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MYANMAR (DRIVE)

Mandalay Pyigyitagon Water Supply Project



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Advice by the Secretariat of the NCEA

Title	Mandalay Pyigyitagon Water Supply Project (Myanmar/DRIVE)
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Date	15 March 2019
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1. Introduction

1.1 The project initiative

The Pyigyitagon township in Mandalay, Myanmar currently has 250,000 inhabitants in total. The population is mainly supplied with water for drinking purposes from privately owned tube wells (71%) and by large bottles of 'purified' water (23%). Since 2013, the Mandalay City Development Council (MCDC) supplies some 4,000 households in the North-Western part of the township. A JICA supported project will supply another 9,000 households in the Centre-North of the township. The latter two systems are based on ground water abstraction.

The MCDC is now proposing a Pyigyitagon Water Supply Project to sustainably and continuously provide potable water according to WHO and Myanmar water quality standards, and with sufficient pressure, to the people in the Pyigyitagon township. In total about 125,000 people, businesses and industries will benefit from the project. MCDC will be responsible for the operation and maintenance of the project. Ballast Nedam International Projects (BNIP) will act as the main contractor for design and construction. BNIP has contracted Royal Haskoning DHV and EMC-WMC for the preparation of an Environmental & Social Impact Assessment study for the project.

The project consists of:

- a floating raw water intake pumping station in Doke Hta Waddy River;
- a raw water transport pipeline (~200m.);
- a water treatment plant (WTP) with a capacity of 32,000m³/day;
- a raw water transmission pipeline 13.2km;
- a connection to several small villages in vicinity of the WTP;
- a clear water storage of 6,000m³;
- a booster station with a capacity of 2,540m³/hour;
- a distribution network of 287km divided in 28 district metered areas;
- 20,000 service connections.

The following Dutch funding institutes are interested in funding this project: RVO, FMO and the ING. The RVO will base its decision to finance the project in part on the ESIA. To ensure that this ESIA is of sufficient quality to make this decision, the RVO requested the Netherlands Commission for Environmental Assessment (NCEA) to review the ESIA report for this project. The ESIA report (version 20 December 2018) was received by the NCEA on the 11th of January 2019. In this advisory report the NCEA presents its findings on the quality and completeness of the ESIA. Comments by RVO on the draft of this advisory report were received 4 March 2019.

According to the Myanmar EIA¹ regulation, neither an EIA nor an Initial Environmental Examination is required. Nevertheless, the RVO decided that an ESIA needed to be conducted. The MCDC has informed the Myanmar authority responsible for EIA (Department of Environmental Conservation-ECD) that an ESIA will be undertaken. The NCEA has not been informed whether the Myanmar EIA procedure will be followed for this ESIA.

¹ The NCEA generally uses the term ESIA, to emphasise that social impacts are included in this process. The Myanmar regulations refers to EIA. Note that these regulations do require that social impacts are addressed.

1.2 Approach taken by the NCEA

This advice was prepared by a working group of experts acting on behalf of the NCEA². The group comprises expertise in the following disciplines: (eco)hydrology, water quality and drinking water supply, and social issues.

The NCEA has reviewed the following version of the ESIA report:

- Environmental and Social Impact Assessment Report – 20 December 2019.

In addition, the NCEA has reviewed the following supplementary information to better understand the information provided in the ESIA report:

- WASH needs assessment in Pyigyitagon, in preparation for DRIVE proposal Pyigyitagon Water Supply Project – Draft report, December 2018;
- Hydrodynamic and morphodynamic analysis for intake report, 25 October 2018;
- Information on financial sustainability (pages 57–60);
- RHDHV Intake form financial and economic analysis, 14 November 2018.

For the review of the ESIA report the NCEA has made use of the following reference framework:

- The IFC Performance standards, as these serve as an important benchmark for RVO decision making.

Reading guide

In chapter 2 the main findings of the working group are presented and explained. In chapter 3 the findings are outlined in detail. Each relevant IFC performance standard is addressed in that chapter.

² The NCEA is an independent statutory body of experts based in the Netherlands. It has provided independent advice on EIA in the Netherlands since 1985 and abroad since 1993.

2. Main findings

This Environmental and Social Impact Assessment (hereafter referred to as 'the ESIA') contains several major shortcomings. The NCEA concludes that the ESIA does not yet provide sufficient information on the environmental and social risks of the project for informed decision making by RVO. In this chapter the NCEA sets out key areas where the ESIA needs to be improved to provide a sound basis for decision making. Detailed findings in relation to the IFC Performance Standards are described in chapter 3 of this advice.

The NCEA recommends that additional assessment work is undertaken and that the ESIA is supplemented to address the following shortcomings:

- Health effects due to absence of wastewater treatment;
- Sustainable water supply system;
- Compensation of farmers;
- Access to water by non-registered settlers.

2.1 Health effects due to absence of waste water treatment

The NCEA is of the opinion that it is questionable whether the overall health situation of the population will improve in relation to water borne diseases. In the ESIA report it is mentioned that the increase in available drinking water will result in an increase in the amount of wastewater produced as well. This poses a serious risk for public health, exacerbated by the fact that 30% of the supply area is regularly flooded. This should also be seen in the light of the fact that only a small percentage of the households have access to septic tanks. The MCDC has not yet planned to construct a sewer / drainage system and additional wastewater treatment capacity. Even if it is expected, that the waste water treatment capacity is increased in the future, there is likely to be a significant period within which pollution and associated health risks are not mitigated. This, of course, also holds true for the expected increase in (new) industrial activities that are intended to be supplied by the new water supply system. With an increase in production, and thus water consumption, and without adequate collection and treatment, environmental pollution and associated health effects are a risk.

Recommendation:

The NCEA is of the opinion that the following design alternative needs to be elaborated in the ESIA: As long as connection to a centralised sewer system is not possible it is recommended to consider phasing of the connections to individual houses. Instead of house connections, yard connections should be considered for the households that do not have access (and connection) to septic tanks (including infiltration wells). In the case of yard connections, less water is used by the consumers (since showers, washing machines and WCs are not connected) and thus flooding by wastewater is minimised, reducing health risks. When new investments (by the household and / or MCDC are done in the sanitary system (sewer or septic tanks), the connection can then be extended to inside the houses. Allocation of costs and responsibilities needs to be made clear as well.

2.2 Sustainable water supply system

In order for MCDC to be able to undertake the mitigation and management measures identified in the ESIA, it will need structural access to financial means. Risks to the sustainable operation and management of the water supply system, imply pressure on the capacity of the MCDC to manage the associated social and environmental impacts. The NCEA notes that the following two factors might affect sustainable operation and management of the water supply system: (i) adoption of the project by local people and industries and (ii) the costs of drinking water.

2.2.1 Adoption of the project

The project is based on the assumption that (almost) all inhabitants and industries will, in the near future, adopt the new system. In addition, it is assumed that people will use 95–135 litres per person per day from the newly installed system. However, from the interviews (mentioned in the WASH report) it can be concluded that most people are happy with the current system and that the incidences of health-related problems are low. In addition, the individual investments in tube-wells are already made and the actual costs for water supply are thus relatively low. Consequently, it is questionable whether the inhabitants will adopt the new system at its full capacity (although some phasing out of tube-well use is anticipated).

In addition, an outcome of the WASH report was that most interviewed people did not know who the new service provider would be (i.e. MCDC). Since trust in the service provider (in terms of reliability of the system and quality of the served water) is one of the key issues for sustainable water supply, this will likely negatively affect the probability of adoption of the new system. Questioning the likelihood of adoption of the project is also valid for the industries that are expected to be supplied by the new water supply system.

Recommendation:

To stimulate the adoption of the new project, consider creative, locally acceptable measures. This can e.g. be done by (initially) keeping the prices low, but also by introducing taxes on the use of groundwater, for example.

Develop, parallel to the implementation of the water supply system, an extensive awareness campaign where the future provider (i.e. MCDC) can gain the trust of the households and where the possible positive and negative impacts of being supplied by drinking water through a household connection are highlighted. This can then lead to better adoption of the new system and acceleration of future expansion of both the drinking water and sewer system.

2.2.2 Costs for drinking water

It is stated that the price (per m³) for drinking water for the inhabitants will decrease as a result of the project. An extensive investigation has been done into the willingness to pay for the new water supply system. It was concluded that the actual tariffs (200 MMK/m³ = € 0.13/m³) for drinking water are within this scope. However, these tariffs are far below the (international) tariffs (between € 0.74 and € 1.5/m³) that are paid for water and that are needed for e.g. MCDC to collect sufficient financial resources to be able to recover costs of the water supply system for long term operation and maintenance (including pipe replacement and leakage prevention) and to maintain the (promised) low non-revenue water

on the long run. So, it might be necessary to increase the current water prices for the consumers. Especially when they will consume more water per day per person than they do now. However, most likely, MCDC will subsidise the provision of drinking water, also in the future, but that needs to be justified in the ESIA report as this is an important risk factor for long term operation and maintenance of (and re-investment in) the water supply system.

Recommendation

Provide clarity about the total annual costs of the water supply system and in-come/cost-recovery for MCDC through provision of drinking water to the clients. It is also recommended to establish an agreement with MCDC about the (future) water tariffs (and subsidies) for obtaining a long-term sustainability of the water supply system.

2.3 Compensation of farmers

The ESIA indicates a maximum of 30 farmers that will be affected and that need to be compensated, mainly for loss of crops for one cropping season. The land of these farmers is used to lay the water pipes under the farm land. The ESIA report does not provide a land use map/plan showing the affected properties, populations and livelihoods.

Recommendation:

Include in the ESIA a full breakdown of the 30 farmers affected, how compensation will be calculated and by whom, and how compensation will be paid, plus an estimate of the total cost. Non-registered businesses and occupants must also be considered for compensation for temporary or permanent disruption. The Compensation Framework in Appendix A5 is inadequate and needs to be completed. The ESIA lacks information regarding compensation rates: How are they established? By whom? How does the grievance mechanism to resolve disputes function and at whose cost? These topics should be addressed in the ESIA process and should have been shared with the affected farmers prior to ESIA report completion.

2.4 Access to water by non-registered settlers

ESIA states that the objective (4.1.2) is to provide “domestic and non-domestic water demand in the project area”. Furthermore, the project justification (4.1.3) is founded on concern for the 'informal' means of accessing water currently employed by the community and seeks to provide a solution. The NCEA notes that the ESIA report does not provide adequate information on the access to the drinking water project by non-registered settlers. The ESIA needs to describe whether there are people who are not eligible for a connection (most likely the non-registered land users or settlers) and who may not be able to afford to buy the water.

Recommendation:

Access to water for non-registered people needs to be addressed in the ESIA. For instance, monasteries could be an access point for those who cannot afford to buy it elsewhere.

3. Detailed findings

3.1 IFC Performance Standards³

The NCEA has assessed the ESIA for the project with regards to the IFC Performance Standards and concludes that Performance Standards 1– 6 and 8 are relevant for this project. PS 7 does not seem to apply.

The NCEA has reviewed to what extent the relevant IFC–PSs are adequately addressed in the EISA. The review resulted in a list of shortcomings that are presented in the table below. The NCEA recommends remedying these shortcomings in the next version of the ESIA report.

The shortcomings mentioned under main findings in the previous chapter will not be repeated in the following chapter.

³ For a full description and explanation of the IFC Performance Standards: www.ifc.org

³ Each Performance Standard that is addressed and of which the objectives are stated, is derived from: IFC Performance Standards on Environmental and Social Sustainability, IFC World bank Group, January 2012

Performance Standards: objectives	Review findings in the ESIA Report ref IFC PS
PS-1: Social and Environmental Assessment and Management Systems	
<p>Objectives:</p> <ul style="list-style-type: none"> • To identify and evaluate environmental and social risks and impacts of the project. • To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimise and where residual impacts remain, compensate/offset for risks and impacts to workers, Affected Communities, and the environment. • To promote improved environmental and social performance of clients through the effective use of management systems. • To ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately. • To promote and provide means for adequate engagement with Affected Communities. • Throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated. 	<ul style="list-style-type: none"> • The ESIA does not describe the governance and management structure of the project, nor a comprehensive needs assessment of the key stakeholders to inform their capacity to deliver and what support may be needed to extend their existing capacity to in order to comply with IFC PS with regard to organisational capacity and competence' ref PS1 Clause 17. • There are some questions about the design of the distribution system. A branched system is chosen to distribute to and inside the district metered areas. No observations are made on the (social) consequences of such a system, in terms of redundancy, in relation to a more looped system. A looped system provides more security to deliver water in case of serious leakage. The choice for a branched system needs to be justified and a study on redundancy and impact of the (branched) distribution system and continuity in supply is recommended, as both systems have advantages and disadvantaged. The looped system for example may cause more standing water but with chlorine dosing this may is not considered to be a problem. • The ESIA lacks a map showing current land use. • More specific information on affected and / or non-titled informally settled people / households have not been provided. Compensation for non-titled populations / informally settled people has not been considered either in terms of housing or livelihoods. • ESIA states that there is no provision for water supply to the informal settlements / populations / livelihoods which is not consistent with this PS1 requiring an ESIA to consider all affected communities. • The ESMMP does not provide sufficient information with regard to those assigned responsibility, nor how the project will enhance their existing capacity to deliver effectively. Indicators are weak and the ESMMP does not provide information on costs which are often not given <i>e.g.</i>: 'normal practice' or 'no additional cost' when there is inevitably going to be a cost to someone or somebody. • Stakeholder engagement has been inadequate. Neither ESIA nor ESMMP seem to have been disclosed. All interactions reported in the ESIA took place during preparation of the ESIA and did not provide specific detail on the project to inform the public adequately. Many concerns raised in the meetings were not addressed, rather listed. <p>In general, populations potentially impacted by this project have not been clearly identified, thus:</p> <ol style="list-style-type: none"> i) there is no reference to possible need for borrowed sites during construction for access roads / need for compensation for land / nuisance / dust and noise emissions? ii) stakeholder engagement / disclosure of precise project information, ESIA and ESMMP has not taken place; iii) grievance mechanisms relevant to specific concerns are not described adequately, nor are the affected populations involved in their design or delivery.

	<p>Sub-contractors will be engaged, and supply chains emerge, but the ESIA does not describe the procedures / regulations to which they must subscribe as a condition of their appointment.</p> <p>i) Neither the ESIA nor the ESMMP was shared with PAPs and stakeholders;</p> <p>ii) Public consultation was inadequate, lacking discussion with all PAPs and stakeholders, description of project to PAPs in all areas, expression of public concerns, discussion with the PAPs of mitigation / compensation / opportunities;</p> <p>iii) The ESIA lacks description of awareness and capacity building requirements as well as proposing designs for its delivery potentially to project-employed labour, affected communities, and any other stakeholders, including those who may be engaged in delivering training themselves, for instance on public health issues.</p> <p>iv) ESIA lacks detail of Emergency Preparedness and Response Plan, Waste Management Plan, Employment policies including Gender and Child Labour, Health and Safety Plan for employees and PAPs.</p>
PS-2: Labour and Working Conditions	
<p>Objectives:</p> <ul style="list-style-type: none"> To promote the fair treatment, non-discrimination and equal opportunity of workers. To establish, maintain, and improve the worker-management relationship. To promote compliance with national employment and labour laws. To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain. To promote safe and healthy working conditions, and the health of workers. To avoid the use of forced labour. 	<ul style="list-style-type: none"> The ESIA does not coherently set out, or refer to, the policies which are basic to HR capacity: employment conditions, training opportunities, scale of health and safety procedures / medical support, gender and child labour policies, occupational health and safety, non-discrimination and equal opportunities, which will be applicable to client and sub-contractors. The ESIA does not consider adequately the requirements of sub-contractors and supply chains to adopt procedures and policies in line with this PS, in particular the procedures necessary to manage the risks identified; nor the methodology for managing and monitoring their performance. What workers' organisations may be concerned with issues relating to the project's labour force? and how will this relationship be managed between labour / organisation and the client / organisation. Grievance mechanisms for workers are referred within the ESIA but not described in terms of structure, composition, accessibility and procedures.
PS-3: Resource efficiency	
<p>Objectives 3:</p> <ul style="list-style-type: none"> To avoid or minimise adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. To promote more sustainable use of resources, including energy and water. To reduce project-related GHG emissions. 	<ul style="list-style-type: none"> The sludge treatment is adequately described. However, it is not clear if arrangement is made already for the re-use of the sludge in the brick industry. It is recommended to make an agreement with the local brick companies for the in-corporation of the iron sludge in the production process.
PS-4: Community Health, Safety and Security	
Objectives:	

<ul style="list-style-type: none"> • To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances. • To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner, that avoids or minimises risks to the Affected Communities. 	<ul style="list-style-type: none"> • The ESIA lacks reference to Public Health offices, as likely key stakeholders who would assist in the process of identifying as well as assessing project-related risks and costing mitigation measures. • ESIA refers to likelihood of water contamination and polluted air emissions during construction, and issues of waste water management but offers no explanation of how these will be mitigated, only stating that procedures must be instituted, allocating responsibility to the Project Proponent, but not considering the likely role of other bodies <i>e.g.: Public Health</i> or any capacity needs assessment / suggested mitigation where falling short. • The ESIA refers to the risk of increased HIV from labour influx but is not clear on who ultimately is responsible to deliver or finance the medical support or community awareness training. The ESIA does not provide any information on management of other communicable diseases which are likely to be exacerbated with increased water waste and lack of attendant management plan. • The ESIA is silent on security measures to be employed by the project. Which should consider such factors as: indicating the level of security (armed or other?); whether government or privately sourced; where personnel may be housed; what associated risks may emerge <i>eg: presence in host community, HIV</i> and how these may be mitigated.
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PS-5: Land Acquisition and Involuntary Resettlement

<p>Objectives:</p> <ul style="list-style-type: none"> • To avoid and, when avoidance is not possible, minimise displacement by exploring alternative project designs. • To avoid forced eviction. • To anticipate and avoid or, where avoidance is not possible, minimise adverse social and economic impacts from land acquisition or restrictions on land use by (1) providing compensation for loss of assets at replacement cost and (2) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected. • To improve, or restore, the livelihoods and standards of living of displaced persons. • To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites. 	<ul style="list-style-type: none"> • The ESIA states that there is minimal need for land acquisition either permanently or temporarily, yet the ESIA has no Land Use Plan nor does it present a clearly defined assessment of the PAPs affected. • The Report indicates that a maximum of 30 farmers may need to be compensated by the project. However, the ESIA does not provide information on the compensation rates that will be used to value any land, structures, crops or livelihoods impacted by the project. Which rates are adopted? Established and validated by whom? In line with what legislation or regulation? The ESIA is expected to describe the grievance mechanism for PAPs who are so affected; how it is created; comprising whom; how it is accessed; how disputes are addressed and managed; and how it is financed.
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PS 6 – Biodiversity Conservation & Sustainable Management of Living Natural Resources

<p>Objectives:</p> <ul style="list-style-type: none"> • To protect and conserve biodiversity. 	<ul style="list-style-type: none"> • Myanmar’s protected area system consists of 42 areas as stated in the ESIA, although it is known that a major part of ecologically valuable land is currently not / insufficiently protected. Therefore, it would be
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<ul style="list-style-type: none"> • To maintain the benefits from ecosystem services. • To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities. 	<p>appropriate for Section 5.3 of the ESIA report to not only refer to the absence of legally protected areas when addressing the point of ecological impact. The World Database of Key Biodiversity Areas (KBA–Bird Life International / IUCN) contains 132 KBAs in Myanmar as indicated by various experts. One of these KBAs (Peleik Inn) is located directly downstream of the planned intake (see figure below, KBA indicated in orange).</p> <ul style="list-style-type: none"> • Although the expected impact of the project on water availability to this KBA is very low, it is recommended that the ESIA report acknowledges the existence of this area, as well as the importance of the concept of environmental flow in general (also keeping in mind any planned expansions in the future) see the map below. <p style="text-align: center;">Water Intake for the project at the Mytinge river</p> 
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<p>PS 7: Indigenous Peoples (IPs)</p>	
<p>Objectives:</p> <ul style="list-style-type: none"> • To address the need to avoid or minimise impacts on indigenous peoples. • To ensure sustainable and culturally appropriate development of benefits and opportunities. • To ensure Free, Prior and Informed Consent (FPIC) of all peoples. 	<ul style="list-style-type: none"> • ESIA should make a clear statement as to whether there are IPs in the project area.

<p>PS 8: Cultural Heritage</p>	
<p>Objectives:</p> <ul style="list-style-type: none"> • To protect cultural heritage from the adverse impacts of project activities and support its preservation. • To promote the equitable sharing of benefits from the use of cultural heritage. 	<ul style="list-style-type: none"> • ESIA Table 6.2 refers to the need for a Chance Find Procedure but does not include a policy nor refers to this procedure in the ESMMP. • p87 Operation of the Intake states that no specific cultural or religious values may be affected, but the ESIA makes no further reference to any other part of the project-affected area. A clear statement in this regard is required.