

APPENDIX J
INITIAL ENVIRONMENTAL EVALUATION
SPECIALIST REPORT ON:
SOCIAL ASSESSMENT

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SOCIAL ASSESSMENT

1. INTRODUCTION

The findings in this chapter are based on the quantitative and qualitative work undertaken in the proposed pipeline route area. A total of 400 quantitative questionnaires were administered, while two focus group discussions were held, social mapping was carried out in four locations, and ten local level key informant interviews were conducted.

77% of the respondents had heard about government plans to investigate whether water could be piped from the Okavango River to Windhoek.

2. METHODS

Issues to be investigated came from three principal sources: 1) the original Terms of Reference (TOR) and the original comments on the TOR by SIAPAC; 2) issues arising from the initial rapid appraisal and the natural environment field visit; and 3) scoping workshop issues arising. The IEE - Social Component therefore aimed at conducting an initial investigation into the following issues:

- Cultural and traditional constraints and opportunities.
- Age and gender issues, as well as social class, focusing on the potential differential impacts across these groups.
- Degree and type of community organisation, both formal and informal, and the extent to which communities are able to organise as groups.
- Authority structures, both 'traditional' and 'modern', and considerations of altered authority structure legitimacy in the case of temporary or long-term in-migration from outside the project area.
- Growth rate of local populations, projected from general census figures for the region, coupled with projected in-migration growth propensities.
- Current adequacy of local services, focusing on local perceptions as well as comparisons with regional and national standards.
- Settlement patterns and migration, including seasonal as well as long-term migration patterns, and the extent to which settlement patterns link to authority structures and community organisation.

- Relocation of people and livestock, arising from the proposed pipeline and the pipeline offtake.
- Land and resource tenure considerations, including utilisation of natural resources and rights of access, and consideration of local attitudes towards compensation, and also impacts of low flows on riverine areas.
- Traditional land use patterns, including rights of access by outsiders, and focusing particular attention on land tenure patterns and land use systems in areas of likely in-migration.
- Dependence and use of natural resources, and the potential changes in both downstream and in-migration areas.
- Privatisation, referred specifically to the need to pay for bulk water supply.
- Employment situation, including current unemployment and underemployment, chronic lack of jobs, propensity to seek temporary jobs, etc.
- Income distribution, focusing on a review of the household incomes and expenditures survey data (which will be secured for Okavango and Caprivi Regions and Windhoek).
- Public health and safety, including perceptions of public health and safety, and knowledge of waterborne diseases (riverine areas).
- Altered access to schools, clinics and other services, focused on projected social service needs in expected in-migration areas.
- Altered access for livestock to grazing and water, including an assessment of the effectiveness of local management systems for livestock access in the face of current settlement patterns and project in-migration.
- Theft, poaching, vandalism, focusing on local attitudes about these issues and recommended actions.
- Historical and cultural monuments and areas of historical or cultural importance, collecting information on locally-perceived areas of historical and cultural value.
- Public participation at the local level.
- Natural resource utilisation, non-utilisation, and attitudes about natural resources, as well as local management systems, based in large part on inputs from the EIA teams. This would include dry and wet season assessments.
- Water usage in households

- Local knowledge of erosion and trends.
- Backyard irrigation demands.
- Water cost estimates based on cost recovery policy.

Overall, the study principally focused on social issues in the affected pipeline route area running from Rundu to the southern border of Okavango Region, along the tar road. Particular attention was devoted to a consideration of in-migration potential into the proposed pipeline area, and fears, concerns and expectations arising from the proposed project along the proposed pipeline route. Field data collection activities were comprised of three basic sets of activities:

- an initial rapid assessment
- rapid quantitative questionnaire implementation
- initial qualitative research activities.

2.1 Rapid Assessment

One member of SIAPAC travelled into the field with the natural environment team. During this week in the field, SIAPAC undertook a rapid appraisal along the proposed pipeline route, in Rundu, and along the river.

2.2 Rapid Quantitative Questionnaire

As noted, issues to be investigated came from three principal sources: 1) the Terms of Reference; 2) issues arising from the initial rapid appraisal and the natural environment field visit; and 3) scoping workshop issues arising. Those variables which needed to be measured numerically (e.g., frequency of occurrence) were included on a Rapid Quantitative Questionnaire. *Rapid Quantitative Questionnaire* approaches differ from standard Quantitative Questionnaires only in terms of scope, not in terms of process. Generally, Rapid Quantitative Questionnaires are less than 4 pages and 5-7 minutes in administrative length. The rules and procedures which apply to Quantitative Questionnaires apply to Rapid Quantitative Questionnaires, including sampling approaches, instrument design, and attention to validity and reliability in the design and implementation stages.

For this study, 1000 Rapid Quantitative Questionnaires were completed, divided across five strata: 1) the proposed pipeline route; 2) River Strata 1 - the area along the river from Rundu to the Omatako Omuramba; 3) River Strata 2 - the area from the Omatako Omuramba to the confluence of the Okavango and Cuito Rivers; 4) River Strata 3 - the area from the confluence towards the end of the Angolan border; and 5) River Strata 4 - the area from a point west of the end of the Angolan Border to the border with the Mahango Game Reserve.

The Rapid Quantitative Questionnaire comprised sixty-five questions and took an average (median figure) of 10 minutes to administer, longer than most Rapid Quantitative Instruments (5-7 minutes) due to an excessive number of questions. Issues investigated included current knowledge of the scheme, basic demographic information, the current water supply situation in the proposed pipeline area, utilisation of the river by riverine households, attitudes towards the proposed pipeline, and a limited set of questions of interest to the natural environment team.

The Rapid Quantitative Questionnaire is included in Annex J-1 of this report.

2.3 Qualitative Instruments

While the Rapid Quantitative Questionnaire used for this study provided information on the frequency of events of interest and the distribution of attitudes, a number of qualitative approaches were also employed to investigate key issues in more detail: 1) focus group discussions; 2) local-level key informant interviews; and 3) for selected locations in the proposed pipeline route area, mapping. In addition, based on the information needs of the natural environmentalists, data were collected on natural resources from general community members as well as traditional healers/doctors (who were expected to be key users of natural resources); findings from these instruments are not presented here, and are instead included in the natural environment team reports.

Focus group discussions are one of the principal tools used to gain insights about potentially sensitive topics. Groups are normally comprised of 5-7 homogeneous members of the same community. A limited set of issues are discussed in detail, with a trained and experienced facilitator (and a translator/note-taker) leading the effort. Focus groups take between 1.5 and 3 hours to implement. Two focus group discussions were held in the proposed pipeline area, focusing on obtaining information and attitudes from a broad range of community members, including opinion leaders, female-headed households, livestock owners and poorer households. The focus group discussion instrument is included in Annex J-1.

Local-level key informant interviews are one-on-one interviews conducted with people who, by their positions in society or by the activities, are influential members of a community. For this study, interviews were held with traditional authorities, church officials, school officials, community opinion leaders, and local officials. The local level key informant interview instrument is included in Annex J-1. Ten local level key informant interviews were administered in the proposed pipeline area.

Mapping, or more properly social mapping, is a technique designed to provide insights into the interaction between a community and a physical structure of importance (e.g., water resources) or the environment in general (e.g., natural resources utilised by the community, areas used for arable agriculture or livestock). A total of four maps were prepared in four communities in the area which would be affected by the proposed pipeline. Attention was concentrated on physical boundaries of traditional authorities in potential in-migration zones, and potential sites of

historical, cultural or archaeological importance. In addition, attention was also devoted to land use patterns in the four communities. The mapping instrument is included in **Annex J-1**.

2.4 Start-Up and Field Implementation

SIAPAC was appointed to carry out the IEE - Social Component on 24 October, 1996. Full planning activities began around this date. On 28 October, SIAPAC proceeded into the field to hold meetings with the natural environment team and begin its rapid appraisal. Instrument development began in early November, while enumerator training took place from 5-9 November. Samples were pulled on 8 and 9 November, and the team began fieldwork on 12 November. Data entry began on 19 November. Fieldwork was completed by mid-December, while data entry and validation ended on 23 December. Final literature review, data analysis and report write-up began on 26 December. Data analysis was undertaken using the Statistical Package for the Social Sciences (SPSS).

Level of cooperation in the proposed pipeline area was rated as 54.6% high, 36.1% medium and 9.3% low. This was generally higher than along the river sections, though the level of cooperation was very low in comparison to all other surveys undertaken by SIAPAC in Namibia, likely reflecting concern about the proposed project. The low level of cooperation does not mean that the information obtained is not useful or reliable, rather it reflects that people adopted a fairly aggressive tone when answering questions.

3. DISCUSSION

3.1 Demographic Background Information

One-third (33.3%) of all households in the pipeline strata were headed by females, with the remaining two-thirds headed by males. This is consistent with findings from other northern communal areas (albeit lower than the Cuvelai), reflecting some out-migration of males to seek employment. Household heads were largely engaged in subsistence agriculture (46.8%), while 19.5% were employed, and 19.3% were self-employed. In many cases, households with employed household heads also had other household members in employment; the same held true for self-employment. Findings were also consistent for subsistence agriculture. The findings suggest that the distribution of cash income is likely to be unequally distributed across households.

For the 400 households in the quantitative sample, there were a total of 4,435 people, giving an average household size of 11.1, above the regional average of 8.8. Findings also show high dependency ratios, with those 16 and younger comprising 60.2% of the population (dependency rates for the whole region were 47.2% for under 15 yrs), and oversixteens only comprising 39.8% of the population.

Large family sizes and high dependency rates suggest that affordability, discussed in an Appendix, is likely to be a greater problem in the proposed pipeline area than the regional incomes and expenditures findings suggest.

Community action groups were very common in the proposed pipeline area. Of interest, waterpoint committees existed in 72.3% of all cases, suggesting that water-related committee structures are known and accepted in the potentially affected area. Church groups existed in 56.8% of all communities, while 39% also had school committees. Overall, findings suggest that social organisation via committees is well established in the area.

Local level key informants confirmed the presence of a variety of community action groups, specifically church groups, school committees, and women's groups. However, a few of the key informants noted that the groups were not very active. In the far south, near the cordon fence, local level key informants noted that there were no community action groups in their area, given the relative youth of the communities in the area. Waterpoint committees in the area do appear to be active, likely due to the need to secure diesel for the engines.

3.2 Knowledge of, and Attitudes About, the Proposed Scheme

3.2.1 Initial Attitudes

Respondents were asked whether they had heard about the proposed scheme and, if so, what they had heard and what they felt about it. Three-quarters (77%) of the respondents had heard about government plans to investigate whether water could be piped from the Okavango River to Windhoek. Most (81.4%) had heard that "Windhoek would receive the water", 29.6% heard that "a pipeline would be built", and 9.1% heard that "a study would be done". Of interest, 8.1% heard that "the pipeline area would get water". Nearly 32% heard that "all water would be taken from the river", 28% heard that "Government will take our water", 14.7% heard that "our river would run dry", and 11.7% heard that "our lives would be negatively affected". Obviously, people had heard a number of rumours about the project via others, reflected in the 'attitudes' stated in response to a question about what they had heard.

When asked specifically what they thought of the proposed scheme, fully 90.6% had an opinion, while 9.4% stated that they did not have an opinion. Responses are indicated in the following table:

Table 1: Attitudes Towards the Proposed Scheme

Response	% of Cases
Our river would run dry	70.4
Our lives would be negatively affected	45
I do not want the scheme at all	40.7
No right to take our river	21.8

Government is only developing Windhoek	10.7
We must have improved water	9.4
Its everyone's water	6.5

Of interest in this table is that the respondents are *not* living along the river, but rather are living along the potential pipeline route. One would therefore expect that they might have some positive attitudes about the proposed scheme. However, this is clearly not the case, with respondents in the area identifying with the region overall. 70.4% felt that the river would run dry, while half (45%) felt that their own lives would be negatively affected. 40.7% volunteered that they did not want the scheme at all.

A few respondents gave pro-project responses, although the most common pro-project response was a stated expectation that water would be provided to pipeline area communities. Only 6.5% argued that 'its everyone's water', lower than the percentage against the project, and lower than the percent who said that no one had the right to take 'our river'.

Some of the local level key informants noted that the project was regularly on the Rukwangali chat show programme on the NBC ("it is a burning topic over our local NBC talk show"), while most had heard about it via the radio. Concern was expressed about the river drying up, with one noting that "our new generation will not know that there was a river", another stating that "my expectation from that scheme is that the river will get dry and our children will not know that there was a river", while another asked "what will happen to our new generation to come?". One key informant also noted that "the river will dry up and people in the Okavango area or river area will suffer and water will be finished here as it is now finishing in Windhoek". One key informant said that he heard over the radio that "the pipeline will go through our fields".

Respondents were clearly against the proposed scheme.

Both focus groups expressed strong concern about the project, and neither condoned the project.

Table 2: Closing Comments from Local Level Key Informants and Focus Groups

Local Level Key Informants
"We are afraid that the river will dry up because of low rainfall nowadays, and the river is not as deep as before. It is just sand in most places."
"The Government just wants to leave the Okavango River without water and our fish and water animals will get killed. It will also bring conflicts with the Angolans because they also use the river."
"We as residents from Mbeyo want the Government to consider our problem ... We are more than 60 households but we have only one borehole were we drink water with our livestock."
"The pipeline should be a benefit to us as well but we don't want the river to dry up."
"It will be a good thing for us living far from the river because we need water as well, but something must be done for people living along the river before water is taken."

“We always complain about water in our areas and nothing is being done and the river will dry up as water will be taken to Windhoek. People along the river will then suffer as we do ...”
Focus Groups
“Some Ministers came to see the river. They saw the river level was very low. Why is this still going on?? What did they tell their Parliament?”
“The Okavango River is small and will take one day to dry up”.
“We don’t want this pipeline project to go on. The river will dry up and the generation to come won’t see the Okavango River”.

3.2.2 Attitudinal Statement Responses

To secure additional information about attitudes towards the scheme and its implications, and to allow the inclusion of additional questions in a rapid quantitative questionnaire, a number of attitudinal statements were added to the Rapid Quantitative Questionnaire for consideration by respondents. Findings are indicated in the following table:

Table 3: Attitudinal Statements Regarding the Proposed Scheme

Statement	Agree	Disagree
“If water is drawn from the river, some areas will dry up, affecting people living in	92	8
“If the pipeline is built, the river will dry up completely”	84	16
“The river is already very low, so getting lower will not affect it much”	23.5	76.5
“If the pipeline is built, we will lose our fish”	90.5	9.5
“Okavango Region would benefit from the project because we would get jobs”	42.8	57.2

Findings are consistent with initial comments made about the proposed scheme. There are clear concerns about the project, even among those who may not be directly affected. Of interest, fewer than half of the respondents saw any employment benefits for Okavango Region.

A few local level key informants expressed concern about the loss of important trees, particularly those that bore fruit, but overall it was felt that, if carefully done, and if the proposed pipeline was underground, few problems would arise. Some expressed concern about how the access road would lead to the loss of important veld products, such as *makwewo*, *nomaha*, *makopa*, *nompeke*, *klappers*, *bessies*, *matu*, *uguni*, *usivi*, *ugongo*, and *nonsimba*, as well as timber for making furniture and thatching grass, and also expressed concern that construction could disturb the little remaining wildlife in the area and chase birds away. Given that 88% of all households in Okavango Region consume at least some veld foods, and given that this is a particularly important resource in drought years, loss of veld products may be particularly problematic (see Devereux, Rimmer, LeBeau and Pendleton, 1993).

In “report-back” workshops held in January, attitudes were very negative along the proposed pipeline route. See Annex J-2 - Workshop Findings for comments from those meetings. The

negative attitudes in January severely limited the work of the Environmental Economist and it is not recommended that further work proceed in the area until senior political intervention is carried out to gain the cooperation of the residents.

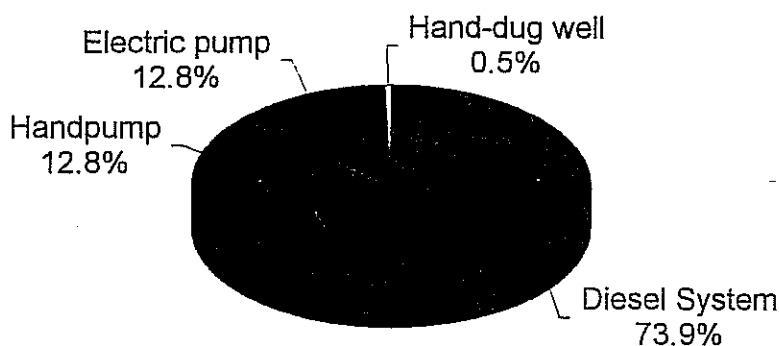
3.2.3 Perceived Local Impact of the Proposed Pipeline

The two pipeline focus groups were asked if they thought there were any important natural resources in their area that might be affected by the proposed pipeline project. One of the groups felt that the natural resources used in handicraft production would be adversely affected by the proposed pipeline, and that this would be a serious problem because "most of the people live only on handicrafts". Others felt that the proposed pipeline might interfere with the mahangu fields. One group felt that construction might destroy the *usivi* trees (*Guibourtia coleosperma*, false mopane), and there were already few of these now because people were burning them to prepare new fields. Although there was some concern about the potential impact of the proposed pipeline on thatching grass, both groups argued that there was plenty of thatching grass away from the proposed route. The groups did not feel that the proposed pipeline would affect the wild animals in the area, as "there are only a very small number of wild animals in our area because people have hunted them all out".

3.3 Current Water Supply Situation in the Proposed Pipeline Route Area

Respondents were asked a few questions about their water supply. Main source for human consumption during the dry season is indicated in the following table:

Figure 1
Primary Source of Water (Dry Season) for Human Consumption



Virtually all households rely on improved water sources, with most relying on a system which is expensive (operations and maintenance cost per cubic metre is 43¢, 2.5 times the cost of water delivered via handpumps; while for total cost recovery, the cost for diesel systems water is N\$6.36 per cubic metre, in excess of the estimates for pipeline water full cost recovery charges). Respondents were asked whether, over the past three months (dry season), they had had problems with this primary water source. A very high 86.8% reported problems, with only 13.2% reporting no problems. Nearly 84% noted that they often had problems with water for livestock, with respondents noting that "our livestock often have to go days without water in the dry season because our sources are not reliable". Focus group discussion participants reported frequent breakdowns of their diesel engines, while the focus group in one location mentioned that the system was often broken for many days before the Directorate of Rural Water Supply came to fix the engine.

A number of issues were raised which suggested that pipeline water, at full cost recovery (estimated at N\$6 per cubic metre), or even at expected bulk water supply rates (current rates are N\$1.93, but are expected to increase during 1997), is not likely to be affordable to affected area households. The situation is likely to be even more problematic, based on large household size, low levels of employment, and very high dependency ratios. Unfortunately, people in the proposed pipeline area are *already* using a system which they cannot afford to pay for (including just operations and maintenance), but are clearly having problems with these systems. This clearly implies that more reliable systems will be expected from the proposed pipeline scheme, but ability to pay (and, given anticipated charge levels, willingness to pay) will be problematic.

Whatever decision is made, findings indicate that the water supply situation in the area is very problematic, with people likely expecting that their situation will be improved by the availability of reliable pipeline water; this should be considered, however, in the context of negative attitudes toward the project.

While willingness to pay may be problematic because of the cost of water from pipeline sources, overall willingness to pay is not problematic. Regional attitudes about willingness to pay investigated in the cost recovery survey (SIAPAC, 1996) showed that 77.9% of the region's respondents were willing to contribute towards their own water supply if it was improved. When presented with the statement "Community members would be willing to pay something towards water if they received an improved source", over two-thirds (68.4%) in the proposed pipeline area agreed. **Findings therefore suggest that *cheaper* non-pipeline options should be explored where possible, perhaps combined with pipeline offtakes for major villages.**

Of interest, local level key informants noted generally poor dry season grazing condition along the proposed pipeline route. This appears to be directly related to the limited availability of water outside of the main settlements, restricting livestock movement during the dry season. The two focus groups confirmed the availability of good grazing away from their communities, and poor grazing around waterpoints. "The grass is dry and the cattle are sick and thin".

3.4 Use of the Proposed pipeline Area by People Living in the Area

3.4.1 Current Use

Respondents in the proposed pipeline area were asked a few questions about the resources in their area. Fully two-thirds (64.4%) argued that grazing was generally poor in their area. However, only 7.3% sent their livestock to the river during the past dry season, suggesting that grazing in the riverine area is worse, and water in the proposed pipeline area sufficiently reliable to avoid having to move animals to other water sources.

3.4.2 Attitudes

Fully 89.2% of the respondents agreed that "in the dry season the grass is poor, and would not allow more animals". This is consistent with comments made about grazing quality.

In the far south, bordering the veterinary cordon fence, traditional authority structures are reported to be weak, generally because the area is only now being permanently settled. Given that livestock are not allowed in the area, in-migration is not likely. However, local level key informants noted that they did not have community waterpoints, and instead relied on veterinary services. This suggests that there may be heightened expectations for the provision of water particularly in this area.

3.5 Use of the Proposed pipeline Area by People From Outside the Pipeline Route Area

3.5.1 Current Use

Respondents in the proposed pipeline area were asked a few questions about outsiders using resources in the pipeline area. Only 17.8% of the respondents noted that outsiders came into their area to graze their animals during the wet season, despite this being the time to graze animals in the area. When asked about outsiders coming to access grazing during the past dry season, this figure declined to 8% (this is consistent with the findings about poor range quality noted). For those who did come from outside during the past dry season, almost all came from an area under the same *hompa* jurisdiction. Rules guiding use of these resources are well established in the potentially affected area. Outsiders within the proposed pipeline route area did regularly share water resources for human consumption, given the unreliability of water supply systems.

3.5.2 Attitudes

Despite concerns about grazing quality, and despite the poor quality grazing in the proposed pipeline area, there is nevertheless a fear that the provision of reliable water would encourage in-migration into the area, with 70% agreeing with the statement "if water is provided in the proposed pipeline area, this will attract outsiders to settle" (9.2% could not give an answer). This raised a fear regarding conflicts with in-migrants, in part arising from concerns over grazing

quality, but also due to conflicts between livestock owners and crop-growing households (69.9% agreed with the statement "if outsiders bring their livestock into our area, there will be many conflicts because animals get into people's fields"). Both focus groups strongly argued that arable land was in short supply in their area.

One focus group raised concerns about the likelihood of people from the river area coming into the proposed pipeline area to get water and grazing, and eventually settle. They felt that this might create conflict in their community.

3.6 Areas of Historical or Cultural Importance

Local level key informants along the proposed pipeline route noted that, because they had not been in the area for a long time, they were not aware of areas of longer-term historical importance. A few mentioned battles fought in the area, but none referred to early settlements. The focus group at Ou Kordon were concerned about their cemetery. Overall, however, it would be best to rely on the findings of the Archaeological Impact Assessment in the next stage.

4. SUMMARY FINDINGS

Based on limited field and secondary data collection activities undertaken during the IEE - Social Component, initial findings on a terms of reference-by-terms of reference basis are included as follows.

4.1 Cultural and Traditional Constraints and Opportunities

Pipeline route findings suggest that traditional authority structures are sufficiently resilient to accommodate a limited amount of new settlement. However, people in the proposed pipeline area are concerned about conflicts which might arise if in-migration is significant. If grazing conditions continue to degrade along the river, in-migration into the pipeline area may become more attractive, particularly near Rundu. This may, overall, erode the ability of these structures to accommodate in-migration.

Regarding temporary in-migration for livestock grazing, while findings are preliminary, it appears that grazing around waterpoints in the proposed pipeline route area is already poor. Unless water is provided in new locations, in-migration for access to grazing will continue to be limited by the lack of water in good grazing areas for livestock.

Many communities along the proposed pipeline route have functioning waterpoint committees (as well as a variety of other committees), probably because of the reliance on diesel systems. Focus group discussions and local level key informant interview findings suggest that these committees already have some experience in regulating livestock water use among outsiders, relying on traditional court structures for decision-making and enforcement. It is therefore likely that these

committees, or new committees, would be able to accommodate new waterpoints of whatever type (comments in the report about affordability notwithstanding). This would certainly improve the reliability of supplies, which is a serious problem in the proposed pipeline route area.

If, however, waterpoints are allocated for livestock watering in areas where grazing is good (e.g., outside of a 10 kilometre radius of existing settlements), it is unlikely that these waterpoint committees could establish and maintain effective control over these waterpoints unless they are strengthened. Problems would arise particularly related to outside use under systems of payment for water, which will apply to any improved infrastructure from 1 April, 1997. Attention would therefore need to be devoted to strengthening these institutions, and linking them effectively to what appear to be well-functioning traditional authority channels of regulation and punishment.

In the far south, local level key informant findings suggest that traditional authority structures are weaker, and would not be able to regulate in-migration. However, given that this is the area least likely to be affected by in-migration (in part due to location, but largely due to the ban on livestock in this zone), this should not be problematic.

Regarding traditional constraints and opportunities along the river, findings suggest that, for the most part, traditional authority structures are quite strong. At this point, no other traditional constraints and opportunities appear to apply for the project.

4.2 Age, Gender and Social Class

Okavango Region households are characterised by high dependency ratios and high levels of poverty. While relatively low in comparison to the Cuvelai, female-headed households still comprise one-third of all households in the region. Women are poorly represented in traditional authority structures, as well as among elected politicians, while findings from Yaron, Janssen and Maamberua (1992) suggest that women occupy a disadvantaged position in the local economy, and provide the bulk of all labour inputs for on-farm production.

Given the current poor state of many households in the region, findings suggest that households would be extremely vulnerable to any interventions which would worsen their position.

4.3 Community Organisation

Communities in the region show a high propensity to organise into groups, often around what have historically been strong churches. Beyond the churches, however, waterpoint committees in the proposed pipeline route area appear to be functioning sufficiently well to manage diesel purchases, while school committees exist in a number of proposed pipeline and riverine communities. Findings suggest that, should social organisation into committees be needed in response to infrastructural developments, this would be accepted by local communities. However, the extent to which waterpoint committees could manage new infrastructure (beyond handpumps) is of concern, given the likely cost of water in light of affordability findings, and considering the potential for in-migration.

4.4 Authority Structures

Basically, traditional authority structures in the potential in-migration areas along the proposed pipeline route are well established (with the exception of the far south, where in-migration is far less likely) and viewed as legitimate. However, high levels of in-migration would be problematic, particularly in the area just south of Rundu, and would likely undermine the ability of traditional authority structures to manage this migration. This, therefore, represents one threat to the project, and requires careful consideration of alternatives to extensive pipeline offtakes for other than large village domestic use.

It is also likely that in-migrants would come from wealthier, labour-surplus households which would probably retain their fields and livestock along the river, and simply expand livestock numbers to accommodate newly-available grazing. Labour-short households, which coincide with those who are poverty stricken (including female-headed households), are unlikely to be able to take advantage of new grazing and arable land opportunities in the proposed pipeline area. If, therefore, the project has a negative impact on the riverine environment, it will likely disproportionately affect poorer households.

4.5 Growth Rate of Local Populations

Unfortunately no sub-national growth rates are available from the Central Statistical Office. Using a national growth rate of 3.1%, the 1997 population of Okavango Region (including affected areas of western Caprivi) is projected to be over 150,000, of which 120,000 live in Okavango Region, and 30,000 live in western Caprivi. Projections suggest that 74,000 people would be directly affected both along the proposed pipeline and in the downstream area, with 4450 just in the pipeline corridor area (see Table 4 below). In an area within 20kms of the road, the population is estimated at 11,000.

4.6 Current Adequacy of Local Services

Only limited attention was focused on this issue during the IEE - Social Component, with particular attention focused on water, given its centrality to the proposed intervention (indeed, the adequacy of local services is fundamentally dependent on propensity to immigrate into the area, itself dependent on water delivery technology decisions). Findings suggest that water supply systems are unreliable in the proposed pipeline route area, strongly suggesting that improved services would need to coincide with any pipeline intervention. However, many respondents in the proposed pipeline area noted that they were not willing to benefit from the project if others living along the river would be negatively affected.

Regarding education, assuming moderate propensity to migrate, the population in the proposed pipeline area could grow at a rate of up to 45%, clearly stressing educational institutions if in-migration is permanent and entire families move. Regional pupil to teacher ratios are already high, and would likely worsen severely if there was permanent in-migration. It is likely that health

facilities would also be similarly strained. As noted above, further information would need to be collected once propensity to migrate could be calculated based on decisions regarding water offtake.

4.7 Settlement Patterns and Migration

Much regarding migration was discussed previously. Of the respondents, 17.8% reported that outsiders came into their area to graze animals during the wet season, dropping to 8% during the dry season.

A study by the SSD (Fuller, Nghilkembua, and Irving, 1996), in Oshikoto region found that (p6): "...Okwanyama herders continued both eastward towards the Kwangali areas of the Okavango Region, and southward into the area currently under study. This southerly movement went as far as the Mangetti farms, [and has] reached into the southwestern portions of the Okavango Region." Elsewhere (p7) they mentioned that "...almost all farmers [have] moved at least part of their herds into the Okavango Region", due to poor and restricted grazing in Oshikoto Region.

A report by A. Kruger (1996) would tend to reinforce the belief that the proposed pipeline area (east and west) is 'empty' and ready for exploitation noting that regional carrying capacity is 335,400 LSUs, compared to a current stocking rate of 71,000 (21%).

Attention during the wet season SIA should be devoted to determining the composition and size of this in-migration, to gain further insights into in-migration propensities.

In terms of settlement immediately along the proposed pipeline route, the following table shows 1991 population figures for the pipeline route area:

Table 4 1991 Population Figures Directly Along the Highway

Village/Area Name and Location		Population	Population Combined
Mururani	far south	253	253
Katjinakatji	far south	583	836
Ou Kodom	far south	198	1,034
Cove	one-third way from south fence	63	1,097
Epingiro	one-third way from south fence	380	1,477
Kandere	one-third way from south fence	27	1,504
Mbeyo	one-third way from south fence	241	1,745
Mpora	one-third way from south fence	501	2,246
Mutompo	one-third way from south fence	44	2,290
Sihepera	one-third way from south fence	81	2,371
Sihetekera	one-third way from south fence	73	2,444
Sivaradi	one-third way from south fence	47	2,491

Wizonioku	one-third way from south fence	14	2,505
Bam-Bam	area south of Rundu	9	2,514
Cwi	area south of Rundu	67	2,581
Ehafo	area south of Rundu	19	2,600
Kaguni	area south of Rundu	327	2,927
Myl 10	approx 16 km south Rundu	629	3,556
Myl 20	approx 32 km south Rundu	421	3,977
Ncamagoro	area south of Rundu	375	4,352
Simbamba	area south of Rundu	4	4,356
Sipili	area south of Rundu	8	4,364
Wazanga	area south of Rundu	86	4,450

Assuming a growth rate of 3.1% per annum, 1997 population estimates for the direct highway area would be just under 5,500. Considering populations within 20 kilometres of the highway, figures provided to Water Transfer Consultants in August suggest that, as of 1997, some 11,000 people live in the highway area, rising to almost 20,000 by the year 2002, based on current growth rates (excluding increased in-migration).

4.9 Relocation of People and Livestock

Discussed above.

4.10 Land and Resource Tenure Considerations

Background: Regardless of pre-independence differences (mostly notably in Namaland in the south), after Independence, the Government of Namibia became the formal owner of all communal lands. In terms of Schedule 5 of the Constitution of Namibia, "all property of which the ownership or control immediately prior to the date of Independence vested in the Territory of South West Africa or any Representative Authority ... shall vest in or be under the control of the Government of Namibia. In addition, Article 100 provides that "Land, water and natural resources below and above the surface of the land... shall belong to the State if not otherwise lawfully owned". Formally speaking, therefore, the Government of Namibia is the legal owner of all communal land. Communal farmers "have no acknowledged right, independent of the will of the State, to live and farm in the Communal Areas." Customary land rights in the communal areas are still not sanctioned by law.

This is important to bear in mind when addressing the issue of land acquisition and compensation. In many projects in Africa, "the state did not feel the need to recognise any competing land rights, because none were sanctioned by the national law". It seems particularly easy to ignore customary land rights where such rights and utilisation patterns are not permanent but seasonal, as in grazing areas.

It has been argued elsewhere that the ownership of communal land by Government is "only a restricted form of ownership" in so far as non-ownership of land "did not necessarily exclude the position of being the "custodian and/or controller of...communal land". This means that while in general law government is the owner of communal land, its control and management can still be done in customary ways.

Tenure Needs: Passage of the Communal Land Bill is urgently required to provide for the land use changes which would certainly arise from the provision of water. Such changes would also greatly benefit other development projects in the communal areas. In the first instances, rural communities' *de facto* land rights need to be recognised and sanctioned by law. Secondly, legislation needs to be put in place which will allow for different forms of tenure such as long term lease agreements or even title. Similarly, groups of grazers should be allowed to obtain group rights to grazing land in order to enable them to manage such land more sustainably.

4.11 Compensation

Initial findings suggest that people living along the proposed pipeline route are unclear about the implications of the scheme in terms of the destruction, temporary or otherwise, of their fields, grazing areas, and zones where bush veld and animals products are harvested, while they are also unclear about compensation. The four maps drawn in the proposed pipeline area do suggest that there is a zone between settlements and fields that may be most appropriate for the pipeline, particularly as most natural resources accessed appear to be beyond the fields. This issue would have to be further investigated during the wet season SIA.

4.12 Traditional Land Use Patterns

Initial findings suggest that systems of access are well established through traditional authority structures. It should be noted that slash-and-burn farming systems are used in the area, suggesting that in-migration would lead to increased pressures on arable land, as well as undermine access to natural resource zones.

4.13 Dependence and Use of Natural Resources

This forms part of the natural environment sections of this report. The IEE - Social Component team collected initial field data on these variables, and turned over field materials to the natural environment teams.

4.14 Privatisation

A fairly detailed discussion of the issue of payment for water is provided in Annexures A-2 and A-3 of the main report. Basically, unless carefully subsidised, many households in the area would be unable to pay the cost of water from pipeline connections. Handpump options would be

considerably more affordable, while both handpumps and pipeline connections are likely to be more affordable than diesel engines.

4.15 Employment

Half of the population of Okavango Region are classified as economically active, with the region overall reflecting high dependency ratios. Underemployment is a serious problem for the few who are in formal or self employment, while arable agriculture only contributes in part to household food needs (Yaron, Janssen and Maamberua, 1992) estimate that arable production only contributes 16% to total food intake during a drought year).

Respondents were fairly dubious regarding job opportunities arising from the scheme, consistent with a clearly stated disapproval of the scheme. It is unclear how this might affect interest in being employed on the project; this would have to be investigated further.

4.16 Income Distribution

Considerable attention was devoted to a discussion of this issue in **Annex A-2** of the main report. Findings, when considered with arable and pastoral agriculture findings, clearly show that over half of all households in the region are poor or very poor, and could ill-afford to be negatively affected by any such project. Pipeline findings also point out affordability problems with pipeline water.

4.17 Public Health and Safety

This was not measured during the IEE - Social Component, given that priority attention was focused on other topics. However, members of the natural environment team did collect information on waterborne diseases, information which is included elsewhere in this report.

4.18 Altered Access to Schools, Clinics and Other Services

Discussed above.

4.19 Altered Access for Livestock to Grazing and Water

Discussed above.

4.20 Theft, Poaching, Vandalism

While attention was not focused on this issue in detail during the IEE - Social Component, local level key informants and focus group discussion participants both noted that livestock theft was a problem in the region, and pointed out that both traditional and state court systems were used to resolve these problems. Respondents also reported problems with livestock damage to fields.

While regional figures are not available, national findings (see SIAPAC, 1996) suggest that one in seven waterpoints have been vandalised over the past few years. More attention should be focused on these issues during the wet season SIA.

4.21 Historical and Cultural Monuments

Findings from the archaeological reconnaissance are included in the natural environment report. IEE - Social Component survey findings were limited, in that some of those living along the proposed pipeline route are fairly recent settlers, so awareness of sites was problematic. Respondents did raise concerns about disturbances to cemeteries, and also mentioned sites of battles during the struggle. These will need to be investigated further by the archaeologist, working with local key informants.

4.22 Public Participation at the Local Level

Through the IEE - Social Component, respondents were able to voice their views through quantitative and qualitative instruments. In addition, in January, three workshops were held in the region (one in the proposed pipeline area) to provide feedback on natural and social environment findings, to solicit further information and gain further feedback. In addition, meetings were held with senior *hompas* for the one pipeline and four-riverine strata.

4.23 Natural Resource Utilisation

This was handled by the natural environment team, in part based on tables completed via the IEE - Social Component field teams. Other natural resource utilisation issues have been discussed above, including reliance on natural resources during times of drought.

Wet season measurements would occur as part of the wet season environmental assessment.

Households in Okavango Region only use an average of 5.1 litres of water per day for domestic consumption (median figure), well below the amount of water needed for health and well-being purposes. Of all residents, 90.7% are within 2.5 kilometres of their primary water source for human consumption, and only 22.4% had suffered from dry season water problems during 1996. Households relying on improved waterpoints, particularly diesel systems, reported regular problems with these sources.

Whatever decisions are made about the project, there is a clear need to increase the *quantity* of water consumed in the region. In the proposed pipeline area, system reliability is one likely cause of low water use, but studies from elsewhere in Africa (notable Lesotho), as well as evidence from Namibia, suggest that water use does not increase significantly (and certainly not threefold) simply because of the availability of improved resources. If the project intends to have direct positive impacts in the proposed pipeline area, therefore, attention will also need to be focused on increasing water consumption.

4.24 Local Knowledge of Erosion and Trends

This was not investigated during the IEE - Social Component. However, grazing conditions were discussed, with respondents generally noting that rangeland had declined markedly over the past few years, and was currently in very poor condition.

4.25 Water Cost Estimates

Discussed above. The actual charge to consumers is based on a Government decision in this regard.

5. SUMMARY CONCERNS

The findings from the IEE - Social Component raises the following concerns which would need to be considered before a decision is made regarding whether, and if so how, to proceed with the project:

- 1) If offtakes are allowed, or other water sources are developed, in-migration into the proposed pipeline route area is a definite possibility. Despite reasonably strong traditional authority structures in the area, in-migration would definitely pose a problem for these authorities. Findings also suggest that waterpoint committees in the area would have trouble coping with heavy in-migration, while educational structures are already under strain. It is therefore not meaningful to consider the short-term job potential for the area and the long-term water supply potential from the project as sufficient for the affected area. Remedial action must be taken to accommodate potential negative impacts, all of which should be considered in light of the strong negative attitudes towards the project.
- 2) Attitudes in the proposed pipeline and riverine areas are almost uniformly negative (see also **Annex J-2** on comments from report-back workshop). While this clearly calls for strong, well-thought-out public relations activities, the strength of the negative attitudes suggests that the problem is more serious than can be dealt with merely through a public relations exercise. How to deal with these negative attitudes should be carefully considered by the Department and by the Ministry.
- 3) Households in the affected area are, by and large, quite poor, with many households depending on marginal agricultural, natural resource products in the area (particularly food plant resources) and economic systems that are largely subsistence-only and extremely vulnerable to outside shocks. If the project had negative impacts these impacts would disproportionately affect poorer households, including poorer female-headed households.
- 4) If and when the provisional pipeline route is identified through Rundu, detailed investigations in the affected area would need to be conducted.

5) A skills assessment would need to be undertaken through a sample survey to determine the relative availability of relevant skills, including low level skills. A decision would first need to be made by Government regarding whether jobs will be reserved, in the first instance, for affected households.

6. REFERENCES

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