



## 8. REMEDIATION AFTER DECOMMISSIONING / CLOSURE/ ABANDONMENT

### 8.1 Decommissioning after the construction phase

Following completion of the construction of the NLNGSix project, any areas of temporarily used land will be cleared, cleaned if necessary and re-instated. This process will be subject to an ESHA specific for the end of the construction phase. Possible solutions for the workers' camp – which include apart from demolition also re-use as housing area - are also subject to impact assessment. This ESHA is mentioned in Chapter 5 of this report as an action item and is also listed in the Management Plan in Chapter 6.

The NLNG Community Relations group will continue to consult, liaise and inform the communities on Bonny Island and will proceed with community programmes.

### 8.2 Project closure and abandonment

Decommissioning refers to the process of dealing with the operating assets of the project after completion of the operating life cycle. This very last phase of the project is expected at least 20 years after operation start-up. Decommissioning and abandonment refers to all six LNG trains and additional facilities and buildings, and is, therefore, not limited to train six. Decommissioning procedures at this stage are generic (not facility specific).

The general process of decommissioning is as follows:

- Operating processes are systemically shut down in a safe manner.
- Liquid and solid contents and wastes are removed for treatment and disposal. For pipelines and tanks this entails flushing and cleaning to remove oils and gases.
- The fate of the emptied and cleaned structures and equipment are then decided by a feasibility study as part of an "Abandonment ESHA" to determine the best environmental and economic solution consistent with Nigerian requirements and international oil and gas industry practice.

The general order of preference of decommissioning options available for redundant structures and equipment are as follows:

- **Re-use** : By sale and/or transport to another project or company.
- **Re-cycle**: Breaking down structures and equipment for raw materials. This is expected to be the fate of the great majority of metalwork. The break-up of structures can be done on location or after transport to a breaking or salvage yard, dependent upon ease of transport and safety considerations. NLNG has already an existing scrap metal collection and export industry that could be used.
- **Disposal**: Some materials are not suitable for recycling and must be disposed to a licensed waste management facility.
- **Leave in-situ**: In some cases the best environmental and economic option may be to leave material in-situ. The most obvious case in this respect is pipelines as once emptied and cleaned empty steel pipes do not impose a significant environmental hazard, however pulling such pipes out would cause additional damage in the extraction process.

Prior to closure, NLNG will produce an environmental, social and health impact assessment (ESHA) which will describe the processes and activities needed for the closure/decommissioning and abandonment. This study will make a full assessment of potential impacts and describe methods of minimising adverse environmental effects. It is currently impossible to give precise details concerning the way in which the process will proceed because technology and modern science will have changed during the project life. There will, however, be certain principles during the de-commissioned, closure and abandoned phase which can be set.



- the decommissioned plant will be cleaned and dismantled and the site will be thoroughly cleaned
- discussions with authorities and land owners would be carried out to assess reuse of the sites
- if the site is no-longer to be used, full restoration and landscaping will be carried out. This would involve consultation with authorities and land owners and re-instatement to the original vegetation type.