *Guidelines for the economic assessment of mining and coal seam gas proposals* (NSW Government 2015).

If companies in developed economies do not meet the strict guidelines of their home country, they risk creating pollution havens in developing countries. Thus, as a minimum requirement, PanAust needs to conduct a thorough cost benefit analysis as required under standard practice in Australia. Only then will they be able to prove that the Sepik Development Project is welfare enhancing for Papua New Guinea.

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