



Lesotho Highlands Development Authority

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THE ECONOMIC IMPACTS OF PHASE I OF THE LESOTHO HIGHLANDS WATER PROJECT

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LESOTHO HIGHLANDS WATER PROJECT: ECONOMIC IMPACT OF PHASE I

EXECUTIVE SUMMARY

BACKGROUND

The Lesotho Highlands Water Project (LHWP) has been one of the most ambitious and significant multi-purpose construction projects implemented in the southern hemisphere during the past seventeen years. The Kingdom of Lesotho is able to utilize one of its most valuable resource by transferring much needed water to the industrial Gauteng Province in the Republic of South Africa (RSA) at the same time generating hydro-electric power in Lesotho at the 'Muela Hydro-Power Project. By exporting a portion of its abundant water to RSA from the Senqu/Orange River system through a series of dams and tunnels, Lesotho has had an opportunity to effect development and economic growth through the water sector.

Phase I of the LHWP consists of Phase IA, which was completed in 1998, and Phase IB whose construction activities has just been completed in 2004. Phase IA comprises a major dam at Katse on the Malibamatso river in the highlands of Lesotho, associated infrastructure and a transfer tunnels from the Katse Reservoir to the 'Muela hydropower station from where it flows on to the Ash River in RSA. Phase IB consists of a dam at Mohale on the Senqunyane River, a tunnel from there to Katse Reservoir, and a diversion weir on the Matsoku River.

This enormous project has cost over M18 billion for both Phase IA and IB, there are several other further phases, construction of which, if undertaken, could go on for another twenty years.

Lesotho's economy is small because of the size of the country. A project of this magnitude has had a dramatic effect on the country. Taking account of development of the Lesotho economy, it is inevitable that a large proportion of inputs to the project in a form of goods and services and skilled labour is sourced from outside. Nevertheless, apart from the transfer of water to RSA, the LHWP has provided some scope for Lesotho to provide products and services locally, to optimize local employment opportunities and to develop its skills base through appropriate training. This report is a summary of impact studies of the LHWP on the economy of Lesotho.



Katse Dam: Lesotho Highlands Water Project

Firstly there is a study on macroeconomic impact of Phase IB of the project, which was conducted on behalf of Lesotho Highlands Development Authority (LHDA) from 2002 to 2004, by Conningarth Economists consultants of Pretoria in RSA. The study provides an econometric analysis of the effect of the LHWP on the macro-economy and simulates the further impact with and without Phase IB.

Secondly, there is also an in-house microeconomic impact study which analyses the evidence of the impacts of the Phase IB, especially on employment of Basotho and on individual enterprises. This executive summary is for these two distinct studies. Their findings are summarized below.

MAJOR FINDINGS

1. MACROECONOMIC ANALYSIS

- Expenditures for Phase IA of the Lesotho Highlands Water Project began flowing into Lesotho in 1987. Expenditures for Phase IB began in 1992. Revenues from royalties for Phase IA amounted to over M1.2 billion as at December 2003. Cumulated over the period 1994-2006 the sum of Phase I of the LHWP expenditures and revenues of M12.785 billion amount to about three times Lesotho's total gross domestic product of M4.175 billion in 2002.
- Peaking at 2002, LHWP expenditures from 1994 and projected to 2007 directly accounted for 43 per cent (current prices) of total gross fixed capital formation¹, were 18 per cent as great as total gross domestic product, represented 22 per cent of unrequited transfers in Lesotho's balance of payments (28 per cent of official grants), and drew an estimated 9 percent of total imports.
- The LHWP expenditures continue to constitute one of the three major factors influencing growth in the Lesotho economy. A second major factor is the export-oriented manufacturing sector which has expanded considerably in recent years. The third is labour income from abroad, mainly mine workers in South Africa whose numbers by 2002 had declined sharply to half of the 1994 intake. Despite sustained increases in domestic income due to LHWP and the expansion of the manufacturing industry, which have more than offset the declines in labour income from abroad, household consumption expenditures per capita have also fallen.
- As a consequence of the decline in labour income from abroad coupled with the 1998 domestic disturbances and destruction of commercial infrastructure in major towns, Lesotho experienced a recession in 1998 measured by real gross national product. Growth in gross domestic product remained positive despite a significant decline in real household consumption. The LHWP expenditures

¹ Table 4.13 macro study and CBL 2003 Table A6

managed to soften the impact of likely recession from 1998 to 2000 to an upswing, especially in the construction sector which is driven by LHWP construction activities.

- The third major factor influencing Lesotho's economy is the growth in government revenue relative to government expenditures. The rise in government revenues can be attributable to increased collections of income taxes, company taxes and sales tax/VAT. There has been a significant increase in customs duty receipts and an increase in grants since the start of LHWP. Additional revenue of M1,594 million has been forecast and collected by government as a result of Phase IB over the period from 1994 to 2007. The bulk of this revenue stems from SACU receipts, which are based on a significant increase in imports associated with construction of Phase IB.
- Domestic demand for goods and services has been met largely by imports in Lesotho. However real imports have been declining as a result of declines in real consumption expenditures, despite rapid growth in LHWP and other fixed investment expenditures. As evidenced in many studies there is a suggestion that domestic producers have been supplying an increasing share of the demands of Lesotho's consumers, government and domestic industry.
- The impact of Phase IB on imports is significant. In 2002, the impact on imports was about 9.8% as reflected by the difference between the "with Phase IB" and "without Phase IB" scenarios. Imports increased by 5.0% as a result of Phase IB on average over the total period.
- Comparisons of computer model simulations of the Lesotho economy with and without LHWP expenditures suggest that, after taking into account Lesotho's dependence on imports, the project accounted for 5.2 per cent of real GDP in 1998 and 8.9 per cent in real GDP in 2002. Forecast estimates suggest that LHWP will directly account for 4 per cent and 2.4 per cent of real GDP in 2005 and 2007 respectively.
- Among Lesotho's major industry groups, the primary beneficiary of LHWP expenditures has been the building and construction industry. Real income in this industry grew at an average rate of 18.4 per cent for the period between 1994 to 2007.
- The electricity and water industry has also benefited substantially as a result of the hydropower component by LHWP starting in 1996. The hydropower sales have reduced demands for imported electricity and effectively doubled the industry's value added by the year 2002. Water transfer earnings have amounted to over M1.5 billion in royalties to date and almost M300 million came from sales of electricity for local consumption since 1998.

- LHWP has influenced Lesotho's grants receipts for funding the project amounting to over 18 per cent of government account in 1998 and over 22 per cent of government account in 2002.
- Hydropower sales and water transfer royalties are having a lasting positive effect on Lesotho's economy. The continued contribution of Phase I revenues amount to between 2 and 3 per cent of total GDP since the completion of the construction phase and through at least the year beyond 2007. The hydropower sales contribute directly to domestic income while at the same time substitute for electricity imports and contribute to poverty reduction through development of the sector. At the same time the water transfer royalties make a direct contribution to total government revenue and indirectly through government expenditures and capital transfer have a positive lasting influence on domestic income.
- The net long-run influences of LHWP on the overall balance of payments have been positive. The contributions of water transfer royalties, and customs duty receipts directly and indirectly resulting from LHWP expenditures, together with transfers to finance project expenditures, have more than offset higher levels of imports that are a direct and indirect consequence of the project.

Macroeconomic Impact of Phase IB on the Lesotho economy

The study discusses the impact of Phase IB on the economy of Lesotho within the context of the following economic aggregates:

- a) Macroeconomic aggregates
- b) Impact on key economic sectors
- c) Government accounts
- d) Balance of payments

Table 1 and Figure 1 below show the impact of Phase IB construction activities on macroeconomic indicators:

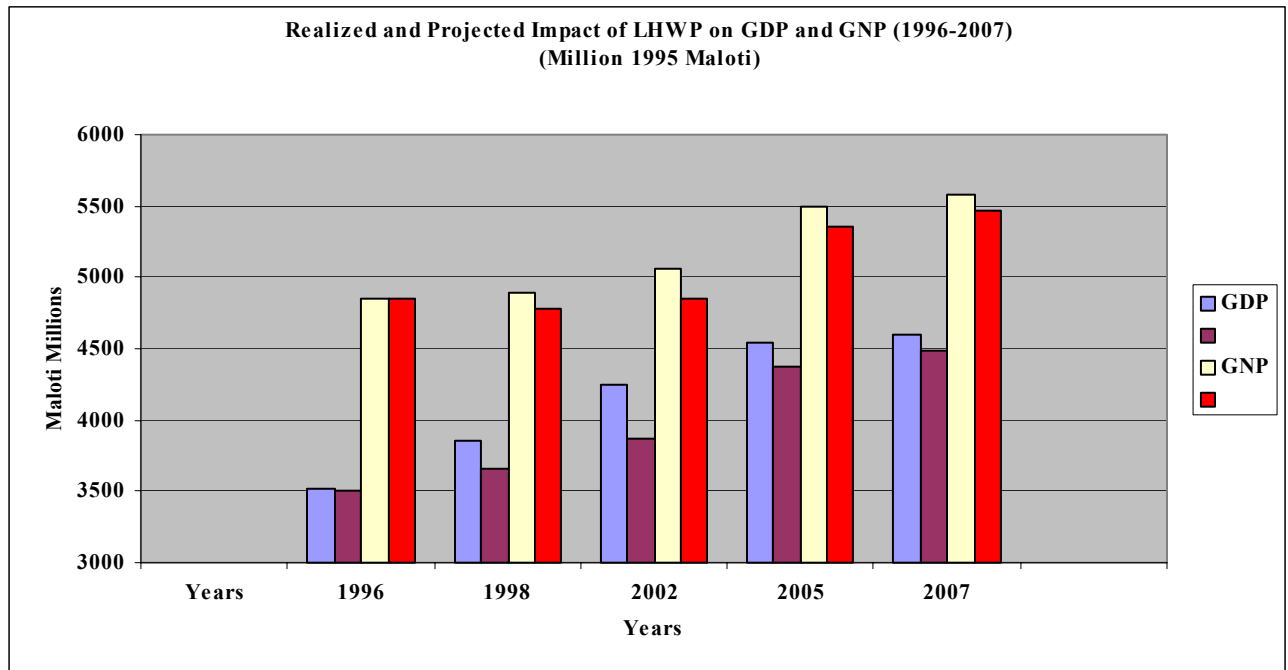
TABLE 1: Macroeconomic Aggregates²

| Impact on key macroeconomic Aggregates, total economic activity, from 1994-2007 | | |
|---|-------------------------------|--------------|
| Aggregate | Total over period in millions | Growth |
| Gross Domestic Product: | | |
| -With Phase IB | 56,358 | |
| -Without Phase IB(Base) | 53,654 | 3.90% |
| -Impact (With-without) | 2,704 | <u>3.19%</u> |
| -Impact as % of base | 4.8% | 0.71% |
| Gross National Product: | | |
| -With Phase IB | 70,747 | |
| -Without Phase IB(Base) | 69,073 | 2.12% |
| -Impact (With-without) | 1,674 | <u>1.77%</u> |
| -Impact as % of base | 2.4% | 0.36% |

These macroeconomic aggregates are further sub-divided into the following elements:

- Total economic activity: Gross Domestic Product and Gross National Product
- Gross domestic expenditures: Final consumption expenditure and Gross fixed capital formation
- The external sector: Imports and Exports
- Inflation and employment

Figure 1: Impact of LHWP activities on Gross Domestic Product and Gross National Product



In 2002 LHWP related activities' contribution to GDP peaked at 9%.

² Table 4.7 macro study

2. MICROECONOMIC ANALYSIS

As the construction stage of Phase I of the Lesotho Highlands Water Project has ended, we have to take stock of what Phase IB means to the welfare of the people of Lesotho. We focus here on the economic impact of the project, both during the construction phase as well as the more permanent economic impact the project will have on Lesotho's economy.

Microeconomic Impact of Phase IB on the Economy

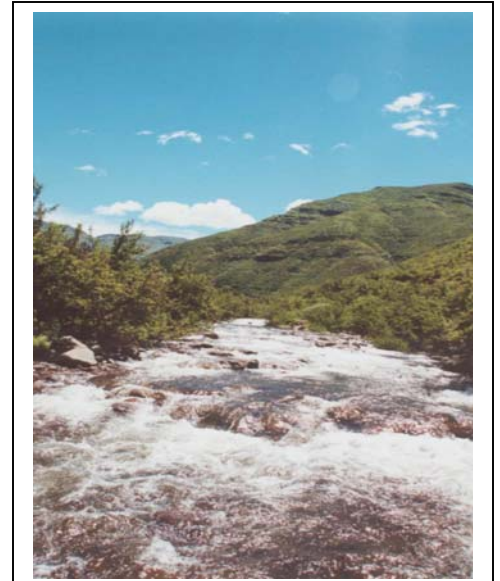
The second stage of Phase I of the project is centred on the construction of a dam at Ha Mohale and a further 32km of tunnels to connect to Phase IA tunnel systems for delivering water to South Africa. Phase IB was completed by the end of 2004. Cumulative project cost by December 2003 amounted to M18,210 million and the project will be capable of delivering 29 cubic metres per second of water to RSA.

The LHDA commissioned an in-house study to analyse microeconomic impacts of the second phase of the project to the people of Lesotho and on individual enterprises. The results are listed below as benefits which have accrued to Basotho since the start of Phase IB activities in 1994 to date.

Transitional Benefits³

During the construction phase, the project has had a significant impact on Lesotho's economy in terms of jobs created, skills acquired, supply of goods and services opportunities and tax revenues. The impact is more pronounced than during Phase IA construction phase according to studies conducted before the start of construction. Purchases of goods and services from Basotho contractors and further opportunities to subcontract under main contractors afforded many to participate in the project. A summary of transitional economic benefits and impacts attributable to construction of Phase IB is provided in Table 2 below.

- Predominantly Basotho workers were used on the construction and infrastructure contracts. As a result, a little over 16 000 Basotho secured employment on major contracts and earned An estimated income of over M1 billion (US\$170 million) translating into 39,000 person-years of employment including infrastructure but excluding LHDA).
- Of significance, about 40%⁴ of this labour came from the highlands area. These people who are directly affected by the project earned approximately M138 million from 1998 to December 2003. This shows that even though the majority are under unskilled labour category, a fair number of Basotho had moved to skilled and semi-skilled categories through their adeptness and on the job training acquired in Phase IA.



Sales of water from the project area have brought many benefits to affected communities

³ These are benefits which accrue during construction period as opposed to permanent benefits.

⁴ Including 50% of Infrastructure labour

- A number of Basotho companies contracted or subcontracted for different activities of construction. These were able to serve the project to the value of M149 million in direct contracts and sub-contracts. Another opportunity came to professionals who were consultants, working as consulting engineers together with contractors in design and supervision of major works. Under this umbrella Basotho earned about M330 million. This they received mainly by going into joint ventures with international firms.
- Under major works, labourers working in subcontracts such as stone pitching received wages amounting to a total of M75 million for 1,600 jobs which translate into 2,100 person-years. Much as this source of employment contributed to Basotho earnings, this channel did not live up to LHDA's expectations of creating more job opportunities for local firms.
- Other beneficiaries have included the Lesotho Fund for Community Development⁵ (LFCD) which has channeled water royalties revenue to benefit communities across the country in development-oriented programs, mainly in roads, small earth filled dams, forestry and soil conservation works. To date the total cost of projects funded under LFCD amount to nearly M80 million. LHDA on its part has expended a total of M405 million⁶ on resettlement, compensation and development under Phase IB.

Non-Construction Activities

Lesotho Highlands Development Authority

- LHDA as an organization has benefited in terms of new skills acquired and experience in implementing a very complex project. The organization has been poised to demonstrate possibilities of capacity building in developing the water sector and one of Lesotho's few national assets. As Phase 1B draws to an end, LHDA is shrinking to concentrate on operations and maintenance activities. Some of the skills will be lost to LHDA but could be deployed effectively elsewhere in the national economy.

Consulting Opportunities

- Involvement of Basotho in consulting has been mainly as employees and/or as partners of consulting engineers for major contracts, since more Basotho have had the benefit of Phase IA experience and capacity building. Careful planning on the side of LHDA to include specific provisions in tender and contract procedures went a long way to encourage participation of Basotho contractors.
- Under this category Basotho working as consulting engineers have collectively earned approximately M271 million in salaries working a total of approximately 51,232 person-months. The study has singled them out as part of consultants in partnership with the consultants

⁵ Created under Legal Notice No. 16 of 1999 to provide effective management of the LHWP water royalties allocated for community poverty alleviation projects.

⁶ Long Term Cost Plan November 2002 and LHDA Management Accounts

supervising contractors to the project. Otherwise outright Basotho consultants have earned approximately M153 million in Phase IB from consulting services to the project.

Permanent Benefits

Permanent Advance Infrastructure

- Permanent infrastructure includes roads, power substations and transmission lines, telecommunications, housing & services at Mphahlele New Town, concrete bridges and infrastructure for resettlement and development. The cost of permanent infrastructure is approximately M1,527 million⁷ for Phase IB. This is higher than the figures in the 1998 study, which had estimated infrastructure would cost M1,200⁸ million in current prices.

Gross Fixed Capital Expenditures

- As a result of LHWP, Lesotho has acquired fixed capital assets especially infrastructure. Related to these capital assets, Lesotho has gained significantly on ancillary developments which are necessary public investments, amounting to M313 million⁹. These are the Environmental Action Plan projects whose cost responsibility is Lesotho Government. The projects are basically on the development side, an example here is agricultural projects, income generation, tourism and water and sanitation to villages not directly affected by the LHWP works.

Tourism

- Many activities are already being undertaken in the tourism sector by government in an effort to reform the sector. Other than in the nature reserves, tourism development remains largely at the conceptual planning stage within LHWP.
- Lesotho's natural beauty and alpine conditions are unique in Africa and can support even small-scale tourism and spur rural development. Full-fledged tourism is dependent on good infrastructure which Lesotho does not have. However following LHWP initiatives, the country is embarking on an integrated plan of action putting in place tourism facilities to cater for the industry. So even if the potential for tourism is there, it will take time for the people in the highlands area to reap any benefits from tourism sector activities in the area where incidence of poverty and unemployment is high. In 2002, the Project started to divest its assets which could be converted into tourist amenities.
- Comparatively though, there has been a notable impact on tourism to mountain areas as a result of Phase IB, which has made the area accessible. A total of 49,702¹⁰ tourists have visited Mphahlele construction area from 1998 to 2003. It is expected that once construction

⁸ Source: PCMS Report, June 2000, Management Accounts Mar 2002

⁸ M662 million in 1995 prices

⁹ Source: Long Term Cost Plan

¹⁰ LHDA Tourism section records

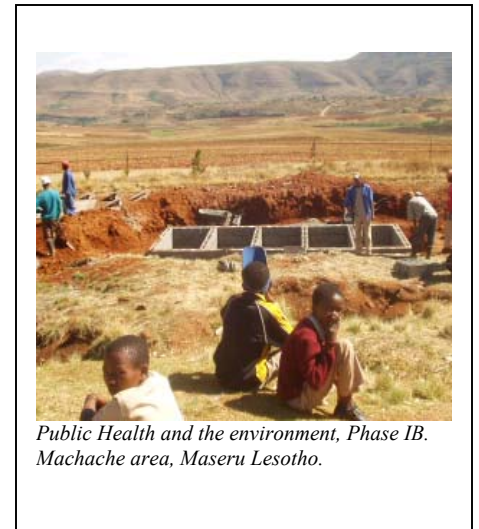
is over and tourism facilities are in place, Phase IB area will attract more tourists. Phase IA has had 45,716 tourists over the same period. This sector is expected to grow as a result of the now completed infrastructure facilities for Nature Reserves, which are all receiving visitors. Visitors to the project area, as tourists, come from the region and internationally. Among these tourists are school children from within Lesotho and neighbouring border towns in the Free State, visiting the project sites for study tours.

Socio-Environmental Issues

A project of the size and complexity of the LHWP has the potential to damage the environment in which it is situated. In recognition of this possibility, the Project authorities took measures to mitigate and compensate for consequent adverse impacts. Unlike in Phase IA, the Phase IB Environmental Impact Assessment (EIA) and the Environmental Action Plan (EAP) were completed before construction started. There are losses to people affected by the project such as loss of land due to resettlement and later losses from reduced water flows downstream and other types of losses. These losses are being addressed and for resettlement M241 million¹¹ has been allocated and spent to date.

The main elements of the EAP are:

- Compensation, Resettlement and Development Plan
- Natural Environment and Heritage Action Plan
- Public Health Action Plan



*Public Health and the environment, Phase IB.
Machache area, Maseru Lesotho.*

The LHWP like any other big project affecting many people has not been without complaints leveled at its compensation policies. Response to affected people's plight has not been free of controversy. Project authorities are blamed for not dealing with environment and resettlement issues in a timely and effective manner. The accusations are from the affected people at the project area and international environmental activists as well. The main source of discord stems from the fact that LHDA is not seen to be paying specific and adequate attention to disclosure and consultation. LHDA has worked with communities and affected people to address these complaints and will continue to do so in the future.

Conclusions

On the basis of the findings of this study the following conclusions can be made:

- Phase IB has had a notable impact at the micro-economic level. Employment has surpassed expectations, considering that about 16 000 person years had been realized by December 2003 compared to projected 10,000 person years for major works, according to the 1998 LHDA Study. This is shown in the improved employment value for Basotho in both non-construction and construction activities.

¹¹ Long Term Cost Plan May 2002

- The infrastructure in the form of road network and bridges has improved access in various areas of the highlands, connecting rural communities to each other. Basotho who live around the project area have felt the greatest positive impact. Lesotho Government agencies promoting commerce are thus in a better position to encourage more businesses to exploit this newly enabled accessibility to develop new markets for goods and services.
 - Contractors to the project engaged many Basotho; primarily labour that had acquired relevant skills from implementation of Phase IA. Newly acquired skills will allow more communities at the project area to participate in future phases of the LHWP or other similar projects.
 - Basotho companies continued to win small contracts in both construction and non-construction activities such as construction of houses, roads, bridges and those that involved supply of furniture and equipment. Firms that were able to secure contracts were those that had either gained experience in Phase IA of the LHWP or had competency. Project authorities would do well to encourage experienced local firms in assisting the country to harness the existing enthusiasm from emerging small companies. This could come in a form of formal training or creating incentives for encouraging foreign firms to enter into partnerships with local firms for future phases.
 - The transitional and permanent impact of the project on Lesotho's public finances have been particularly large. Increased tax and customs revenue during construction phase boosted government revenues and supported the expansion of key government programs (e.g. in health and education sectors). In addition, the royalties will provide a permanent stream of income to be used for poverty alleviation activities.
 - Environmental and social welfare considerations on the project have brought about a lot of attention to project authorities concerning their responsibility to affected upstream and downstream communities. Significant funds were allocated to address these losses and secure adequate mitigation or compensation. LHDA continues to work with affected communities to ensure that their standard of living is not negatively affected by the project.
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Economic Indicators

Table 2.

Microeconomic Indicators: Actual Impact Findings of Phase I

| Activity | Phase IA Actual Impact | Phase IB Actual Impact | TOTAL |
|--|---|--|-----------------------------------|
| <u>Construction</u> | | | |
| Basotho Employed during construction 1/1998-6/2003 | 7,000 jobs (22,720 person-years) 1/1987-12/1994 | 9,000 jobs (16,000 person-years by 12/ 2003) | 16,000 jobs (38,720 person-years) |
| Basotho Labour (value) | M380-400 million | M701 million by 12/2003 | M1,101 million |
| Basotho Contracts (direct & subcontracting) in value | M68.3 million | M149 million | M217.3 million |
| Value of Basotho Sub-contractors | | M98 million | M98 million |
| Basotho Labour on Sub-contracts-wages | | M66 million | M66 million |
| Basotho Consultancy (including value in supervision) | M16.0 million | M330 million ¹² | M346 million |
| Basotho supply of goods and services | M80-110 million | + M787 million | M897 million |
| Basotho Consultancy (% of total consultancies) | 8% of contract values | 34% of contract values | 42% |
| Basotho Labour from highlands-affected area- earnings | | M138 million from 1/1998-12/2003 | M138 million |
| <u>LHDA</u> | | | |
| Basotho Labour | M238 million Cummulative | M365 million (cumulative) to 6/ 2003 | M603 million |
| Compensation Expenditure | M25.1 million Cummulative | M26 million cumulative | M51 million |
| Running Costs | M100 million p.a. | M1,500 million to date | M2,400 million |
| ◆ <u>Indirect</u> GOL and indirect labour opportunities | M40-50 million cum. Plus multiplier effects | M186 million | M236 million |
| ◆ <u>Other Benefits</u> ¹³ Royalty income directed to Lesotho Fund for Community Development | M40 million p.a. | M40 million p.a. | M480 million cumulative |
| Rural Development Programme Expenditure | M240 million cum | M46 million (cumulative) spent to date | M286 million cumulative |
| Royalties | M1,282 million-10/2004 | Nil to date | M1,282 million |

¹² Vide Appendix E in Microeconomic Impact Study

¹³ Excluding physical infrastructure improvements, health service improvements and skills training benefits

