
South African Foreign Direct Investment in Mozambique:

A case study of the development
impact of the cross-border natural
gas pipeline between Mozambique -
South Africa

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ILRIG / SOMO, 2002

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Executive summary

This report is a qualitative assessment of the socio-economic impact of foreign direct investment (FDI) in the development and construction of the natural gas pipeline between Mozambique and South Africa. This project is part of the government of South Africa and Mozambique's vision for a SADC wide Gas pipeline grid similar to that of the SADC Electricity power grid. These governments hope that the development of the gas pipelines will contribute to the economic development and transformation of their respective economies. Their development goals include improving the standards of living of the people; the creation of employment opportunities; a more equitable gender distribution of income; building relevant technical and institutional capacity as well as the development of local enterprises. However evidence suggests that:

- 1. Civil society organisations such as trade unions affected by the project are ill informed and have heard about the project via the public media such as the radio, television and newspapers. This means that the opportunity for civil society organisations to participate in the project is very limited.*
- 2. Despite the large sums of money spent on the project very few jobs are created - less than 2500 temporary mainly unskilled and not more than 600 permanent mainly skilled jobs with a small percentage going to women.*
- 3. Most Mozambican domestic companies lack financial, technical and human capacity constraining their ability to reap the benefits from opportunities created by the project. Whereas the stronger South African engineering and transport companies (including some black empowerment companies) have secured the most lucrative major contracts.*
- 4. The backward linkages between trans-national corporations (TNC's) and South African companies with the Mozambican supplier companies are weak perpetuating Mozambique's dependence on foreign companies.*
- 5. Despite the provision of a modern and environment friendly energy source it can be exhausted because it is a non-renewable and may be too expensive for those people that are unemployed.*

The conclusion is that the skewed distribution of benefits is a limitation on the development impact of the project. It is important to pay attention to generating economic growth but simultaneously and even more important attention needs to be paid to the quality of the economic growth if it is to be sustained in the long-term. Civil society participation and social dialogue around FDI programmes can enhance the quality of economic growth.

Introduction *

The countries belonging to the Southern Africa Development Community (SADC)¹ are well endowed with natural resources but their level of industrialisation and human development remain low. According to Legum and Drysdal (1969: 406) natural gas fields were first discovered in Mozambique during the early 1960s.² Gas reserves in Southern Africa have increased from 1974 to 2000 by 103% but it has been lying dormant mainly because of a lack of indigenous markets and the war in Mozambique. Now that the demand and market for gas is increasing and the 1992 peace treaty in Mozambique is observed, the governments of South Africa and Mozambique are enlisting the support of their parastatals and foreign companies to develop this economic potential.

Although Mozambique and Namibia have rich natural gas deposits they do not have the financial and/or technological capacity to exploit these resources themselves. Neither are their domestic markets large enough to absorb the sale of this gas and so they rely on attracting foreign direct investment (FDI)³, technology and access to foreign markets to make the extraction of natural gas financially viable. According to Africa Energy (July-August 2000: 10) it is primarily the markets for energy in neighbouring South Africa that will determine how rapidly these resources are developed.

In the South African economy gas is increasingly used in heaters, stoves, cookers and lamps, fridge's, showers, cylinders for home and caravan heating, as well as industrial and medical equipment. Gas is also used as feedstock for fuel in power station turbines, steel furnaces, and the production of liquid fuels such as diesel and petrol. Some of the reasons for the growth in the South African gas market include the need to diversify and spread risk⁴; reduce cost; and pressures to adopt more environmental friendly production methods⁵.

The gas sector and the production of liquid fuels from non-oil (e.g. coal) sources in Southern Africa are dominated by SASOL the South African parastatal.⁶ SASOL produces and supplies more than 40% of South Africa liquid fuels. According to Martin Creamers Engineering News (2001) the present use of gas as a proportion of the total energy supply in South Africa is between 1% and 2% however this could grow to 5% in the near future and perhaps to 10% by 2015. The production of natural gas in the South Africa has increased by ± 19,3% during the period (1997-2000). In this period production peaked at 1,616 millions tons in 1999 and decreased to 1,513 millions tons in 2000 but is still higher than the 1,337 millions tons produced in 1995. In value terms the local sale of gas has increased from

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R260, 405 million in 1997 to R639, 851million in 2000. The industrial⁷ sector is by far the largest consumer of gas accounting for more than 85% followed by commerce, mining and the residential sector accounting for less than 5% of the total gas produced.

Foreign direct investment is often regarded as the engine of globalisation and economic growth. The governments of Mozambique and South Africa hope that FDI in the natural gas pipeline could play an important role in the transformation of the Mozambican economy and the energy sector in South Africa. In recent years a significant proportion of the total FDI into SADC countries has been driven by the acquisition of natural resources. South Africa has in general but particularly in the natural resources sector emerged as the largest foreign investor in the SADC region. This investment is an integral part of South Africa's foreign policy aimed at the economic integration and development of the SADC region. More recently investments in energy provision are seen as part of the vision behind the New Partnership for African Development (Nepad) adopted by the African Unions in 2002.⁸

In a recent speech Phumzile Mlambo-Ngcuka (17 October 2001) the South African Minister of Mineral and Energy stated that

"Energy has been identified as a key component for generating economic growth in Africa. Oil and gas are key energy inputs and the industry is expected to play a significant role in uplifting the continent that will result in the alleviation of poverty and improvement in quality of life for all."

The sentiments expressed by the minister in the quote above are also in line with general principles of the Windhoek Treaty adopted by SADC in 1992 and the SADC Protocol on Energy signed on 24th August 1996. The main idea in Article 2 under General Principles of the Protocol is to generate sustainable economic growth for the purpose of improving the standards of living of the people in the region. Other more specific principles include the use of energy to promote self-reliance among member states; to take cognisance of the gender disparities; encourage the transfer of science and technology. Furthermore the principles include the promotion and encouragement of the participation of citizens and communities in the development and use of energy; ensuring that the development and use of energy is environmentally sound; and the creation of an environment conducive for private sector participation. The Protocol principles are concluded with the need to ensure that sectoral and sub-sectoral regional energy policies and programmes are harmonised.

The purpose of this report is to focus the attention of civil society organisations such as the trade unions, and environment non-government-organisations on the nature of the development that the gas pipelines will generate. To critically examine the socio-economic impact that the construction and operation of the natural gas pipeline is expected to have on the people of Mozambique and South Africa. The report is divided into three parts: the first part provides a description of the vision and case study of the natural gas pipelines between Mozambique and South Africa, the second part identifies the responses of various

social agents to the project and the third part discusses the social dimensions of the project for the respective countries and their people.

PART 1: VISION AND CASE STUDY OF GAS PIPELINE GRID

In this section we discuss the vision and involvement of the South African and Mozambican governments and SASOL in the development and construction of the gas pipeline. We then proceed to outline the case study of the Mozambique - South Africa gas pipeline.

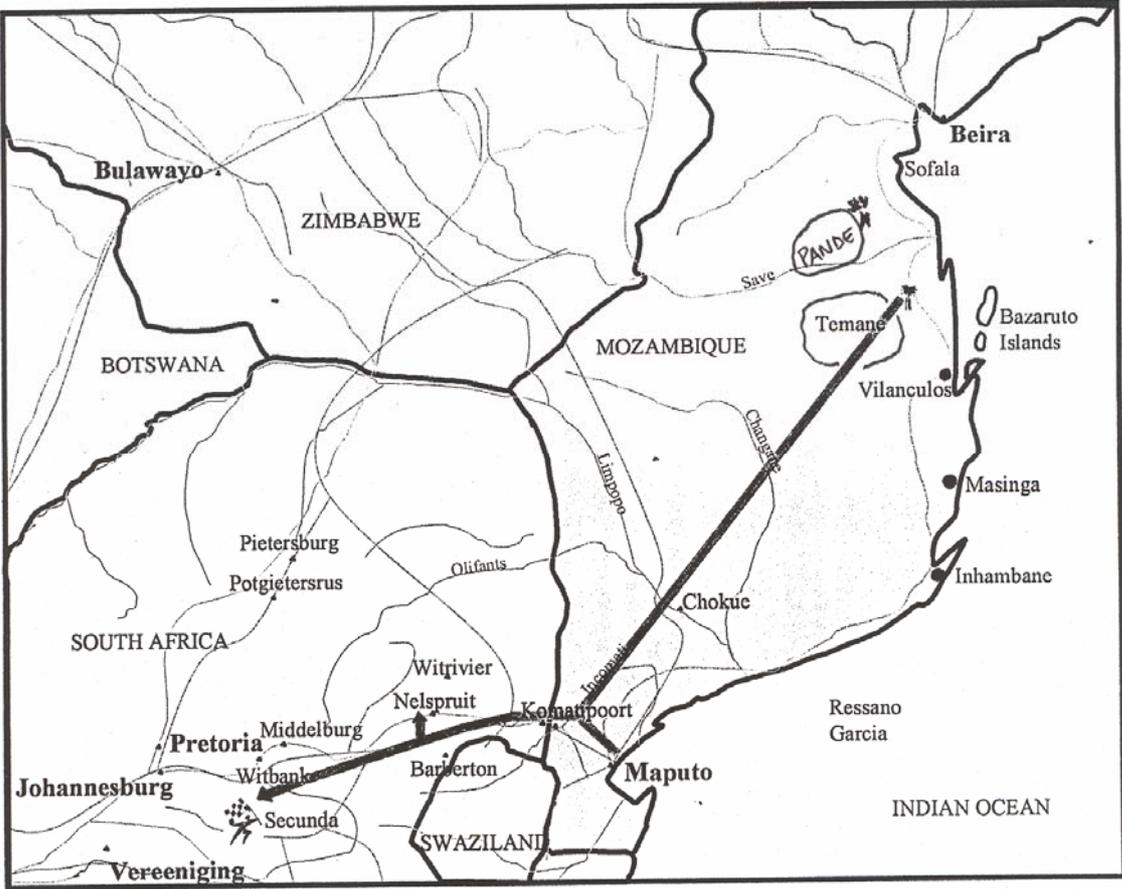
The vision of the South African Government and the Department of Minerals and Energy (DME) and some other governments in southern Africa is to have an integrated gas pipeline network similar to that of the SADC electric energy grid in the region. It is envisaged that this network would include a:

- west coast pipeline from the Kudu gas fields in Namibia to Saldanha Bay in South Africa
- pipeline from the Ibhushie gas fields off the Northern Cape Province along the South African west coast to Saldanha Bay in the Western Cape Province
- pipeline from the Western Cape to Mossgas in Mossel Bay in the South Cape Province.
- pipeline from Mossel Bay to the Coega (IDZ) in Port Elisabeth in the Eastern Province and,
- east coast pipeline from Temane in Mozambique to SASOL in Secunda.

The South African government has signed bilateral investment agreements including the cross-border gas trade agreements with the governments of Namibia and Mozambique to extract the natural gas and to build two separate cross-border transmission pipelines to South Africa. According to Ayanda Nkuhlu an official in the head office of the South African ministerial office in parliament (Cape Town) the Gas cross-border trade agreement signed on 6th April 2001 is confidential.⁹ One cross-border pipeline is located on the east coast between Mozambique and South Africa. This pipeline will transmit dry gas from the Temane and Pande gas fields in the Inhambane Province of Mozambique to SASOL's Secunda plants in Mpumalanga Province of South Africa. The plans and implementation of the Mozambique-South Africa gas pipelines is currently the most advanced part of this vision described above and will be the main case study and focus of the paper. The other pipeline will be located on the west coast between Namibia and South Africa. The west coast pipeline will transmit gas from the Kudu gas fields in Namibia to the industrial development zone (IDZ) at Saldanha Bay in the Western Cape Province.

South Africa has long -even before Mozambican independence in 1975- had trade relations in oil and gas with Mozambique.¹⁰ The decision to establish a private joint venture to oversee the construction of a gas pipeline from Pande came out of bilateral economic discussions in Pretoria during April 2001. Gas via this pipeline is expected in Secunda in February 2004. On 26th October 2001 SASOL and the Mozambican government signed a 40-year contract with the government of Mozambique to produce gas from Temane and Pande gas fields. SASOL will have to find additional gas reserves beyond the 25-year life of the gas sales contract. The Government of Mozambique has also granted SASOL a ten-year licence in 2001 from 2010 to continue exploration for additional reserves.

Figure 1: Map of Mozambique showing pipeline route and surrounding towns



As part of the agreement the parties agreed to establish \$1,2 billion venture of five-integrated yet separate projects. These include the gas field development in Mozambique; transmission pipeline from Temane to Secunda; conversion of SASOL’s gas distribution network; conversion of SASOL’s coal-based chemical production activities in Sasolburg and; modifications at SASOL’s Synthetic Fuels (SSF) in Secunda. The parties agreed that SASOL

would finance 51% and the South African and Mozambican governments 49% of the construction of the pipeline from the Pande, Temane and Sofala gas fields.

In Mozambique two gas fields were identified for development namely the Temane and the Panda gas fields. The Temane and Pande gas fields are located near Vilanculos north of Inhambane Province along the Mozambican east Coast. According to Mozambiquefile (2000: 17, No 292) the immediate focus of SASOL will be first on developing the 18 wells drilled at Temane gas fields¹¹ by April 2003 where the gas is at significantly higher pressure than Pande. Secondly SASOL intends to develop the 15 gas wells at the Pande field by 2006, at an initial cost of \$41-million.

Table 1: Companies operating concessions in energy exploration, 2000

Company	National	Project
Enron	Unites States	Pande
Arco	Unites States	Temane (jointly), Sofala Bay ¹² , M-10
Zarara	United Arab Emmerits	Temane, Buzi (jointly)
SASOL	South Africa	Temane (jointly)
Scimitar	Canada	Buzi-Divinhe, Inhaminga
Eif	France	Zambezi offshore
Norbay	Norway	Zambezi offshore
Leopardus	Canada	Temane, Buzi (jointly)

Source: EIU (2000: 23)

According to the EIU (2000: 23) several foreign multinational companies hold concessions and are undertaking exploration in Mozambique. Table 1: above indicates the companies operating concessions in energy exploration in Mozambique during the year 2000. The Mozambican State-owned energy company, Empresa Nacional de Hidrocarbonetas (ENH) maintains joint-ventures equity participation in all project developments.

According to Mozambiquefile (November 2000: 17, No 292 and January 2002: 23, No 306) SASOL took over the rights to the Pande gas fields from Enron¹³ in 2000. Originally SASOL worked in partnership with the Atlantic Richfield Company (ARCO) of the US and Zarara Petroleum of Dubai. This consortium signed production-sharing agreements with ENH in 1998 involving Temane and two offshore blocs Sofala and M-10. However ARCO was taken over by BP. In May 2000 SASOL acquired ARCO and Zarara interests in Temane and M-10, and the ARCO share of Sofala giving SASOL 100% of the rights in the fields.

The Government of Mozambique, ENH and SASOL signed two contracts for the Pande and Temane gas fields and exploration acreage. A petroleum Production agreement was signed for the United Pande and Temane Gas reservoirs. ENH and SASOL will also be partners in the development of the Pande and Temane reservoirs. The gas in these reservoirs will be

dedicated to a gas sales agreement with SASOL Gas for on-selling to customers in Mozambique and South Africa.

Construction of the pipeline started in April 2002 and is to be completed by 2004. The high-pressure steel transmission pipeline will be 865km long and 66cm diameter with no initial intermediate compression.¹⁴ The length of the pipeline on the Mozambican side is 531km and on the South African side is 334km. The South African portion of the pipeline is located from the border town of Komatipoort, via Kaapmuiden, Badplaas and Bethal, to the Secunda petrochemical complex, where it will link up with the existing SASOL Gas distribution network.

The pipeline will be buried at a minimum depth of one-meter below surface (EIS May 2000: 10). Much of the equipment and material used in the construction of the pipeline will be pre-constructed along the Mozambican beach to facilitate the offloading of equipment and materials. Once the delivery of all the materials and cargo has taken place, all structures will be removed and restoration operations will complete this delivery process (EIS May 2000: 11).

The gas will be cleaned, dried and compressed at a central processing facility (CPF) - located on top of the Temane fields about four kilometres from Mozambique's national highway - before being delivered to the inlet flanges of the transmission pipeline for transportation to downstream¹⁵ customers. The quality of the gas will be controlled at the CPF. The gas will be analysed (monthly) to monitor the composition. It is expected that the gas composition will change very little overtime. The CPF and each well head will be fenced off. The area surrounding the wells and the CPF will be maintained as hazardous installations.

Currently SASOL has 100% ownership in the CPF, while the ownership of the gas wells is split 70% -30% between SASOL and the CMH a subsidiary of the Mozambican national Oil Company ENH (Mozambiquefile November 2000: 17, No 292). The EIU (January 2002: 22) reports that the engineering, procurement, construction and management contract for the CPF of US\$158 -million was awarded to US engineering company Foster Wheeler based in South Africa in September 2001. The company will also install the pipe that transport gas from the gas wells, through to the CPF plant. Once the construction and development of the CPF and the wells is completed the operation phase will be managed by SASOL.

PART 2: RESPONSES TO THE MOZAMBIQUE- SOUTH AFRICA PIPELINE

This section summarises the response of various social actors to the Gas Pipeline project. It starts by outlining the response of the governments involved and then proceeds to highlight some of the responses from interviews of selected individuals.¹⁶

Government responses and trade and investment regulatory regimes

The response of governments of South Africa and Mozambique was to create conditions that will facilitate and ensure the successful implementation of the Gas Pipeline Project. In addition to encouraging investment and the development of the gas fields both government set about developing a legislative framework and policies for regulating the industry.

In February 2001 the government passed the Gas Act No 48 encompassing the DME national regulatory framework to promote the orderly development of the piped-gas industry in South Africa. The purpose of the Gas Act is to establish a gas regulator as the custodian and enforcer of the regulatory framework. Furthermore the Gas Act also seeks to regulate the downstream sector and the transmission, storage and distribution networks. Business Day (4th October 2001) reports that the Gas Act will cap the price at which the gas can be sold and makes provision for consumer protection.

The Business Day (13th September 2001) reports that Alec Erwin South Africa's Trade and Industry Minister noted that much time during the negotiations of the Gas Act was spent on outlining the jurisdictional areas of regulatory authorities such as the gas regulators, the licence and the competition commission. Erwin and the DME hope that the project will be a significant stimulus to the local economy and contribute to encouraging foreign investment inflows. The availability of competitively priced gas will give South African steel and aluminium industries a cost-effective competitive advantage. For example Business Day (5th September 2001) reports that the troubled Saldanha Steel plant could be given a lifeline with the supply of cheap gas from offshore reserves. The beleaguered Saldanha Steel plant is a joint venture project between ISCOR and the Industrial Development Corporation (IDC) of South Africa. Until now the Saldanha Steel plant has been mainly powered by coal¹⁷, but if natural gas were to be supplied at cheaper rates, this would transform the economics of the facility, which is losing ± R1 billion a year. The other iron producing plant inside the Saldanha mill-Midex plant also stands to benefit from access to a cheaper energy source.

The Mozambican government welcomed the FDI and expressed the hope that this will stimulate further economic development of the Mozambican economy. Other parts of government have their worries about the pipeline. Carla Cuambe a 29-year-old Mozambican woman living in Maputo is a government official in the National Directorate for forestry and wild life (DNFFB) said,

"I first heard about the Project when someone from South Africa approached me at the DNFFB about information to cut the forest to get land. In Mozambique the land belong to the State. My job is to provide the person with guidelines for what he had to do. The company did not have to pay for the trees but had to ask the local municipal

government for rights to use the land. In return the company had to pay tax for the use of the land."

[Interview with Carla Cuambe who attended a workshop at the University of the Western Cape in Cape Town]

In response to the question what impact she thought the cutting of the trees would have - Carla Cuambe responded

"...the impact could be bad. In Ardiostachys Johnsonii Woodland because it has now left an open area in a place that was previously inaccessible now more people will now be able to enter the forest and cut wood poles."

The quote illustrates that not all parts of government are involved in these economic decisions and that apparently economic issues take precedence over the protection of natural resources.

Responses from civil society organisations and individuals

From the conversations it seems that even though the respondents had heard of the Gas Pipeline Project they knew very little about the project. According to (Samora Nuvunga 29-year-old Mozambican male living in Maputo) "We call it *Gas de Pande*". In response to how they knew about the project. Many of the respondents replied that they heard about the project from the radio, television and read about it in newspapers.

" We did not know that we had gas. We did not know what the pipeline was about! We heard about the Gas Pipeline project from e TV Mozambique and newspapers like Noticias. Now I understand what kind of gas. It is easier to get information in town because of access to the radio and newspapers. In the country people do not know much about the gas. People I have spoken to in Inhambane have heard about the gas from other people. In the village people have contact with people coming from Vilanculos and Maputo. The people from Pande are better informed because they are closer to the gas fields."

[Sebastiano Matshinhe a 34 year old Mozambican single male living in Maputo and is a student in Cape Town]

The response to the benefits that the gas project will bring to Mozambique and South Africa is mixed. While Sebastiano Matshinhe was positive about the effects of the gas on Massinga the town closest to Pande they have received electric power from Pande.

"Now there is more light in the town and people can walk around at night because it is safer. Gas from Pande will get people more work. It will give people more options such as opening bakeries and restaurants the town will grow. Government is in the process of opening schools and hospitals near the town's closer to the Pande fields."

Joao Miguel de B.P. Fernandes a 25-year-old Mozambican male from Bemba Cabo delgado now living in Nampula said that there was a perception by people living in the North of the country that the project will bring benefits to Mozambique but the benefits will only be enjoyed by the people living in the South. People in the North can't afford gas and they still use coal to make food. People in the North of Mozambique think the same way about the MOZAL project in the South. The response from Rosa Pires is more critical,

"Until now I don't see it much different than MOZAL. They are coming to suck the primary material from the Mozambican soil and maybe get involved in some community projects, but at the end of the line, they are making money out of Mozambican soil and workers."

[Personal correspondence with Rosa Pires - CUSO, Maputo activist working with Mozambican trade unions and workers]

Although Mozambican and South Africa trade union officials knew about the Gas Pipeline Project they had not discussed it with their various constituencies yet and their organisations had not taken any decision on the matter. Until now there had been no discussion on pipelines in Congress of South African Trade Unions (COSATU). Neither had there been any discussions in the Chemical Energy, Paper, Printing, Wood and Allied Workers Union (CEPPWAWU) an affiliate of COSATU organising in the Petrochemical sector. Even at the Mpumalanga Province office of CEPPWAWU Simon Mofokeng -the regional secretary acknowledged that they had not discussed it yet. However Judas Makhubedi the local CEPPWAWU organiser for the SASOL Secunda plant indicated that they had a meeting among shopstewards and workers belonging to the union and approached SASOL management but they were told that consultations between the union and the company would be prepared nationally with CEPPWAWU head office. Then it would be the responsibility of the head office to inform the rest of CEPPWAWU. At the time of writing this report the neither the region nor the branch office or the organiser had had any discussion with the CEPPWAWU head office.

PART 3: ANALYSIS AND SOCIAL IMPACTS

This section provides an analysis of the Gas Pipeline Project. It discusses how the process of globalisation influences South Africa's foreign direct investment in the SADC region. It identifies the international investors and suppliers or equity partners. Focusing on how the gas pipeline is contributing to regional economic integration and development. It discusses

the terms of the SADC Energy Protocol and whether it is WTO compatible or compliant. This includes a brief comment on the relationship and the distribution of benefits between the different countries and within the countries involved in the pipeline. Furthermore the social dimensions of the Gas Pipeline Project and the corporate social responsibility of the investors is discussed.

International investors, suppliers, equity partners and/or competitors

Internationally the oil and gas industry is dominated by large and powerful multinational companies from the US and European countries. Currently energy TNCs such as BP Oil, Engen, Shell, Chevron and Texaco are competing fiercely with each other to secure exploration rights along the coast of Southern Africa. The importance of gas for BP and Shell has also increased significantly Shell now produces more gas than oil and argues that it sees more prospects and options for gas than for oil in the new century. These companies are the owners of substantial finances and the latest technology and resources for exploration.

Cash strapped developing countries that lack the resources to exploit their natural endowments are forced to restructure State-owned public companies and to form joint ventures (consortia or equity partners) with domestic and foreign private sector companies. For example the State-owned Mossgas, the biggest gas-to-liquid fuel in the world, has formed a joint venture with Statoil Norway's leading oil company, to build a 1000 barrel-a-day plant near Mossel Bay by the end of 2003 year. Another example is that the Mozambican national energy company Empresa Nacional de Hidrocarbonetos de Mocambique (ENH) and SASOL signed contracts for the exploration of the Pande and Temane gas fields. The gas in these reservoirs is dedicated to a gas sales agreement with SASOL Gas for on selling to customers in Mozambique and South Africa.

The investment regimes in Mozambique and South Africa have been liberalised and simplified to facilitate entry and exit of cross-border financial flows. Both countries are members of multilateral agreements and agencies such as Multilateral Investment Guarantee Agency (MIGA) and International Centre for the Settlement of Investment Disputes (ICSID) Both are World Bank agencies that provide protection and guarantees for foreign investors. The quantitative and qualitative economic effects of FDI are almost impossible to measure with precision a broad overview of some of the advantages and disadvantages is discussed below.

The FDI flows into Mozambique are based on the country's location-specific advantages such as its natural resources endowments of hydropower and natural gas and proximity to the coast. The FDI invested by SASOL in the processing and transmission of natural gas is green-field investment. This resource seeking FDI is typical of TNC's that invest in the extraction of raw materials in order to secure access to essential inputs in processed products like gas-to-liquid fuels and steam-generated electricity. As with other recent FDI projects in Mozambique the development and extraction of gas are mainly for export to

markets in South Africa. A feature of this large-scale FDI project is its capital-intensive and high technology bias production process and is unlikely to create many jobs or make a significant impact on reducing unemployment and poverty levels.

Although the current rate of gross fixed capital investment (GFI) in Mozambique is low the natural gas project will make a contribution to raising the GFI through the building of transmission pipelines and processing of natural gas infrastructure. Enhancing the gas pipeline and processing infrastructure lays the basis for attracting further FDI inflows and increasing gas or gas-related (iron, steel or aluminium) production. Consequently TNCs the main drivers of international and cross-border production may be attracted to these industries. However the potential to attract FDI is limited by the highly specific nature of the transmission of gas or oil infrastructure.

According to the EIU (January 2002: 10, 12) the construction of the gas export pipeline to South Africa will contribute significantly to economic growth in Mozambique. The FDI dedicated to the gas project is estimated to contribute from royalties, taxes and imports duties between 10% and 20% to Mozambique's GDP and between 0,2% and 0,3% to South Africa's GDP. FDI inflows and the royalties that accrue to the Mozambican government are likely to positively affect the country's balance of payments through the current and capital account. Royalty payments will be based on gross revenue generated in the gas field for the term of the gas supply agreement and will amount to 5% on the gas sales and 8% on crude oil. The local income tax rate is assumed to be 35% for the gas field portion of this project. According to Martin Creamers Engineering News Mozambique will receive more than \$2billion in royalties and taxes over the life of the \$1,2 billion natural gas project. The project will provide the Government of Mozambique with a substantial net increase in foreign exchange.

The Mozambican Government will also through its participation as a 25% shareholder receive dividends on its investments. However the balance of payments benefits may be mitigated by the Mozambican governments non-restrictive policy of repatriation of profits and dividends. The success of the gas project and the expansion of gas-related industry will increase the tax base from which the two governments derive their revenue. Long term projections (based on a 25 year life span) suggest that the project sponsors (predominantly SASOL) will earn \$18,3-billion, the Mozambican government will receive \$ 21, 4 Billion and the South African government \$3,2 billion.

The above provides evidence of an increase in economic growth as measured by GDP but tells us very little about the nature, content and quality of the economic growth. At best the growth generated by the pipeline is based on the export of raw materials creating few jobs. Macro economic outcomes and trade and investment performance is also influenced by gender inequalities.

South Africa's and Mozambique's gas and WTO obligations

The liberalisation of the energy markets and the phasing out of tariff protection on fuel products makes it easier for gas to enter and compete with the other energy sources such as electricity, petrol and coal. In keeping within the World Trade Organisation (WTO) principles South Africa and Mozambique have since the mid-1990s removed trade and investment legislation that discriminate between foreign and local companies (Global Dialogue 1999). Foreign investors and their TNCs are encouraged to invest and operate in South Africa as long as these companies implement empowerment procurement policies and targets. These obligations also apply to domestic companies. This means that generally legislation affecting companies investing in the gas sub-sector is compliant with the WTO's non-discriminatory principle. According to Ayanda Nkuhlu the cross-border gas trade agreement insist on the use of local suppliers and the inclusion of local content. When asked whether this was WTO compliant he responded that these issues are still under discussion within the WTO and had not been resolved. The Gas Act empowers the gas regulator to set the tariff for gas. This has not been done yet but the tariff will be set before 2004.

Distribution of benefits among companies and countries within the Southern Africa gas fuel market

The demand for gas is driven by the development of the private-sector industrial markets. The market for gas can be divided between potential clients based in the domestic economies of Mozambique and South Africa. The size of the market and how well the gas market is organised determines the direction in which the gas will flow. In southern Africa the main customers (companies and residents) will be in South Africa. This means that gas will be exported from Mozambique and Namibia to market in South Africa (EIU January 2002: 23). In the short-term, plans by SASOL include expanding heating fuel markets in South Africa. The long-term goal is to provide impetus for a petrochemical and steel industry in the region starting with Mozambique.

Through diversifying the source of energy away from coal into gas the country would also be spreading its risk in terms of exposure to price fluctuations in these commodities. In the longer-term the cost of transporting gas is much lower than coal, since transport represents 50% of the cost a substantial savings will be made. As the distance from the source to established markets increases coal's competitive strength diminishes and gas becomes more profitable providing the incentive for SASOL to develop its gas markets in KwaZulu-Natal.

The engineering contractor Flour was granted the contract to convert and upgrade SASOL's existing pipeline system and plant infrastructure at Secunda and Sasolburg to accommodate the use of natural gas by May 2004. These plants presently manufacture synthetic gas from coal. At Secunda the gas will be introduced into SASOL's existing network that supplies customers in Gauteng, Mpumalanga and Kwazulu-Natal. SASOL

currently operates some 1500-km of gas pipelines that distribute pipeline gas to industries in the greater Johannesburg area. Through the SASOL Gas division, SASOL Oil markets clean-burning pipeline gas produced by SASOL Synthetic Fuels and SASOL Chemicals industries to more than 600 industrial customers. SASOL is expanding its operations in the industrial areas of Durban South, KwaZulu/-Natal in a project worth US\$ 23 million. This demand for gas in South Africa is further enhanced by plans to develop industries such as Saldanha Steel and a planned gas-fuelled power plant in the Western Cape. In addition there are plans for developing gas markets at the Omega Industrial Development Zone near Port Elizabeth with the possible construction of the pipeline between Mossel Bay and Coega. By growing the market for gas through the expansion of the customer base SASOL hopes that its investments in the Mozambican gas fields will pay itself off sooner.

According to Africa Energy (July-August 2000: 12) SASOL has the capacity to provide a significant proportion of the demand for Mozambican gas. In Mozambique the demand for gas is driven by the holiday resort, tourist and hotel sector. An agreement was also reached with the South African Government on a regulatory environment for gas markets within Mozambique. Within Mozambique the gas sector has been liberalised and a South African company, African Oxygen plans to enter the market. Also the Portuguese energy company Petrogal has acquired an additional 26% of the share in the Mocacor propane gas-distribution company (EIU April 2002: 20).

The Mozambican-registered Company Elgas,¹⁸ established by Eskom Enterprises has also obtained the rights to manage and operate the existing natural-gas distribution network from the Pande gas fields to the towns of Vilanculos, Inhassoro and Nova Mombane, in Inhambane province.¹⁹ Elgas also controls the marketing of gas to several islands, holiday resorts and a variety of hotels and lodges that currently generate electricity from diesel-powered engines. Other potential gas customers operating inside Mozambique include the aluminium smelters MOZAL 1 and MOZAL 2.

The evidence suggests that the small and medium enterprises such as the engineering companies operated by the black economic empowerment groups in South Africa stand to benefit more than those companies in Mozambique. Mozambique's benefits from the supply of consumable goods and services are further limited by the low local capacity levels of their companies and most of the materials and equipment are likely to be imported from outside Mozambique (Draft EIS Report 2001: 7.31). The linkages from foreign affiliates of TNC's to domestic firms are important channels through which assets such as technology and management skills can be passed on. Linkages can stimulate economic activity and where local input substitute for imported ones can benefit the balance of payments. The strengthening of suppliers can lead to spillover to the rest of the host economy and contribute to a vibrant enterprise sector. Since these linkages in the case of Mozambique are weak then they contribute very little to the upgrading of domestic enterprises and increase the dependency of host countries such as Mozambique on foreign affiliates of TNCs.

Black economic empowerment in South Africa

A more equitable and even development is dependent on a distribution strategy. Unlike South Africa Mozambique does not have in place robust empowerment policies that comprise a significant component of such a distribution strategy. In South Africa the Empowerment Charter (November 2001) makes provision for black economic empowerment (BEE) enterprises to obtain 25% equity of all facets of the energy industry within 10 years starting 2001. The Empowerment Charter provides guidelines for empowerment procurement policies as part of governments efforts to change the profile and regulatory landscape for the industry. The South African Petroleum Industry Association (Sapia)²⁰ for example has agreed to use policy instruments such as procurement, employment equity and capacity building to secure a significant share for BEE groups within the lucrative oil industry. Government will retain an element of control until empowerment groups and historically disadvantaged South Africans have a base. Consequently many of the large multinational companies operating in South Africa such as BP South Africa and Engen South Africa have sold 25% and 20% of their shares respectively, to BEE companies. SASOL have also signed memorandums of understanding with two BEE groups for local gas-distribution companies in Mpumalanga and KwaZulu-Natal.

SASOL claims that they wanted to maximise the supply of line pipe from local companies to build capacity for possible future developments in the gas industry but due to the tight schedule of the project, some pipe will have to be imported. Nevertheless SASOL acknowledges the need to develop the capacity of South African BEE companies to supply services and goods. SASOL has also committed itself to the training of personnel to facilitate local benefits from the project. South Africa's first gas sector utility privatisation Egoli Gas comprising of four black empowerment entities was licensed to supply piped town gas to the Johannesburg area. The company currently supplies piped gas-supplied by SASOL to about ($\pm 20\%$) of its licensed area to thousands of its customers mainly located in and around Johannesburg central business district. Most of these customers are residential consumers but the majority of the gas volume is supplied to large commercial clients ($\pm 80\%$).

According to the Martin Creamers Engineering News (6th March 2002) twelve South African black economic empowerment engineering companies based in Kwazulu-Natal have pooled their energies and resources to form one of the largest black economic empowerment engineering firms in the country. By forming the African Progressive Projects the 12 individual companies hope to reap the benefits of economies of scale. The company hopes to secure larger or major contracts.²¹ The company has secured two piping projects from petrochemical giant SASOL. The first project valued at \pm R3 million for the installation of a two kilometre, 12 -inch steel pipeline for SASOL Gas. The second project involved a \pm R4 million 3,5-km high-density polyethylene line. In addition African Progressive Projects has been approved to work on the 865 km pipeline running from the Pande gas fields in Mozambique to SASOL's petrochemical operations in Secunda.

South African companies that have linked themselves to international consortiums have managed to secure the lions share of manufacturing the pipeline. Another South African company that has benefited from the natural gas projects is the Hall Longmore (a Murray and Roberts company) that was awarded a R200-million contract to supply 205 km (a portion of the 865km pipeline) of steel piping to SASOL's natural-gas pipeline from Mozambique's Temane gas field to RSA.²² Hall Longmore will be a subcontractor to the international consortium comprising of Itochu from Japan (Kawasaki), and Europipe of France and Germany. Grinaker Ltd is a subsidiary of Aveng²³, McConnell Dowell (Australian) and CCIC (a Greek construction company) Consortium is yet another company that won a contract for the engineering, design, procurement management, construction and commissioning of part of the gas pipe line from Mozambique to South Africa.

Almost all the materials for the pipeline are to be sourced from international and South African manufacturers. Much of the equipment and material used in the construction of the pipeline will be pre-constructed in modular and transportable packages and then delivered to the site by means of a combination of sea, rail and road transportation (Draft EIS August 2001: E.10). The pipeline is produced in South Africa and then transported by South African transport companies to Mozambique where it is welded together using South African engineering companies.

According to the Gas cross-border trade agreement the project is required to maximise the use of local suppliers and sub-contractors, although this poses some challenges for companies operating in Mozambique owing to weakness and limited capacity of the local private sector. Suppliers of relatively simple, standardised, low technology products and services are typically in a weak bargaining position. If host country suppliers are weak then trade flows would most likely be one sided. The technology employed in the conversion of gas to liquid fuels is highly specific and most developing countries such as Mozambique and Namibia lack the capacity to develop this technology. The technology is not easily transferred and technology-spillovers to other sectors are highly unlikely. Although FDI projects in Mozambique and South Africa have brought financial resources however in Mozambique access to credit still remains a constraint. Access of SMME to investment is dependent on marketing and supply networks capacity, both of which are in short supply in Mozambique.

In general women and black women in particular are poorly represented among the black economic empowerment beneficiaries even though government claims to follow a policy of non-gender discrimination. The current social arrangement means that few women are directors or engineers and own their own companies. Where they do to a greater extent in Mozambique but also in South Africa women entrepreneurs have difficulty in accessing finance. The problem lies not only in unequal resource control but also in the institutionalised gender biases in both the state and the markets. It is essential that government's empowerment policy goes beyond building the capacity of middle class males and empowers poor people and especially women if poverty is to be eliminated.

Impact on the labour market in South Africa and Mozambique

The capital-intensive nature of production means that relative to the capital invested very few jobs are created. On average, the petrochemical industry is not a large employer, and it is estimated that it creates only two to three jobs for each million-rand invested.²⁴ The impact on unemployment in Mozambique and even South Africa is negligible. Unemployment level in Inhambane Province of Mozambique and the Mpumalanga Province in South Africa is among the highest of their respective countries. A significant feature of both these provinces is that they are predominantly rural. Gender biases in labour markets also mean that women in these provinces are less likely to be employed and experience poverty differently compared to men.

Among the main issues raised by the public consultation of the environment impact assessment (EIA) for the construction of the gas pipeline was concern about the creation of employment opportunities for local labour, the manufacture of equipment required for the pipeline, and the empowerment of local people during the construction process. Mr Joe Dlamini from Jomele Labour Hire suggested that SASOL consider using more local labour and provide opportunities for local entrepreneurs as far as possible for supply of materials and services. Mr Elmon Pangaan from COSATU asked whether the option of using natural gas would negatively impact on job opportunities for coal mine workers, as less coal will then be required. These concerns are also echoed by Mr Makhubedi from CEPPWAWU who said that

" the people in Secunda (Mpumalanga) were worried that some sections in SASOL would be restructuring and was uncertain about what impact this would have on workers. Among the fears are that the restructuring may negatively affect some workers at SASOL Coal who maybe retrenched."

According to the Draft EIS Report (2001: 7.11) most of the local socio-economic effects of the project will result from the direct impacts of jobs available during the construction period that will be \pm 15-20 months. An estimate of a total of 2500 temporary jobs will be employed during this period. Table 2 indicated the jobs created during the construction of the Central Processing Facility (CPF). According to the Final EIS (2001/2: xii) during the seismic operation a further 60 unskilled workers would be required and these would be recruited locally in Mozambique. The drilling programme requires \pm 100 unskilled and semi-skilled workers. It is estimated that a further \pm 160 Mozambican nationals will be directly or indirectly employed on a permanent basis as a result of the operation of the gas fields and over the life of the project with a life span of 25 years. Less than a total of 600 permanent workers would be employed directly by the project. The wages paid to Mozambique nationals will total \pm US\$1.75 million. Since the size of the average family is comprised of 5 persons it estimated that more than ten thousand people will benefit from the income earned in Mozambique.

Table 2: Job creation for the construction of the CPF:

Position	Number	Origin	Period
Unskilled	160	Local labour	17 months
Semi-skilled	160	- 100 locals - 60 foreigners	15 months
Skilled	160	- 30 locals - 120 foreigners	12 months
Management	60	- 10 locals - 50 foreigners	17 months

Source: Daft EIS Report (2001: 5.10)

In South Africa the jobs created is off-set by some of the jobs that will be lost due to plant restructuring from coal to gas.

According to the Draft EIS Report (2001: 7.12) people would migrate in search of jobs created by the construction of the pipeline and may have negative social consequences on the local communities living around the pipelines. The report raised the possibility of the development of a sex worker trade leading to an increase in HIV/Aids and other accompanying social pathologies. The report suggests that the social interaction between the local people and the construction crew may lead to the transmission of sexually transmitted diseases (STDs) and HIV/Aids. It recommends putting in place a STD/ HIV/Aids workplace policy that includes detection, treatment and monitoring of STD infections and HIV/Aids awareness training such as promoting information, education and condom use.²⁵ The administrator of Magude also expressed these concerns with the project in a recent TV programme

"...because it could bring prostitution and HIV/Aids into the area but that they should mobilise the community and the government should also be implicated in measures to prevent those things. Other wise SASOL project is good because it hired 367 Mozambican workers. Magude area is in extreme poverty, it one of the areas where the World Food Programme has to send food. The government wants to negotiate with SASOL to open new roads, so it will be very good."

[Quoted from TV Mozambique in personal correspondence via e-mail from Rosa Pires].

A number of labourers are also likely to be infected or even die because of malaria.

According to the Draft EIS (August 2001: E25) most of the local socio-economic effects of the project will result from the direct impact of jobs available during the construction period. Precedents of labour disputes arising in the case of MOZAL in Maputo and Saldanha

in Cape Town (South Africa) have occurred when workers perceive arbitrary discrimination (unfairly treated). The companies are required to implement a carefully thought out transparent employment policies to avoid any major labour dispute concerning discrimination between local and foreign employers and the termination of temporary workers while permanent workers are retained.

"We are discriminated against, the white people drink mineral water but to us they give salted water to drink and to wash ourselves. We eat bad food only once a day. We work a lot of hours and are badly paid. The workers hope that when they sign up with the union SINTICIM that the conditions will get better."

[Quoted from TV Mozambique in personal correspondence via e-mail from Rosa Pires].

Workers in Mozambique and South Africa are having the right to be protected by reasonably good labour laws. Workers may still feel vulnerable because the government of Mozambique lacks the institutional capacity particularly in rural provinces of Mozambique such as Inhambane to enforce these laws.

Impact on the natural environment and human development

From the above information it is evident that a number of Environment Impact Assessment (EIA) studies of the Natural Gas Project were completed. The EIA processes that were followed are prescribed by the Mozambican and South African laws and regulations. These include public consultation /disclosure, impacts, mitigation measures and monitoring are detailed in the individual EIA and Environmental management Plans.²⁶ The legislative framework in Mozambique is the prerogative of the Ministry for the Co-ordination of Environmental Affairs (MICOA) established in 1994. The method of consulting with interested and affected parties (I and AP's) were discussed and agreed with the Mozambique Ministry for the Co-ordination of Environmental Affairs (MICOA) at a workshop held on 1st and 2nd November 1999.

In South Africa the legislative framework is outlined by the Environment Conservation Act (Act 73 of 1989). It requires that EIA must be conducted for all listed activities. Regulations require that transportation structures or handling facilities for any substance that is dangerous or hazardous and is controlled by National legislation, must be subject of an EIA. The EIA is used as the basis for approving the project. In South Africa the responsible government authority is the Department of Environmental Affairs & Tourism.

Natural gas is considered to be an environmental friendly and cost-effective energy source. An Environment Impact Assessment (EIA) was carried out to determine the type and severity of impacts of construction and operation that the pipeline will have. The degradation of the natural environment including the potential negative impacts of the construction process, equipment and personnel on the fauna and flora, soils, and the

Mecrussi forest. SASOL has undertaken to rehabilitate the pipeline corridor after construction as per recommendations of the EIA, thereby ensuring that little visible surface earth scarring occurs. Although the use of natural gas will result in less air pollution the process will still impact on the environment. The Carbon dioxide (CO₂) and sulphur is emitted into the atmosphere may contribute to the development of bronchial and lung infections in human beings.

SASOL will be responsible for the safety management of the pipeline that will be monitored by helicopter. The fuel gas is very dry so the inner steel surface of the pipeline carrying gas would not corrode. A cross-country pipeline is generally designed for a life span of 40 years. Where corrosion-protective measures have been well maintained a buried pipeline may render service for more than double this period. The Supervisory Control and Data Acquisition (SCADA) will be linked to SASOL's main control centre from where the pipeline would be monitored.

The EIS has not considered the implications of the consumption and export of a non-renewable²⁷ energy source in Mozambique. The remote rural areas face a dark future without renewable energy applications. There is a distinct lack of infrastructure investment in poor residential areas. Very few people living in the rural areas have access to any form of modern energy such as electricity. Despite Mozambique being among the cheaper producers of electricity in the world many of the Mozambicans living in the huts beneath the pylons that transport electricity from Cahora Bassa dam to the metropolis are without electricity. Even in the case of South Africa where electricity is provided to \pm 70% of its population it is not clear how the government is going to make the cleaner and more modern energy available to people living in rural areas. Many of the people living in rural areas of Mozambique are unemployed even if the gas or oil is sold to them at market related prices many of these people will not be able to afford it. Fuel wood is the main energy source used in the rural areas and women are their main users for meeting household energy needs. Conventional energy approaches and the current capital-intensive, export-dominated energy sector virtually exclude these concerns raised by women.

SASOL has contracted in different consultants to do the EIS. SASOL and these consultants at the end of the day pass the responsibility onto the public - "it is the responsibility of the stakeholders to ensure that all their issues have been captured in the terms of references and implemented in the Sky High Project" (SHP May 1998: 10). Trade unions and Ngo's should develop a model for increased community participation and capacity in EIA's.

Corporate social responsibility - community and non-government organisations

Often the corporate social responsibility programmes amount to little more than small donations and a marketing exercise. However according to the WIR (1999) social responsibility of TNCs are increasingly seen in terms of corporate roles related to an array of stakeholders, shareholders, workers, managers, customers, suppliers, local communities

and government departments. Human rights, the environment and workers rights are particularly important. Corporate social responsibility is more than public relation according to the WIR (1999: 345) corporate social responsibility is concerned with how business enterprises relate to and impact upon a society's needs and goals? Corporate social responsibility in the community is often seen as an aspect of the company's public relations and corporate image profile. In this regard SASOL see its contributions to the upliftment of local communities through the provision of social services and infrastructure.

The Business Day (11th June 2002) reports that SASOL spends ± R75 million a year on corporate social investment community projects. The company has focused its corporate social responsibility in five areas these include education and training²⁸, job creation and small business development²⁹, health and welfare³⁰, arts and culture³¹, and nature conservation and the environment³². According to SASOL the company has established community awareness panels its stakeholders include the government, interested and affected parties, the project proponents (and its employees) and technical specialist.

In addition to SASOL's general social investment programme the company is spending \$6 million on communities along the path of the pipeline from Mozambique to South Africa. The Draft EIA (August 2001: E32) reports that approximately 57 rural dwellings are within the path of construction for the pipeline and would have to be relocated in the event that the route were not adjusted to accommodate them.³³ SASOL has based its resettlement and compensation procedures on the World Bank guidelines and precedents established by MOZAL, Motraco and Corridor Sands.³⁴ People that live and use land within 30m of a construction area related to any of the exploration or drilling infrastructures will be resettled. Where houses (dwelling units) were demolished the people were resettled. Where resettlement takes place the affected parties together with the relevant tribal administrative authority and SASOL representatives decided on an appropriate alternative location, replacement structures and transitional support. Where graves are affected, these will be exhumed and reburied at SASOL's expense in accordance with the requirements of the affected party and tribal authority. Where compensation is the preferred option, or where there is a loss of amenity, loss of land or loss of crops/income - earning potential occurs, then the extent and value of the loss will be jointly determined by the affected party, tribal authority, administrative authority and SASOL representative.³⁵ Nevertheless the Final EIS (2001) acknowledge that the compensation may not be sufficient to cover the losses that are experienced in the event where the person to whom compensation should be paid cannot be found or payment is made to the wrong person. Furthermore problems arise where compensation is not negotiated or paid timeously or damages are greater than initial estimated and agreed on.

SASOL's attempts to build the capacity of Mozambican enterprises needs to be seen as part of the company's social responsibility. However corporate responsibility goes beyond the statutory legal obligations especially in the case of Mozambique where the enforcement of labour laws is weak and the minimum wage is very low. Social dialogue between TNC, Governments, businesses and civil society organisations is essential for an effective

corporate social responsibility programme. Social dialogue appears to be stronger in South Africa than in Mozambique where the civil society organisations are stronger.

Conclusion

The above research shows that the gas pipeline may accomplish government objectives of developing a regional gas pipeline grid but that this will be determined by the South African private sector that is leading the integration process. This means that these companies will integrate cross-border production around resources in a manner that does not prioritise reducing poverty and raising people's standards of living. This is derived from the fact that the gas pipeline will not directly make any significant impact on reducing unemployment in these countries.

There is a strong need for increased awareness raising programmes and activities including research, workshops, advocacy and mobilisation of civil society organisations such as Trade unions, consumer rights, environment and human rights organisations. These organisations should be involved in the social auditing concerning the social dimensions of investment projects, the benefits to the community and the protection of their cultural heritage? If trade is regarded as a means to -the elimination of poverty then greater attention needs to be paid to the quality of the economic growth it generates. An important question is whether trade perpetuates, accentuates or erodes existing gender inequality. The quality of economic growth is enhanced by social dialogue.

The report indicates that the South Africa government plays an important role in promoting the interest of South African firms such as SASOL and other BEE companies. The government also needs to advance the interest of the workers and the communities affected by the pipeline. This research indicates that the government or SASOL have not adequately informed civil society organisations. It is necessary that civil society organisations remain vigilant to ensure the enforcement and implementation of government development policies and goals. With regard to technology government needs to induce TNCs to improve the content of their technology transfer by fostering the build up of better domestic skills, capabilities, supplier networks and infrastructure. However this is difficult when trade unions such as CEPPWAWU lack research capacity. In conclusion the research suggests that there is a need for further research on how civil society organisations can get involved in determining guidelines and criteria for what is acceptable as socially responsible investment.

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End notes

¹ South Africa joined SADC in late 1994. SADC is comprised of fourteen countries these include, Angola, Democratic Republic of the Congo (DRC), Botswana, Lesotho, Namibia, Malawi, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

² In Mozambique the discovery of natural gas by the Mozambican Gulf Oil Company in the early 1960s gave rise to intensive exploration by oil companies. Preparation for the first commercial exploitation of natural gas had reached an advance stage by 1969. A R30 million project involving the establishment of a nitrous ammonia plant at Pande, the site of Mozambique's first natural gas strike, about 500 miles north of Lourenco Marques (LM) now Maputo. These negotiations involved raising financial assistance for the project from several foreign countries including South Africa. According to Legum (1975: B400) Soekor of South Africa was granted exclusive rights on 15 December 1973 to prospect for oil and natural gas in three zones off the Mozambique coast.

³ FDI is defined as an investment involving management control of a resident entity in one economy by an enterprise resident in another economy. FDI involves a long-term relationship reflecting an investor's lasting interest in a foreign entity. Ownership of more than 10% (some argue 25%) shares is considered to be FDI.

⁴ Southern African economies want to reduce their dependence on oil. Even in South Africa where because of sanctions against apartheid the capacity to make petrol and diesel from coal was developed more than 50% of its oil is still imported. Consequently South Africa's industrial electric or liquid fuel energy needs are heavily dependent on coal. Currently coal provides South Africa with \pm 75% of its primary energy supply and 92% of electricity. The availability of an abundant, indigenous supply of natural gas in Mozambique provides an opportunity to develop an additional energy source to supplement the use of coal.

⁵ Another reason for the growth in demand for gas is the more stringent environmental requirements for petrol and diesel. The demand for high quality sulphur-free motorcar fuel is growing and South Africa is now producing European standard diesel engines. Already there are agreements between the industry and government of South Africa to decrease the sulphur levels of diesel from 0,55% to 0,3% by January 2002 and to 0.05% by 2006. The South African gas-to-liquids producer Mossgas is targeting demand for clean eco-friendly fuels in the lucrative US and European markets.

⁶ SASOL uses technology that converts low-grade coal into a large range of hydrocarbons, including synthetic fuels, chemicals and pipeline gas (Africa Energy July-August 2000: 12). SASOL was established in 1950 to utilise South Africa's coal reserves in the absence of the availability of crude oil. In response to the international oil crisis of the mid-1970s SASOL built Secunda located about 160km southeast of Johannesburg in 1976. SASOL became a private sector company when the holding company SASOL Limited was listed on the Johannesburg Stock Exchange in 1979. In March 1980 SASOL two produced its first synthetic oil. SASOL Two and Three were merged in 1993 to form the operations of SASOL Synthetic fuels.

⁷ The industrial sector include (power stations, mines, iron and steel and aluminum companies) accounting for more than 85% of the gas produced and consumed locally.

⁸ Nepad previously known as the Millennium Africa Recovery Program (MAP) and the New African Initiative (NAI) is a programme to stimulate African continental economic recovery.

⁹ Personal correspondence on Wednesday 10th July 2002 Cape Town. Ayanda Nkuhlu (a South African male) informed me that the Gas cross-border trade agreement was not a public document but that a sanitised version of the agreement was made available to the press, but when I pushed him to give me copy he told me he did not have a copy. He then proceeded to quickly rattle things of over the telephone faster than I could write them down.

¹⁰ Soekor of South Africa was granted exclusive rights on 15 December 1973 to prospect for oil and natural gas in three zones off the Mozambique coast. It planned to invest US\$150 m to develop Pande gas, with reserves estimated at 2-m cu. ft. A 375 -mile pipeline was to be built to Johannesburg (Colin Legum Africa Contemporary Records 1974-1975: B400). In 1975 Mozambique was added to the Most Seriously Affected (MSA) African countries list (Legum 1975-76: C145). Petromoc refined 339, 300 tons of crude oil at Maputo in the first half of 1978 (cf only 250, 000 tons in the equivalent period of 1977) (Legum 1978-79: B347).

¹¹ At Temane gas is located in a sandstone reservoir about 1400m underground. And is comprised of a total of 18 well initially producing 80-million gigajoules to gas a year, increasing to about 120-million gigajoules of gas within a four year period.

¹² In April 2001 SASOL announced that it was postponing further prospecting for natural gas in the Bay of Sofala as seven months of searching had shown no economically viable reserves (Mozambiquefile May 2001: 19, No 298).

¹³ In late November 2001 Enron Corporation of the US Filed for Bankruptcy (EIU January 2002: 23).

¹⁴ For more information about the pipeline see http://www.Sasol.co.za/natural_gas/content/about.asp.

¹⁵ Downstream -refer to beneficiated products such as gas cookers, petrol and diesel. Downstream development is related to the demand and market for gas and gas related products.

¹⁶ Individuals were asked to respond to the following questions

- Do you know about the Gas Pipeline Project?
- How do you know, what is your source of information?
- What do you think the benefits and cost are for Mozambican and South Africa workers, women and traders?
- What problems are they experiencing with the project?
- What is the trade union saying or responding to the project?
- Is there any other opinion or information about the Gas Pipeline Project that you would like to mention?

¹⁷ Coal and coal gas is transported by rail from the Corex plant in the Northern Province to Saldanha.

¹⁸ The other partners are power utility Electricidade de Mocambique, state-owned gas entity Empresa Nacional de Hidrocarbonetos de Mocambique, South African empowerment firm African Legends and three Mozambican business group Consultinvest, Makubar and Sensor.

¹⁹ Elgas is a 3,3 million joint venture firm that will distribute and sell natural gas from the Pande gas fields to small industrial tourism and domestic customers in the towns of Vilanculos, Inhassoro and Nova Mambone. Elgas has also secured gas and power purchase agreements with all exclusive holiday resorts, hotels on the Bazaruto Archipelago to supply the gas for heating and cooking, as well as electricity.

²⁰ Sapia members include BP, Caltex, Engen, Shell, Total, Tepco, Sasol and Mossgas.

²¹ Until now BEE engineering companies have had to make do with subcontracts or minor contracts

²² The pipes will be manufactured at the company's East Rand factory. The factory is accredited by the American Petroleum Institute and are ISO 9001 compliant.

²³ According to BusinessReport 12th March 2002 Aveng is South Africa largest listed construction, steel beneficiation and cement group

²⁴ <http://www.engineeringnews.co.za/search/?show=15757> Warrick Lace Gas could be key to regional integration. Visited 06 March 2002.

²⁵ In the Lesotho Highlands Phase 1A project a lack of control of the problem of sex worker trade led to the immigration into the construction area of sex workers from Maseru, which resulted in many unpleasant and often dangerous incidents.

²⁶ The Approach to consultation with Interested and Affected Parties (I&Aps). Briefing documents were circulated to 250 I&A's, inviting comment and a list of I&A's is included in the terms of reference report. An open day was held in Maputo on 6th June 2000 at the Polana Hotel. A total of 35 people attended the open day. Meetings were also held at the district and provincial level.

²⁷ The South African White Paper on Energy Policy (1998) supports the development of renewable energy technologies. Renewable energy sources are those sources of energy available to us that arise from natural processes and are regularly replenished. The sun is the primary renewable energy source in the form of solar radiation. DANIDA has invested in wind energy in the Western Cape Province other projects under consideration include micro-hydro and wind based electricity systems as well as solar water heating programmes. Renewable energy could have important small and large-scale applications.

²⁸ In education, SASOL has donated thousands of text books to schools which have been identified as centres of excellence in maths and science, has sponsored computer facilities. SASOL also sponsors bursaries each year.

²⁹ SASOL sponsors the Grahamstown scientific festival, support for handicapped entrepreneurs and other small businessmen

³⁰ Another project is the sponsorship of the Topsy orphan sanctuary in Mpumalanga, where SASOL provides catering and dining areas for up to 2000 orphans, many of whom are HIV positive. SASOL is also sponsoring HIV/Aids awareness programmes among students at the University of Pretoria.

³¹ SASOL's sponsorship for arts festivals total R450 000 a year.

³² With regards to the environment SASOL has funded the relocation of elephants from the Kruger Park to Mozambique.

³³ The number may be higher since the aerial photography method does not always permit distinction between individual buildings within a settlement.

³⁴ Consultation with affected persons and communities is undertaken to determine the needs of the affected persons/people at a grassroots level. Resettlement and compensation decisions will be made in consultation with community representatives and will take into account the compensation requirements as identified by the affected party or parties. Cash compensation, replacement of lost property (including land livestock and accommodation) and support such as crop-starter-packs and food support will be components of compensation. Post-resettlement and /or compensation support to ensure that the actions taken are sustainable such as social investment measures and ongoing monitoring and evaluation of the resettlement and/or compensation process.

³⁵ Compensation will be paid prior to the destruction or damage-taking place.