



9 CONCLUSIONS AND RECOMMENDATIONS

The NLNG**Six** project represents the further expansion phase in the development of the LNG plant and will consist of the construction and operation of an additional (air-cooled) LNG train bringing the total number to six process trains. The new train will be integrated with existing facilities wherever practicable so that the site is operated as a co-ordinated 6-train complex.

The design of the plant has been copied as far as possible from Trains 4 and 5 (the **Plus** project), is based on Nigeria LNG's HSE Premises and is in line with best available technology. The HSE Premises ensure full compliance with NLNG's own principles and policies, Nigerian statutory requirements and standards issued by NLNG's joint venture partners, and with international standards, including those published by the World Bank and the International Finance Corporation. The HSE Premises are applicable to the design of the plant and to normal operations, including maintenance activities.

NLNG has carried out an Environmental, Social and Health (Impact) Assessment (ESHA), parallel to the project development. It was envisaged that the resulting report should be an addendum to the NLNG**Plus** report. This was possible, because the Federal Ministry consented to making use of the baseline studies that were conducted for NLNG**Plus**. Hence, the ESHA for NLNG**Six** could become a fast-track process.

The ESHA process was started as early as possible and in such a way that any implications resulting from the assessment could be included in the design and operation. The current report reflects the outcome of this impact assessment process and takes into account in an integrated manner the natural environmental, human health, social, trans-boundary and global environmental aspects. The sustainability principle "engage and work with stakeholders" entails that NLNG, during the ESHA, has consulted project-affected groups and local non-governmental organisations (NGOs) about the project's environmental and social aspects and has taken their views into account. These stakeholders will be involved in the follow-up activities on a continuing basis.

The ESHA was carried out in full compliance with legislative requirements for EIA in Nigeria and with all relevant international standards applicable to the development of this kind of activities, including process standards for environmental, social and health assessment issued by international financing organisations such as the World Bank and by NLNG 's shareholders, including Shell.

In the ESHA a structured approach has been used (a) to identify project hazards, stakeholder issues and environmental/social sensitivities, (b) to assess impacts and (c) to control hazards and effects through mitigation measures. Stakeholder consultation has been a key aspect of the ESHA process. Three milestones are characteristic for the impact assessment: (a) the Impacts Table, (b) the Mitigation Table and (c) the Environmental, Social and Health Management Plan (ESHMP). The mitigation actions adopted by NLNG are presented in the ESHMP and will be implemented through the existing Health, Safety and Environmental Management System.

9.1 Conclusions

Main conclusions from this impacts assessment are:

- The NLNG**Six** project will add to the substantial economic benefits for Nigeria from the liquefaction and export of gas in the form of generation of revenues from the sale of Nigeria's considerable under-utilised, low cost, natural gas reserves.
- The sixth LNG train will also utilise oil-associated gas, which is currently wasted by flaring in the Niger Delta. The further reduction of emissions of methane and carbon dioxide is of global environmental significance and contributes to the realisation of the national Nigerian targets of cutting out flaring.



- Employment opportunities will continue, as for the **Expansion** and **Plus** projects, in particular during the construction phase of Train six. The increased financial flows that this and the acquisition of materials will generate will have continuing benefits for the local economy.
- The hazards of the NLNG**Six** project are similar to those of the earlier projects and particularly of the **Plus** project. However, the baseline situation of Train 6 is different, as it includes also the earlier projects. There is only one Train 6-specific impact, namely the extension of the safety and sterile zones; all other impacts are extensions or add-ons to existing impacts and issues. The same applies to the ESHMP.
- Construction. The majority of construction impacts are a continuation of existing interactions due to the introduction of large numbers of workforce with original inhabitants. These impacts - uncontrolled urban developments, health implications, food demand, environmental degradation - are being managed through consultation with stakeholders affected.
- The construction and operation of the GTS-2/4 slug catcher will not result in hazards, which could lead to environmental and/or social impacts that require mitigation.
- After completion of the construction, all (temporary) lay-down and construction areas will be decommissioned, as well as the camp of the Nigerian workers. This decommissioning and possible re-use of the camp will become subject to a separate ESHA.
- Land take. The LNG site itself represents a permanent and long-term claim on land with an industrial function that cannot be used for other purposes. The construction and operation of the NLNG**Six** project facilities will, however, be within the existing fence and 'no additional land take' is needed. However, control over additional space at the eastern side of the plant is required to enforce the safety and sterile zone. Compensation for the loss of natural habitat has been realised in the past through the designation of the Finima Nature Park nearby.
- The quality of the NLNG**Six** discharges – such as emissions, effluents, noise, etc. – fully comply with the HSE Premises which were part of the project design, similar to the **Plus** project. The Project therefore fully complies with the applicable Nigerian and international, including World Bank, standards. The emissions from train 6, additional to those from trains 1-5, will not result in an unacceptable ambient air quality around the LNG plant, which is also owing to the application of dry low-NOx burners in the gas turbines of trains 4, 5 and 6. The conclusions from the noise survey and the noise modelling show that the applicable limits will not be exceeded once Train 6 comes on stream. However, any further expansion in the form of additional trains or other activities will require special focussed mitigation for the nearby villages, as more “noise-space” is hardly available.
- During the consultation process, several outstanding issues have been brought up by stakeholders. NLNG has promised to fulfil its earlier promises to representatives of the local communities by implementing all previously agreed mitigation and enhancement measures. Nigeria LNG - in consultation with their stakeholders – will continue and improve their activities regarding long-term investment in community development in terms of Sustainable Development.
- Any potential impacts on the marine environment will be addressed in the forthcoming ESHA for the Channel Deepening Project.



9.2 Recommendations

- Continue the public consultation process through regular meetings in which concerns, perceptions, observations and potential solutions are shared by all parties. All relevant NLNG departments, including External Affairs, Community Relations and Environmental Affairs should attend.
- Special attention is required for the position of the Shanty Towns on Bonny Island, as many environmental, social and health aspects related to their locations, social integration and economic perspective are currently not sustainable.
- Integrate the ESHMP resulting from the ESHA for NLNG **Six** in the existing long-term management plans of the Company under responsibility of the Sustainable Development Coordination Committee.
- Integrate the reporting of the implementation of Management Plans in the annual public reporting on Sustainable Development.
- Risk assessment and access management. The present ESHA report starts from risk contours based on a 6-train operation. An integrated risk assessment (taking neighbouring operators also into account) should be carried, so that the current risk contours and access management in the surroundings can be updated.
- Although a “Bonny Master Plan” exists - an initiative of the Joint Industry Committee (JIC) with the Bonny Kingdom - there is currently no formal “zoning plan” or “land use plan” that takes an overall vision on industrial and social developments with associated impacts. The Nigerian authorities do recognise the need for such a “strategic assessment” as a basis for master planning. However, such a tool is not available in Nigerian law, nor are the authorities capable to do such an assessment. NLNG should, in collaboration with its partners in the JIC, promote such assessment.