

TOWARDS ASSESSING THE SOCIAL SUSTAINABILITY PERFORMANCE OF THE PETROLEUM INDUSTRY IN THE NIGER DELTA REGION OF NIGERIA

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ABSTRACT

Unresolved social issues between the local community and the petroleum industry plague the Niger Delta Region of Nigeria. These concerns are addressed by introducing a social sustainability assessment framework for the petroleum industry. Key performance indicators (KPIs) are identified, through a stakeholders' engagement process, for social performance measurement purposes. A five-year time-frame is proposed for the periodic assessment of the state of social sustainability. It is recommended that the petroleum industry make the accounting of social sustainability performance measures a priority before beginning projects, especially greenfield projects, since this can assist in resolving the volatility in the region.

OPSOMMING

Onopgeloste sosiale vraagstukke tussen plaaslike gemeenskappe en die petroleumindustrie is 'n probleem in die Nigerdeltastreek van Nigerië. 'n Raamwerk vir die assessering van sosiale volhoubaarheid word voorgestel vir die petroleumindustrie. Kritiese indikatore vir die ontwikkelde raamwerk word uitgewys deur 'n proses waarby belanghebbendes betrek word vir prestasiemetingsdoeleindes. Vir periodieke assessering in terme van die stand van sosiale volhoubaarheid word 'n vyfjaar tydramwerk voorgestel. Daar word verder aanbeveel dat die petroleumindustrie die berekening van sosiaalvolhoubare prestasiemeting 'n prioriteit maak voordat projekte begin, veral projekte in onontwikkelde gedeeltes, aangesien dit die oplossing van die onstabiliteit in die streek kan aanhelp.

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1. INTRODUCTION

Nigeria, besides being the most populous country in Africa, is also Africa's largest - and the world's eighth largest - producer and exporter of oil. Recently Nigeria has also become a major supplier of liquefied natural gas (LNG). The country is therefore seen as a key player in international energy politics, with its proven oil reserves of 23 billion barrels and gas reserves of 160 trillion cubic meters [1].

Nearly all the oil and gas deposits are concentrated in the Niger Delta Region (NDR), the true geographical South-South of the country that includes nine out of the 36 states of the federation (see Figure 1). The NDR covers 12% of Nigeria's total surface area, and is home to over 31 million people from about 40 ethnic nationalities, speaking over 250 languages and dialects. Over 1,500 communities play host to oil and gas facilities of the Niger Delta Development Commission [2]. From a natural environment perspective, the NDR is said to have the world's third largest wetland, and is also home to a very rich biodiversity. From an industrial perspective, the NDR produces, on average, over two million barrels per day (BPD) of crude oil from over 5,000 drilled oil wells [2].

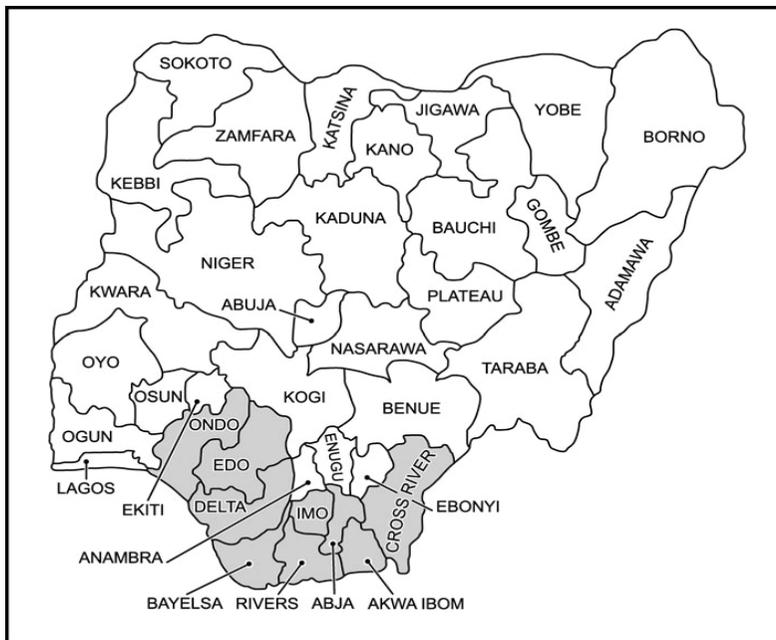


Figure 1: The Niger Delta Region (NDR) of Nigeria

Despite more than five decades of oil and gas exploration and exploitation in Nigeria, and the huge income derived from the NDR's petroleum resources, the region remains the most under-developed in the country. As a federal government agency, the Niger Delta Development Commission (NDDC) quite rightly observed that the developmental challenges of the region are:

“widespread poverty; severe dearth of infrastructure and amenities in the rural areas; being the world's third largest wetland with fragile ecosystems; high unemployment, rural-urban migration, urban decay; and environmental degradation and pollution” [2].

The result has been a series of agitations between the industry and society at large. It has been shown that global environmental change, or the social problems of desperate poverty,

can stimulate antisocial behaviour and terrorism [3]. This is prevalent in the NDR. The trend in the area has been to take foreigners hostage or to sabotage oil facilities. Such violent agitations have on many occasions led to rising oil prices in the international market. The area is fast turning into a serious threat not only to the Nigerian state, but also to international energy supplies. For instance, up to a quarter of the country's total crude oil production has been reduced since 2005, due largely to the activities of youths demanding a fair share of the revenues derived from the industry, along with social justice and equity in the region.

It is observable, if the recent activities of the major stakeholders are considered, that there are concerted efforts to try to address issues of sustainability in the NDR. For instance, the NDDC - an agency established by government but funded by both government and multinational companies - concluded a Niger Delta Regional Development Master Plan (NDRDMP), which is seen as a blueprint for the sustainable development of the oil-rich region [2]. The NDRDMP was formally launched by Chief Olusegun Obasanjo, then President of the Federal Republic of Nigeria, in March 2007. The multinational companies themselves have also come up with sustainable development policies to tackle the issue. For example, Shell has introduced the Sustainable Community Development Programme, while Exxon Mobil has launched a Corporate Community Investment scheme. Governments at both federal and state levels have begun to address the issue, but all these efforts are concerned at best only with the environmental and economic dimensions of sustainable development. This perhaps accounts for the lack of (or near lack of) relevant information on social sustainability. Detailed reports on sustainable development efforts by the key stakeholders in the petroleum industry are hard to obtain, and reports on social sustainability even harder. Furthermore, no information on the frameworks that are used for the measurement of sustainable development in the country is available - if indeed any exist.

1.1 Status of socially sustainable development

Social sustainability has not received the global attention it deserves, compared with the other dimensions of sustainable development [4]. However, integrating human needs in planning, along with environmental and economic considerations, is fundamental to fostering sustainable development. In particular, the social sustainability (or well-being) of communities is integral to any assessment of sustainability since it reflects, and impacts upon, ecological and economic sustainability [5]. It has been argued [6] that a socially sustainable development is one that:

- meets basic needs for food, shelter, education, work, income, and safe living and working conditions;
- is equitable, ensuring that the benefits of development are distributed fairly across society;
- enhances, or at least does not impair, the physical, mental, and social well-being of the population;
- promotes education, creativity, and the development of human potential for the whole population;
- preserves our cultural and biological heritage, thus strengthening our sense of connectedness to our history and environment;
- promotes conviviality, with people living together harmoniously and in mutual support of each other;
- is democratic, promoting citizen participation and involvement; and
- is liveable, linking "the form of the city's public places and city dwellers' social, emotional and physical well-being".

Also:

"social sustainability should be focused on the development of programmes and processes that promote social interaction and cultural enrichment. It emphasises protection of the vulnerable, respecting social diversity and

ensuring that priority is put on social capital. Social sustainability is related to how we make choices that affect other humans in the ‘global community’ - the Earth; it covers the broadest aspects of business operations and the effect that they have on employees, suppliers, investors, local and global communities and customers.” [6]

In other words, social sustainability includes both the internal human resources of the companies and the external population of the communities where the industry carries out its operations [4].

| Framework checklist | Component | | | | | | | | |
|--|---------------------------------------|-----------------|--|----------------------------|-------------------------|----------------------|-------------------|----------------------|-----------------|
| | External (communities) | | | | | Internal (companies) | | | |
| | Equity and sovereignty over resources | Quality of life | Democracy, governance & self-determination | Interconnectedness to life | Regional sustainability | Employment | Health and safety | Capacity development | Social dialogue |
| WACOSS Model (McKenzie, 2005) | X | x | X | x | | x | | | X |
| Sustainable development (SD) principles (Hilson & Basu, 2003) | X | x | X | x | x | | | X | |
| Components of social sustainability (Labuschagne et al., 2005) | X | x | | x | | x | x | X | X |
| Factors of rural social sustainability (Pepperdine, 2000) | X | x | | x | | | | | X |
| European Green Paper on CSR (European Commission, 2001) | X | x | | x | | x | x | | |
| Global Reporting Initiative (GRI, 2002) | | x | | | | x | | | |
| Universal Declaration (cited in McKenzie, 2005) | X | x | X | x | | x | | | |
| Proposed (CSF) framework | X | x | X | x | x | x | x | X | X |

Table 1: Comparison of frameworks of social sustainability [7]

1.2 Objectives of this paper

In view of the global thinking concerning social sustainability, and the near non-existence of social sustainability seen in the petroleum industry in the NDR, the study summarised in this paper [7] addresses the need to develop a framework of sustainable development that will:

- rigorously identify social factors appropriate for the NDR;
- develop a set of key performance indicators (KPIs) that will form the basis for the assessment of social sustainability in the operations of the petroleum industry; and
- set a possible time frame to assess the performance of social sustainability.

The research strategy consisted of a critical literature review that compared available sustainable development frameworks (see Table 1) and identified potential assessment criteria, identified factors of social sustainability, identified acceptable key performance indicators, and proposed a framework for social sustainable development in the industry. This was followed by semi-structured interviews with a number of community stakeholders (all-inclusive, as far as possible), and face-to-face interviews with selected government and industry participants and third parties, to verify the proposed framework.

2. PROPOSED FRAMEWORK

The proposed framework is summarised in Figure 2, and combines two other models: the concept specification model of sustainable development [8], and the hierarchical framework of indicator systems [9]. The concept specification model uses a software-based assessment process whereby software provides one question for each identified key performance indicator (KPI), which is answered by choosing from a given range of options. Thus, the responses allow the generation of metrics for each indicator within a reasonable timeframe [8]. It may also be possible to develop software for the evaluation of sustainability indicators using the component specific model, but that was beyond the scope of this research. The hierarchical framework for the assessment of sustainability describes hierarchical levels to facilitate the formulation of a set of parameters in a consistent and coherent way. It describes the function of each level as well as the common characteristics of the parameters appearing on a particular level [9]. The framework further differentiates four levels of aggregation with a characteristic tree diagram, and it helps to break down the goal of sustainability, step by step, into parameters that can be managed or assessed. The variation in the proposed component specific framework (CSF) of Figure 2 is its emphasis on the components of social sustainability, which suggest that every dimension of sustainability can be conveniently categorised into two main components: internal and external. 'Internal' is the way in which the dimension touches on organisation-specific issues, while the 'external' component relates to the operating environment, both immediate and remote.

Like other hierarchical frameworks, the various levels facilitate the formulation of a set of parameters in a consistent and coherent manner [9]. Indicators are aggregated into a common set of KPIs that can be measured, which is the very goal of sustainable development. The KPIs are aggregated further into factors of sustainability (shaded rectangles in Figure 2), which can be linked to the component of the dimension of sustainability, i.e. social sustainability. The interconnectedness and relationships between the various levels are explained with the aid of a breakdown of the social sustainability of the CSF (see Figure 3).

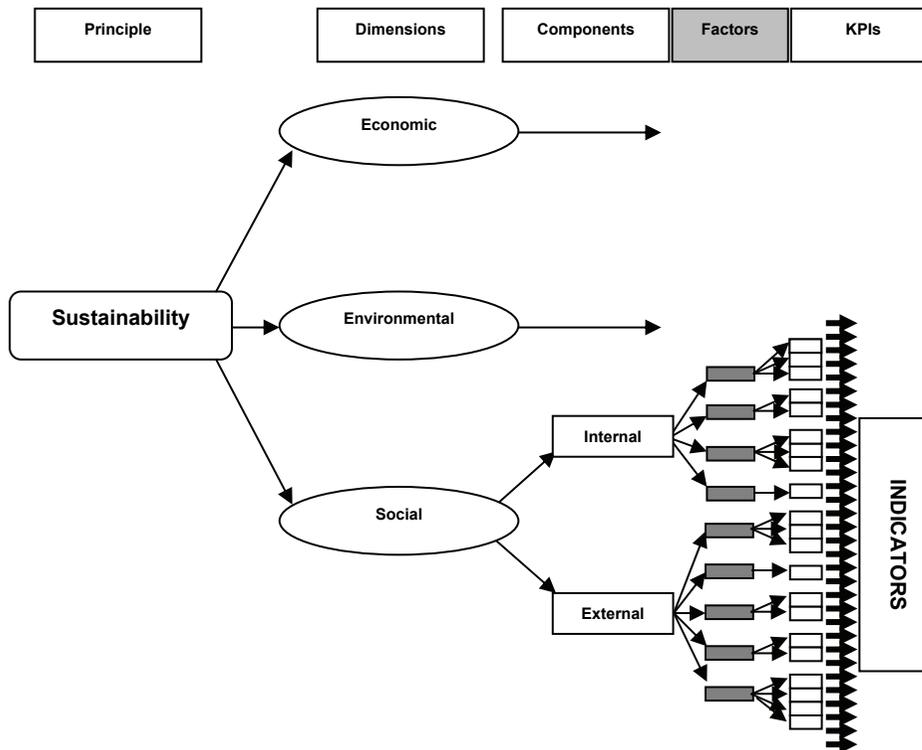


Figure 2: Component specific framework (CSF) of the social sustainability indicator system

3. VERIFICATION OF THE PROPOSED COMPONENT SPECIFIC FRAMEWORK (CSF)

The process of developing social key performance indicators (KPIs) should draw on the involvement of relevant societal stakeholders - i.e. those groups who have an immediate interest in approaching and debating questions of social sustainability - since considering stakeholders in far-reaching decisions promotes the legitimacy of the results [8]. This is in line with the Agenda 21 agreement and the participatory appraisal method adopted by the Niger Delta Development Commission in arriving at its NDRDMP [2]. All of these processes give credence to a systems approach, which emphasises the importance of stakeholder identification, as well as needs and requirements, for systems to perform effectively. Based on this system approach, the following groups and sub-groups or categories of stakeholders were identified:

- Staff and management of major oil companies, oil servicing companies, their contractors and sub-contractors;
- Legislators, executive members, and civil servant at all levels of government agencies; and
- Third-party stakeholders, primarily community members who constituted the largest stakeholder group.

A total of 150 questionnaires were administered: 40 to industry participants, 40 to government participants, and 70 to community members. The questionnaires were simply handed out to literate participants, although clarifications were made on areas as needed. Face-face interviews were conducted with illiterate participants, using the same questionnaire. The interviews took place in the Bayelsa and Rivers States of Nigeria, and

lasted for a period of two months during 2007. Respondents were randomly selected; each group represented a judgmental sample; and any respondent - literate or illiterate - could supply the necessary data. Therefore the survey was carried out on a homogeneous population. This data collection approach implies that the summary of respondent opinions could be generalised to represent the views of the entire population.

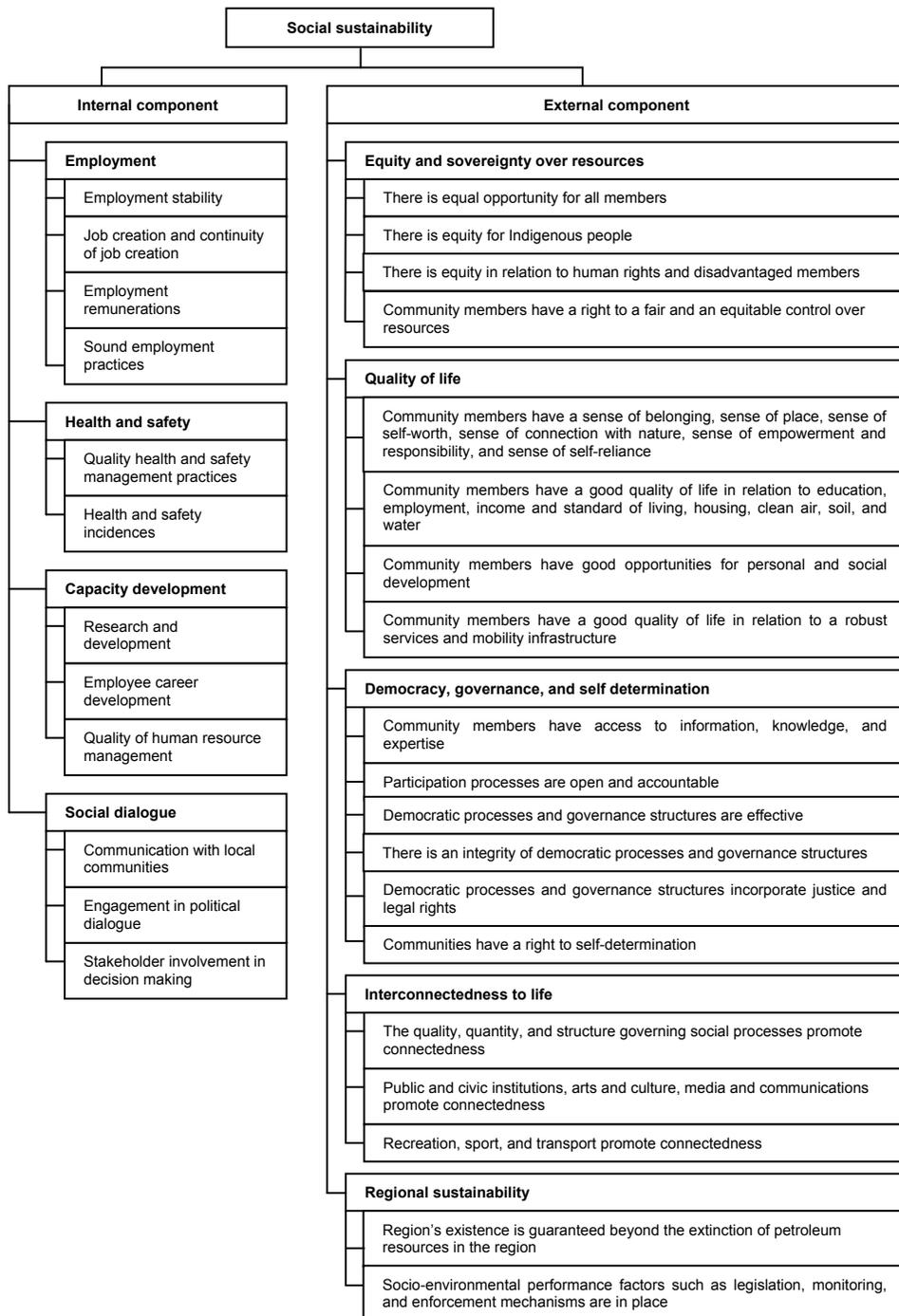


Figure 3: Breakdown of the social sustainability dimension of the CSF

4. RESEARCH RESULTS AND DISCUSSION

Ninety-five of the 150 questionnaires were returned, representing approximately 64%. Within the sub-categories of respondents, the third-party category returned 60 of the 70 administered questionnaires, accounting for about 85% of the questionnaires handed out to them, or 48% of the total number of questionnaires administered and 63% of questionnaires returned. The remainder of the returned questionnaires were spread more-or-less equally between industry and government participants. The main findings are provided in the Appendix and discussed further here; the details are described elsewhere [7].

One of the questions - whether or not there was a need for social sustainability to be incorporated into the government's and oil companies' policies and strategies - was answered in the affirmative by a resounding 90% of all respondents.

More than 70% of respondents answered 'yes' when asked whether they accepted that the factors proposed for the external component of social sustainability were sufficient for the assessment of social sustainability. This means they can indeed be incorporated. A small proportion, about 22% of respondents, strongly suggested that security should also be included as a factor of the external component of social sustainability.

On the internal component of social sustainability, more than 50% of respondents believed that the listed factors are acceptable. However, a trend was observed that most of the respondents of the third-party category were resistant to the questions on the internal (company) component. This can be simply explained in the light of inputs gathered from a few of the respondents in that category, who said that they had little or no knowledge about the workings of the companies in relation to the questions posed in the questionnaires.

As to the question of equity in the Niger Delta region, when asked about the key performance indicators of social sustainability, more than 50% of respondents stated that equity does not prevail in the region. Similarly, more than 50% of respondents believed that the state of the social sustainability was appalling in relation to the factors proposed under the external component, and generally unacceptable except for the factor of 'interconnectedness'. Here respondents showed some level of acceptance of the situation, because there was clear evidence that community members had a sense of belonging, place, self-worth, connection with nature, empowerment and responsibility, and self-reliance. In contrast, more than 60% of the respondents stated that community members do not have a good quality of life in relation to education, employment, income and standard of living, housing, clean air, soil and water, or a robust services and mobility infrastructure.

Given time frames of between one to five years for the periodic assessment of the state of social sustainability in the research area, over 40% of respondents indicated that five years would be enough to allow stakeholders room to respond to social sustainability issues for a re-assessment to be carried out. Twenty percent of participants considered a time frame a little beyond five years, while 21% of respondents suggested a time frame of four years. Given the above figures, it could be concluded that a five-year period is an appropriate time frame for the assessment and re-assessment of the performance of social sustainability in the Niger Delta region.

5. CONCLUSIONS

This study ascertains that the petroleum industry has been socially unsustainable in the Niger Delta Region of Nigeria. For the petroleum industry to be sustainable in the near and remote future in Nigeria, the social dimension of sustainable development has to be considered the most critical factor, since social issues contribute the highest risk factor and pose the greatest threat to the industry's survival. This therefore poses a threat to the very existence of Nigeria as a nation, because development and peace are intimately linked. A sustainable society is one that can persist over generations, one that is far-seeing enough,

flexible enough, and wise enough not to undermine either its physical or its social systems of support [10], and understands that social sustainability can assist in planning and policy development, as the human and physical environments are interconnected [5].

Although the broader aspects of the petroleum industry in Nigeria have been discussed, it is recommended that the all-important issue of social sustainability be properly accounted for throughout the industry life cycle and in each separate life cycle phase [4]. It is critical to consider social sustainability prior to beginning any new project in the industry [4]. To this end a framework of social sustainability performance criteria has been introduced, and verified with various stakeholders in the Niger Delta Region of Nigeria.

5.1 Recommendations for further research

Since data is lacking on the general principle of sustainable development in the petroleum industry in Nigeria, a further detailed study for the assessment of the performance of sustainable development in the Niger Delta Region is recommended. Based on the introduced framework of this paper, such a study should lead to the development of measurable indicators for the petroleum industry.

6. REFERENCES

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APPENDIX

| Factors for consideration | No. of yes answers | No. of no answers | No. that did not attempt | % of yes answers | % of no answers | % that did not attempt |
|--|--------------------|-------------------|--------------------------|------------------|-----------------|------------------------|
| Equity and sovereignty over resources | 75 | 20 | - | 79.00 | 21.00 | - |
| Quality of life | 92 | - | 3 | 96.84 | - | 3.16 |
| Democracy, governance and self determination | 69 | 14 | 12 | 72.63 | 14.74 | 12.63 |
| Interconnectedness | 91 | - | 4 | 95.79 | - | 4.21 |
| Regional sustainability | 84 | 11 | - | 88.42 | 11.58 | - |
| Others (security) | 21 | - | 84 | 22.11 | - | 77.89 |

Agreement to factors of social sustainability (external component) for consideration by answering either yes or no

| Factors for considerations | No. of yes answers | No. of no answers | No. that did not attempt | % of yes answers | % of no answers | % that did not attempt |
|----------------------------|--------------------|-------------------|--------------------------|------------------|-----------------|------------------------|
| Employment | 50 | - | 45 | 52.63 | - | 47.37 |
| Health and safety | 52 | - | 43 | 54.74 | - | 45.26 |
| Capacity development | 49 | - | 46 | 51.58 | - | 48.42 |
| Social dialogue | 52 | - | 43 | 54.74 | - | 45.26 |
| Others | - | - | 95 | - | - | 100 |

Agreement to factors of social sustainability (internal component) for consideration by answering either yes or no

| KPIs considered under equity | No. of respondents agreeing to statement, including abstentions | | | | | | Percentage of respondents (%) | | | | | |
|--|---|----|----|----|---|------|-------------------------------|-------|-------|-------|------|------|
| | 1 | 2 | 3 | 4 | 5 | Abs. | 1 | 2 | 3 | 4 | 5 | Abs. |
| Equal opportunities for all members | 43 | 21 | 5 | 18 | 5 | 3 | 45.26 | 22.11 | 5.26 | 18.95 | 5.26 | 3.16 |
| Equity for indigenous people | 23 | 35 | 18 | 13 | 6 | - | 24.21 | 36.84 | 18.95 | 13.68 | 6.32 | - |
| Equity in relation to human rights | 19 | 40 | 9 | 21 | 6 | - | 20.00 | 42.10 | 9.47 | 22.11 | 6.32 | - |
| Equity in relation to disadvantaged members | 45 | 28 | 8 | 10 | 3 | 1 | 47.37 | 28.47 | 8.42 | 10.53 | 3.16 | 1.05 |
| Right to fair and equitable control over resources | 50 | 11 | 15 | 7 | 3 | 9 | 52.63 | 11.58 | 15.79 | 7.37 | 3.16 | 9.47 |

Responses to the statement on the existence of equity in the NDR

| KPIs considered under inter-connectedness | No. of respondents agreeing to statement, including abstentions | | | | | | Percentage of respondents (%) | | | | | |
|---|---|----|----|----|----|------|-------------------------------|-------|-------|-------|-------|------|
| | 1 | 2 | 3 | 4 | 5 | Abs. | 1 | 2 | 3 | 4 | 5 | Abs. |
| Quantities of social processes promote connectedness | - | 5 | 13 | 43 | 29 | 5 | - | 5.26 | 13.68 | 45.26 | 30.54 | 5.26 |
| Qualities of social processes promote connectedness | 3 | 2 | 7 | 40 | 34 | 9 | 3.16 | 2.11 | 7.37 | 42.10 | 35.79 | 9.47 |
| Structures governing social processes promote connectedness | 3 | 6 | 12 | 38 | 36 | - | 3.16 | 6.32 | 12.63 | 40.00 | 37.89 | - |
| Public & civic institutions promote connectedness | 1 | 7 | 10 | 31 | 44 | 2 | 1.05 | 7.37 | 10.53 | 32.63 | 46.31 | 2.11 |
| Arts and culture promote connectedness | 4 | - | 13 | 37 | 41 | - | 4.21 | - | 13.68 | 38.95 | 43.16 | - |
| Media & communications promote connectedness | 15 | 47 | 19 | 11 | 3 | - | 15.79 | 49.47 | 20.00 | 11.58 | 3.16 | - |
| Recreation and sport promote connectedness | 2 | 2 | 2 | 55 | 29 | 5 | 2.11 | 2.11 | 2.11 | 57.89 | 30.52 | 5.26 |
| Transport promotes connectedness | 57 | 16 | 4 | 8 | 3 | 7 | 60.00 | 16.84 | 4.21 | 8.42 | 3.16 | 7.37 |

Responses to the statement on the prevalence of interconnectedness in the NDR

| KPIs considered under quality of life | No. of respondents agreeing to statement, including abstentions | | | | | | Percentage of respondents (%) | | | | | |
|--|---|----|----|----|----|-----|-------------------------------|-------|-------|-------|-------|------|
| | 1 | 2 | 3 | 4 | 5 | Abs | 1 | 2 | 3 | 4 | 5 | Abs. |
| Having sense of belonging | 7 | 19 | 15 | 30 | 21 | 3 | 7.37 | 20.00 | 15.78 | 31.58 | 22.11 | 3.16 |
| Having sense of place | 2 | 6 | 13 | 30 | 37 | 7 | 2.11 | 6.32 | 13.68 | 31.58 | 38.94 | 7.37 |
| Having sense of self-worth | 3 | 4 | 13 | 33 | 39 | 3 | 3.16 | 4.21 | 13.68 | 34.74 | 40.05 | 3.16 |
| Having sense of connection to nature | - | 3 | 2 | 29 | 56 | 5 | - | 3.16 | 2.11 | 30.52 | 58.95 | 5.26 |
| Having sense of empowerment and responsibility | 7 | 10 | 37 | 24 | 15 | 2 | 7.37 | 10.53 | 38.94 | 25.25 | 15.79 | 2.11 |
| Having sense of self-reliance | 1 | 1 | 20 | 39 | 33 | 1 | 1.05 | 1.05 | 21.05 | 41.05 | 34.74 | 1.05 |
| Having a good quality of life in relation to education | 45 | 29 | 8 | 10 | - | 3 | 47.36 | 30.53 | 8.42 | 10.53 | - | 3.16 |
| Having a good quality of life in relation to employment | 17 | 52 | 14 | 4 | 2 | 6 | 17.90 | 54.73 | 14.73 | 4.21 | 2.11 | 6.32 |
| Having a good quality of life in relation to income & standard of living | 57 | 19 | 6 | 3 | 3 | 7 | 60.00 | 20.00 | 6.32 | 3.16 | 3.16 | 7.36 |
| Having a good quality of life in relation to housing | 48 | 34 | 3 | 5 | 3 | 2 | 50.53 | 35.78 | 3.16 | 5.26 | 3.16 | 2.11 |
| Having a good quality of life in relation clean air, soil and water | 15 | 40 | 24 | 7 | 1 | 8 | 15.79 | 42.11 | 25.26 | 7.37 | 1.05 | 8.42 |
| Having a good quality of life in relation to personal development | 18 | 23 | 22 | 19 | 10 | 3 | 18.94 | 24.31 | 23.16 | 20.00 | 10.53 | 3.16 |
| Having a good quality of life in relation to a robust services & mobility infrastructure | 50 | 26 | 5 | 4 | 1 | 9 | 52.63 | 27.37 | 5.26 | 4.21 | 1.05 | 9.47 |

Responses to the statement on quality of life in the NDR

