Environmental Screening Note for the Proposed Hospital Development on Tristan da Cunha

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Report Summary

This environmental screening note documents the findings of an environmental screening mission undertaken in September 2013 on behalf of DFID. The field work has been undertaken by an environmental specialist already engaged by the TDC administration on an independent mission.

This project deals with the construction of a new hospital to enable delivery of good quality health care and to potentially improve quality and range of health care provided.

The intervention will take place on a vacant plot under customary land tenure, located within the settlement of Edinburgh of the Seven Seas. The potential risks of the intervention on environment and climate change are mainly limited to:

- changes in the land use;
- during the construction phase: generation of noise & vibration nuisance, health & safety hazards to workforce, import of machineries (which can become waste) & generation of a small amount of construction waste, and disturbance to 3 houses located close to the site;
- during operation: potentially increased generation of health care waste.

The building design should, if possible, include principles of low-carbon design, as well as taking into account the peculiarities of the island (strong winds, extreme weather events, sudden changes in temperature).

A comprehensive site-specific Environmental Management Plan (EMP) should be developed and adopted in order to mitigate the impacts identified. As a precautionary measure, it is also recommended that, as a precursor of the EMP, a detailed transect is conducted. Beyond this, no further more detailed assessment is required.

SECTION 1

Introduction

This environmental screening note documents the findings of an environmental screening mission undertaken in September 2013 on behalf of DFID. The field work has been undertaken by an environmental specialist already engaged by the TDC administration on an independent mission. This environmental screening comprised visual inspections of the site on dates between the 13th September and 4th October 2013 and a limited number of interviews with key on island stakeholders. This screening has been undertaken in line with the provisions of the DFID 'How to note for climate and environment assessment'.

The structure of this document is as follows:

- Section 1 includes a description of the existing conditions of the project area and an introduction of the intervention;
- Section 2 describes the key opportunities and potential risks/ adverse impacts of the intervention. It also includes a short paragraph reporting recommendations that should be incorporated in the project preparation.
- Annex 1 includes an environmental screening checklist, which was developed based on the 'Guidance on EIA – Screening' (EU, 2001), but opportunely modified to fit the proposed intervention.
- Annex 2 includes a photographic report.
- Annex 3 reports a concise summary of the interviews conducted with key stakeholders.

Existing Conditions

Current Use of the Site

The site, which was selected for the construction of the proposed new hospital development, is a vacant plot under customary land tenure, located within the premises of the settlement of Edinburgh and the Seven Seas. The only private structure built on it is a chicken coop (see Figure 3, Annex 2). The plot is also occasionally used as a grazing field by cattle. As showed in Figure 2 (Annex 2), the number of cattle occasionally grazing on this site is limited to 3 or 4. On the island, every family owns cattle (one cow per family), which freely wander around the village during the day, whereas during the night they are moved to fenced areas.

An informal golf course is located close to the site (see Figures 4 and 5, Annex 2), which is also used for grazing by cattle and poultry. A small number of houses are also located in proximity of the site, including a few private houses and the accommodation used by the island doctor (see Figure 6, Annex 2).

Management of Health care Waste

Health care waste is separated at the hospital into sharps and general waste. Sharps (including needles) are collected into a dedicated box, whereas general waste is collected into waste bins. Liquid waste is disposed into a sink, which is connected to a septic tank, where also domestic wastewater is convened.

Sharps are then transferred to the island dumping site by car and burnt in a small-scale incinerator (see Figure 7, Annex 2). Ashes and residual waste are collected from the

incinerator (usually one day after the incineration has taken place) and buried at a dedicated area within the dumping site. Through a site survey on Tuesday 1st October, it was possible to observe that the temperatures reached within the incinerator lead to an incomplete combustion and residual waste is visible when ashes are buried (see Figure 9, Annex 2). Expired medicines and infectious waste (e.g. infected bandages) are sometimes incinerated along with sharps.

Project Description

Camogli hospital, Tristan da Cunha's only health care facility, is in a state of disrepair, affecting the quality of health care available on the island. The hospital was constructed over 40 years ago and it was severely damaged during a hurricane in 2001. The hospital has been patched up periodically but much of the facility is no longer suitable due to insufficient space, deteriorating buildings and rooms which have led to inadequate health and safety standards. This is detrimental to the delivery of good quality health care and clinical working practices raising concerns about the impact on the health of the population.

This project deals with the construction of a new hospital on a site adjacent to the current hospital building to enable delivery of good quality health care. The project will provide new hospital facilities enabling the delivery of improved health provision on the island. The improved facilities are also expected to make the island more attractive to potential doctors with ample space to accommodate visiting specialists thereby potentially further improving quality and range of health care provided. No major reduction in referral numbers is anticipated in the longer term considering the aging population and high prevalence of chronic non-communicable diseases on island.

SECTION 2

Environmental Screening

Key Potentially Beneficial Impacts/Opportunities

Key potentially beneficial impacts associated with project implementation are all related to the post-construction (operational) phase and are primarily related to improved social outcomes. The main potentially beneficial impacts are as follows:

- Having a hospital building which complies with international standards will potentially lead to an increase in the number of patients treated and the range of interventions feasible on the island (point 9, Annex 2). In particular, women will be able to deliver their children and receive neonatal care on island; currently women have to endure a 5 to 7 days trip by ship when heavily pregnant;
- The improved facilities are also expected to make the island more attractive to potential doctors with ample space to accommodate visiting specialists thereby potentially further improving quality and range of health care provided;
- The new hospital will provide an improved emergency response capability.

From an environment and climate perspective:

- **The potential for low carbon design** of the new proposed building (e.g. by including renewable energies) should be evaluated. In discussions with the Administrator of the island, there are plans for a number of pilot projects aimed at verifying the feasibility of electricity generation through solar panels and wind turbines. If the timing of these projects fits, they could feed into the design of the new proposed hospital building.

Note that any potential benefit enhancement measures, particularly those relating to low carbon design are dependent on an effective maintenance/asset management regime.

Key Potential Risks/Adverse Impacts

The potential risks and adverse impacts are summarised here and include reference to Annex 1, the 'Environmental Screening Checklist' used to frame this assessment. Potential impacts relate to the change of land use away from informal grazing and to a number of potential construction phase impacts. In general these are of low significance and low potential magnitude.

Potential impacts are as follows:

Loss of Amenity arising from Change of Land Use

1. The intervention will lead to a change in land use (points 1 and 20, Annex 1). As described, the site is currently used as a grazing field by cattle. Numbers are few, limited to 3 or 4 cows, and this was not a point of concern in the interviews conducted. This is very unlikely to represent a significant land use conflict. It is anticipated that cattle will move slightly north towards the coast or will find other grazing fields, which are still relatively abundant on the island.
2. A privately owned chicken coop is also located on the site selected. It will have to be moved (points 1 and 20, Annex 1) in order to build the new proposed hospital.

Its owner, Stanley Swain, was interviewed and he did not express any concern so long as he is provided with a full-like replacement somewhere else on the island. This will have to be priced for into the project.

3. An informal golf course is located in close proximity of the site (point 21, Annex 2). This recreational use is unlikely to be affected by the hospital development. Golf will still be possible after the construction. Moreover, the golf course is not used on a regular basis and cattle and poultry are often found grazing there.

Construction Phase

4. **Construction Waste:** The project will generate small amounts of construction waste. It is anticipated that some re-use of material will be possible and this can be managed and co-ordinated by the contractor in conjunction with the local administration (point 4, Annex 1). A site waste management plan could be incorporated into the project documents to guide such a process.
5. **Re-use of Plant and Materials:** Some small scale plant may be required and could be imported for the works. Given the economies associated with transporting plant and material, it is advised that equipment is sourced with a view to long term use and ownership by the administration. All equipment and material deemed surplus to requirements should be removed at contractor cost to minimise potential disposal problems on island.
6. Some minor **noise and vibration** nuisance arising from the operation of plant and equipment is likely, but will be very localised (point 6, Annex 1), potentially affecting 2 private houses and the doctor's accommodation (points 21 and 23, Annex 2). Simple mitigation measures that restrict working hours and encourage fit and proper use of well-maintained equipment should be included within a site specific EMP.
7. **Workforce health and safety hazards** (point 8, Annex 1) arising from participating in an inherently dangerous occupation will be ever present. These can, however, be effectively managed though the adoption of best practice with respect to protective clothing and equipment and observing site safety guidelines.
8. **Soil erosion** arising from vegetation clearance and hard standing: the site selected is located close to the coast and there were some limited signs of erosional processes visible during the site survey (point 14, Annex 2). It is anticipated that this can be effectively managed through good drainage design and good site management.

Operational Phase

During the post construction (operational) phase two potential impact are identified:

9. **Waste management:** health care waste will be produced (point 4, Annex 1) and the quantity is likely to increase as the range of operations, which can be conducted on island, broadens. The current management of health care waste is poor and this has the potential to pollute air, soil and water resources if it is not addressed opportunely.

10. **Loss of visual amenity and change in landscape value** is likely to be limited. The site is within the urban/peri-urban envelope of the village. Aesthetically the new building will be visible to the population. However, it will not directly impact on any area of architectural or natural landscape value. The buildings in the village do not follow any precise architectonic standard and the proposed one-storey building is likely to fit into the landscape.

In addition, the building design will have to take into account some of the peculiarities of the island. High-speed winds, extreme weather events (i.e. hurricanes) and sudden changes in temperature will have to be considered when choosing materials and construction methods (point 24, Annex 2).

Recommendations

a. Construction phase activities should be mitigated through the development of a site specific EMP. The contract documents should also link the provisions of the EMP to the technical specification and bill of quantities.
b. The EMP should include a site waste management plan that sets out a protocol maximising the re-use of existing material in design and defining re-use and disposal options more broadly.
c. Contract documents should require the adoption of safe working practices during all construction activities and full compliance with international standards for health and safety. They should also require the provision of workers with safety gears, including protective helmets, safety boots, ear mufflers, dust masks, etc, appropriate to the activities being undertaken by the workers.
d. The potential for low carbon design of the new proposed building (e.g. by including renewable energies) should be evaluated. Pilot projects aimed at verifying the feasibility of electricity generation through solar panels and wind turbines are planned on the island. The results of these projects should feed into the design of the new proposed hospital building.
e. An improved system for managing health care waste should be examined alongside side the physical works.
f. The project needs to include the costs associated with providing a full-like replacement chicken coop.
g. During visual site survey and consultations on island, no significant impacts on bio-diversity were identified. As a precautionary measure, it is, however, recommended that, as a precursor to the development of the EMP, a detailed transect is conducted by the island Conservation Officer, Mr Trevor Glass. Beyond this, no further more detailed assessment is considered necessary.

Conclusions

Although a number of potential negative impacts on climate and environment have been identified within construction and operational phases (included impacts on existing land use), these are judged to be of low significance and magnitude and can all can be mitigated satisfactorily through the development and adoption of a site specific EMP, so long as the measures proposed are fully adopted and/or enforced.

Notwithstanding a final review of the site's flora, no further assessment is recommended.

ANNEX 1

Environmental Screening Checklist

Question	Yes/No/?. Briefly describe	Is this likely to result in a significant effect? Yes/No/? – Why?
1. Will construction, operation or decommissioning of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in waterbodies, etc)?	Yes, the project will involve construction on a site currently used as a grazing field for cattle and where a chicken coop is also located. The site is also located close to the field, which is currently used as a golf course.	Yes. Change in land use, but the relevance if this effect is limited due to the relative abundance of grazing fields on the island.
2. Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?	No, except for small amounts of water and energy. All construction materials will be imported.	No
3. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?	No, during the construction of the hospital. Only small amounts of construction & demolition waste will be produced. During the operation of the hospital, health care waste will be produced (see point 4).	No
4. Will the Project produce solid wastes during construction or operation or decommissioning?	Yes. Apart from small amounts of construction waste that will be produced during construction, the main category of solid waste that will be produced during the operation of the hospital will be health care waste. During construction, it is important to note that machineries, as well as materials will be imported. All the machineries should be take back from the contractor if they do not represent an added value for the island.	Yes. Health care waste will be produced during the operation of the new hospital. Machineries will be also taken to the island.
5. Will the Project release	No, apart from small	No.

Question	Yes/No/?. Briefly describe	Is this likely to result in a significant effect? Yes/No/? – Why?
pollutants or any hazardous, toxic or noxious substances to air?	amounts of dust released during the construction phase.	
6. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?	Yes, noise and vibration nuisance are likely to be caused during the construction phase.	No. The building is relatively small and the disturbance to the local population will be limited, also through the adoption of a comprehensive EMP.
7. Will the Project lead to risks of contamination of land or water from releases of pollutants on to the ground or into surface waters, groundwater, coastal wasters or the sea?	No, the risks of contamination will be limited during construction. During operation a proper management of health care waste need to be put in place.	No.
8. Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?	Yes, health and safety hazards to the workforce can potentially arise from participating in an inherently dangerous occupation.	No, health and safety hazards will be limited by the adoption of international best practices by the contractor.
9. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?	Some potentially positive impacts include: - Women will be able to deliver on the island and not forced to go to Cape Town - There will be an increase in number and kind of interventions possible on the island	Yes, the aim of the project is to improve health care on the island.
10. Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality?	No	No
11. Are there any areas on or around the location which are protected under international or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the project?	No. The site for the new hospital is located within the village. Most of lowland vegetation on Tristan island has been cleared by livestock grazing. Protected areas are located mainly on other islands of the archipelago, including Gough Island	No.

Question	Yes/No/?. Briefly describe	Is this likely to result in a significant effect? Yes/No/? – Why?
	and Inaccessible Island, which have been listed as Wildlife Reserves.	
12. Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other waterbodies, the coastal zone, mountains, forests or woodlands, which could be affected by the project?	No. See comment above	No.
13. Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, overwintering, migration, which could be affected by the project?	No.	No.
14. Are there any inland, coastal, marine or underground waters on or around the location which could be affected by the project?	Yes. The site is located close to the coast and signs of surface water runoff were visible.	No. This effect will be mitigated through the enforcement of a comprehensive EMP. The final design will include drainage facilities.
15. Are there any areas or features of high landscape or scenic value on or around the location which could be affected by the project?	No. The site is located within the village.	No.
16. Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?	No. The site is located at the border of the village and it is not crossed by any relevant route.	No.
17. Are there any transport routes on or around the location which are susceptible to congestion or which cause environmental problems, which could be affected by the project?	No. The number of vehicles on the island is limited. A very limited number of trucks will be used to move construction materials.	No.
18. Is the project in a location where it is likely to be highly visible to many people?	Yes. The building will be located inside the village and therefore visible to the whole population. The design will have to fit in	No.

Question	Yes/No/?. Briefly describe	Is this likely to result in a significant effect? Yes/No/? – Why?
	with the village scape, which however does not follow any precise standard.	
19. Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?	No. Buildings on the island do not follow a precise standard. The only building potentially of historical interest is Tristan cottage, which is located away from the site selected, on the opposite side of the village.	No.
20. Is the project located in a previously undeveloped area where there will be loss of greenfield land?	Yes. The project will lead to loss of greenfield land, currently used by livestock for grazing.	Yes.
21. Are there existing land uses on or around the location e.g. homes, gardens, other private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining or quarrying which could be affected by the project?	Yes. Few houses are located close to the project site and they are likely to be affected by noise and dust during construction. The field is currently used as an informal golf course, but this is unlikely to represent a significant land conflict.	No. The impacts are limited due to the size of the building and they will be minimized by adopting a comprehensive EMP.
22. Are there any plans for future land uses on or around the location which could be affected by the project?	No. No land use plans are in place.	No
23. Are there any areas on or around the location which are densely populated or built-up, which could be affected by the project?	Yes. Few houses are located close to the project site and they are likely to be affected by noise and dust during construction.	No. The impacts are limited due to the size of the building and they will be minimized by adopting a comprehensive EMP.
24. Is the project located in an area subject to frequent climatic shocks / variability (floods/droughts/temperature)?	Yes. The project is located in an area characterised by high-speed winds and extreme events, such as hurricanes, as well as sudden changes in temperature. An active volcano is also present.	Yes. Techniques and materials used should take into account the exposure to high-speed winds.

ANNEX 2

Annotated Photographic Report

	**Figure 1 -** Location of the new hospital building.
	**Figure 2 –** Land used as grazing field by livestock
	**Figure 3 –** Chicken coop that will have to be moved if the construction is taking place

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	**Figure 4 –** Livestock grazing at the site identified for the new hospital and golf course located close to it (see, flag in the blue circle)
	**Figure 5 –** Livestock grazing at the site identified for the new hospital and golf course located close to it (see, flag in the blue circle)
	**Figure 6 –** On the left, some houses located very close to the site selected

	**Figure 7 –** Incinerator used for burning health care waste (mainly sharps and infective waste). It is located close to the dumping site.
	**Figure 8 –** Residues of incineration of health care waste.
	**Figure 9 –** Residues of health care waste. Previously incinerated and then buried. The incinerator does not reach temperatures high enough for the combustion to be complete.

ANNEX 3

List of Stakeholders Consulted

Name	Role	Notes regarding the project
Stanley Swain	Ex-director plumbing and electricity/ Owner of chicken coop located on the site	Happy about the construction, as long as his chicken coop is rebuilt. Some concerns regarding building a new building instead than rehabilitating the existing one.
Clive Glass	Responsible for the management of health care waste	'Looking forward to have a new hospital'
Roy D'Silva	Medical doctor on Tristan da Cunha	Need for a new hospital and ideas to be included into the layout of the hospital.
Jody Squibb	Electricity Department	Some concerns regarding building a new building instead than rehabilitating the existing one.